Enbridge Energy, Limited Partnership
1601 Pratt Avenue
Marshall, Michigan 49068

August 12, 2011

Mr. Ralph Dollhopf
Federal On-Scene Coordinator and Incident Commander
U.S. Environmental Protection Agency
801 Garfield Avenue, #229
Traverse City, MI 49686

Re: In the Matter of Enbridge Energy Partners, L.P., *et al*,
Docket No. CWA 1321-5-10-001

Dear Mr. Dollhopf:

Pursuant to the approved Supplement to the Response Plan for Downstream Impacted Areas and the Source Area Response Plan Commonly Referred to as the Overbank and Poling Reassessment Work Plan dated April 15, 2011 and the Aerial Imagery Work Plan dated March 30, 2011 Enbridge Energy, Limited Partnership, et al (Enbridge) is submitting the enclosed Addendum to the Shoreline and Overbank Reassessment MP 0.00 through MP 40.00 and Submerged Oil Reassessment MP 0.00 through MP 37.8 Report (Final Reassessment Report).

Enbridge conducted a quality control review of the submitted Final Reassessment Report and identified some inconsistent information. After identifying discrepancies, the items were corrected and an additional quality control review was completed to ensure accuracy of both the electronic and hard copy versions. An updated electronic version has been created intending to replace the previously submitted hard drive. Attached are additional items requiring incorporation into the hard copy version. The attached hard copy items include the following:

- Binder 2 - MP 2.25-2.50 - One figure to be added.
- Binder 2 - MP 2.50-2.75 - One figure to be added.
- Binder 3 – MP 8.25-8.50 - One signoff sheet to be added.
- Binder 6 – MP 26.00-26.25 - LDB Zone ID 1, Photo 4 removed from the hardcopy. It is a duplicate of LDB Zone ID 5, Photo 001. Updated photo log to replace existing photo log.
- Binder 6 – MP 32.00-32.25 - Six signoff sheets to be added.
- Binder 6 – MP 32.5-32.75 - Five signoff sheets to be added.
- Binder 7 – MP 35.00-35.25 – One Segment Summary to be added.

This letter together with an updated full version electronic copy and two sets of the above hard copy pages including new binder covers of the report has been delivered to the U.S. EPA Documentation Unit in Trailer #9.

Through this letter, I certify that the electronic copy of the report is identical to the hard copy of this report.

If you have any questions about these materials, please do not hesitate to contact me.

Sincerely,

ENBRIDGE ENERGY, LIMITED PARTNERSHIP
By Enbridge Pipelines (Lakehead) L.L.C.
Its General Partner



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Enbridge Energy, Limited Partnership
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June 17, 2011

Mr. Ralph Dollhopf
Federal On-Scene Coordinator and Incident Commander
U.S. Environmental Protection Agency
801 Garfield Avenue, #229
Traverse City, MI 49686

Re: In the Matter of Enbridge Energy Partners, L.P., *et al*,
Docket No. CWA 1321-5-10-001

Dear Mr. Dollhopf:

Pursuant to the approved Supplement to the Response Plan for Downstream Impacted Areas and the Source Area Response Plan Commonly Referred to as the "Overbank and Poling Reassessment Work Plan" dated April 15, 2011 and the "Aerial Imagery Work Plan" dated March 30, 2011, Enbridge Energy, Limited Partnership, et al, (Enbridge) is submitting the enclosed Shoreline and Overbank Reassessment MP 0.00 through MP 40.00 and Submerged Oil Reassessment MP 0.00 through MP 37.8 Report (Final Reassessment Report).

The submittal includes five (5) hard copies of the Final Reassessment Report along with an external hard drive containing the following data:

1. The report text, tables, maps and figures
2. All processed data used to generate the report
3. The final Geographical Information System (GIS) files containing all of the sample locations, results, polygon, observations, pictures, data sheets and sign-off sheets for Shoreline and Overbank Reassessment Technique (SORT), submerged oil assessment, aerial imagery and revised inundation model.

Through this letter, I certify that the electronic copy of the report is identical to the hard copies of this report.

If you have any questions about these materials, please do not hesitate to contact me.

Sincerely,

Robert M. Steede, PE
Manager, Environment Operations - US

Cc (letter only): Leslie A. Kirby-Miles
Mike Alexander, DEQ
Mark DuCharme, DEQ
John Sobojinski

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Addendum to the Shoreline and Overbank Reassessment
MP 0.00 through MP 40.00
and
Submerged Oil Reassessment
MP 0.00 through MP 37.8
Report

(Binder 1 of 7)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: August 12, 2011

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LIST OF ACRONYMS

Enbridge	Enbridge Energy, Limited Partnership
FLS	Fluorescent LIDAR System
GIS	Geographic Information System
GPS	Global Positioning System
I	Island
LDB	Left Descending Bank
LIDAR	Light Detection And Ranging
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MDEQ	Michigan Department of Environmental Quality
MP	Mile Post
NOAA	National Oceanic and Atmospheric Administration
PI	Polarimetric Imaging
RDB	Right Descending Bank
SCAT	Shoreline Cleanup Assessment Technique
SO	Submerged Oil
SORT	Shoreline and Overbank Reassessment Technique
START	Superfund Technical Assessment and Response Team Contracts
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WWTP	waste water treatment plant

1.0 Executive Summary

The objective of this assessment was to locate and categorize the visual occurrences of oil along the shoreline and overbank area, and within the river sediment (referred to as submerged oil [SO]) from Talmadge Creek (starting at Mile Post [MP] 0.00) to the dam at Morrow Lake (ending at MP 40.00). This assessment is in response to the requirements of the United States Environmental Protection Agency (U.S. EPA) Notice to Enbridge Energy, Limited Partnership (Enbridge) dated March 7, 2011.

The observation of oil on the shoreline and overbank areas have been fully captured using the Shoreline and Overbank Reassessment Technique (SORT) process and downloaded for future use within a Geographic Information System (GIS). Additional information utilized in the process and captured within the GIS includes Polarimetric Imagery (PI), Light Detection and Ranging (LIDAR) data used to produce the 2011 inundation model, Fluorescent LIDAR System (FLS) results, and High Resolution Aerial Photographs. The accuracy and adequacy of this collection technique and process has been documented, per quarter mile segment, and approved by both the Michigan Department of Environmental Quality (MDEQ) and the U.S. EPA. Generally, observations made on Talmadge Creek (MP 0.00 to MP 2.00) consisted of areas of oil sheen along the creek and in overbank areas. Along the Kalamazoo River (MP 2.00 to MP 40.00) the shoreline and overbank oiling occurrences ranged from cover to trace in oiling thickness and most types of oiling occurrences were observed. Generally, lesser amounts of oiling occurrences were observed downstream toward Morrow Lake and closer to the inundation boundary. The most common observation was trace staining on debris and on trunks and stems.

Characterizing areas of SO was completed using a fluvial geomorphic interpretation using desktop tools to provide priority areas within the river system and by employing poling methods to characterize SO in these areas and in areas where moderate or heavy SO was noted in 2010. Additional reassessment was conducted at transects in both low- and high-sinuosity areas of the river, and in low-gradient areas of the river upstream of dams. The primary SO deposition areas are Talmadge Creek, upstream of Ceresco Dam, upstream of the Kalamazoo River Dam, the Oxbow at MP 21.50, and the Morrow Lake Delta. In most cases the SO is associated with soft sediments. Redeposition of the SO has occurred since 2010, likely associated with the spring flood events. The SO has generally been redeposited in low-gradient and low-velocity areas.

2.0 Shoreline and Overbank Reassessment Technique

The assessment area detailed in this report includes the results of assessment activities from MP 0.00 to MP 40.00 and encompasses all areas inundated at the time of the spill as defined by the 2011 inundation model, submitted June 3, 2011. The objective of this assessment is to determine the presence of oil along the shoreline and overbank area from Talmadge Creek (starting at MP 0.00) to the dam at Morrow Lake (ending at MP 40.00) and is in response to the requirements of the U.S. EPA Notice to Enbridge dated March 7, 2011. The notice directs Enbridge to perform assessment activities pursuant to the Administrative Order issued by the U.S. EPA on July 27, 2010 and a Supplement to Order for Compliance under Section 311(c) of the Clean Water Act issued by the U.S. EPA on September 23, 2010.

SORT was used to locate and categorize the visual occurrences of remaining oil. Presentation of remediation or cleanup options is not presented in this document.

2.1 SORT Procedures

The SORT developed for this project uses techniques from the National Oceanic and Atmospheric Administration (NOAA) Shoreline Cleanup and Assessment Technique (SCAT) survey system for rapid assessment of oil impact to shoreline habitats in a marine setting, and the assessment procedure was utilized for this assessment of a riverine environment. Surveys were conducted by boat and/or foot and target shoreline and accessible overbank areas. Shorelines were identified in the cleanup reports as Left Descending Bank (LDB) while facing downstream or Right Descending Bank (RDB) while facing downstream.

The following procedures were conducted:

- Identify and estimate the areas (labeled numerically so not to conflict with initial SCAT efforts in 2010) of specific oiling and substrate conditions observed during current conditions;
- Areas found to have been inundated by the United States Geological Survey (USGS) inundation model within each 0.25-mile segment of river;
- Characterize oiling conditions and substrate types using a standardized terminology (SORT Metric Quick Guide included in SORT Table 1);
- Characterize shoreline and overbank habitat types and the degree and characteristics of any oiling conditions;

- Record percent cover of a specific oiling condition within a point/zone on field maps and data collection forms, and
- Collect a waypoint and/or polygon, using a Global Positioning System (GPS) unit with sub-meter accuracy, for each of the oiled points/zones identified as potentially needing additional response activities.

Observations were captured on field forms in digital tablets, Trimble YUMAs. The field form contains a signatory area for the Superfund Technical Assessment and Response Team Contracts (START) representative, MDEQ representative, and Enbridge representative to verify the data collected on the sheet is accurate. Assessment data is provided for each segment (SORT Attachment A) and presented in SORT Figure 1.

To help maintain consistency and quality of data captured, team audits were utilized throughout the SORT process. Audits involved the completion of random but regular visits with each SORT team, accompanying teams during the course of completing segment assessments and noting the process each team utilized in consideration of the SORT training and methodology originally defined. A critical review was conducted during the course of each audit, teams were advised of inconsistencies in practice as compared to established SORT methodology, offered guidance to improve consistency and efficiency, and offered constructive input as necessary. The frequency and duration of audits varied by team depending on the necessity for team oversight as determined through observation and communication from team members or regulatory staff.

In addition to the SORT process, Enbridge completed a suite of remote sensing/aerial imagery tasks to supplement and guide the field data collection. These activities included:

- PI;
- LIDAR;
- FLS, and
- High Resolution Aerial Photographs.

Aerial imagery flights and data compilation under the Aerial Imagery Work Plan commenced in April 2011. The PI and FLS data was uploaded for use on May 2, 2011 and May 3, 2011, respectively. The new Aerial Photography was uploaded for use on May 16, 2011. LIDAR data was downloaded on May 13, 2011. Terrain modeling was generated on May 16, 2011 with the new 2011 Inundation Model results available for use as electronic maps on May 27, 2011. The aerial imagery data was used to provide a basis for comparison with earlier imagery, confirm

topography and update the USGS inundation model; and use the best available technology to attempt to detect remaining oil in the submerged sediments, shorelines, and downstream impacted areas. The inundation model and topographic contours are presented in SORT Figure 2.

2.2 SORT Summary

This report and associated segment summaries (SORT Attachment A) detail the results of SORT activities from MP 0.00 to MP 40.00. All of the data collected by the SORT teams have been captured, downloaded to a GIS, and presented in these segment summaries. The overbank extent of the assessment is based on the 2011 inundation model.

Oiling observations were made in most segments and the degrees of oiling ranged from cover to trace in oiling thickness and from tar balls to asphalt pavements in types of occurrences. Generally, observations made on Talmadge Creek (MP 0.00 to MP 2.00) consisted of areas of oil sheen along the creek and in overbank areas. Less common observations of stain and coat on vegetation and other small oil occurrences were noted on the shoreline and overbank of Talmadge Creek. Along the Kalamazoo River (MP 2.00 to MP 40.00), the shoreline and overbank habitat and amount of inundation varied and was dependent upon the elevation leading away from the river. The oiling occurrences also varied and ranged from cover to trace in oiling thickness and most types of oiling occurrences were observed. The most common observation was trace staining on debris and on trunks and stems. Film (sheen) observations were generally in trace and sporadic distribution.

In overbank areas where the SORT process was unable to adequately assess the areas due to ponded water, the area was subsequently assessed using poling techniques. This data is also captured in the data set and a detailed description of these locations and results are presented in Section 3.0 of this report along with other poling information.

3.0 Submerged Oil Reassessment

The emergency response action included characterization of SO areas and the degree of SO contamination. Fluvial geomorphic interpretations using desktop tools provided a means for identifying priority and focus areas within the river system based on the potential for SO presence. Poling methods were then used to characterize SO in these areas.

Poling involves disturbance of the river bed sediments with a disk that is positioned at the end of a pole. Oil or sheen, if any, that buoys to the water surface following the sediment disturbance was categorized based on the observed oil at the water surface following agitation. In 2011, poling methods were used to reassess areas where moderate or heavy SO was noted in 2010 or that may be subject to ongoing deposition from upstream source areas. Additional reassessment was conducted at transects in both low- and high-sinuosity areas of the river, and in low-gradient areas of the river upstream of dams.

Photographs of reassessment work are provided in SO Attachment A.

This section of the report describes the following:

- The 2011 poling work objectives;
- The factors that most influence the presence and amount of SO in the river system;
- The chronology or sequence that poling data was obtained to satisfy specific objectives, and
- The 2011 poling data results, including the characterization of current sediment conditions and an analysis of observed SO over time.

3.1 Background

3.1.1 Poling Objectives

Poling was used as a method to efficiently detect, observe, and document the presence of SO across an extensive river system. The objectives for 2011 reassessment poling work are as follows:

- Assess the distribution and degree of SO in areas where moderate or heavy SO was detected in 2010 and 2011 focus areas to assess temporal change;
- Characterize SO at selected transects in low- and high-sinuosity sections of the river;

- Characterize areas of low channel gradient upstream of Ceresco Dam and Kalamazoo River Dam;
- Rank areas for remedial action;
- Characterize bed material (e.g. gravel, sand); particularly in areas without significant soft sediment (e.g. silt), and
- Assess effectiveness of oil recovery measures.

3.1.2 Factors that Influence SO Presence

The presence of SO in the river system is influenced by the proximity to the source release and those factors that influence transport and residence in the river system. The crude oil was released on July 26, 2010 near Marshall, Michigan about two miles upstream from the mouth of Talmadge Creek, which is a tributary of the Kalamazoo River. Factors, other than source location, that potentially most influence the presence of SO are hydrology and fluvial geomorphology, including sediment characteristics and channel longitudinal profile. Following are descriptions of the potential factors that influence the presence of SO in the river system:

Hydrology: Hydrology is pertinent to the interpretation of results because the Kalamazoo River basin was subject to a significant storm event prior to the oil release. The elevated flow rates and corresponding increase in river stage expedited the transport of the spilled oil down the river system. The total precipitation reported over a four day period at Ceresco just prior to the oil release was 5.7 inches. The Kalamazoo River discharge at Marshall increased from a mean daily flow of 450 cubic feet per second (cfs) (4.73 feet stage) on July 22 to a peak discharge of 1,720 cfs (7.36 feet stage) on July 26, the day of the oil release. The return frequency for the peak discharge was about 25 years.

Above normal flow rates in the Kalamazoo River during the late winter and spring of 2011 were associated with snowmelt and heavy precipitation events. The median daily flow at the Marshall USGS Gage Station for the months of April and May, based on statistical analysis of 42 years of data, is about 500 cfs. The recorded flow at the Marshall USGS Station for April and May 2011 was typically above median daily flow rates, with a maximum flow near 1,000 cfs. The influence of these elevated flow rates on the SO condition (potential for transport and redeposition) was evaluated from 2011 poling data.

An overbank oil mark survey was conducted to assess the areal extent of oil occurrence. The methods and results of the oil mark survey are provided in the Tetra Tech Memo of March 7, 2011 to Enbridge (SO Attachment B).

Fluvial Geomorphology: Fluvial geomorphology is a discipline that includes the study of river formation, evolution, and function (energy distribution). Geomorphic analysis considers those physical parameters including surface features, erosion, and deposition that influence the river characteristics and associated distribution of contaminants. Fluvial geomorphic methods can be used to support sampling design, interpretations to characterize areas based on potential for contaminant distribution, and remedial action decisions. Fluvial geomorphic parameters include sediment characteristics and channel longitudinal profile, which are described below.

Sediment Characteristics: Sediment characteristics, particularly the particle size distribution, provide insight to the potential presence of SO. Fine-grained sediment particles (e.g. silt) tend to occur in lower flow or low energy portions of the river system. Fine-grained particles are less common in high energy flow systems because they are typically subject to erosion and transport as compared to coarse-grained sediment (e.g. sand). Crude oil, an organic carbon, has more of an affinity to other organic carbon compounds than to non-organic mineral components of sediment. The organic matter complex of fine-grained sediment is typically considerably greater than that of coarse-grained sediment. Therefore, the potential for the presence of SO is greater in a low flow environment that is subject to deposition of fine-grained sediment that has an affinity for oil.

Channel Longitudinal Profile: There typically is a direct relationship between channel gradient and flow velocity (i.e. increased slope correlates to increased flow velocity). Likewise, there is an inverse relationship between flow velocity and deposition. An increase in sediment deposition is associated with a decrease in flow velocity. Finer-grained sediment deposits and crude oil are more probable in channel sections with lower gradients.

Descriptions and analysis of the Talmadge Creek and Kalamazoo River longitudinal profile are provided in the Tetra Tech Memo of March 4, 2011 to Enbridge (SO Attachment C).

3.1.3 Poling Description and Chronology

3.1.3.1 Poling Description

Softer fine grained sediment typically includes higher concentrations of organic carbon which potentially can adsorb and retain SO. Poling is a qualitative method used to assess soft sediment thickness and distribution and the degree of observed SO. A portable GPS instrument was used to document the coordinates for each poling location. Prior to poling, the depth from the water surface to top of sediment was determined by gradually lowering a 6-inch diameter disk that was attached to the end of a pole graduated with 0.1-foot intervals. A pole without a disk (1 3/4 -inch

diameter), with maximum graduations of 0.1 foot, was pushed vertically through the sediment until advancement was restricted, to estimate soft sediment thickness and the channel bed type (e.g. gravel). Poling was typically conducted within pre-determined focus areas, using geomorphic characteristics to support the selection of individual poling locations. The GPS coordinates, water depth, advancement depth, soft sediment thickness and/or bed characteristics were documented for each poling location. In addition, a pole with a 6-inch diameter disk attached at the base was used to agitate the sediment. The degree of SO that was observed at the water surface following sediment agitation was described as heavy, moderate, light, or none. The SO observation flow chart is included in SO Figure 1. During the Spring 2011 reassessment, poling was used to delineate SO in focus areas, at transects, at bridge or launch access points, and in low gradient areas of the river.

3.1.3.2 Chronology

Poling work that was conducted prior to any clean-up or oil recovery was defined as pre-recovery. Poling work that was conducted following oil recovery to characterize sediment condition was defined as post-recovery. Poling that was conduced in 2011 to assess areas that were evaluated previously in 2010 or new areas in 2011, was defined as reassessment poling. Reassessment poling was typically done in areas confirmed in 2010 to have 'heavy' and/or 'moderate' SO (hereafter described as 'heavy/moderate') or where SO would be expected to accumulate based on geomorphology interpretation. In addition, poling in 2011 was conducted along transects that were established perpendicular to channel orientation in low- and high-sinuosity sections of the river, near bridges and other public access areas, and in low gradient areas upstream of dams. This reassessment poling was conducted in April and May 2011.

3.2 SO Poling Results and Discussion

3.2.1 Approach

Poling data were used to assess the SO condition over time (temporal change), including before and after implementation of recovery measures. Poling data was obtained in selected areas from late August through early December 2010 and mid-April through May 2011. The results of the Spring 2011 reassessment poling data are described below in terms of geomorphic characteristics that influence the residence of SO in the river and also the observed change in the SO condition (spatial and degree) over time. Talmadge Creek (near source of release) and Kalamazoo River segments were separated based on geomorphic characteristics. These segments were defined so that SO presence can be related to specific geomorphic characteristics. The segments include the following:

- Talmadge Creek (Mile Post [MP] 0.0 to 2.0);
- Talmadge Creek Confluence with Kalamazoo River (MP 2.0) to Ceresco Dam (MP 5.75);
- Ceresco Dam (MP 5.75) to Kalamazoo River Dam (MP 15.75);
- Kalamazoo River Dam (MP 15.75) to Engineered Channel Outlet (MP 21.5);
- Engineered Channel Outlet (MP 21.5) to Railroad Bridge (MP 28.8);
- Railroad Bridge (MP 28.8) to Channel Gradient Transition (MP 36.0), and
- Channel Gradient Transition (MP 36.0) to Morrow Lake (MP 37.8).

This report provides poling data results and discussion for the seven segments listed above (Source to Morrow Lake (MP 37.8)). The assessment for Morrow Lake (MP 37.8 to MP 40) and historic data will be provided as an addendum to this report.

The focus of the report is to characterize SO conditions in 2011. All of the poling data results for 2011 from the Source area to Morrow Lake are provided in SO Table 1. Poling data results for delineated focus areas with 'heavy/moderate' SO are developed and discussed for each of the segments listed previously. To assess trends in 'heavy/moderate' SO the 2010 'heavy/moderate' areas are compared to 2011 SO results.

3.2.2 Talmadge Creek (MP 0.0 to 2.0) Geomorphology, Longitudinal Channel Profile, and Soft Sediment

The crude oil release on July 26, 2010 occurred several hundred feet from Talmadge Creek, about two miles upstream from the confluence of Talmadge Creek and the Kalamazoo River. Talmadge Creek is a small, meandering creek that discharges into the Kalamazoo River. Spilled crude oil was transported down Talmadge Creek due to the tributary's proximity to the crude oil release location (pipeline fracture). Talmadge Creek is characterized by a relatively steep channel gradient compared to the rest of the impact area (channel gradient up to 26.6 feet per mile). Water surface elevation drops approximately 38 feet between the source area and the confluence with the Kalamazoo River near MP 2.0. Talmadge Creek passes underneath I-69 through a series of constricting culverts that cause upstream ponding.

Talmadge Creek and adjacent overbank areas have been subjected to significant disturbance that is associated with remedial actions to remove crude oil from the impacted watershed. Talmadge Creek segments were defined so that SO presence could be related to the spatial proximity of the crude oil release and to specific geomorphic characteristics within each segment. The segments include the following:

- Source (MP 0.0) to Division Road (MP 0.5);

- Division Road (MP 0.5) to I-69 (MP 1.1);
- I-69 (MP 1.1) to 15 ½ Mile Road (MP 1.3, and)
- 15 ½ Mile Road (MP 1.3) to confluence with Kalamazoo River (MP 2.0).

Poling data for locations in Talmadge Creek in 2011 with observed 'heavy/moderate' SO are provided in Poling and Overbank Delineation Tables (SO Table 2 and SO Table 3). SO Figure 2 shows poling data results in 2011 from the source release near Talmadge Creek (MP 0.0) to the confluence with Kalamazoo River (MP 2.0).

3.2.2.1 Source (MP 0.0) to Division Road (MP 0.5)

Geomorphology and Soft Sediment

This segment of Talmadge Creek is closest to the crude oil release location. The dominating factors for this stream segment are the spatial proximity to the crude oil release and the disturbance related to remedial actions to remove crude oil. Three culverts (MP 0.04, MP 0.27, and MP 0.5) influence flow and deposition. The segment is a meandering stream with sediment particle size that generally increases from fine-grained to coarse-grained (e.g. silt to sand) as a function of distance downstream. Soft sediment (e.g. silt) is most common in the channel from near the source area to the culvert at MP 0.04. Downstream, sand and gravel bed deposits are prevalent with occasional deposits of soft sediment.

SO Poling Results

This Talmadge Creek segment includes 25 'heavy/moderate' SO delineation areas that were observed in 2011. The impacted areas are due to the close proximity to the crude oil release location. This characterization is similar to that of the 2010 poling results. The presence of 'heavy/moderate' SO in this Talmadge Creek segment is not significantly influenced by geomorphic surface, sediment type, or channel gradient. The most influential factor is the proximity to the crude oil release. That is, 'heavy/moderate' SO delineation areas in 2011 occur in all sediment types (fine- and coarse-grained) and all channel slopes (flat and steep) due to the impact from a significant crude oil release that was transported down Talmadge Creek through gravitational force and storm runoff in late July 2010.

3.2.2.2 Division Road (MP 0.5) to I-69 (MP 1.1)

Geomorphology and Soft Sediment

This Talmadge Creek segment is relatively straight with occasional broad meanders that do not have significant deposition areas (e.g. point bars). Two culverts that influence flow and deposition are located at MP 0.74 and I-69 (MP 1.1). The channel bed downstream from the culvert at Division Road is predominantly sand and gravel. The channel bed transitions to soft sediment upstream from a driveway culvert near MP 0.74 due to flow velocity reduction and ponding from flow restriction (culvert). The channel bed below the culvert is predominantly sand and gravel with pockets of soft sediment composed of silt or layers of sand and silt.

SO Poling Results

This Talmadge Creek segment includes 19 'heavy/moderate' SO delineation areas that were observed in 2011. The impacted areas are due to the close proximity to the crude oil release location. Areas with 'heavy/moderate' SO were not observed in 2011 from MP 0.5 to MP 0.68. Downstream from MP 0.68 'heavy/moderate' SO occurs and is often associated with soft sediment deposits. Downstream from the culvert at MP 0.78 'heavy/moderate' SO is typically associated with the pockets of soft sediment deposits. The soft sediment deposit between MP 0.92 and MP 0.99 includes the largest area of 'heavy/moderate' SO on this segment of Talmadge Creek.

3.2.2.3 I-69 (MP 1.1) to 15 ½ Mile Road (MP 1.3)

Geomorphology and Soft Sediment

This segment of Talmadge Creek has constricted flow from culverts located upstream (I-69) and downstream (15 ½ Mile Road) that promote deposition. The segment is characterized by soft sediment deposits up to about 2 feet thick.

SO Poling Results

This Talmadge Creek segment includes five 'heavy/moderate' SO delineation areas that were observed in 2011. The impacted areas are due to the close proximity to the crude oil release location. The delineated areas extend through the segment and are associated with soft sediment deposits.

3.2.2.4 15 ½ Mile Road (MP 1.3) to Confluence (MP 2.0)

Geomorphology and Soft Sediment

This segment of Talmadge Creek is characterized by relatively high sinuosity meanders with many point bars (inside meander bend deposits). The channel bed is predominantly sand and

gravel and/or cobbles. A relatively high flow velocity results in limited soft sediment deposition and a sand and gravel bed. The finer-grained deposits of silt and/or sand are associated with the point bar deposits. The thalweg (deepest portion of channel bed) is well defined and composed of sand and gravel. Three culverts at MP 1.59, MP 1.78, and MP 2.0 influence flow and deposition. A soft sediment deposit occurs upstream from the bridge at MP 1.84, likely due to deposition associated with restricted flow from the bridge.

SO Poling Results

This Talmadge Creek segment includes 32 'heavy/moderate' SO delineation areas that were observed in 2011. The areas are small in size. The impacted areas are due to the close proximity to the crude oil release location. The areal distribution of soft sediment deposits and corresponding areas with 'heavy/moderate' SO are both limited in this segment. In 2011, areas with 'heavy/moderate' SO are often associated with sand point bar deposits located on the inside bend of meanders. The segment from MP 1.59 to 1.67 was mapped for geomorphic characteristics but poling was not allowed due to landowner access restriction. 'Heavy/moderate' SO is likely associated with point bar deposits, as was observed elsewhere in this segment.

3.2.3 Talmadge Creek Confluence with Kalamazoo River (MP 2.0) to Ceresco Dam (MP 5.75)

3.2.3.1 Geomorphology, Longitudinal Channel Profile, and Soft Sediment

The Kalamazoo River from the confluence with Talmadge Creek to the Ceresco Dam is subject to variation in geomorphic character from both natural and anthropogenic influences. The Kalamazoo River drops five feet in elevation over this 3.75 mile channel section. The channel gradient is highest in the upper portion of the reach from MP 2.0 to MP 3.5. The river meanders from the confluence to MP 2.75 after which the channel is relatively straight with islands dispersed within the channel until MP 4.9. The longitudinal profile shows the channel gradient flattens due to Ceresco Dam at MP 4.2, then channel widens and the hydraulic gradient is relatively flat due to the backwater influence from Ceresco Dam. The widest portion of the river in this reach occurs immediately upstream from Ceresco Dam. Some soft sediment deposition occurs in this reach downstream of point bars or islands due to reduced flow velocities. However, the primary in-channel deposition area occurs between MP 4.2 and Ceresco Dam.

3.2.3.2 SO Poling Results

Poling data for locations in 2011 with observed 'heavy/moderate' SO are provided in Poling and Overbank Delineation Tables (SO Table 2 and SO Table 3). SO Figure 3 shows poling data

results in 2011 from Talmadge Creek Confluence with Kalamazoo River (MP 2.0) to Ceresco Dam (MP 5.75). SO Figure 9 provides comparison of 2010 priority areas, 2010 O&M delineations, 2010/2011 winter work areas, and 2011 'heavy/moderate' delineation areas.

Spring 2011 SO reassessment data for this river segment shows:

- 'Heavy/moderate' SO areas decreased from 23 in 2010 to 11 in 2011. Nine of the 11 focus areas with 'heavy/moderate' SO are downstream of MP 4.2 and are associated with low gradient, depositional areas. Many of these areas appear to be associated with redeposition of SO from upstream;
- Delineated areas that were classified as 'heavy/moderate' SO in 2010 or 2011 are typically associated with soft sediment;
- Focus areas with 'heavy/moderate' SO in 2011 had 'heavy/moderate' SO in 2010;
- New focus areas with 'heavy/moderate' SO were not found in 2011, but some focus areas downstream of MP 4.2 increased in size;
- 'Heavy/moderate' SO was found in only 1 of 22 poling transects in 2011, and
- Areas that were classified as 'light/none' in 2010 typically did not change in 2011.

3.2.3.3 Discussion

Observed SO in sediment from the confluence of Talmadge Creek with the Kalamazoo River to Ceresco Dam is often related to hydrologic or geomorphic factors including flow velocity, channel gradient (slope), and bed type (soft sediment). Following are descriptions of those factors for specific river segments that relate to observed SO condition. The PI and FLS data points are included within the appropriate river segment.

Confluence to MP 4.2

The channel gradient is sufficient to support flow velocities that are not favorable for significant accumulation of soft sediment or SO unless the velocity is restricted by anthropogenic or natural obstructions (e.g. MP 2.55 N Island [I]). Most areas with observed 'heavy/moderate' SO in 2010 have 'light/none' SO in oil in 2011. Presumably, SO that was deposited in these areas in 2010 was remobilized due to elevated flow velocities, particularly with spring flow in 2011.

The PI points are present at 3.25 North and 4.15 South (I E). The FLS point is located at 2.65 South. The points show surface sheen but do not distinguish the degree of SO. The PI and FLS points have been reassessed during the poling activities at the focus areas listed above.

MP 4.2 to MP 5.5

Channel gradient is relatively low and areas with 'heavy/moderate' SO in 2011 generally occur in localized areas with velocity reduction associated with inside meanders (e.g. 4.15 South), islands (e.g. 4.29 T), or tributary deltas (e.g. 4.3 South). Extensive areas of moderate to heavy SO occur across much of the channel (not including the thalweg) from MP 5.0 to MP 5.5. The main factor of deposition is the extremely low channel gradient. This segment of river has likely received redeposition of SO from upstream, as it is the first low-gradient area downstream of Talmadge Creek. A containment boom across the channel from the left bank near MP 5.25 to the right bank near MP 5.5 likely influences flow velocity and increases deposition both upstream and downstream of the boom.

One PI point is present at 4.3 South. The PI point has been reassessed during the poling activities at 4.3 South.

MP 5.5 to Ceresco Dam

In the Ceresco Dam area, deposition is influenced by the old railroad crossing that constricts the channel, by the current positioning of containment booms, and by the location of dredging in 2010. In 2010, heavy SO was located on the upstream and downstream sides of the crossing. This oil was largely removed by dredging in fall 2010, but it appears that redeposition of SO has occurred especially near the dam (in both MP 5.75 South and MP 5.75 Northwest). The area of SO on the downstream right bank side of the railroad crossing is an area where no recovery was performed last year, so it is likely residual. Redeposition appears to be the likely reason for moderate to heavy SO in MP 5.55 North upstream of the railroad crossing. Current containment directs surface flow to this area, and moderate to heavy SO is largely within the area of current containment. No redeposition has been noted in MP 5.63 South, which was dredged in 2010. This is likely due to the fact that the thalweg is on this side of the channel and that upstream containment directs flow to the opposite (right) bank. These two factors have likely combined to restrict redeposition to the right bank immediately upstream of the railroad crossing.

3.2.4 Ceresco Dam (MP 5.75) to Kalamazoo River Dam (MP 15.75)

3.2.4.1 Geomorphology, Longitudinal Channel Profile, and Soft Sediment

At Ceresco Dam, water surface elevation drops approximately eleven feet. Between the dam (MP 5.75) and MP 14.2, channel gradient is fairly consistent and generally ranges between about 2.5 feet per mile and five feet per mile The Kalamazoo River channel from Ceresco Dam to MP 7.8 is relatively narrow with sharp meanders and frequent cutoff channels. The river channel from MP

7.8 to MP 9.6 includes meanders with less amplitude and fewer cutoff channels. A well defined cutoff channel (future oxbow) occurs at MP 12.5. The South and North Mill Ponds are backwater areas formed due to the dam at MP 15.65. Ten bridge structures, which constrict flow and can promote deposition, intersect the channel from MP 7.15 to MP 15.6. The channel gradient increases downstream from Ceresco Dam and then becomes flat at MP 14.2 upstream from the Kalamazoo River Dam. Soft sediment deposits from Ceresco Dam to MP 7.8 occur predominantly along inside meanders and in cutoff channels, where the flow velocity is typically lower than that within the channel thalweg. The deposition of soft sediment from MP 9.6 to MP 14.2 is predominantly in backwater areas, cutoff channels, oxbows, and other areas of reduced velocity that counteract the relatively high channel gradient in this area. Downstream of MP 14.2, channel gradient is the greatest factor influencing deposition location and rate. The largest depositional area in this reach is at the South and North Mill Ponds, between MP15.0 and MP15.5.

3.2.4.2 SO Poling Results

Poling data for locations in 2011 with observed 'heavy/moderate' SO are provided in Poling and Overbank Delineation Tables (SO Table 2 and SO Table 3). SO Figure 4 shows poling data results in 2011 from Ceresco Dam (MP 5.75) to Kalamazoo River Dam (MP 15.75). SO Figure 9 provides a comparison of 2010 priority areas, 2010 O&M delineations, 2010/2011 winter work areas, and 2011 'heavy/moderate' delineation areas.

Spring 2011 SO reassessment data for this river segment shows:

- 'Heavy/moderate' SO areas decreased from 42 in 2010 to 36 in 2011;
- A total of 18 focus areas were observed with 'heavy/moderate' SO in 2010 and 'light/none' in 2011. Most of these focus areas (17) were upstream of MP 14.2;
- Areas of 'heavy/moderate' SO between MP 14.2 and MP 15.0 increased in size since 2010;
- Deposition upstream of MP 14.2 is almost entirely associated with geomorphic features (e.g. oxbows, cut off channels, backwaters, and downstream of islands) that decrease flow velocity even though there is relatively high channel gradient;
- Deposition downstream of MP 14.2 is influenced largely by the low channel gradient;
- Delineated areas that were classified as 'heavy/moderate' SO in 2010 or 2011 are often associated with soft sediment deposits;
- 'Heavy/moderate' SO was found at 3 of 102 poling transects in 2011, and

- Strike Teams assisted with poling that required waders or small unpowered boats in ponds or cutoff channels isolated by aqua dams. The areas completed by the Strike Teams were MP 5.8 South, MP 8.5 L1/L2, MP 11.75 R1, MP 15.6A, and MP 15.6B.

Some additional locations with 'heavy/moderate' SO were observed in 2011. These new locations were typically relatively small areas and associated with deposition from low flow velocity areas associated with islands or inlets and may represent SO that is being redeposited as it migrates downstream over time.

3.2.4.3 Discussion

The channel gradient (slope) between Ceresco and Kalamazoo River Dams is relatively high from Ceresco Dam to MP 14.2. The high channel gradient and associated flow velocities limit sediment deposition and SO areas. The observed 'heavy/moderate' SO areas within this segment in 2011 occur adjacent to channel banks, in cutoff channels (e.g. secondary channels with reduced flow such as MP 10.75L2), in oxbows (e.g. MP 12.5), in backwaters (e.g. MP 10.5L2), and near bridge crossings that restrict flow (MP 13.5 to MP 14.2).

The PI and FLS data points mapped in the river are located between MP 10.5 L2 and MP 15.6. Four PI points are present at MP 10.5 L2, MP 14.9 South, North Mill Pond, and MP 15.6A. Three FLS points are present at MP 13.5 L1, South Mill Pond, and MP 15.6A. These points coincide with a poling focus area.

Deposition occurs downstream from MP 14.2 that diminishes the channel gradient until there is minimal slope, due to the influence from the dam.

The areas with deposition and associated 'heavy/moderate' SO in 2011, downstream from MP 14.2, are:

- Focus area MP 14.35 North, due to flat channel gradient and location along inside meander (lower flow velocity supports deposition and SO residence);
- The cutoff channel at MP 14.75;
- Parts of the South and North Mill Ponds where no recovery was performed in 2010, and
- Focus area 15.6 between Dickman Road Bridge and the Kalamazoo River Dam along east and west banks (lower flow velocity supports deposition and SO residence).

3.2.5 Kalamazoo River Dam (MP 15.75) to Engineered Channel (MP 21.5)

3.2.5.1 Geomorphology, Longitudinal Channel Profile, and Soft Sediment

Water surface elevation drops approximately 12 feet at the Kalamazoo River Dam. The river has been significantly altered by anthropogenic activity from the Kalamazoo River Dam to MP 21.5. The channel through Battle Creek (MP15.75 to MP 16.49) was lined with concrete. The channel from MP 16.5 to MP 21.5 was engineered to increase flow volume (straightened, widened, and constructed elevated banks) and decrease potential flooding in Battle Creek. Channel subsegments are differentiated based on factors that potentially influence deposition and associated SO occurrence as follows:

Kalamazoo River Dam (MP 15.75) to Channel Gradient Transition (MP 16.8)

Flow from MP 15.79 to MP 16.49 is through a concrete lined channel in the City of Battle Creek. This channel has a very steep gradient of about 14 feet per mile and fine-grained sediment is absent, therefore sediment samples were not obtained. The concrete channel ends near the confluence of the Battle Creek and the Kalamazoo River. The channel segment from MP 16.49 to MP 16.8 is not lined with concrete but includes a gravel base. A decrease in channel gradient occurs at MP 16.8.

Channel Gradient Transition (MP 16.8) to Channel Gradient Transition (MP 19.5)

Channel gradient decreases downstream from the confluence of the Battle Creek and the Kalamazoo Rivers. The channel has been engineered for flood control. At the beginning of MP 16.8, the channel gradient decreases from about 2.5 feet per mile to a nearly flat gradient at MP 19.5. Flow volume is significant due to Battle Creek River discharge. There is limited soft sediment in the center of the channel. The limited soft sediment deposition is caused by high water volume and velocity despite a relatively flat channel gradient. This is the only segment of the river with low channel gradient and limited soft sediment deposition.

MP 19.5 to Wastewater Treatment Plant (WWTP) Sill (MP 20.5)

Ponding from the flow control sill at the WWTP has resulted in deposition and a nearly flat channel gradient. The deposition is predominantly along the channel banks.

WWTP Sill (MP 20.5) to End of Engineered Channel (MP21.5)

The channel gradient is less than one foot per mile. The engineered channel ends at MP 21.5.

3.2.5.2 SO Poling Results

Poling data for locations in 2011 with observed 'heavy/moderate' SO are provided in Poling and Overbank Delineation Tables (SO Table 2 and SO Table 3). SO Figure 5 shows poling data results in 2011 from the Kalamazoo River Dam (MP 15.75) to the end of the Engineered Channel (MP 21.5). SO Figure 9 provides a comparison of 2010 priority areas, 2010 O&M delineations, 2010/2011 winter work areas, and 2011 'heavy/moderate' delineation areas.

Spring 2011 SO reassessment data for this river segment shows:

- Delineated areas that were classified as 'heavy/moderate' SO in 2010 or 2011 are often associated with soft sediment deposits that include silt over sand;
- 'Heavy/moderate SO was observed in 12 of 23 focus areas in 2011;
- 'Heavy/moderate' SO areas decreased from 20 in 2010 to 12 in 2011;
- 'Heavy/moderate' SO was found at 1 of 17 poling transects in 2011;
- Mid-channel flow velocities are relatively high, resulting in limited SO deposition, and
- 'Heavy/moderate' SO is generally found in oxbows, cut-off channels, inlets, and along banks.

3.2.5.3 Discussion

The flow velocity in this river segment is relatively high and limits deposition. Soft sediment deposits and associated SO occur with geomorphic features that reduce flow velocity, resulting in deposition such as cut-off channels (Focus Area MP 19.25L1), along banks (Focus Area MP 18.5S, and inlets (Focus Area MP 20.6S). The oxbows at MP 19.25 and MP 21.5 are significant depositional areas in this river segment.

Anthropogenic factors (i.e. WWTP sill, bridges, containment boom) also influence sediment deposition and associated SO. The WWTP sill decreases channel gradient, resulting in slower water velocities and increased sediment deposition. Six SO depositional areas occur upstream of the sill. Bridges (Custer Drive Bridge) and containment boom (e.g. MP 19.25 to MP 19.45) slow water velocities and increase sediment deposition and associated SO.

3.2.6 End of Engineered Channel (MP 21.5) to Railroad Bridge (MP 28.8)

3.2.6.1 Geomorphology, Longitudinal Channel Profile, and Soft Sediment

The natural river channel resumes at MP 21.5. The Kalamazoo River between the end of the engineered channel and the railroad bridge at MP 28.8 is dominated by high-amplitude meanders for most of the reach. Depositional areas are predominantly oxbows, cut-off channels,

backwaters, near bank areas of sediment accretion and areas where the channel widens. Channel gradient is generally between one foot per mile and two feet per mile.

3.2.6.2 SO Poling Results

Poling data for locations in 2011 with observed 'heavy/moderate' SO are provided in Poling and Overbank Delineation Tables (SO Table 2 and SO Table 3). SO Figure 6 shows poling data results in 2011 from the end of the Engineered Channel (MP 21.5) to the Railroad Bridge (MP 28.8). SO Figure 9 provides a comparison of 2010 priority areas, 2010 O&M delineations, 2010/2011 winter work areas, and 2011 'heavy/moderate' delineation areas.

Spring 2011 SO reassessment data for this river segment shows:

- SO in 2010 or 2011 are often associated with soft sediment deposits that include silt over sand in areas of diminished flow (e.g. cut-off channels (MP 26.25), oxbows (MP 21.5R1 & 28.25), and channel expansion (MP 24.65S);
- 'Heavy/moderate' SO areas increased from 33 in 2010 to 45 in 2011;
- 'Heavy/moderate' SO was found at 13 of 88 poling transects in 2011. Transects with 'heavy/moderate' SO are generally associated with meander bends and islands;
- Mid-channel flow velocities are generally high, resulting in limited SO deposition;
- 'Heavy/moderate' SO is generally found in oxbows, cut-off channels, and inlets, and along channel banks, and
- Areas of 'heavy/moderate' SO are generally small (i.e. < one acre).

3.2.6.3 Discussion

Soft sediment deposits and associated SO occur with geomorphic features that reduce flow velocity and increase deposition. Numerous high-amplitude meanders and associated geomorphic features (i.e. oxbows, cut-off channels, inlets, backwaters, point bars, etc.) increase sediment deposition and the presence of SO. In addition, the low channel gradient increases sediment and SO deposition along channel banks. Geomorphic features, deposition, and 'heavy/moderate' SO occur in cut-off channels (Focus Area MP 26.25), oxbows (Focus Areas MP 28.25), and segments with an increased channel width (Focus Area MP 24.65 S). The areas with the most significant SO are the backwater areas formed by an increase in channel width.

3.2.7 Railroad Bridge (MP 28.8) to Channel Gradient Transition (MP 36.0)

3.2.7.1 Geomorphology, Longitudinal Channel Profile, and Soft Sediment

This reach of the Kalamazoo River includes several low-amplitude meanders between relatively linear stretches of natural river channel. The channel gradient is consistent throughout the reach but channel width varies throughout the length of the reach. The depositional areas of this reach are found adjacent to the channel banks, in oxbows, and backwater cutoff channels. Wider sections of river and the areas between islands and depositional bars along the channel bank also provide smaller, more isolated depositional environments. Stream channel gradient is between 1 foot per mile to and two feet per mile. Deposition along the channel banks is more prevalent where the channel gradient is less than one foot per mile from MP 32 to MP 34. The backwater from Morrow Lake Dam typically extends upstream to approximately MP 36.0.

3.2.7.2 SO Poling Results

Poling data for locations in 2011 with observed 'heavy/moderate' SO are provided in Poling and Overbank Delineation Tables (SO Table 2 and SO Table 3). SO Figure 7 shows poling data results in 2011 from Railroad Bridge (MP 28.8) to Gradient Transition (MP 36.0). SO Figure 9 provides a comparison of 2010 priority areas, 2010 O&M delineations, 2010/2011 winter work areas, and 2011 'heavy/moderate' delineation areas.

Spring 2011 SO reassessment data for this river segment shows:

- 'Heavy/moderate' SO in 2010 or 2011 are often associated with soft sediment deposits that include silt over sand in areas of diminished flow (e.g. oxbows, inlets, and increased channel width);
- 'Heavy/moderate' SO is greatly influenced by channel gradient. Low channel gradient increases the deposition of SO along channel banks and within the main channel;
- 'Heavy/moderate' SO areas increased from 37 in 2010 to 44 in 2011, and
- 'Heavy/moderate' SO was found at 11 of 99 poling transects in 2011.

3.2.7.3 Discussion

Soft sediment deposits and associated SO occur with geomorphic features that reduce flow velocity and result in sediment deposition. Low-amplitude meanders (e.g. MP 32.5 to MP 33.0) and associated geomorphic features (i.e. oxbows, cut-off channels, inlets, backwaters, etc.) increase sediment deposition and the presence of SO. In addition, where channel gradient is low (< on e foot per mile), SO deposition increases along channel banks and within the main channel (e.g. MP 32.0 to MP 34.0). The portions of the river with a channel gradient over two feet per mile

(MP 31.4 to MP 31.8) generally have little to no SO. A channel gradient between 1.5 to 2 feet per mile (MP 34.0 to MP 36.0) promotes SO deposition in backwaters, point bars, and cutoff channels. The channel gradient is further discussed in the March 4, 2011 Longitudinal Profile Technical Memorandum provided in SO Attachment C.

3.2.8 Channel Gradient Transition (MP 36.0) to Morrow Lake (MP 37.8)

3.2.8.1 Geomorphology, Longitudinal Channel Profile, and Soft Sediment

The distinguishing geomorphic characteristics in this segment of river are the transition in channel slope and a large delta with multiple small islands. Deltas form when a river flows into a larger body of water resulting in lower flow velocity and sediment deposition. This section of river includes a delta because the Kalamazoo River widens considerably between MP 36.5 and MP 37.5. The delta and accreted islands are due to deposition associated with the impoundment above Morrow Lake Dam which submerged all of the lower lying land area.

Channel sub segments are differentiated based on factors that potentially influence deposition and associated SO occurrence as follows:

Channel Gradient Transition (MP 36.0) to 35th Street Bridge (MP 36.5)

Channel gradient is nearly flat between MP 36.0 to MP 36.5. The main channel is wide (approximately 100 to 150 feet) and characterized by extensive backwater wetlands along the right bank and numerous cut-off channels.

35th Street Bridge (MP 36.5) to Morrow Lake (MP 37.8)

The channel slope remains nearly flat from 35th Street Bridge (MP 36.5) through the Morrow Lake Delta (MP 37.8). The delta has formed where the river width increases significantly downstream of the bridge. The eastern half of the delta is characterized by higher-flow distributary channels interspersed with islands and distributary bars. Typically, sediment within the channels is sand, while the islands generally have silt or organic material over sand profiles. The western half of the delta is characterized by a similar, subaqueous depositional pattern of distributary channels and islands.

3.2.8.2 SO Poling Results

Poling data for locations in 2011 with observed 'heavy/moderate' SO are provided in Poling and Overbank Delineation Tables (SO Table 2 and SO Table 3). SO Figure 8 shows poling data results in 2011 from the Channel Gradient Transition (MP 36.0) to Morrow Lake (MP 37.8). SO

Figure 9 provides a comparison of 2010 priority areas, 2010 O&M delineations, 2010/2011 winter work areas, and 2011 'heavy/moderate' delineation areas.

Spring 2011 SO reassessment data for this river segment shows:

- 'Heavy/moderate' SO is typically associated with soft sediment deposits in areas of diminished flow (e.g. cut-off channels (MP 36.25), inlets (MP 36.45 North), and the distributary bars within the delta (MP 36. 5 to MP 37.8)). Within the delta, 'heavy/moderate' SO is predominately found in silt or organic material over sand bed types;
- Morrow Lake Delta has 31 distinct 'heavy/moderate' SO areas and is the largest impacted area in the river;
- 'Heavy/moderate' SO is greatly influenced by channel gradient. Low channel gradient increases the deposition of SO along channel banks;
- 'Heavy/moderate' SO areas decreased from 11 in 2010 to 7 in 2011. The acreage of 'heavy/moderate' SO increased in the delta increased significantly, and
- 'Heavy/moderate' SO was found at 3 of 8 poling transects in 2011.

3.2.8.3 Discussion

Soft sediment deposits and associated SO occur with geomorphic features that reduce flow velocity with corresponding deposition. The Kalamazoo River widens between MP 36.5 and MP 37.5 (delta) and has a shallow channel gradient, resulting in low energy conditions and increased sediment deposition. 'Heavy/moderate' SO is associated with the numerous small islands and distributary bars dispersed within the delta, where flow velocities are lower. Where flow velocities are relatively higher (i.e. distributary channels), there is little to no deposition of 'heavy/moderate' SO.

3.3 SO Summary

The poling results support several conclusions regarding the changes in SO deposition between 2010 and 2011.

- In Talmadge Creek, proximity to the source, sediment type, and geomorphic features (i.e. meander bends, point bars) are the primary factors in determining where SO is deposited. The 'heavy/moderate' oil deposits are typically associated with soft sediment deposits and/or point bars along inside meander bends;

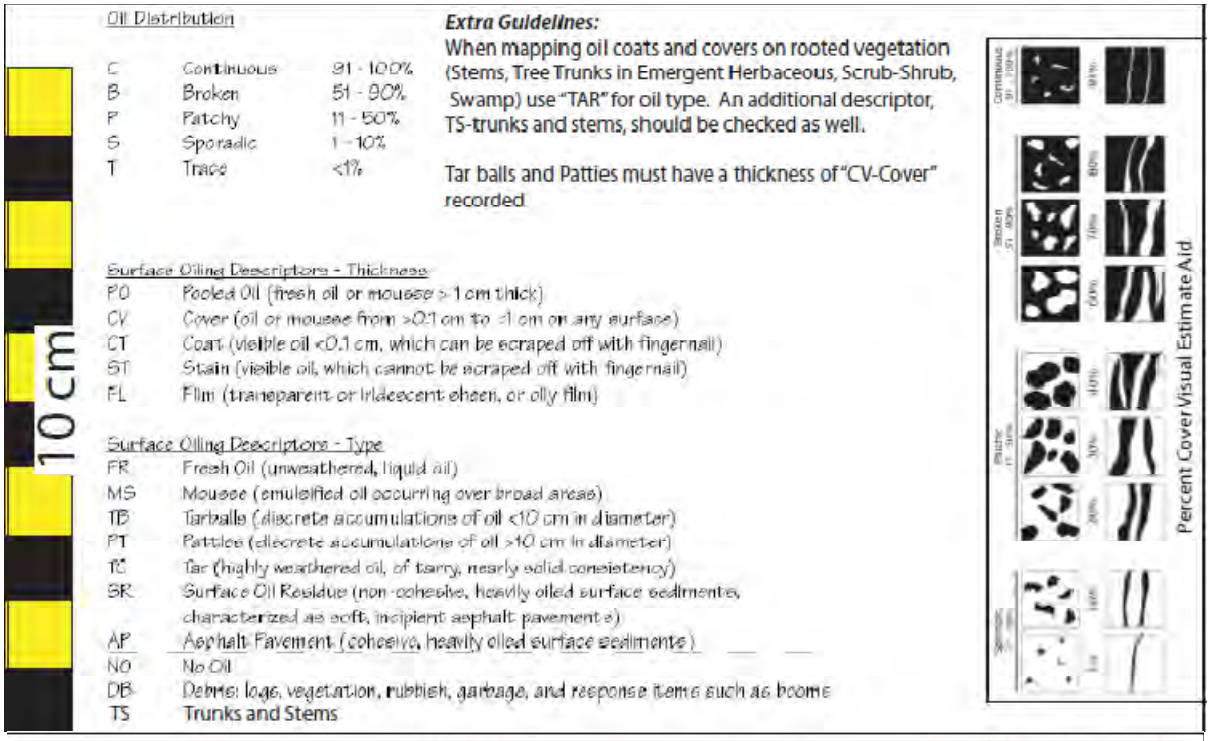
- In the Kalamazoo River, channel gradient is a controlling factor in SO deposition. Low gradient areas are the primary foci of 'heavy/moderate' SO areas;
- Redeposition of SO appears to be associated with 1) low gradient areas, and 2) geomorphic depositional areas where velocity is significantly reduced (i.e. inside meanders, cut-off channels, oxbows, backwaters, etc.);
- The SO was transported downstream during the spring floods. The evidence of this phenomenon is the redeposition at Ceresco Dam after the 2010 recovery activities and the Morrow Lake Delta has more SO in 2011 than in 2010;
- SO is most often associated with soft sediments, and
- The primary SO deposition areas are Talmadge Creek, upstream of Ceresco Dam, upstream of the Kalamazoo River Dam, the Oxbow at MP 21.5, and the Morrow Lake Delta.

SORT Table

Table 1. SORT Metric Quick Guide

Enbridge Line 6B MP 608 Marshall, MI Pipeline Release

Enbridge Energy, Limited Partnership





SO Tables

Table 1. Poling Data Table
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MP 0.00-0.25																							
TC1-E-01	Focus	4/27/11	9:00:19 AM	12959154.74	270836.67	912.8257	0.0622	0.107	0.1238	1.0	1.0	1.1	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-02	Focus	4/27/11	9:02:45 AM	12959153.21	270836.26	912.8107	0.0577	0.0972	0.113	1.9	0.2	0.2	Moderate	Moderate	Common	Center	<1ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-03	Focus	4/27/11	9:04:33 AM	12959150.23	270836.67	912.8083	0.0612	0.1022	0.1191	1.1	0.3	0.4	Light	Light	None	Left	<1ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-04	Focus	4/27/11	9:07:26 AM	12959152.86	270841.78	912.9441	0.0638	0.1005	0.119	1.2	0.7	0.7	Light	Light	None	Center	<1ft/sec		Strt Channel Edg		Silt over Sand	BOUNDAR	
TC1-E-05	Focus	4/27/11	9:10:18 AM	12959152.00	270848.52	912.8306	0.0546	0.0914	0.1064	1.1	0.9	0.9	Light	Light	None	Center	<1ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-06	Focus	4/27/11	9:13:43 AM	12959148.91	270856.00	912.7021	0.0456	0.0737	0.0866	1.1	0.1	0.7	Moderate	Moderate	Few	Right	<1ft/sec		Cut Bank		Silt over Sand		
TC1-E-07	Focus	4/27/11	9:15:33 AM	12959147.20	270853.65	912.8094	0.0393	0.0667	0.0774	0.8	0.4	1.2	Light	Light	Few	Center	<1ft/sec		Cut Bank		Silt over Sand		
TC1-E-08	Focus	4/27/11	9:19:08 AM	12959144.86	270851.48	912.733	0.0308	0.0466	0.0558	1.1	0.8	1.0	Moderate	Moderate	Few	Left	<1ft/sec		Point Bar		Silt over Sand	PHOTO 187	HEAVY SHEEN ON BK
TC1-E-09	Focus	4/27/11	9:22:38 AM	12959142.40	270858.97	912.8358	0.0482	0.0711	0.0859	1.0	0.8	0.8	Light	Light	None	Right	<1ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-10	Focus	4/27/11	9:26:01 AM	12959140.49	270857.11	912.7973	0.0527	0.0738	0.0907	1.0	0.6	0.7	Light	Light	Few	Center	<1ft/sec		Mid-Channel		Soft Sediment		
TC1-E-11	Focus	4/27/11	9:27:39 AM	12959141.24	270854.51	912.863	0.0583	0.0808	0.0996	1.2	0.4	0.4	Moderate	Moderate	Few	Left	<1ft/sec		Point Bar		Soft Sediment		
TC1-E-12	Focus	4/27/11	9:39:57 AM	12959122.05	270862.88	912.8071	0.0794	0.1022	0.1294	1.0	0.8	0.9	Heavy	Heavy	Many	Center	<1ft/sec		Mid-Channel		Soft Sediment		
TC1-E-13	Focus	4/27/11	9:42:00 AM	12959123.30	270864.65	912.7433	0.0391	0.0486	0.0624	1.1	0.9	0.9	Light	Light	Few	Right	<1ft/sec		Point Bar		Soft Sediment		
TC1-E-14	Focus	4/27/11	9:44:08 AM	12959120.03	270861.44	912.7505	0.0494	0.0626	0.0797	1.0	0.9	1.1	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank		Soft Sediment		
TC1-E-15	Focus	4/27/11	9:48:21 AM	12959119.55	270868.42	912.7795	0.0632	0.0771	0.0997	1.0	1.2	1.3	Moderate	Moderate	Few	Right	<1ft/sec		Point Bar		Soft Sediment		
TC1-E-16	Focus	4/27/11	9:50:35 AM	12959117.72	270871.33	912.8813	0.0609	0.0754	0.097	0.0	0.0	0.0	None	None	None	Right	<1ft/sec		Point Bar				EDGE POINT BAR
TC1-E-17	Focus	4/27/11	9:55:06 AM	12959107.76	270887.96	912.7876	0.0621	0.0596	0.0861	1.1	1.0	1.0	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-18	Focus	4/27/11	9:57:28 AM	12959105.05	270885.20	912.751	0.0686	0.0665	0.0955	1.0	1.2	1.2	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg		Sand & Silt		
TC1-E-19	Focus	4/27/11	10:00:25 AM	12959102.35	270892.11	912.7828	0.0593	0.0555	0.0813	0.9	0.5	0.5	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-20	Focus	4/27/11	10:02:41 AM	12959098.99	270890.31	912.818	0.1011	0.0972	0.1402	1.1	0.4	0.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-21	Focus	4/27/11	10:10:17 AM	12959080.20	270903.83	912.5302	0.0878	0.0843	0.1217	0.8	0.3	0.3	Moderate	Moderate	Few	Right	<1ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-22	Focus	4/27/11	10:12:19 AM	12959077.89	270901.64	912.707	0.0956	0.1046	0.1417	0.9	0.3	0.5	Moderate	Moderate	Common	Center	<1ft/sec		Strt Channel Edg		Silt over Sand	SILT OVER GRAVEL	
TC1-E-23	Focus	4/27/11	10:14:17 AM	12959075.23	270900.17	912.7503	0.0796	0.09	0.1202	0.9	0.6	1.2	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-24	Focus	4/27/11	10:20:32 AM	12959056.61	270923.26	912.7596	0.0477	0.0591	0.076	1.0	0.6	0.7	Moderate	Moderate	Few	Right	<1ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-25	Focus	4/27/11	10:22:34 AM	12959053.45	270920.83	912.6639	0.0442	0.057	0.0721	1.3	0.3	0.6	Heavy	Heavy	Common	Left	<1ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-26	Focus	4/27/11	10:26:30 AM	12959042.42	270934.05	912.7642	0.0441	0.0603	0.0747	1.2	0.3	0.3	Heavy	Heavy	Common	Center	<1ft/sec		Strt Channel Edg		Silt over Sand		PHOTO 191
TC1-E-27	Focus	4/27/11	10:39:12 AM	12959020.44	270946.84	912.7987	0.0431	0.0691	0.0814	1.1	0.8	0.8	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg		Silt over Sand	SILT OVER GRAVEL	
TC1-E-28	Focus	4/27/11	10:46:14 AM	12958997.23	270961.60	912.6103	0.0641	0.1102	0.1275	0.7	0.3	0.5	Light	Light	Few	Right	<1ft/sec		Cut Bank		Sand & Silt	VERY LIGHT SHEEN	
TC1-E-29	Focus	4/27/11	10:49:04 AM	12958996.62	270957.86	912.7496	0.0408	0.072	0.0828	0.8	0.1	0.2	None	None	None	Center	<1ft/sec		Mid-Channel		Silt over Sand	THIN SILT LAYER	
TC1-E-30	Focus	4/27/11	10:51:07 AM	12958995.55	270955.41	912.8496	0.0426	0.0762	0.0873	0.9	0.1	0.2	None	None	None	Left	<1ft/sec		Mid-Channel		Silt over Sand	THIN SILT LAYER	
TC1-E-31	Focus	4/27/11	10:53:49 AM	12958981.89	270957.78	912.6004	0.0563	0.1022	0.1167	0.8	0.1	0.1	None	None	None	Center	<1ft/sec		Mid-Channel		Sand & Gravel	IN FRONT OF CLVET	
TC1-E-32	Focus	4/27/11	1:09:30 PM	12958935.26	270965.85	910.9351	1.0456	1.2514	1.6307	1.0	0.2	0.3	None	None	None	Center	<1ft/sec		Mid-Channel		Sand & Gravel	IN FRONT OF CLVET	
TC1-E-33	Focus	4/27/11	1:13:50 PM	12958925.38	270998.03	911.6705	0.0532	0.0635	0.0828	0.4	0.2	0.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-34	Focus	4/27/11	1:15:28 PM	12958928.36	271000.02	911.671	0.0639	0.0767	0.0998	0.6	0.4	0.4	Light	Light	Few	Center	<1ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-35	Focus	4/27/11	1:17:29 PM	12958933.52	271002.06	911.6807	0.0753	0.0913	0.1183	0.2	0.2	0.3	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank		Sand & Silt		
TC1-E-36	Focus	4/27/11	1:22:23 PM	12958928.13	271010.60	911.6256	0.0426	0.0527	0.0678	0.7	0.5	0.8	Moderate	Moderate	Few	Right	<1ft/sec		Cut Bank		Silt over Sand		SED BOUNDARY
TC1-E-37	Focus	4/27/11	1:27:40 PM	12958915.49	271008.68	911.6321	0.0632	0.0803	0.1022	0.3	0.4	0.6	Moderate	Moderate	Common	Left	<1ft/sec		Point Bar		Sand over Silt		
TC1-E-38	Focus	4/27/11	1:31:58 PM	12958909.91	271010.13	911.6268	0.0598	0.0787	0.0988	0.0	0.0	0.0	None	None	None	Center	<1ft/sec		Strt Channel Edg		Sand over Silt		PHOTO 192
TC1-E-39	Focus	4/27/11	1:34:22 PM	12958900.46	271016.22	911.6543	0.0591	0.0794	0.099	0.9	0.6	0.7	Heavy	Heavy	Common	Left	<1ft/sec		Cut Bank		Soft Sediment		
TC1-E-40	Focus	4/27/11	1:38:10 PM	12958905.00	271018.59	911.5604	0.0478	0.0664	0.0818	0.8	0.2	0.3	Moderate	Moderate	Few	Right	<1ft/sec		Point Bar		Sand over Silt		
TC1-E-41	Focus	4/27/11	1:40:36 PM	12958901.62	271023.51	911.6885	0.0633	0.0892	0.1094	1.3	1.2	1.3	Moderate	Moderate	Few	Left	<1ft/sec		Cut Bank		Sand & Silt		
TC1-E-42	Focus	4/27/11	1:42:03 PM	12958905.14	271025.81	911.6737	0.0343	0.0488	0.0597	0.5	0.7	0.7	Moderate	Moderate	Few	Right	<1ft/sec		Point Bar		Sand & Silt		
TC1-E-43	Focus	4/27/11	1:44:49 PM	12958908.38	271041.24	911.5723	0.0483	0.0686	0.0839	0.7	0.8	1.6	Heavy	Heavy	Common	Right	<1ft/sec		Cut Bank		Sand over Silt		
TC1-E-44	Focus	4/27/11	1:45:52 PM	12958902.16	271040.21	911.6333	0.0473	0.0675	0.0825	0.7	0.4	0.5	Light	Light	Few	Left	<1ft/sec		Point Bar		Sand & Gravel		
TC1-E-45	Focus	4/27/11	1:48:02 PM	12958904.17	271041.88	911.7115	0.0555	0.0804	0.0977	0.9	0.0	0.0	Light	Light	Few	Center	<1ft/sec		Mid-Channel		Sand & Gravel		
TC1-E-46	Focus	4/27/11	1:49:52 PM	12958903.66	271049.19	911.7135	0.0307	0.045	0.0545	1.0	0.0	0.0	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank		Sand & Gravel		
TC1-E-47	Focus	4/27/11	1:52:13 PM	12958903.32	271040.52	911.5592	0.0351	0.0522	0.0629	0.0	0.0	0.0				Other-Comments	<1ft/sec		Point Bar		Sand & Gravel		POINT BAR BOUND
TC1-E-48	Focus	4/27/11	1:52:33 PM	12958901.96	271046.33	911.5785	0.0459	0.0683	0.0823	0.0	0.0	0.0				Other-Comments	<1ft/sec		Point Bar		Sand & Gravel		POINT BAR BOUND
TC1-E-49	Focus	4/27/11	1:52:48 PM	12958900.03	271048.87	911.5792	0.0481	0.0718	0.0865	0.0	0.0	0.0				Other-Comments	<1ft/sec		Point Bar		Sand & Gravel		POINT BAR BOUND
TC1-E-50	Focus	4/27/11	1:53:12 PM	12958897.47	271052.41	911.6804	0.0404	0.0604	0.0727	0.0	0.0	0.0				Other-Comments	<1ft/sec		Point Bar		Sand & Gravel		POINT BAR BOUND
TC1-E-51	Focus	4/27/11	1:53:38 PM	12958891.59	271054.83	911.6283	0.0417	0.0625	0.0751	0.0	0.0	0.0				Other-Comments	<1ft/sec		Point Bar		Sand & Gravel		POINT BAR BOUND
TC1-E-52	Focus	4/27/11	1:54:18 PM	12958886.19	271056.26	911.5553	0.0404	0.0608	0.073	0.0	0.0	0.0				Other-Comments	<1ft/sec		Point Bar		Sand & Gravel		POINT BAR BOUND
TC1-E-53	Focus	4/27/11	1:54:47 PM	12958883.50	271059.56	911.5857	0.0381	0.0575	0.069	0.0	0.0	0.0				Other-Comments	<1ft/sec		Point Bar		Sand & Gravel		POINT BAR BOUND
TC1-E-54	Focus	4/27/11	1:56:43 PM	12958896.97	271055.81	911.6399	0.0608	0.0968	0.1143	0.6	0.7	0.7	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank		Silt over Sand		
TC1-E-55	Focus	4/27/11	1:57:54 PM	12958895.63	271053.09	911.5269	0.0424	0.0652	0.0778	0.8	0.3	0.4	Heavy	Heavy	Many	Center	<1ft/sec		Mid-Channel		Sand over Silt		
TC1-E-56	Focus	4/27/11	1:59:52 PM	12958894.09	271051.30	911.5059	0.0398	0.0619	0.0736	0.4	0.4	0.5	Heavy	Heavy	Many	Left	<1ft/sec		Point Bar		Sand over Silt	BOUNDARY	
TC1-E-57	Focus	4/27/11	2:01:31 PM	12958889.67	271058.25	911.6854	0.0449	0.0705	0.0836	1.1	0.1	0.9	Light	Light	None	Right	<1ft/sec		Strt Channel Edg		Sand over Silt		
TC1-E-58	Focus	4/27/11	2:03:12 PM	12958892.39	271056.84	911.5913	0.0333	0.0526	0.0622	1.1	0.7	0.7	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg		Sand over Silt	D BOUNDARY	
TC1-E-59	Focus	4/27/11	2:04:41 PM	12958883.33	271055.99	911.6085	0.0548	0.0875	0.1033	0.6	0.4	0.5	None	None	None	Left	<1ft/sec		Cut Bank		Sand over Silt		
TC1-E-60	Focus	4/27/11	2:06:06 PM	12958882.63	271061.28	911.607	0.053	0.0876	0.1024	0.9	0.1	0.1	None	None	None	Center	<1ft/sec		Mid-Channel		Sand & Gravel		
TC1-E-61	Focus	4/27/11	2:07:41 PM	12958876.82	271070.32	911.5011	0.0504	0.0841	0.0981	1.0	0.3	0.4	None	None	None	Center	<1ft/sec		Mid-Channel		Sand & Gravel		
TC1-E-62	Focus	4/27/11	2:09:21 PM	12958870.04	271082.57	911.6058	0.0392	0.064	0.075	0.5	0.7	1.0	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-63	Focus	4/27/11	2:10:49 PM	12958865.65	271081.12	911.3792	0.0471	0.078	0.0911	0.6	0.5	0.6	Heavy	Heavy	Common	Left	<1ft/sec		Strt Channel Edg		Sand over Silt		
TC1-E-64	Focus	4/27/11	2:13:05 PM	12958868.59	271077.21	911.3969	0.0386	0.0642	0.0749	0.9	0.2	0.4	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg		Sand & Silt	U BOUNDARY	
TC1-E-65	Focus	4/27/11	2:16:13 PM	12958866.69	271085.31	911.3106	0.0352	0.0593	0.0689	0.6	0.4	0.4	Light	Light	Few	Center	<1ft/sec		Mid-Channel		Sand & Gravel	LAT BOUNDARY	
TC1-E-66	Focus	4/27/11	2:18:27 PM	12958863.04	271095.67	911.2472	0.0384	0.0652	0.0757	0.5	0.3	0.3	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg		Sand & Gravel	D BOUNDARY	
TC1-E-67	Focus	4/27/11	2:20:02 PM	12958862.19	271108.31	911.4691	0.036	0.0614	0.0712	0.9	0.5	1.2	None	None	None	Right	<1ft/sec		Strt Channel Edg		Sand & Silt		
TC1-E-68	Focus	4/27/11	2:22:04 PM	12958860.14	271107.84	911.4344	0.0395	0.0676	0.0783	0.6	0.5	0.7	Heavy	Heavy	Common	Left	<1ft/sec		Strt Channel Edg		Sand over Silt	U BOUNDARY	
TC1-E-69	Focus	4/27/11	2:23:56 PM	12958856.56	271118.34	911.3984	0.0419	0.0721	0.0834	0.4	0.9	0.9	None	None	None	Left	<1ft/sec		Strt Channel Edg		Sand over Silt	D BOUNDARY	
TC1-E-70	Focus	4/27/11	2:25:13 PM	12958859.93	271120.96	911.4905	0.0383	0.066	0.0764	0.6	0.6	1.2	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-71	Focus	4/27/11	2:26:40 PM	12958855.71	271133.83	911.3422	0.0381	0.0697	0.0794	0.7	0.6	1.5	None	None	None	Right	<1ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-72	Focus	4/27/11	2:27:33 PM	12958852.50	271133.12	911.3355	0.0421	0.0768	0.0876	0.5	0.7	0.7	None	None	None	Left	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-73	Focus	4/27/11	2:29:09 PM	12958848.24	271152.19	911.2857	0.0414	0.0717	0.0828	1.0	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-74	Focus	4/27/11	2:30:01 PM	12958844.13	271150.17	911.1875	0.0426	0.0774	0.0884	0.5	0.6	0.6	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-75	Focus	4/27/11	2:32:08 PM	12958834.50	271170.28	911.2584	0.0493	0.0851	0.0984	0.6	0.4	0.4	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-76	Focus	4/27/11	2:33:08 PM	12958832.87	271168.02	911.2278	0.0465	0.0801	0.0926	0.7	0.4	0.5	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg		Sand & Silt		
TC1-E-77	Focus	4/27/11	2:35:16 PM	12958826.51	271183.05	911.2664	0.0394	0.0705	0.0808	0.9	0.3	0.3	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-78	Focus	4/27/11	2:36:38 PM	12958823.91	271182.17	911.0883	0.0473	0.0841	0.0965	0.8	0.3	0.3	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg		Silt over Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC1-E-79	Focus	4/27/11	2:39:02 PM	12958822.61	271189.89	911.252	0.0363	0.0639	0.0734	0.8	0.3	0.3	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-80	Focus	4/27/11	2:40:15 PM	12958819.33	271188.18	911.2649	0.0404	0.0708	0.0815	1.0	0.3	0.4	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg		Silt over Sand	U BOUNDARY	
TC1-E-81	Focus	4/27/11	2:44:00 PM	12958816.62	271200.76	911.2075	0.0355	0.0609	0.0705	1.1	0.0	0.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-82	Focus	4/27/11	2:45:26 PM	12958813.15	271198.98	911.2842	0.0355	0.063	0.0723	0.9	1.1	1.3	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-83	Focus	4/27/11	2:47:41 PM	12958809.02	271210.46	911.1604	0.0359	0.0591	0.0691	0.8	0.4	0.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-84	Focus	4/27/11	2:49:17 PM	12958806.80	271207.69	911.2915	0.0436	0.0696	0.0822	0.6	1.4	1.6	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-85	Focus	4/27/11	2:51:39 PM	12958801.68	271216.02	911.2471	0.0435	0.0721	0.0841	1.1	0.4	0.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-86	Focus	4/27/11	2:53:30 PM	12958799.74	271212.58	911.2771	0.0472	0.0737	0.0876	0.3	1.2	1.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg		Silt over Sand	D BOUNDARY	
TC1-E-87	Focus	4/27/11	2:55:07 PM	12958799.95	271221.05	911.207	0.0449	0.0711	0.0841	0.0	0.0	0.0				Right			Strt Channel Edg			OIL ON R BANK	
TC1-E-88	Focus	4/27/11	2:56:36 PM	12958792.07	271220.70	911.2643	0.0452	0.0711	0.0842	1.0	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg		Sand & Silt	U BOUNDARY	
TC1-E-89	Focus	4/27/11	3:01:49 PM	12958791.32	271218.15	911.2143	0.0379	0.0582	0.0694	0.5	1.0	1.1	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg		Silt over Sand		
TC1-E-90	Focus	4/27/11	3:09:43 PM	12958774.22	271225.98	911.2433	0.036	0.0544	0.0652	1.0	0.4	0.5	Moderate	Moderate	Few	Left	1-3 ft/sec		Cut Bank		Soft Sediment		
TC1-E-91	Focus	4/27/11	3:10:32 PM	12958776.75	271228.19	911.1667	0.0317	0.0479	0.0575	0.9	0.5	0.5	Moderate	Moderate	Few	Right	1-3 ft/sec		Point Bar		Soft Sediment		
TC1-E-92	Focus	4/27/11	3:14:37 PM	12958769.89	271237.37	911.2006	0.041	0.0632	0.0753	0.4	0.9	0.9	Moderate	Moderate	Few	Right	1-3 ft/sec		Point Bar		Silt over Sand	U BOUNDARY	
TC1-E-93	Focus	4/27/11	3:16:11 PM	12958765.76	271238.66	911.2996	0.0408	0.0632	0.0752	1.4	0.3	0.3	Moderate	Moderate	Few	Left	1-3 ft/sec		Cut Bank		Silt over Sand	D BOUNDARY	
TC1-E-94	Focus	4/27/11	3:18:33 PM	12958763.63	271250.76	911.1581	0.0442	0.0688	0.0817	0.9	0.4	0.4	Moderate	Moderate	Few	Right	1-3 ft/sec		Point Bar		Silt over Sand		
TC1-E-95	Focus	4/27/11	3:25:01 PM	12958756.43	271259.37	911.2173	0.0468	0.1171	0.1261	0.8	1.0	1.0	Moderate	Moderate	Few	Right	1-3 ft/sec		Point Bar		Soft Sediment		
TC1-E-96	Focus	4/27/11	3:28:12 PM	12958753.73	271257.34	911.2152	0.0545	0.1371	0.1475	0.7	0.8	1.0	Heavy	Heavy	Many	Left	1-3 ft/sec		Cut Bank		Soft Sediment		PHOTO 193
TC1-E-97	Focus	4/27/11	3:30:58 PM	12958757.90	271271.37	911.0994	0.0364	0.0897	0.0968	0.2	1.3	1.3	Heavy	Heavy	Many	Center	<1ft/sec		Point Bar		Soft Sediment		
TC1-E-98	Focus	4/27/11	3:32:56 PM	12958754.21	271274.35	911.1759	0.042	0.1036	0.1118	1.5	0.7	0.7	Light	Light	Few	Left	1-3 ft/sec		Cut Bank		Soft Sediment	D BOUNDARY	
TC1-E-99	Focus	4/27/11	3:35:35 PM	12958763.13	271280.77	911.1104	0.0401	0.0991	0.1069	0.6	0.7	0.8	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-100	Focus	4/27/11	3:36:59 PM	12958768.39	271290.98	911.0588	0.0353	0.0905	0.0972	0.7	1.1	1.1	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg		Soft Sediment		
TC1-E-101	Focus	4/27/11	3:38:24 PM	12958764.21	271292.70	911.1698	0.0384	0.0985	0.1057	0.7	0.5	0.6	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-102	Focus	4/27/11	3:41:23 PM	12958771.20	271302.46	910.9148	0.0338	0.0867	0.0931	0.7	0.8	0.8	None	None	None	Right	1-3 ft/sec		Cut Bank		Silt over Sand	D BOUNDARY	
TC1-E-103	Focus	4/27/11	3:42:55 PM	12958767.39	271301.46	911.1045	0.0411	0.0988	0.107	0.6	0.5	0.8	None	None	None	Left	1-3 ft/sec		Point Bar		Silt over Sand		
TC1-E-104	Focus	4/27/11	3:46:57 PM	12958772.12	271315.98	911.1929	0.039	0.0923	0.1002	0.7	0.7	1.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg		Sand over Silt		
TC1-E-105	Focus	4/27/11	3:48:00 PM	12958768.24	271316.90	911.1195	0.038	0.0894	0.0971	0.1	0.9	1.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-106	Focus	4/27/11	3:49:35 PM	12958765.56	271342.38	910.7732	0.0377	0.0943	0.1016	0.4	0.2	1.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg		Gravel & Larger		
TC1-E-107	Focus	4/27/11	3:50:23 PM	12958761.77	271340.08	910.8277	0.0431	0.1076	0.1159	0.5	0.0	0.8	None	None	None	Left	>3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-108	Focus	4/27/11	3:52:52 PM	12958758.79	271358.71	910.5397	0.0384	0.0877	0.0957	0.4	0.1	0.1	None	None	None	Right	>3 ft/sec		Strt Channel Edg		Gravel & Larger		
TC1-E-109	Focus	4/27/11	3:54:19 PM	12958755.15	271357.81	910.5803	0.0476	0.1078	0.1178	0.5	1.1	1.4	None	None	None	Left	>3 ft/sec		Strt Channel Edg		Sand & Gravel		
TC1-E-110	Focus	4/27/11	3:56:14 PM	12958756.68	271367.74	910.4383	0.0397	0.0886	0.0971	0.6	2.5	3.5	None	None	None	Right	>3 ft/sec		Point Bar		Sand		
TC1-E-111	Focus	4/27/11	3:57:03 PM	12958755.38	271368.42	910.5049	0.0423	0.0937	0.1028	1.0	0.2	0.5	None	None	None	Center	>3 ft/sec		Mid-Channel		Sand & Gravel		
TC1-E-112	Focus	4/27/11	3:58:00 PM	12958752.86	271367.66	910.4576	0.051	0.1123	0.1233	0.9	2.1	2.6	None	None	None	Left	>3 ft/sec		Cut Bank		Sand		
TC1-E-113	Focus	4/28/11	8:39:30 AM	12958756.92	271373.03	910.9721	0.0358	0.0757	0.0837	1.1	0.2	0.4	Light	Light	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-114	Focus	4/28/11	8:41:11 AM	12958754.45	271374.50	911.077	0.0315	0.0656	0.0728	1.5	0.1	0.2	None	None	None	Left	>3 ft/sec		Cut Bank	None	Gravel & Larger		
TC1-E-115	Focus	4/28/11	8:44:58 AM	12958761.74	271385.26	910.9905	0.0312	0.0622	0.0696	1.4	0.6	0.7	None	None	None	Right	>3 ft/sec		Cut Bank	None	Sand		
TC1-E-116	Focus	4/28/11	8:46:16 AM	12958759.33	271386.69	911.062	0.0355	0.0699	0.0784	1.4	0.5	0.5	None	None	None	Left	>3 ft/sec		Point Bar	None	Sand		
TC1-E-117	Focus	4/28/11	8:48:11 AM	12958763.34	271394.14	911.0638	0.0418	0.0811	0.0913	1.2	0.1	0.2	Light	Light	Few	Right	>3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-118	Focus	4/28/11	8:50:00 AM	12958758.60	271394.38	911.0565	0.0333	0.063	0.0713	1.0	0.2	0.4	Light	Light	Few	Left	>3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-119	Focus	4/28/11	8:51:37 AM	12958751.87	271405.31	911.131	0.0292	0.0521	0.0597	1.1	0.4	0.5	None	None	None	Right	>3 ft/sec		Cut Bank	None	Sand		
TC1-E-120	Focus	4/28/11	8:52:57 AM	12958751.48	271403.50	911.1103	0.0354	0.0622	0.0716	1.4	0.2	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC1-E-121	Focus	4/28/11	8:54:29 AM	12958750.09	271401.70	911.1032	0.037	0.0679	0.0774	0.9	0.3	0.4	Light	Light	Few	Left	>3 ft/sec		Point Bar	None	Sand		
TC1-E-122	Focus	4/28/11	8:56:34 AM	12958731.78	271407.27	910.9717	0.0476	0.0852	0.0976	1.4	0.4	0.5	None	None	None	Right	>3 ft/sec		Point Bar	None	Sand		
TC1-E-123	Focus	4/28/11	8:58:04 AM	12958730.05	271405.64	911.0312	0.0423	0.075	0.0861	1.5	0.4	0.5	Light	Light	None	Center	>3 ft/sec		Mid-Channel	None	Sand		
TC1-E-124	Focus	4/28/11	9:00:28 AM	12958727.92	271403.93	911.0769	0.0407	0.068	0.0792	1.2	0.3	0.3	Light	Light	Few	Left	>3 ft/sec		Cut Bank	None	Sand		
TC1-E-125	Focus	4/28/11	9:02:46 AM	12958728.83	271420.65	910.9839	0.0409	0.0648	0.0766	1.8	0.0	0.1	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC1-E-126	Focus	4/28/11	9:05:30 AM	12958727.25	271422.96	910.9434	0.0434	0.0676	0.0803	1.7	0.0	0.5	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-127	Focus	4/28/11	9:08:22 AM	12958732.24	271439.75	910.944	0.0577	0.0881	0.1053	1.6	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		GRAVEL ACROSSCHNL
TC1-E-128	Focus	4/28/11	9:11:30 AM	12958728.94	271461.79	910.9032	0.0428	0.064	0.077	1.5	0.2	0.3	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand		SOLID SAND
TC1-E-129	Focus	4/28/11	9:13:05 AM	12958727.00	271462.05	910.8706	0.0479	0.0741	0.0882	1.1	0.3	0.4	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Sand		SOLID SAND
TC1-E-130	Focus	4/28/11	9:14:56 AM	12958724.13	271462.69	910.8833	0.0457	0.0694	0.0831	1.0	0.4	0.5	Light	Light	Few	Left	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-131	Focus	4/28/11	9:17:22 AM	12958726.46	271477.46	910.901	0.0435	0.0624	0.076	1.5	0.1	0.3	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-132	Focus	4/28/11	9:18:47 AM	12958722.80	271477.01	910.9065	0.038	0.0539	0.0659	1.5	0.1	0.4	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-133	Focus	4/28/11	9:20:49 AM	12958725.74	271483.85	910.9068	0.0454	0.0643	0.0787	1.7	0.5	0.6	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-134	Focus	4/28/11	9:23:49 AM	12958723.33	271482.88	910.8662	0.0462	0.0625	0.0777	2.1	0.3	0.4	Light	Light	Few	Center	>3 ft/sec		Mid-Channel	None	Sand		
TC1-E-135	Focus	4/28/11	9:26:02 AM	12958720.39	271485.58	910.8713	0.0467	0.0638	0.0791	1.4	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-136	Focus	4/28/11	9:28:25 AM	12958722.36	271495.90	910.8073	0.0439	0.059	0.0735	1.1	0.4	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-137	Focus	4/28/11	9:30:09 AM	12958718.09	271496.45	910.8494	0.0556	0.0739	0.0925	1.3	0.2	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-138	Focus	4/28/11	9:32:02 AM	12958719.14	271508.72	910.8613	0.0331	0.0435	0.0546	1.4	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
TC1-E-139	Focus	4/28/11	9:34:34 AM	12958723.25	271509.46	910.8185	0.0357	0.0464	0.0585	1.0	0.4	0.5	Moderate	Moderate	Few	Right	>3 ft/sec		Point Bar	None	Sand		
TC1-E-140	Focus	4/28/11	9:38:16 AM	12958722.40	271505.52	910.845	0.0378	0.0471	0.0604	1.3	0.2	0.3	None	None	None	Right	>3 ft/sec		Point Bar	None	Sand	U BOUNDARY	
TC1-E-141	Focus	4/28/11	9:41:52 AM	12958720.61	271512.50	910.8006	0.0481	0.0604	0.0772	1.6	0.2	0.4	None	None	None	Left	>3 ft/sec		Point Bar	None	Silt over Sand	U BOUNDARY	
TC1-E-142	Focus	4/28/11	9:43:34 AM	12958728.23	271520.84	910.7884	0.0479	0.0586	0.0757	1.2	0.5	1.0	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-143	Focus	4/28/11	9:45:39 AM	12958731.90	271530.99	910.7085	0.0637	0.0771	0.1	1.7	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-144	Focus	4/28/11	9:47:42 AM	12958727.64	271532.72	910.731	0.0637	0.0765	0.0995	1.4	0.6	0.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-145	Focus	4/28/11	9:50:13 AM	12958729.67	271550.48	910.7736	0.0486	0.0581	0.0757	1.8	0.7	0.8	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-146	Focus	4/28/11	9:52:04 AM	12958735.51	271550.63	910.7733	0.0394	0.0469	0.0613	1.1	0.6	0.7	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	U BOUNDARY	
TC1-E-147	Focus	4/28/11	9:54:59 AM	12958734.13	271576.21	910.7508	0.0423	0.05	0.0655	1.3	0.7	0.7	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-148	Focus	4/28/11	9:59:01 AM	12958729.86	271580.01	910.708	0.0567	0.0661	0.0871	1.4	0.7	1.8	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-149	Focus	4/28/11	10:01:50 AM	12958731.46	271587.16	910.7906	0.0487	0.0572	0.0752	1.5	0.5	0.5	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-150	Focus	4/28/11	10:05:31 AM	12958732.53	271595.18	910.7349	0.0526	0.0626	0.0818	1.3	0.8	1.3	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	D BOUNDARY	
TC1-E-151	Focus	4/28/11	10:07:20 AM	12958735.94	271594.84	910.69	0.0481	0.0576	0.075	1.4	0.2	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand	D BOUNDARY	
TC1-E-152	Focus	4/28/11	10:09:49 AM	12958729.85	271611.30	910.8013	0.0519	0.0631	0.0817	1.6	0.3	0.5	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-153	Focus	4/28/11	10:12:45 AM	12958714.44	271618.16	910.622	0.0522	0.0645	0.0829	1.4	0.3	0.4	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BOUNDARY	
TC1-E-154	Focus	4/28/11	10:13:58 AM	12958713.12	271622.96	910.5579	0.0423	0.0527	0.0676	1.3	0.3	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-155	Focus	4/28/11	10:16:48 AM	12958699.90	271632.80	910.7122	0.0367	0.0471	0.0597	1.4	0.5	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-156	Focus	4/28/11	10:19:34 AM	12958697.93	271629.90	910.6033	0.0368	0.0483	0.0607	1.6	0.2	0.3	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-157	Focus	4/28/11	10:23:08 AM	12958687.23	271634.76	910.6176	0.0388	0.0528	0.0655	1.4	0.3	0.4	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC1-E-158	Focus	4/28/11	10:25:11 AM	12958689.25	271638.23	910.6286	0.0399	0.0555	0.0683	1.7	0.7	0.8	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LAT BOUNDARY	
TC1-E-159	Focus	4/28/11	10:27:04 AM	12958679.86	271639.54	910.6692	0.049	0.0714	0.0867	1.5	0.5	0.7	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-160	Focus	4/28/11	10:29:11 AM	12958666.91	271646.36	910.6436	0.0489	0.0714	0.0865	1.4	0.2	0.9	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-161	Focus	4/28/11	10:36:22 AM	12958649.14	271654.80	910.6711	0.041	0.0666	0.0782	1.3	0.7	1.0	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand	D BOUNDARY	
TC1-E-162	Focus	4/28/11	10:38:09 AM	12958642.00	271663.01	910.7077	0.037	0.0614	0.0717	1.3	0.1	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-163	Focus	4/28/11	10:39:29 AM	12958638.94	271661.01	910.7116	0.0444	0.0743	0.0866	1.2	0.3	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
TC1-E-164	Focus	4/28/11	10:41:08 AM	12958638.13	271659.42	910.6642	0.0426	0.0724	0.084	1.2	0.9	1.0	Moderate	Moderate	Few	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment		
TC1-E-165	Focus	4/28/11	10:42:59 AM	12958644.41	271658.49	910.7037	0.043	0.0747	0.0862	1.2	0.4	1.3	Moderate	Moderate	Few	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment		
TC1-E-166	Focus	4/28/11	10:45:49 AM	12958616.59	271669.03	910.6142	0.0334	0.0591	0.0679	1.8	0.3	0.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-167	Focus	4/28/11	10:47:31 AM	12958616.17	271664.69	910.6753	0.0358	0.0626	0.0721	1.2	0.4	0.4	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC1-E-168	Focus	4/28/11	10:49:57 AM	12958604.51	271666.13	910.5898	0.0332	0.0589	0.0676	1.9	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		CHANEL NARROWS
TC1-E-169	Focus	4/28/11	10:52:58 AM	12958581.09	271671.33	910.5763	0.0373	0.0669	0.0766	1.6	0.6	1.9	Light	Light	Few	Center	>3 ft/sec		Mid-Channel	None	Soft Sediment		BND SILT A GRAVEL
TC1-E-170	Focus	4/28/11	10:55:13 AM	12958578.09	271669.97	910.6588	0.0392	0.0708	0.081	1.2	0.1	0.1	Light	Light	Few	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-171	Focus	4/28/11	10:59:29 AM	12958568.54	271685.75	910.5632	0.0347	0.0654	0.0741	1.7	0.6	0.7	Light	Light	Few	Center	>3 ft/sec		Strt Channel Edg	None	Sand over Silt		WITH GRAVEL
TC1-E-172	Focus	4/28/11	11:02:06 AM	12958563.13	271700.64	910.5527	0.0413	0.0781	0.0883	1.6	1.0	1.0	Light	Light	Few	Left	>3 ft/sec		Point Bar	None	Soft Sediment	U BOUNDARY	
TC1-E-173	Focus	4/28/11	11:05:24 AM	12958566.12	271706.32	910.6439	0.0393	0.0726	0.0826	1.2	0.8	1.0	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment	VERY SOFT	
TC1-E-174	Focus	4/28/11	12:53:20 PM	12958537.54	271728.45	910.365	0.0438	0.0527	0.0685	2.0	0.7	0.8	None	None	None	Right	>3 ft/sec		Cut Bank	None	Sand		
TC1-E-175	Focus	4/28/11	12:55:49 PM	12958545.33	271728.03	910.417	0.038	0.0452	0.0591	2.0	0.4	0.5	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		
TC1-E-176	Focus	4/28/11	12:57:30 PM	12958554.66	271722.23	908.7455	0.0369	0.0443	0.0577	1.7	0.5	0.7	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand over Silt	D BOUNDARY	
TC1-E-177	Focus	4/28/11	1:02:03 PM	12958561.81	271710.39	910.4823	0.0501	0.0603	0.0784	1.5	0.2	0.9	Moderate	Moderate	Common	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
TC1-E-178	Focus	4/28/11	1:03:23 PM	12958560.08	271707.60	910.5262	0.0487	0.0582	0.0758	1.5	0.6	0.8	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-179	Focus	4/28/11	1:05:59 PM	12958555.58	271715.64	910.44	0.055	0.0651	0.0853	1.4	0.9	1.0	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Soft Sediment	D BOUNDARY	
TC1-E-180	Focus	4/28/11	1:09:47 PM	12958544.70	271722.99	910.461	0.0406	0.0484	0.0632	1.3	1.0	1.2	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		
TC1-E-181	Focus	4/28/11	1:15:02 PM	12958535.81	271723.77	910.2707	0.0396	0.0484	0.0626	1.3	1.9	2.0	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		
TC1-E-182	Focus	4/28/11	1:18:59 PM	12958512.67	271724.81	910.5647	0.0394	0.049	0.0629	2.0	0.4	0.8	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Silt over Sand		
TC1-E-183	Focus	4/28/11	1:22:51 PM	12958512.04	271721.55	910.389	0.0445	0.0568	0.0722	1.2	0.8	1.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
MP 0.25-0.50																							
TC1-E-184	Focus	4/28/11	1:25:43 PM	12958484.72	271731.49	910.3658	0.0464	0.0602	0.076	1.6	0.9	1.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-185	Focus	4/28/11	1:28:05 PM	12958489.43	271727.76	910.4271	0.0377	0.0498	0.0625	1.8	0.8	0.9	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Soft Sediment	U BOUNDARY	
TC1-E-186	Focus	4/28/11	1:30:48 PM	12958484.34	271727.57	909.9205	0.0428	0.0574	0.0716	2.1	0.8	0.8	Moderate	Moderate	Common	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC1-E-187	Focus	4/28/11	1:33:26 PM	12958481.41	271734.01	910.4434	0.0369	0.0504	0.0624	1.5	1.3	1.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BOUNDARY	
TC1-E-188	Focus	4/28/11	1:34:46 PM	12958478.62	271730.40	910.5155	0.0465	0.0647	0.0797	1.5	1.6	1.6	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	D BOUNDARY	
TC1-E-189	Focus	4/28/11	1:37:35 PM	12958474.69	271740.42	910.4826	0.0399	0.0551	0.068	1.4	0.4	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	OVER GRAVEL	
TC1-E-190	Focus	4/28/11	1:39:01 PM	12958471.32	271737.92	910.4431	0.0409	0.0575	0.0706	1.7	0.3	1.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC1-E-191	Focus	4/28/11	1:41:26 PM	12958452.17	271759.26	910.4625	0.041	0.0584	0.0713	1.5	1.8	1.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Other-Comments	SED AND GRAVEL	
TC1-E-192	Focus	4/28/11	1:43:12 PM	12958450.91	271756.32	910.3103	0.045	0.0649	0.0789	1.7	1.3	1.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Other-Comments	SED AND GRAVEL	
TC1-E-193	Focus	4/28/11	1:46:02 PM	12958425.82	271772.71	910.3502	0.0448	0.0657	0.0795	1.8	1.4	2.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		WITH SEDIMENT
TC1-E-194	Focus	4/28/11	1:49:45 PM	12958424.36	271770.34	910.4601	0.042	0.063	0.0757	1.8	0.3	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		WITH SEDIMENT
TC1-E-195	Focus	4/28/11	1:51:52 PM	12958414.17	271776.39	910.3519	0.0445	0.0676	0.0809	1.4	2.1	2.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		WITH SEDIMENT
TC1-E-196	Focus	4/28/11	1:53:34 PM	12958412.84	271771.84	910.4936	0.0474	0.0728	0.0869	1.8	0.5	1.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		WITH SEDIMENT
TC1-E-197	Focus	4/28/11	1:57:51 PM	12958329.48	271809.73	908.9804	0.0458	0.072	0.0853	0.6	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-198	Focus	4/28/11	2:02:55 PM	12958322.21	271807.92	909.0338	0.0476	0.0791	0.0923	1.0	0.8	1.7	Heavy	Heavy	Common	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment	W GRAVEL	
TC1-E-199	Focus	4/28/11	2:05:35 PM	12958327.64	271799.10	908.9375	0.0493	0.0809	0.0947	0.9	1.7	2.0	None	None	None	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-200	Focus	4/28/11	2:08:35 PM	12958324.39	271802.41	908.9283	0.0452	0.075	0.0875	0.9	0.4	0.5	Light	Light	Few	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel	U BOUNDARY	
TC1-E-201	Focus	4/28/11	2:09:42 PM	12958321.39	271813.20	908.906	0.0427	0.0712	0.083	0.7	0.7	1.1	Light	Light	Few	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel	D BOUNDARY	
TC1-E-202	Focus	4/28/11	2:12:00 PM	12958356.94	271868.86	908.544	0.0432	0.0728	0.0847	0.9	0.5	0.6	Light	Light	Few	Right	>3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-203	Focus	4/28/11	2:15:22 PM	12958351.93	271866.40	908.4194	0.0384	0.0699	0.0797	0.4	0.1	0.2	Light	Light	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-204	Focus	4/28/11	2:17:44 PM	12958313.06	271915.45	908.1884	0.0466	0.0851	0.0971	0.9	0.0	0.0	Light	Light	None	Right	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-205	Focus	4/28/11	2:19:06 PM	12958307.75	271912.90	908.1533	0.046	0.084	0.0957	1.1	0.4	0.6	Heavy	Heavy	Common	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-206	Focus	4/28/11	2:20:58 PM	12958312.65	271906.53	908.18	0.0447	0.0817	0.0932	0.9	0.5	0.5	Light	Light	Few	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BOUNDARY	
TC1-E-207	Focus	4/28/11	2:22:58 PM	12958303.97	271917.52	908.2162	0.0383	0.07	0.0798	0.8	0.1	0.3	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BOUNDARY	
TC1-E-208	Focus	4/28/11	2:26:14 PM	12958306.04	271948.14	908.1091	0.0468	0.081	0.0935	0.9	0.1	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-209	Focus	4/28/11	2:27:43 PM	12958302.05	271945.67	908.0094	0.0407	0.0736	0.0841	1.1	0.9	0.9	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-210	Focus	4/28/11	2:30:33 PM	12958294.21	271967.59	908.089	0.0425	0.0763	0.0873	1.3	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-211	Focus	4/28/11	2:32:27 PM	12958289.43	271963.94	908.0088	0.0536	0.0955	0.1095	0.8	0.7	0.8	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-212	Focus	4/28/11	2:34:41 PM	12958273.07	271991.34	908.0258	0.0414	0.073	0.0839	0.7	0.6	0.6	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-213	Focus	4/28/11	2:43:10 PM	12958268.47	271992.36	907.9341	0.0443	0.0778	0.0895	1.0	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC1-E-214	Focus	4/28/11	2:44:38 PM	12958265.97	271989.58	907.9098	0.0363	0.059	0.0693	1.0	0.4	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-215	Focus	4/28/11	2:46:03 PM	12958276.24	271985.85	907.971	0.0335	0.0532	0.0628	1.0	0.4	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BOUNDARY	
TC1-E-216	Focus	4/28/11	2:48:34 PM	12958264.99	271998.42	907.9811	0.042	0.0659	0.0781	1.1	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BOUNDARY	
TC1-E-217	Focus	4/28/11	2:51:50 PM	12958236.53	272009.36	907.8162	0.0488	0.083	0.0963	1.1	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		OVER GRAVEL
TC1-E-218	Focus	4/28/11	2:52:58 PM	12958232.38	272007.85	907.9223	0.0446	0.0701	0.0831	0.9	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-219	Focus	4/28/11	2:54:54 PM	12958223.20	272032.10	907.1127	0.0372	0.0578	0.0687	0.9	0.6	0.7	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-220	Focus	4/28/11	2:56:11 PM	12958218.00	272031.91	907.8391	0.0386	0.0599	0.0713	1.4	0.1	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-221	Focus	4/28/11	3:00:16 PM	12958227.04	272019.20	907.8235	0.0446	0.065	0.0789	1.1	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	U BOUNDARY	
TC1-E-222	Focus	4/28/11	3:02:52 PM	12958221.36	272030.18	907.7989	0.0425	0.0662	0.0787	1.1	0.2	0.2	Heavy	Heavy	Many	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	SOFT SAND STP HVY	
TC1-E-223	Focus	4/28/11	3:05:00 PM	12958218.66	272061.17	907.6445	0.0341	0.0528	0.0629	0.2	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BOUNDARY	
TC1-E-224	Focus	4/28/11	3:08:45 PM	12958222.42	272064.39	907.7628	0.0447	0.0691	0.0823	1.0	0.3	0.3	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-225	Focus	4/28/11	3:12:52 PM	12958219.88	272105.69	907.6116	0.0478	0.0742	0.0883	0.5	0.6	0.8	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand	U BOUNDARY	
TC1-E-226	Focus	4/28/11	3:17:03 PM	12958230.51	272107.93	907.7092	0.0486	0.0757	0.09	1.0	1.1	1.2	Heavy	Heavy	Many	Right	<1ft/sec		Cut Bank	None	Soft Sediment	VERY HEAVY	PHOTO 194
TC1-E-227	Focus	4/28/11	3:19:29 PM	12958229.45	272111.04	907.6945	0.0391	0.0615	0.0729	2.0	0.2	0.3	Light	Light	Few	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel		THALWAG
TC1-E-228	Focus	4/28/11	3:21:19 PM	12958224.83	272125.80	907.6359	0.041	0.0647	0.0766	1.3	0.3	0.4	Moderate	Moderate	Few	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-229	Focus	4/28/11	3:22:58 PM	12958220.58	272122.05	907.4409	0.0525	0.0835	0.0986	0.6	0.0	0.0	Heavy	Heavy	Common	Left	<1ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-230	Focus	4/28/11	3:26:05 PM	12958202.30	272139.26	907.5042	0.0448	0.0724	0.0851	1.0	0.1	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BOUNDARY	
TC1-E-231	Focus	4/28/11	3:28:43 PM	12958202.80	272142.82	907.5038	0.0409	0.0662	0.0778	0.9	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC1-E-232	Focus	4/28/11	3:30:43 PM	12958198.82	272140.68	907.5538	0.0469	0.0767	0.0899	0.9	0.4	0.6	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-233	Focus	4/28/11	3:32:38 PM	12958175.26	272153.35	907.5105	0.0401	0.069	0.0798	0.6	0.3	0.3	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC1-E-234	Focus	4/28/11	3:33:56 PM	12958173.96	272158.22	907.4776	0.0411	0.0681	0.0796	0.5	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC1-E-235	Focus	4/28/11	3:34:58 PM	12958175.40	272161.65	907.4819	0.0425	0.0707	0.0825	1.0	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC1-E-236	Focus	4/28/11	3:37:39 PM	12958159.79	272177.34	907.3902	0.0464	0.0782	0.0909	0.2	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC1-E-237	Focus	4/28/11	3:39:41 PM	12958170.54	272209.56	907.3304	0.041	0.0682	0.0796	0.8	0.5	0.6	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Soft Sediment		
TC1-E-238	Focus	4/28/11	3:42:54 PM	12958166.91	272212.64	907.1579	0.0356	0.062	0.0715	1.5	0.0	0.0	None	None	None	Left	>3 ft/sec		Cut Bank	None	Gravel & Larger	U BOUNDARY	THALWAG
TC1-E-239	Focus	4/28/11	3:47:39 PM	12958166.63	272220.01	907.3445	0.0448	0.0758	0.088	0.8	0.5	0.5	Moderate	Moderate	Common	Center	>3 ft/sec		Mid-Channel	None	Sand		
TC1-E-240	Focus	4/28/11	3:51:23 PM	12958166.38	272225.84	907.2827	0.0388	0.0657	0.0763	1.1	0.3	0.4	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LATERAL BOUND	
TC1-E-241	Focus	4/28/11	3:53:28 PM	12958149.83	272237.22	907.2501	0.0374	0.0635	0.0737	0.9	0.3	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	D BOUNDARY	
TC1-E-242	Focus	4/28/11	3:56:39 PM	12958149.67	272272.15	907.2925	0.0371	0.0654	0.0752	0.6	0.5	0.5	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-243	Focus	4/28/11	4:02:43 PM	12958152.07	272273.21	907.3115	0.0448	0.079	0.0908	1.0	0.2	0.7	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	U BOUNDARY	
TC1-E-244	Focus	4/28/11	4:05:14 PM	12958151.48	272294.91	907.1535	0.046	0.0812	0.0933	1.0	0.2	0.3	Heavy	Heavy	Common	Left	1-3 ft/sec		Point Bar	None	Sand & Silt		
TC1-E-245	Focus	4/28/11	4:08:53 PM	12958153.87	272298.59	907.2831	0.0519	0.0916	0.1053	1.1	0.5	0.6	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt	LAT BOUNDARY	
TC1-E-246	Focus	4/28/11	4:12:46 PM	12958137.60	272317.83	907.2007	0.0447	0.08	0.0917	0.8	0.3	0.5	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	D BOUNDARY	
TC1-E-247	Focus	4/28/11	4:14:07 PM	12958142.88	272321.66	907.2726	0.0375	0.0674	0.0772	1.2	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-248	Focus	4/28/11	4:16:38 PM	12958126.49	272335.33	907.2469	0.0327	0.0594	0.0678	1.0	0.1	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Other-Comments		SILT A CLAY
TC1-E-249	Focus	4/28/11	4:19:06 PM	12958125.16	272331.22	907.2507	0.0502	0.0916	0.1045	1.0	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
TC1-E-250	Focus	4/28/11	4:22:42 PM	12958123.38	272326.91	907.3129	0.0496	0.0917	0.1043	0.6	0.7	0.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-250	Focus	4/29/11	8:28:55 AM	12958093.91	272343.05	906.9858	0.0334	0.0753	0.0824	0.8	0.3	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-251	Focus	4/29/11	8:29:33 AM	12958093.65	272336.16	907.0158	0.0289	0.0646	0.0708	0.5	0.5	0.5	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-252	Focus	4/29/11	8:31:30 AM	12958059.83	272368.62	906.993	0.0282	0.0619	0.068	0.6	0.5	0.6	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-253	Focus	4/29/11	8:32:22 AM	12958054.24	272366.21	906.9515	0.0282	0.061	0.0672	0.9	0.5	0.6	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-254	Focus	4/29/11	8:34:55 AM	12958044.91	272426.87	906.9078	0.0228	0.0482	0.0533	1.0	0.3	0.4	Heavy	Heavy	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC1-E-255	Focus	4/29/11	8:36:36 AM	12958051.23	272405.84	906.9522	0.0235	0.049	0.0543	1.0	0.3	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt	U BOUNDARY	
TC1-E-256	Focus	4/29/11	8:39:02 AM	12958046.10	272415.94	907.0468	0.0287	0.0584	0.065	1.0	0.4	0.5	Moderate	Moderate	Common	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		
TC1-E-257	Focus	4/29/11	8:40:17 AM	12958043.91	272414.60	906.9963	0.0357	0.0678	0.0766	0.9	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt	LAT BOUNDARY	
TC1-E-258	Focus	4/29/11	8:42:21 AM	12958038.75	272424.43	907.0505	0.0355	0.066	0.075	0.8	0.8	0.9	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt	LAT BOUNDARY	
TC1-E-259	Focus	4/29/11	8:44:25 AM	12958038.25	272440.83	906.9165	0.0245	0.0475	0.0534	1.2	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt	D BOUNDARY	
TC1-E-260	Focus	4/29/11	8:45:22 AM	12958032.82	272439.07	907.0057	0.0418	0.0804	0.0906	0.8	0.2	1.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC1-E-261	Focus	4/29/11	8:47:49 AM	12958023.87	272485.25	906.8813	0.0287	0.0538	0.061	0.8	0.4	0.6	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		OVER GRAVEL
TC1-E-262	Focus	4/29/11	8:49:18 AM	12958025.50	272475.46	906.9193	0.0433	0.0762	0.0877	0.9	0.1	0.2	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt	U BOUNDARY	
TC1-E-263	Focus	4/29/11	8:50:26 AM	12958021.67	272486.59	906.9544	0.0336	0.0583	0.0673	0.8	0.6	0.8	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment	LAT BOUNDARY	
TC1-E-264	Focus	4/29/11	8:51:39 AM	12958018.22	272484.51	906.8998	0.0431	0.0744	0.0859	1.0	0.6	0.9	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC1-E-265	Focus	4/29/11	8:53:37 AM	12958021.87	272500.95	906.9737	0.0472	0.0804	0.0932	0.9	0.3	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-266	Focus	4/29/11	8:54:41 AM	12958016.53	272501.39	906.9255	0.0439	0.0736	0.0857	1.0	0.4	0.6	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC1-E-267	Focus	4/29/11	8:56:25 AM	12958003.13	272550.33	906.9605	0.0379	0.0612	0.072	0.9	0.8	0.9	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-268	Focus	4/29/11	8:57:44 AM	12957999.03	272547.18	907.0008	0.0358	0.0572	0.0675	0.9	0.1	0.2	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-269	Focus	4/29/11	8:58:38 AM	12958004.36	272537.58	906.889	0.0434	0.0754	0.087	0.9	0.4	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	U BOUNDARY	
TC1-E-270	Focus	4/29/11	9:00:27 AM	12958000.53	272548.67	906.9	0.0329	0.0515	0.0611	1.0	0.4	0.5	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BOUNDARY	
TC1-E-271	Focus	4/29/11	9:01:51 AM	12957990.02	272564.94	906.9237	0.0333	0.056	0.0652	0.9	0.8	1.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	D BOUNDARY	
TC1-E-272	Focus	4/29/11	9:10:14 AM	12957983.04	272586.71	906.9316	0.0493	0.0799	0.0939	1.0	0.9	1.0	Heavy	Heavy	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		OVER GRAVEL
TC1-E-273	Focus	4/29/11	9:11:35 AM	12957979.78	272586.82	907.0123	0.0353	0.0511	0.0621	1.1	0.2	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BOUNDARY	
TC1-E-274	Focus	4/29/11	9:12:16 AM	12957977.81	272585.11	906.9986	0.0385	0.0555	0.0675	1.0	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	LAT BOUNDARY	
TC1-E-275	Focus	4/29/11	9:14:07 AM	12957985.38	272581.08	906.9833	0.0424	0.0523	0.0673	1.3	0.1	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	U BOUNDARY	
TC1-E-276	Focus	4/29/11	9:16:51 AM	12957974.90	272599.14	906.836	0.0387	0.0547	0.067	1.3	0.6	1.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	D BOUNDARY	
TC1-E-277	Focus	4/29/11	9:20:17 AM	12957970.52	272596.58	906.9173	0.0509	0.0725	0.0886	1.2	1.1	1.4	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-278	Focus	4/29/11	9:24:49 AM	12957974.01	272589.08	906.9403	0.0419	0.0561	0.07	0.8	0.5	0.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	U BOUNDARY	
TC1-E-279	Focus	4/29/11	9:27:32 AM	12957964.66	272615.54	906.9428	0.0477	0.0633	0.0793	0.9	0.9	1.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-280	Focus	4/29/11	9:29:13 AM	12957972.14	272615.79	906.9221	0.0501	0.0657	0.0826	0.9	1.6	2.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
MP 0.50-0.75																							
TC1-E-281	Focus	4/29/11	9:33:03 AM	12957960.05	272706.56	905.5355	0.0499	0.0641	0.0812	0.8	1.0	1.1	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-282	Focus	4/29/11	9:34:00 AM	12957956.77	272706.59	905.4902	0.0509	0.0679	0.0849	0.5	0.5	0.7	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand		
TC1-E-283	Focus	4/29/11	9:35:39 AM	12957952.45	272707.04	905.5263	0.0472	0.0606	0.0769	1.7	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-284	Focus	4/29/11	9:37:16 AM	12957954.74	272727.21	905.4833	0.0475	0.0601	0.0766	0.4	0.9	1.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-285	Focus	4/29/11	9:38:17 AM	12957948.54	272724.31	905.4827	0.0555	0.0699	0.0892	0.5	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC1-E-286	Focus	4/29/11	9:40:39 AM	12957932.06	272783.95	905.1353	0.0484	0.0592	0.0765	0.8	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-287	Focus	4/29/11	9:41:23 AM	12957926.32	272785.23	905.0634	0.0401	0.0484	0.0629	0.5	0.5	0.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-288	Focus	4/29/11	9:43:31 AM	12957909.46	272838.58	904.8051	0.06	0.0721	0.0938	0.7	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC1-E-289	Focus	4/29/11	9:44:12 AM	12957906.16	272835.78	904.8614	0.067	0.0803	0.1046	0.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC1-E-290	Focus	4/29/11	9:45:48 AM	12957904.70	272888.11	904.575	0.0695	0.0829	0.1082	0.7	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-291	Focus	4/29/11	9:46:35 AM	12957900.33	272884.30	904.5994	0.0612	0.0729	0.0952	0.4	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-292	Focus	4/29/11	9:51:24 AM	12957883.20	272953.25	904.4066	0.0559	0.0648	0.0856	1.1	0.1	0.1	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC1-E-294	Focus	4/29/11	9:55:09 AM	12957852.69	273039.51	903.8755	0.0499	0.0582	0.0767	0.6	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC1-E-295	Focus	4/29/11	9:59:04 AM	12957832.13	273113.90	903.4848	0.0359	0.0423	0.0554	0.3	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC1-E-296	Focus	4/29/11	10:03:17 AM	12957802.34	273146.42	903.1837	0.0517	0.056	0.0762	0.8	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC1-E-297	Focus	4/29/11	10:07:44 AM	12957781.71	273188.36	903.0041	0.0438	0.0538	0.0694	0.5	0.1	0.1	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Gravel & Larger		TRIB ENTRY
TC1-E-298	Focus	4/29/11	10:08:53 AM	12957775.67	273187.27	902.7857	0.0385	0.0477	0.0613	0.7	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC1-E-299	Focus	4/29/11	10:10:08 AM	12957735.00	273236.02	902.6222	0.0385	0.0481	0.0616	0.6	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC1-E-300	Focus	4/29/11	10:11:55 AM	12957700.28	273254.47	902.452	0.0489	0.0623	0.0791	0.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-301	Focus	4/29/11	10:12:53 AM	12957695.57	273251.40	902.495	0.0572	0.073	0.0928	1.0	0.5	1.2	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-302	Focus	4/29/11	10:14:31 AM	12957680.17	273265.34	902.463	0.0642	0.0832	0.1051	0.3	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-303	Focus	4/29/11	10:15:10 AM	12957678.58	273258.82	902.4698	0.0665	0.0868	0.1093	0.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-304	Focus	4/29/11	10:20:03 AM	12957645.89	273277.12	902.2666	0.0414	0.0572	0.0706	0.8	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-305	Focus	4/29/11	10:21:15 AM	12957644.60	273271.22	902.303	0.0421	0.0589	0.0724	0.8	0.6	1.0	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		OVER SOFT SED
TC1-E-306	Focus	4/29/11	10:23:22 AM	12957612.07	273304.16	902.238	0.0484	0.0694	0.0846	0.9	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-307	Focus	4/29/11	10:24:47 AM	12957608.13	273299.78	902.2025	0.0501	0.0741	0.0894	0.8	0.5	0.6	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-308	Focus	4/29/11	10:26:33 AM	12957594.78	273308.76	902.3459	0.0472	0.07	0.0844	0.4	0.6	0.6	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-309	Focus	4/29/11	10:27:47 AM	12957594.55	273315.08	902.2522	0.0377	0.0567	0.0681	1.0	0.0	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-310	Focus	4/29/11	10:29:37 AM	12957558.63	273327.74	902.131	0.0345	0.0529	0.0632	0.5	0.5	0.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-311	Focus	4/29/11	10:30:28 AM	12957555.81	273325.49	902.2038	0.0431	0.0687	0.0811	1.1	0.1	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-312	Focus	4/29/11	10:33:06 AM	12957476.83	273375.29	902.0242	0.0494	0.0856	0.0988	1.0	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-313	Focus	4/29/11	10:34:18 AM	12957477.22	273371.13	901.9937	0.0588	0.103	0.1186	1.3	0.8	0.9	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC1-E-314	Focus	4/29/11	10:43:38 AM	12957425.70	273403.66	901.7625	0.0407	0.0771	0.0872	0.7	0.3	0.4	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-315	Focus	4/29/11	10:45:06 AM	12957424.56	273400.46	901.7242	0.0308	0.0598	0.0672	0.9	0.0	0.0	Light	None	Few	Center	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LAT BOUND	
TC1-E-316	Focus	4/29/11	10:46:09 AM	12957435.53	273396.71	901.8351	0.0385	0.0702	0.0801	0.9	0.4	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BOUNDARY	
TC1-E-317	Focus	4/29/11	10:48:52 AM	12957422.64	273397.74	901.7706	0.0336	0.0621	0.0706	0.7	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-318	Focus	4/29/11	10:50:45 AM	12957402.72	273422.18	889.7719	2.1631	4.095	4.6312	0.9	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-319	Focus	4/29/11	10:51:33 AM	12957399.21	273416.32	900.5075	1.7305	2.9687	3.4362	0.9	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-320	Focus	4/30/11	9:44:01 AM	12957364.52	273441.82	916.3965	1.6558	1.7255	2.3914	0.9	0.8	0.8	Heavy	Heavy	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-321	Focus	4/30/11	9:45:09 AM	12957368.11	273440.33	916.9785	2.2464	2.3791	3.2721	0.9	0.8	0.8	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand	U BOUNDARY	
TC1-E-322	Focus	4/30/11	9:46:40 AM	12957367.09	273440.89	912.3814	2.5182	2.4647	3.5236	0.9	0.1	0.9	Light	Light	Few	Right	1-3 ft/sec		Mid-Channel	None	Silt over Sand	LATERAL BOUNDARY	
TC1-E-323	Focus	4/30/11	9:48:17 AM	12957364.23	273440.66	914.5522	1.5243	1.6339	2.2345	0.8	0.4	0.4	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-324	Focus	4/30/11	9:50:38 AM	12957368.32	273438.55	903.1611	2.1124	2.4146	3.2081	0.8	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BOUNDARY	POOR SATELITES
TC1-E-325	Focus	4/30/11	9:57:47 AM	12957346.56	273456.68	904.6893	1.5746	1.7991	2.3909	0.8	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	D BOUNDARY	POOR SATELITES
TC1-E-326	Focus	4/30/11	9:59:01 AM	12957345.03	273454.92	902.8303	1.3203	1.5722	2.053	0.8	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BOUNDARY	POOR SATELITES
TC1-E-327	Focus	4/30/11	10:01:18 AM	12957316.56	273486.09	901.5578	0.0586	0.0712	0.0922	0.9	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		POOR SATELITES
TC1-E-328	Focus	4/30/11	10:02:14 AM	12957314.53	273482.78	901.5364	0.0562	0.0689	0.0889	0.9	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-329	Focus	4/30/11	10:03:50 AM	12957280.90	273516.38	901.4435	0.0482	0.06	0.0769	0.7	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-330	Focus	4/30/11	10:05:07 AM	12957274.91	273513.56	901.4066	0.0556	0.07	0.0894	0.6	0.3	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-331	Focus	4/30/11	10:07:28 AM	12957252.41	273538.47	901.4122	0.0474	0.0612	0.0774	0.7	0.4	0.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-332	Focus	4/30/11	10:08:52 AM	12957250.15	273534.10	901.4054	0.044	0.0576	0.0725	0.7	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-333	Focus	4/30/11	10:13:31 AM	12957242.49	273541.76	901.4388	0.0384	0.053	0.0654	0.8	0.4	0.5	Moderate	Moderate	Common	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
TC1-E-334	Focus	4/30/11	10:16:34 AM	12957256.88	273532.63	901.3828	0.0463	0.0663	0.0809	0.8	0.2	0.3	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt	U BOUNDARY	
TC1-E-335	Focus	4/30/11	10:21:20 AM	12957266.07	273528.11	901.3132	0.04	0.0607	0.0727	0.7	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	U BOUNDARY	
TC1-E-336	Focus	4/30/11	10:26:02 AM	12957232.69	273546.83	901.3004	0.0552	0.0887	0.1045	1.0	0.1	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BOUNDARY	
MP 0.75-1.00																							
TC1-E-337	Focus	4/30/11	10:36:58 AM	12957183.92	273584.38	900.2175	0.036	0.0679	0.0769	0.9	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand		
TC1-E-338	Focus	4/30/11	10:38:19 AM	12957179.90	273582.95	900.2612	0.0488	0.0939	0.1058	0.8	1.0	1.5	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand		
TC1-E-339	Focus	4/30/11	10:40:15 AM	12957177.06	273581.29	900.2273	0.0453	0.0886	0.0995	1.1	0.4	0.4	Heavy	Heavy	Common	Left	1-3 ft/sec		Cut Bank	None	Sand over Silt		
TC1-E-340	Focus	4/30/11	10:43:04 AM	12957184.31	273575.69	900.2529	0.0522	0.1044	0.1167	0.7	0.2	0.2	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BOUNDARY	
TC1-E-341	Focus	4/30/11	10:47:08 AM	12957177.69	273585.89	900.1365	0.0595	0.1235	0.1371	1.8	0.0	0.1	Heavy	Heavy	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-342	Focus	4/30/11	10:48:25 AM	12957177.92	273589.54	900.0581	0.0725	0.151	0.1675	0.8	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger	D BOUNDARY	
TC1-E-343	Focus	4/30/11	10:49:19 AM	12957174.13	273604.57	900.0233	0.0663	0.1389	0.1539	0.6	0.1	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-344	Focus	4/30/11	10:50:19 AM	12957171.46	273603.21	900.1197	0.0912	0.1928	0.2133	0.6	0.0	0.0	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-345	Focus	4/30/11	10:51:43 AM	12957121.49	273636.38	899.9244	0.0716	0.1522	0.1681	0.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-346	Focus	4/30/11	10:52:25 AM	12957117.73	273631.84	900.1116	0.0874	0.1866	0.2061	0.7	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-347	Focus	4/30/11	10:54:06 AM	12957072.95	273664.56	899.4099	0.172	0.3712	0.4091	0.6	0.5	1.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BOUNDARY	
TC1-E-348	Focus	4/30/11	10:55:13 AM	12957070.40	273663.47	899.5535	0.1578	0.3425	0.3771	0.6	0.7	1.4	Moderate	Moderate	Few	Left	1-3 ft/sec		Cut Bank	None	Sand over Silt		
TC1-E-349	Focus	4/30/11	10:56:12 AM	12957076.32	273659.83	899.8232	0.1548	0.3369	0.3708	0.5	0.1	0.3	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BOUNDARY	
TC1-E-350	Focus	4/30/11	10:58:14 AM	12957067.84	273667.03	899.5781	0.2303	0.5059	0.5558	0.7	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-351	Focus	4/30/11	11:00:08 AM	12957040.31	273708.38	894.0295	4.5429	10.0321	11.0128	0.5	0.0	0.1	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-352	Focus	4/30/11	11:02:30 AM	12957034.62	273706.87	898.7463	0.2493	0.5544	0.6079	0.8	0.0	0.0	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-353	Focus	4/30/11	11:03:55 AM	12957008.75	273755.28	899.2379	0.1647	0.3675	0.4027	0.8	0.4	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC1-E-354	Focus	4/30/11	11:04:39 AM	12957007.54	273752.45	899.5601	0.1461	0.3264	0.3576	0.3	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-355	Focus	4/30/11	11:07:23 AM	12956987.00	273788.82	898.8018	0.1119	0.251	0.2748	0.5	0.3	0.4	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-356	Focus	4/30/11	11:09:37 AM	12956989.63	273781.06	898.8796	0.103	0.2463	0.267	0.3	0.0	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	U BOUNDARY	
TC1-E-357	Focus	4/30/11	11:11:07 AM	12956983.56	273785.81	898.9939	0.067	0.1507	0.1649	0.7	0.0	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	LAT BOUNDARY	
TC1-E-358	Focus	4/30/11	11:12:20 AM	12956981.90	273796.06	898.9213	0.0754	0.1694	0.1854	0.5	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-359	Focus	4/30/11	11:13:25 AM	12956968.67	273818.41	898.8873	0.072	0.1757	0.1899	0.5	0.1	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-360	Focus	4/30/11	11:14:09 AM	12956963.44	273815.38	899.0771	0.0462	0.113	0.1221	0.4	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-361	Focus	4/30/11	11:15:33 AM	12956948.12	273843.25	898.8124	0.3203	0.2015	0.3784	0.7	0.6	1.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-362	Focus	4/30/11	11:16:17 AM	12956945.12	273837.82	899.3567	0.6462	0.389	0.7542	0.3	0.1	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-363	Focus	4/30/11	11:17:51 AM	12956921.56	273877.43	898.9396	0.0589	0.1364	0.1485	0.7	0.0	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-364	Focus	4/30/11	11:18:32 AM	12956917.63	273873.84	899.102	0.0529	0.1306	0.141	0.5	0.1	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-365	Focus	4/30/11	11:20:13 AM	12956891.15	273916.33	898.9163	0.0564	0.1306	0.1423	0.6	0.2	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-366	Focus	4/30/11	11:21:28 AM	12956890.05	273913.02	898.8554	0.0569	0.1305	0.1424	0.7	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
TC1-E-367	Focus	4/30/11	11:23:32 AM	12956880.73	273937.72	898.8141	0.0488	0.1124	0.1225	1.3	0.1	0.3	Moderate	Moderate	Common	Right	1-3 ft/sec		Cut Bank	None	Sand		
TC1-E-368	Focus	4/30/11	11:24:59 AM	12956889.82	273922.79	899.019	0.0442	0.1116	0.12	0.4	0.0	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	U BOUNDARY	
TC1-E-369	Focus	4/30/11	11:26:50 AM	12956881.64	273935.18	898.7631	0.0466	0.1145	0.1236	0.8	0.1	0.3	Moderate	Moderate	Common	Center	1-3 ft/sec		Mid-Channel	None	Sand		
TC1-E-370	Focus	4/30/11	11:27:42 AM	12956880.54	273933.17	898.8094	0.042	0.1028	0.1111	1.1	0.0	0.0	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand	LAT BOUNDARY	
TC1-E-371	Focus	4/30/11	11:29:20 AM	12956873.40	273945.04	899.0044	0.0487	0.1183	0.128	0.7	0.3	0.8	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-372	Focus	4/30/11	11:30:32 AM	12956870.87	273943.15	898.8552	0.0354	0.0797	0.0872	0.7	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand	D BOUNDARY	
TC1-E-373	Focus	4/30/11	11:32:53 AM	12956860.91	273960.85	898.8554	0.0504	0.1125	0.1233	0.5	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-374	Focus	4/30/11	11:33:53 AM	12956853.82	273956.29	898.7307	0.0442	0.1049	0.1138	0.9	0.7	1.2	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-375	Focus	4/30/11	11:35:20 AM	12956856.85	273950.86	898.8157	0.0399	0.0943	0.1024	0.5	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	U BOUNDARY	
TC1-E-376	Focus	4/30/11	11:36:31 AM	12956856.38	273959.00	898.6746	0.0469	0.1096	0.1192	0.6	0.6	0.6	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BOUNDARY	
TC1-E-377	Focus	4/30/11	11:39:26 AM	12956844.65	273972.05	898.6611	0.0462	0.1132	0.1223	0.9	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-378	Focus	4/30/11	11:41:22 AM	12956835.84	273993.84	898.6114	0.0525	0.118	0.1292	0.8	0.8	0.9	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-379	Focus	4/30/11	11:42:18 AM	12956840.27	273989.03	898.7299	0.0396	0.0884	0.0969	0.5	0.6	0.6	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-380	Focus	4/30/11	11:44:50 AM	12956852.94	273970.96	898.7232	0.0584	0.127	0.1398	0.4	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BOUNDART	
TC1-E-381	Focus	4/30/11	11:47:27 AM	12956833.56	273987.20	898.1976	0.0629	0.1331	0.1472	0.5	1.7	1.8	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	FULL CHANNEL DEP	
TC1-E-382	Focus	4/30/11	11:50:35 AM	12956819.05	274008.29	898.7784	0.0483	0.099	0.1102	0.8	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-383	Focus	4/30/11	11:52:00 AM	12956817.07	274004.04	898.6691	0.0462	0.0929	0.1038	0.4	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-384	Focus	4/30/11	11:53:56 AM	12956809.82	274016.46	898.6996	0.0664	0.1433	0.1579	0.7	0.2	0.2	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-385	Focus	4/30/11	11:55:31 AM	12956806.52	274012.11	898.6918	0.0586	0.1243	0.1374	0.6	1.7	2.4	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-386	Focus	4/30/11	11:57:18 AM	12956815.26	274008.63	898.5812	0.0724	0.1507	0.1672	0.6	0.1	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand	U BOUNDARY	
TC1-E-387	Focus	4/30/11	11:59:22 AM	12956790.03	274027.82	898.5366	0.0579	0.1063	0.121	0.7	0.3	0.3	Light	Light	Few	Right	1-3 ft/sec		Mid-Channel	None	Sand	D BOUNDARY	
TC1-E-388	Focus	4/30/11	12:00:06 PM	12956789.00	274022.26	898.6458	0.0508	0.0925	0.1055	0.4	0.0	0.1	None	None	None	Left	1-3 ft/sec		Mid-Channel	None	Sand	D BOUNDARY	
TC1-E-389	Focus	4/30/11	12:02:09 PM	12956765.03	274043.07	898.4292	0.0538	0.0941	0.1084	0.6	1.0	1.9	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
TC1-E-390	Focus	4/30/11	12:03:26 PM	12956758.30	274044.91	898.3857	0.1236	0.1259	0.1765	0.9	1.1	1.9	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-391	Focus	4/30/11	12:06:05 PM	12956756.36	274060.03	898.5967	0.1077	0.1112	0.1548	0.5	0.8	1.9	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC1-E-392	Focus	4/30/11	12:07:33 PM	12956761.02	274052.22	898.5189	0.1188	0.1319	0.1775	0.8	0.6	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	U BOUNDARY	
TC1-E-393	Focus	4/30/11	12:09:39 PM	12956754.14	274053.27	898.4024	0.1058	0.1187	0.159	0.9	0.8	1.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	U BOUNDARY	
TC1-E-394	Focus	4/30/11	12:12:14 PM	12956751.90	274056.10	898.3917	0.1579	0.2444	0.291	1.0	1.1	1.9	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		3 QUAR CHAN BOUND
TC1-E-395	Focus	4/30/11	1:49:48 PM	12956720.81	274093.29	898.4813	0.0298	0.0469	0.0555	0.3	0.9	0.9	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-396	Focus	4/30/11	1:51:10 PM	12956714.91	274089.60	898.5143	0.0313	0.0496	0.0586	0.7	0.7	2.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-397	Focus	4/30/11	1:52:58 PM	12956703.06	274113.05	898.4623	0.0312	0.05	0.0589	0.4	0.4	1.5	Moderate	Moderate	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-398	Focus	4/30/11	1:54:56 PM	12956716.27	274096.97	898.4754	0.0302	0.0488	0.0574	0.4	0.7	0.8	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	U BOUNDARY	
TC1-E-399	Focus	4/30/11	1:56:23 PM	12956697.92	274112.73	898.4922	0.0328	0.0535	0.0628	0.5	0.2	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BOUNDARY	
TC1-E-400	Focus	4/30/11	1:58:37 PM	12956684.04	274133.04	898.422	0.0314	0.0516	0.0604	0.5	0.0	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-401	Focus	4/30/11	1:59:22 PM	12956679.47	274132.09	898.3713	0.0404	0.0667	0.078	0.5	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-402	Focus	4/30/11	2:01:38 PM	12956651.13	274139.03	898.2831	0.0387	0.0646	0.0753	0.5	0.2	0.3	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-403	Focus	4/30/11	2:03:08 PM	12956650.12	274140.95	898.3489	0.034	0.057	0.0664	0.8	0.3	0.3	Moderate	Heavy	None	Center	1-3 ft/sec		Mid-Channel	None	Silt over Sand		
TC1-E-404	Focus	4/30/11	2:06:10 PM	12956655.82	274139.48	898.4088	0.0281	0.0477	0.0554	0.8	0.1	0.1	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Silt over Sand	U BOUNDARY	
TC1-E-405	Focus	4/30/11	2:08:55 PM	12956646.40	274144.74	898.3292	0.03	0.0513	0.0594	1.0	0.1	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-406	Focus	4/30/11	2:13:46 PM	12956610.48	274146.59	898.3366	0.0299	0.0514	0.0594	0.8	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-407	Focus	4/30/11	2:15:25 PM	12956607.62	274140.48	898.3173	0.036	0.0622	0.0718	1.1	0.3	0.3	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-408	Focus	4/30/11	2:16:51 PM	12956620.47	274142.89	898.3782	0.0379	0.0689	0.0787	0.7	0.3	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	U BOUNDARY	
TC1-E-409	Focus	4/30/11	2:18:09 PM	12956609.96	274144.11	898.4458	0.0362	0.0626	0.0723	0.7	0.2	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BOUNDARY	
TC1-E-410	Focus	4/30/11	2:20:18 PM	12956584.74	274144.35	898.439	0.0434	0.075	0.0867	1.3	0.3	0.4	Light	Light	Few	Left	1-3 ft/sec		Mid-Channel	None	Sand	D BOUNDARY	
TC1-E-411	Focus	4/30/11	2:21:39 PM	12956572.10	274153.66	898.3486	0.0361	0.065	0.0743	0.6	0.5	0.5	Moderate	Moderate	Common	Right	1-3 ft/sec		Mid-Channel	None	Sand		
TC1-E-412	Focus	4/30/11	2:22:55 PM	12956580.20	274149.09	898.3398	0.0322	0.0576	0.066	0.6	0.4	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	U BOUNDARY	
TC1-E-413	Focus	4/30/11	2:25:22 PM	12956573.05	274148.63	898.3301	0.0423	0.075	0.0861	1.0	0.4	0.5	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	LAT BOUNDARY	
TC1-E-414	Focus	4/30/11	2:28:19 PM	12956556.05	274152.87	898.3219	0.0373	0.0652	0.0752	0.7	0.7	1.0	Moderate	Moderate	Common	Center	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-415	Focus	4/30/11	2:30:53 PM	12956531.31	274157.36	898.3911	0.0431	0.0744	0.086	0.5	0.2	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt	D BOUNDARY	
TC1-E-416	Focus	4/30/11	2:31:54 PM	12956530.57	274153.21	898.3009	0.0407	0.0699	0.0809	0.5	0.2	0.2	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-417	Focus	4/30/11	2:33:33 PM	12956518.55	274154.15	898.3241	0.036	0.0599	0.0699	1.4	0.2	1.0	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	D BOUNDARY	
TC1-E-418	Focus	4/30/11	2:42:47 PM	12956509.78	274164.03	898.1921	0.0387	0.0617	0.0729	0.6	0.4	0.5	Light	Light	Few	Center	1-3 ft/sec		Strt Channel Edg	None	Sand	UBDY	
TC1-E-419	Focus	4/30/11	2:44:05 PM	12956506.17	274164.84	898.3822	0.04	0.0655	0.0768	0.6	0.4	0.7	Moderate	Moderate	Common	Center	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-420	Focus	4/30/11	2:45:39 PM	12956501.69	274161.90	898.3482	0.0479	0.0775	0.0911	0.5	0.8	0.8	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-421	Focus	4/30/11	2:48:20 PM	12956475.35	274174.55	898.2638	0.0416	0.0669	0.0788	0.6	0.7	0.9	Light	Light	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	BDY	
TC1-E-422	Focus	4/30/11	2:50:46 PM	12956476.64	274173.19	897.154	0.041	0.0652	0.077	0.6	0.7	0.8	Heavy	Heavy	Many	Center	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-423	Focus	4/30/11	2:52:34 PM	12956474.22	274167.80	898.3513	0.0405	0.0642	0.0759	0.7	0.6	0.8	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		LAT BDY
TC1-E-424	Focus	4/30/11	2:58:16 PM	12956431.14	274173.90	898.2942	0.0451	0.0712	0.0843	0.5	0.7	0.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-425	Focus	4/30/11	3:00:27 PM	12956431.03	274173.77	898.2524	0.0493	0.0779	0.0922	0.5	0.8	0.8	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		D BDY
TC1-E-426	Focus	4/30/11	3:06:51 PM	12956455.83	274180.28	898.3163	0.0538	0.0799	0.0963	0.7	0.5	0.7	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-427	Focus	4/30/11	3:08:46 PM	12956432.65	274181.47	898.2725	0.0492	0.0814	0.0951	1.1	0.3	0.4	Light	Light	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-428	Focus	4/30/11	3:10:15 PM	12956416.62	274184.50	898.2858	0.0516	0.0811	0.0961	0.7	1.3	1.6	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-429	Focus	4/30/11	3:16:28 PM	12956399.79	274185.31	898.2025	0.0842	0.0782	0.1149	1.3	0.9	1.2	Moderate	Moderate	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-430	Focus	4/30/11	3:18:30 PM	12956381.20	274185.21	898.2556	0.0358	0.0577	0.0679	1.1	0.2	0.8	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-431	Focus	4/30/11	3:20:03 PM	12956378.68	274178.94	898.2688	0.0543	0.0891	0.1043	0.5	0.4	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-432	Focus	4/30/11	3:23:08 PM	12956353.10	274189.93	898.2906	0.0522	0.0859	0.1005	1.2	1.6	1.7	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-433	Focus	4/30/11	3:24:54 PM	12956334.07	274195.46	898.1674	0.0488	0.0815	0.095	1.1	1.1	1.2	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-434	Focus	4/30/11	3:28:08 PM	12956312.42	274202.02	898.3673	0.0563	0.1181	0.1308	1.0	0.5	0.6	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-435	Focus	4/30/11	3:30:35 PM	12956311.38	274198.59	898.1865	0.053	0.088	0.1027	1.0	0.5	0.6	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC1-E-436	Focus	4/30/11	3:32:20 PM	12956285.71	274213.92	898.442	0.0724	0.1205	0.1406	0.9	0.9	1.0	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-437	Focus	4/30/11	3:35:07 PM	12956254.68	274226.98	898.1783	0.0351	0.0646	0.0735	1.3	0.1	0.2	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-438	Focus	4/30/11	3:37:07 PM	12956225.36	274243.29	898.2296	0.0533	0.0936	0.1077	1.6	0.2	0.3	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-439	Focus	4/30/11	3:41:04 PM	12956190.41	274259.50	898.2017	0.0475	0.0834	0.096	0.9	0.1	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		DBDY
TC1-E-440	Focus	4/30/11	3:42:25 PM	12956193.45	274252.53	897.0706	0.0499	0.0844	0.098	0.9	0.1	0.3	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		DBDY
TC1-E-441	Focus	4/30/11	3:44:29 PM	12956180.86	274265.70	898.1065	0.0476	0.0836	0.0962	1.2	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		DBDY
TC1-E-444	Focus	4/30/11	4:12:21 PM	12956161.72	274274.47	897.9822	0.0419	0.0794	0.0898	1.0	0.0	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		UBDY
MP 1.00-1.25																							
TC1-E-442	Focus	4/30/11	4:09:51 PM	12956155.91	274283.88	898.0881	0.0338	0.0722	0.0797	1.3	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-443	Focus	4/30/11	4:11:08 PM	12956153.75	274279.57	898.1233	0.0491	0.0997	0.1111	0.8	0.1	0.1	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC1-E-445	Focus	4/30/11	4:14:07 PM	12956156.44	274281.62	898.0278	0.0535	0.1038	0.1168	1.1	0.1	0.1	Heavy	Heavy	Many	Center	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC1-E-446	Focus	4/30/11	4:16:55 PM	12956126.67	274301.37	898.1263	0.0389	0.0787	0.0878	0.8	0.6	0.6	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		DBDY
TC1-E-447	Focus	4/30/11	4:18:12 PM	12956123.93	274296.63	898.0539	0.0407	0.0834	0.0928	0.9	0.4	0.4	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		DBDY
TC1-E-448	Focus	4/30/11	4:20:36 PM	12956097.48	274314.51	898.0006	0.0471	0.1004	0.1109	0.9	0.1	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-449	Focus	4/30/11	4:22:53 PM	12956095.49	274310.58	897.7984	0.0521	0.1165	0.1277	0.8	0.3	0.4	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC1-E-450	Focus	4/30/11	4:25:48 PM	12956082.73	274310.20	897.8965	0.0388	0.0916	0.0995	0.4	0.6	0.7	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		UBDY
TC1-E-451	Focus	4/30/11	4:26:46 PM	12956077.67	274306.04	897.8531	0.0321	0.0769	0.0834	0.6	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC1-E-452	Focus	4/30/11	4:29:03 PM	12956077.75	274305.77	897.9113	0.0396	0.0908	0.0991	0.2	0.5	0.7	Heavy	Heavy	Many	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment		PT BAR
TC1-E-453	Focus	4/30/11	4:30:27 PM	12956070.09	274302.16	897.9356	0.0309	0.0719	0.0782	0.4	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Other-Comments		SOOVRGR DBDY
TC1-E-454	Focus	4/30/11	4:33:02 PM	12956039.31	274312.64	897.8662	0.0291	0.071	0.0768	0.7	0.0	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-455	Focus	4/30/11	4:34:05 PM	12956037.86	274307.79	897.7432	0.0379	0.0941	0.1015	0.4	0.6	1.6	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-456	Focus	4/30/11	4:35:59 PM	12955992.64	274319.24	897.7195	0.0341	0.0875	0.0939	0.7	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-457	Focus	4/30/11	4:36:39 PM	12955990.56	274314.88	897.8036	0.0368	0.0958	0.1026	0.6	0.3	1.6	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-458	Focus	4/30/11	4:42:05 PM	12955982.22	274339.11	897.6974	0.0334	0.095	0.1007	0.3	0.6	0.7	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-459	Focus	4/30/11	4:43:15 PM	12955979.39	274342.51	897.668	0.0332	0.0952	0.1008	0.8	0.1	0.1	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		LAT BDY
TC1-E-460	Focus	4/30/11	4:46:20 PM	12955978.21	274365.77	897.8211	0.039	0.1161	0.1225	0.4	0.6	0.7	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC1-E-461	Focus	4/30/11	4:47:51 PM	12955977.87	274369.79	897.437	0.0415	0.1528	0.1583	0.8	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		DBDY
TC1-E-462	Focus	4/30/11	4:50:12 PM	12955970.19	274388.15	897.4593	0.7762	2.3977	2.5202	0.7	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-463	Focus	4/30/11	4:50:44 PM	12955962.97	274386.37	897.6074	0.037	0.1134	0.1193	0.7	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-464	Focus	4/30/11	4:51:49 PM	12955961.61	274423.08	897.8122	0.0387	0.118	0.1242	0.6	0.4	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-465	Focus	4/30/11	4:52:35 PM	12955954.84	274423.59	897.9741	0.0401	0.1483	0.1536	0.6	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-466	Focus	4/30/11	4:53:51 PM	12955951.87	274461.73	902.6549	12.51	25.4578	28.3654	0.7	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC1-E-467	Focus	4/30/11	4:56:21 PM	12955951.04	274455.17	897.9409	0.0513	0.2842	0.2888	0.8	0.0	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC2-D-01	Focus	5/1/2011	9:13:37 AM	12955459.80	274579.67	895.6993	0.0402	0.056	0.0689	0.9	0.6	0.8	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC2-D-02	Focus	5/1/2011	9:14:48 AM	12955467.64	274580.84	895.6753	0.0435	0.0622	0.0759	1.5	0.1	0.1	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC2-D-03	Focus	5/1/2011	9:16:02 AM	12955475.57	274577.98	895.6694	0.0385	0.0531	0.0656	1.7	0.1	0.1	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC2-D-04	Focus	5/1/2011	9:19:49 AM	12955455.35	274575.47	895.6752	0.0418	0.0552	0.0692	0.7	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	D BDY	
TC2-D-05	Focus	5/1/2011	9:21:17 AM	12955468.85	274573.83	895.6578	0.0367	0.0479	0.0604	1.6	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BOUNDARY	
TC2-D-06	Focus	5/1/2011	9:23:04 AM	12955425.25	274577.61	895.3968	0.0376	0.0477	0.0608	0.5	0.1	0.9	Moderate	Moderate	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC2-D-07	Focus	5/1/2011	9:24:15 AM	12955424.45	274572.81	895.3273	0.0411	0.0516	0.0659	0.9	0.1	0.4	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC2-D-08	Focus	5/1/2011	9:25:38 AM	12955433.90	274574.80	895.4051	0.0363	0.0452	0.058	0.4	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	U BDRY	
TC2-D-09	Focus	5/1/2011	9:26:33 AM	12955434.55	274571.89	895.3928	0.0386	0.0476	0.0613	0.6	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDRY	
TC2-D-10	Focus	5/1/2011	9:27:55 AM	12955412.61	274578.12	895.251	0.0393	0.0499	0.0635	0.4	0.0	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDRY	
TC2-D-11	Focus	5/1/2011	9:28:56 AM	12955413.31	274574.05	895.329	0.0443	0.0563	0.0716	0.4	0.0	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDRY	
TC2-D-12	Focus	5/1/2011	9:31:51 AM	12955407.95	274577.99	895.2916	0.0532	0.0646	0.0837	1.0	0.5	0.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDRY	
TC2-D-13	Focus	5/1/2011	9:34:25 AM	12955391.62	274581.68	895.2263	0.0476	0.0552	0.0729	0.4	0.3	0.5	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC2-D-14	Focus	5/1/2011	9:36:33 AM	12955391.59	274579.33	895.2097	0.0535	0.0644	0.0838	0.5	0.0	0.0	Heavy	Heavy	Common	Center	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC2-D-15	Focus	5/1/2011	9:37:44 AM	12955388.51	274577.12	895.1726	0.0535	0.0624	0.0822	0.9	0.1	0.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LAT BDRY	
TC2-D-16	Focus	5/1/2011	9:39:35 AM	12955369.05	274586.22	895.2034	0.0611	0.0708	0.0935	0.4	0.0	0.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BNRY	
TC2-D-17	Focus	5/1/2011	9:40:16 AM	12955368.90	274581.18	895.2651	0.0397	0.0459	0.0607	0.7	0.8	0.8	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BNRY	
TC2-D-18	Focus	5/1/2011	9:42:47 AM	12955345.96	274589.51	895.1278	0.0373	0.0432	0.0571	0.6	0.1	0.2	Heavy	Heavy	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC2-D-19	Focus	5/1/2011	9:45:06 AM	12955361.79	274586.58	895.0569	0.0487	0.0462	0.0671	0.5	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC2-D-20	Focus	5/1/2011	9:45:54 AM	12955361.38	274581.94	895.139	0.0538	0.0514	0.0744	0.6	0.0	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC2-D-21	Focus	5/1/2011	9:47:02 AM	12955345.29	274583.86	895.232	0.0581	0.0677	0.0892	0.7	1.2	1.3	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC2-D-22	Focus	5/1/2011	9:49:21 AM	12955313.52	274596.71	895.1508	0.031	0.0364	0.0478	0.9	0.7	1.8	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC2-D-23	Focus	5/1/2011	9:50:06 AM	12955313.33	274592.02	895.1019	0.0408	0.048	0.0631	0.6	0.5	0.7	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC2-D-24	Focus	5/1/2011	9:52:22 AM	12955282.14	274594.56	895.0607	0.0346	0.041	0.0537	1.0	0.2	0.3	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC2-D-25	Focus	5/1/2011	9:53:06 AM	12955282.63	274589.64	895.1036	0.038	0.0452	0.059	0.6	1.0	1.1	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC2-D-26	Focus	5/1/2011	9:55:24 AM	12955275.11	274594.79	895.0929	0.0414	0.0496	0.0646	0.8	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC2-D-27	Focus	5/1/2011	9:56:29 AM	12955273.86	274590.92	895.1669	0.0359	0.0434	0.0563	0.7	0.2	0.8	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC2-D-28	Focus	5/1/2011	9:59:06 AM	12955261.13	274596.70	895.1408	0.0488	0.0598	0.0772	1.1	0.5	0.5	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC2-D-29	Focus	5/1/2011	10:00:28 AM	12955267.24	274595.85	894.9846	0.0559	0.0692	0.089	0.9	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment	U BDY	
TC2-D-30	Focus	5/1/2011	10:02:02 AM	12955259.98	274592.99	895.1286	0.0441	0.0551	0.0706	1.3	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Soft Sediment	LAT BDY	
TC2-D-31	Focus	5/1/2011	10:03:38 AM	12955247.52	274587.64	895.0501	0.0328	0.0415	0.0529	1.2	0.6	1.2	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Sand	D BDY	
TC2-D-32	Focus	5/1/2011	10:04:59 AM	12955252.34	274586.70	895.0648	0.0399	0.0511	0.0649	0.4	1.0	1.6	Heavy	Heavy	Many	Left	1-3 ft/sec		Point Bar	None	Sand over Silt		
TC2-D-33	Focus	5/1/2011	10:07:57 AM	12955235.74	274582.16	895.0497	0.0377	0.0493	0.0621	0.3	1.6	1.6	Heavy	Heavy	Many	Right	<1ft/sec		Point Bar	None	Sand over Silt		
MP 1.25-1.50																							
TC2-D-34	Focus	5/1/2011	10:09:23 AM	12955232.36	274578.64	895.0196	0.0312	0.0417	0.0521	1.5	0.6	1.3	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	None	Sand over Silt		
TC2-D-35	Focus	5/1/2011	10:11:52 AM	12955216.15	274597.96	895.0642	0.0336	0.0572	0.0663	0.7	1.0	1.1	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Sand		
TC2-D-36	Focus	5/1/2011	10:13:28 AM	12955201.03	274592.41	895.1647	0.042	0.0634	0.0761	1.4	0.1	0.2	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC2-D-37	Focus	5/1/2011	10:14:58 AM	12955183.54	274578.09	894.9741	0.0335	0.0482	0.0587	1.1	1.0	1.0	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC2-D-38	Focus	5/1/2011	10:16:59 AM	12955163.94	274559.08	895.0118	0.049	0.0798	0.0936	0.5	1.3	1.4	Moderate	Moderate	Common	Right	1-3 ft/sec		Point Bar	None	Soft Sediment		
TC2-D-39	Focus	5/1/2011	10:18:00 AM	12955154.39	274573.54	895.0679	0.0347	0.0526	0.063	0.3	1.0	1.8	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC2-D-40	Focus	5/1/2011	10:20:27 AM	12955128.36	274582.46	895.1333	0.0463	0.0746	0.0878	1.1	0.5	0.9	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC2-D-41	Focus	5/1/2011	10:22:03 AM	12955106.03	274591.58	895.1058	0.0397	0.0681	0.0788	1.1	0.7	0.9	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		OVER ROCK
TC2-D-42	Focus	5/1/2011	10:24:00 AM	12955093.12	274612.93	894.8569	0.0785	0.1638	0.1816	0.9	0.4	0.5	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		OVER ROCK
TC2-D-43	Focus	5/1/2011	10:44:01 AM	12955251.85	274572.01	894.3517	0.6606	1.2394	1.4045	0.7	1.1	1.1	Heavy	Heavy	Many	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC2-D-44	Focus	5/1/2011	10:45:44 AM	12955229.93	274578.90	895.1628	0.0344	0.0625	0.0713	1.3	0.7	1.5	Heavy	Heavy	Many	Left	1-3 ft/sec		Cut Bank	None	Sand over Silt		
TC2-D-45	Focus	5/1/2011	10:47:06 AM	12955218.92	274589.31	895.092	0.0284	0.0536	0.0606	1.0	0.4	1.2	Moderate	Moderate	Common	Left	1-3 ft/sec		Point Bar	None	Sand over Silt		
TC2-D-46	Focus	5/1/2011	10:48:08 AM	12955206.34	274587.21	895.0792	0.0246	0.0468	0.0529	0.3	1.0	1.5	Heavy	Heavy	Many	Left	1-3 ft/sec		Point Bar	None	Sand over Silt		
TC2-D-47	Focus	5/1/2011	10:54:05 AM	12955189.46	274570.96	895.037	0.028	0.0514	0.0585	0.3	1.0	1.5	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC2-D-48	Focus	5/1/2011	10:55:09 AM	12955167.33	274546.50	895.1035	0.0355	0.0654	0.0744	0.5	1.0	1.4	Heavy	Heavy	Many	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC2-D-49	Focus	5/1/2011	10:56:45 AM	12955148.10	274561.94	894.8315	0.0327	0.0622	0.0703	1.1	0.7	1.3	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Soft Sediment		
TC2-D-50	Focus	5/1/2011	10:57:57 AM	12955128.59	274573.50	895.0697	0.0427	0.0817	0.0922	0.4	1.9	1.9	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC2-D-51	Focus	5/1/2011	10:59:19 AM	12955106.65	274580.52	894.9978	0.0291	0.0639	0.0702	0.7	1.2	1.4	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC2-D-52	Focus	5/1/2011	11:02:13 AM	12955092.15	274597.30	893.9401	1.255	2.4008	2.709	1.3	0.7	1.0	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC2-D-53	Focus	5/1/2011	11:03:43 AM	12955084.79	274610.53	895.4434	0.0576	0.1287	0.141	0.8	0.0	0.0	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-01	Focus	5/1/2011	11:08:55 AM	12955027.08	274630.01	891.9334	1.3378	2.5723	2.8994	1.0	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		DOWN OF CULVERT
TC3-D-02	Focus	5/1/2011	11:10:00 AM	12955015.89	274632.25	894.4551	1.0351	1.984	2.2378	0.9	0.1	0.3	Heavy	Heavy	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-03	Focus	5/1/2011	11:11:17 AM	12955006.20	274627.98	893.4991	0.0459	0.0871	0.0985	0.4	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-04	Focus	5/1/2011	11:13:08 AM	12955023.37	274609.65	893.561	0.0648	0.1357	0.1504	0.8	0.2	0.3	Heavy	Heavy	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-05	Focus	5/1/2011	11:14:04 AM	12955013.47	274611.72	893.4987	0.0576	0.1202	0.1333	0.8	0.0	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-06	Focus	5/1/2011	11:15:23 AM	12955007.08	274612.69	893.5358	0.0361	0.0919	0.0988	0.7	0.1	0.2	Heavy	Heavy	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-07	Focus	5/1/2011	11:17:13 AM	12955002.01	274614.87	893.5259	0.0484	0.0992	0.1103	0.7	0.1	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-08	Focus	5/1/2011	11:18:44 AM	12954982.72	274628.93	893.1865	0.0422	0.0858	0.0956	0.6	0.1	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-09	Focus	5/1/2011	11:19:37 AM	12954983.55	274625.04	893.2005	0.052	0.1051	0.1172	0.4	0.5	0.5	Heavy	Heavy	Many	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
TC3-D-10	Focus	5/1/2011	11:20:33 AM	12954986.69	274624.82	893.3215	0.055	0.1105	0.1234	0.3	0.1	0.1	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC3-D-11	Focus	5/1/2011	11:22:10 AM	12954977.85	274625.16	893.1563	0.0572	0.1139	0.1274	0.4	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	
TC3-D-12	Focus	5/1/2011	11:23:23 AM	12954960.19	274631.33	893.1904	0.0448	0.0883	0.0991	0.5	0.2	0.3	None	None	None	Right	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
TC3-D-13	Focus	5/1/2011	11:24:51 AM	12954960.43	274628.06	893.1721	0.0673	0.1311	0.1473	0.7	0.3	0.4	Moderate	Moderate	Common	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
TC3-D-14	Focus	5/1/2011	11:25:42 AM	12954959.92	274624.63	893.1889	0.0466	0.0904	0.1016	0.6	0.6	0.6	None	None	None	Left	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
TC3-D-15	Focus	5/1/2011	11:26:55 AM	12954966.02	274627.22	893.2337	0.0485	0.093	0.1049	0.3	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	U BDY	
TC3-D-16	Focus	5/1/2011	11:28:01 AM	12954954.90	274628.47	893.1945	0.0478	0.0846	0.0972	0.4	0.1	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	
TC3-D-17	Focus	5/1/2011	11:33:34 AM	12954942.45	274630.23	893.1182	0.059	0.1003	0.1163	0.6	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-18	Focus	5/1/2011	11:34:32 AM	12954942.28	274625.13	893.1515	0.0574	0.0964	0.1122	0.5	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-19	Focus	5/1/2011	12:35:49 PM	12954907.90	274613.11	892.8363	0.0863	0.1359	0.1609	0.7	0.0	0.0	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-20	Focus	5/1/2011	12:37:44 PM	12954904.65	274608.78	892.9424	0.084	0.1273	0.1525	0.9	0.2	0.4	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-21	Focus	5/1/2011	12:38:56 PM	12954898.59	274615.99	892.8028	0.0623	0.0971	0.1154	0.4	0.3	0.3	Moderate	Moderate	Common	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-22	Focus	5/1/2011	12:39:47 PM	12954896.24	274613.62	892.977	0.0778	0.1003	0.127	1.2	0.1	0.3	Light	Light	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel	LAT BDY	
TC3-D-23	Focus	5/1/2011	12:43:33 PM	12954880.88	274637.46	892.9671	0.0941	0.1442	0.1722	0.5	1.0	1.1	Light	Light	None	Right	1-3 ft/sec		Cut Bank	None	Sand over Silt	D BDY	
TC3-D-24	Focus	5/1/2011	12:45:21 PM	12954867.44	274638.52	892.9711	0.0582	0.0679	0.0894	0.5	0.3	1.1	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-25	Focus	5/1/2011	12:47:46 PM	12954872.66	274633.97	893.0089	0.0537	0.0646	0.084	0.4	0.1	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	U BDY	
TC3-D-26	Focus	5/1/2011	12:49:07 PM	12954865.53	274643.43	892.9166	0.078	0.1061	0.1317	0.7	0.1	0.2	Heavy	Heavy	Many	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
TC3-D-27	Focus	5/1/2011	12:50:02 PM	12954866.89	274646.56	892.7089	0.0475	0.0573	0.0744	0.8	0.8	0.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LAT BDY	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC3-D-28	Focus	5/1/2011	12:51:44 PM	12954849.49	274650.63	892.7063	0.0968	0.1299	0.162	0.9	0.2	0.4	Heavy	Heavy	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC3-D-29	Focus	5/1/2011	12:52:40 PM	12954852.00	274653.35	892.9774	0.0896	0.12	0.1498	1.0	0.2	0.7	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	LAT BDY	
TC3-D-30	Focus	5/1/2011	12:55:08 PM	12954840.77	274669.74	892.6899	1.3941	1.6198	2.1371	0.2	1.2	1.3	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC3-D-31	Focus	5/1/2011	12:56:01 PM	12954827.56	274683.68	893.0119	0.0473	0.0578	0.0747	0.5	0.4	0.8	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-32	Focus	5/1/2011	12:57:47 PM	12954815.37	274690.84	892.8037	0.0856	0.1121	0.1411	0.7	0.1	0.1	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-33	Focus	5/1/2011	12:59:36 PM	12954846.68	274651.27	892.9951	0.0981	0.1302	0.163	1.0	0.1	0.2	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-34	Focus	5/1/2011	1:02:34 PM	12954834.27	274663.05	892.9071	0.1092	0.1415	0.1788	0.9	0.9	1.0	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC3-D-35	Focus	5/1/2011	1:03:19 PM	12954820.26	274673.98	892.9052	0.0693	0.0618	0.0928	0.4	0.9	1.2	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC3-D-36	Focus	5/1/2011	1:05:01 PM	12954811.11	274683.75	892.8696	0.0585	0.0556	0.0807	0.7	0.2	1.0	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-37	Focus	5/1/2011	1:07:54 PM	12954794.23	274704.89	894.1068	2.0453	1.3721	2.463	0.9	1.0	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	D BDY	
TC3-D-38	Focus	5/1/2011	1:09:02 PM	12954790.97	274697.50	894.7472	2.1371	2.0864	2.9867	0.7	0.0	0.0	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-39	Focus	5/1/2011	1:11:48 PM	12954765.84	274717.24	891.1163	2.7748	1.7145	3.2618	0.9	0.8	1.0	Heavy	Heavy	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-40	Focus	5/1/2011	1:13:09 PM	12954778.76	274715.61	894.4723	1.8301	1.6952	2.4946	0.7	0.2	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	U BDY	
TC3-D-41	Focus	5/1/2011	1:14:05 PM	12954768.47	274722.52	893.0413	1.8198	1.8181	2.5724	1.0	0.5	0.6	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-42	Focus	5/1/2011	1:15:33 PM	12954761.35	274747.90	892.1081	5.4189	3.7692	6.6009	0.4	0.1	0.2	Heavy	Heavy	Many	Right	1-3 ft/sec		Point Bar	None	Sand over Silt		
TC3-D-43	Focus	5/1/2011	1:16:42 PM	12954755.87	274744.56	894.5435	1.8258	1.2656	2.2215	1.0	0.7	0.7	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Sand over Silt	LAT BDY	
TC3-D-44	Focus	5/1/2011	1:17:55 PM	12954760.08	274761.76	895.164	2.4805	1.898	3.1233	0.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-45	Focus	5/1/2011	1:18:41 PM	12954748.12	274757.74	898.4992	3.3171	3.3817	4.737	1.0	0.8	0.9	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-46	Focus	5/1/2011	1:20:43 PM	12954755.54	274776.08	894.8252	2.6321	2.6588	3.7413	0.7	0.4	0.4	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC3-D-47	Focus	5/1/2011	1:22:26 PM	12954746.64	274787.65	892.0692	1.6827	1.7156	2.4031	1.1	0.0	0.0	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-48	Focus	5/1/2011	1:23:34 PM	12954744.57	274784.76	892.3902	1.6549	1.5621	2.2757	0.2	0.7	0.7	Heavy	Heavy	Many	Left	1-3 ft/sec		Point Bar	None	Sand over Silt		
TC3-D-49	Focus	5/1/2011	1:26:01 PM	12954727.11	274777.48	894.2623	1.5869	1.5474	2.2165	1.1	0.0	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	D BDY	
TC3-D-50	Focus	5/1/2011	1:26:54 PM	12954729.19	274776.10	893.8299	1.4229	1.4342	2.0203	1.0	0.2	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-51	Focus	5/1/2011	1:28:19 PM	12954710.79	274764.56	893.89	1.9989	1.9704	2.8068	1.2	0.1	0.2	Light	None	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-52	Focus	5/1/2011	1:29:24 PM	12954712.20	274762.41	894.1716	1.2532	1.2339	1.7587	0.9	0.1	0.1	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-53	Focus	5/1/2011	1:30:28 PM	12954715.29	274767.16	893.4892	1.5364	1.5324	2.1699	1.1	0.1	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC3-D-54	Focus	5/1/2011	1:33:26 PM	12954705.82	274752.80	892.1239	1.334	1.3806	1.9198	0.2	0.8	0.8	Heavy	Heavy	Many	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC3-D-55	Focus	5/1/2011	1:34:51 PM	12954703.71	274755.46	891.8141	1.3481	1.4204	1.9584	0.6	0.1	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-56	Focus	5/1/2011	1:36:05 PM	12954695.79	274747.43	893.3325	1.289	1.4059	1.9074	0.5	0.1	0.1	Moderate	Moderate	Common	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-57	Focus	5/1/2011	1:36:58 PM	12954689.74	274748.77	896.4873	1.6723	1.933	2.5559	0.3	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-58	Focus	5/1/2011	1:38:27 PM	12954662.81	274753.87	893.6705	1.8912	2.322	2.9947	0.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Gravel & Larger		
TC3-D-59	Focus	5/1/2011	1:39:09 PM	12954649.81	274752.21	886.9028	6.9449	9.6484	11.8879	0.7	0.0	0.0	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
TC3-D-60	Focus	5/1/2011	1:41:14 PM	12954663.65	274790.06	891.5991	1.4282	1.6698	2.1972	0.5	0.0	0.0	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		
TC3-D-61	Focus	5/1/2011	1:42:24 PM	12954663.79	274795.94	890.1664	1.7608	2.0818	2.7266	0.5	0.0	0.0	Light	Light	Common	Right	1-3 ft/sec		Cut Bank	None	Sand		
TC3-D-62	Focus	5/1/2011	1:43:04 PM	12954656.41	274794.34	892.0228	2.006	2.3886	3.1192	0.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		
TC3-D-63	Focus	5/1/2011	1:46:01 PM	12954622.80	274832.43	891.2197	0.0519	0.0637	0.0822	0.5	0.0	0.0	None	None	None	Right	1-3 ft/sec		Point Bar	None	Gravel & Larger		
TC3-D-64	Focus	5/1/2011	1:46:57 PM	12954618.08	274832.76	891.2492	0.0506	0.0629	0.0807	0.6	0.0	0.0	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
TC3-D-65	Focus	5/1/2011	1:49:31 PM	12954625.43	274860.23	889.4728	0.9196	1.2088	1.5188	0.0	0.2	0.3	Moderate	Moderate	Common	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-66	Focus	5/1/2011	1:51:24 PM	12954622.32	274860.29	891.0109	0.0465	0.0616	0.0772	0.4	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-67	Focus	5/1/2011	1:52:12 PM	12954618.56	274862.28	891.0528	0.061	0.0824	0.1025	0.8	0.5	0.5	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-68	Focus	5/1/2011	1:54:14 PM	12954623.12	274846.67	891.1349	0.0383	0.053	0.0654	0.1	0.2	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-69	Focus	5/1/2011	1:55:09 PM	12954625.59	274881.24	890.8555	0.0466	0.0655	0.0803	0.3	0.0	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel	D BDY	
TC3-D-70	Focus	5/1/2011	1:57:38 PM	12954576.64	274899.35	890.5547	0.0779	0.1068	0.1322	1.5	0.3	0.3	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-71	Focus	5/1/2011	1:58:23 PM	12954578.00	274892.02	890.7457	0.0847	0.1178	0.1451	0.0	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-72	Focus	5/1/2011	2:00:00 PM	12954557.51	274883.04	890.5761	0.067	0.1013	0.1215	0.0	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-73	Focus	5/1/2011	2:04:57 PM	12954552.80	274875.90	890.5121	0.0475	0.0831	0.0957	0.8	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-74	Focus	5/1/2011	2:07:42 PM	12954517.24	274890.20	890.1978	0.0409	0.0771	0.0872	0.2	0.2	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Gravel & Larger		
TC3-D-75	Focus	5/1/2011	2:11:40 PM	12954512.51	274884.86	890.1281	0.0602	0.1157	0.1305	0.4	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-76	Focus	5/1/2011	2:12:48 PM	12954505.00	274907.41	889.9905	0.0509	0.0995	0.1117	0.3	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC3-D-77	Focus	5/1/2011	2:15:14 PM	12954475.64	274923.74	890.1098	0.0774	0.1505	0.1692	0.2	0.3	0.3	Heavy	Heavy	Common	Left	1-3 ft/sec		Point Bar	None	Soft Sediment		
TC3-D-78	Focus	5/1/2011	2:17:17 PM	12954483.78	274923.76	890.1121	0.0705	0.1453	0.1615	0.7	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Soft Sediment	U BDY	
TC3-D-79	Focus	5/1/2011	2:18:51 PM	12954475.14	274927.62	889.778	0.0552	0.1154	0.1279	0.4	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-80	Focus	5/1/2011	2:20:11 PM	12954453.28	274923.67	890.1412	0.042	0.0891	0.0984	0.4	0.0	0.1	Moderate	Moderate	Common	Left	1-3 ft/sec		Cut Bank	None	Sand		
TC3-D-81	Focus	5/1/2011	2:21:29 PM	12954444.14	274924.59	889.8284	0.0534	0.1146	0.1264	0.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand	D BDY	
TC3-D-82	Focus	5/1/2011	2:23:02 PM	12954416.97	274935.80	889.6002	0.0394	0.088	0.0964	0.3	0.2	0.2	Moderate	Moderate	Common	Left	1-3 ft/sec		Point Bar	None	Sand		
TC3-D-83	Focus	5/1/2011	2:24:23 PM	12954423.26	274936.52	889.8805	0.047	0.1062	0.1161	0.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Point Bar	None	Soft Sediment	U BDY	
TC3-D-84	Focus	5/1/2011	2:25:52 PM	12954413.16	274936.88	889.8321	0.0446	0.1018	0.1112	1.1	0.0	0.1	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-85	Focus	5/1/2011	2:27:53 PM	12954405.34	274905.88	889.5964	0.0773	0.0807	0.1117	0.3	0.0	0.0	Moderate	Moderate	Common	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-86	Focus	5/1/2011	2:28:50 PM	12954399.99	274898.95	889.725	0.0704	0.1643	0.1787	0.5	0.3	0.3	Moderate	Moderate	Common	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-87	Focus	5/1/2011	2:30:01 PM	12954391.83	274897.67	889.584	0.2072	0.1977	0.2864	0.9	0.0	0.0	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger	D BDY	
TC3-D-88	Focus	5/1/2011	2:30:46 PM	12954389.50	274902.99	889.7385	0.1324	0.1261	0.1829	0.2	0.1	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	
TC3-D-89	Focus	5/1/2011	2:38:16 PM	12954341.81	274927.80	889.165	0.2089	0.2208	0.304	0.7	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-90	Focus	5/1/2011	2:38:49 PM	12954339.53	274922.73	889.28	0.2127	0.2263	0.3106	0.4	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-91	Focus	5/1/2011	2:40:51 PM	12954278.01	274939.19	889.361	0.0853	0.2122	0.2287	0.1	0.2	0.2	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-92	Focus	5/1/2011	2:41:45 PM	12954287.19	274936.09	889.3185	0.0406	0.1006	0.1085	0.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC3-D-93	Focus	5/1/2011	2:43:18 PM	12954277.71	274936.43	889.1131	0.0872	0.2422	0.2575	0.6	0.1	0.1	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-94	Focus	5/1/2011	2:44:07 PM	12954276.82	274934.78	888.9906	0.1588	0.1786	0.239	0.7	0.0	0.0	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-95	Focus	5/1/2011	2:46:25 PM	12954262.21	274947.60	888.9245	1.2678	2.7459	3.0245	0.5	0.0	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	D BDY	
TC3-D-96	Focus	5/1/2011	2:46:59 PM	12954260.18	274940.01	888.6595	1.7945	2.0085	2.6933	0.4	0.1	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-97	Focus	5/1/2011	2:50:06 PM	12954216.44	274964.12	888.834	0.0539	0.124	0.1352	0.0	0.5	0.5	Moderate	Moderate	Common	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-98	Focus	5/1/2011	2:51:50 PM	12954219.11	274954.99	888.895	0.0551	0.1242	0.1359	0.5	0.0	0.1	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-99	Focus	5/1/2011	2:52:54 PM	12954216.25	274964.97	888.295	1.1935	2.7502	2.998	1.1	0.1	0.1	Heavy	Heavy	Many	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-100	Focus	5/1/2011	2:54:01 PM	12954214.14	274956.95	888.8965	0.0625	0.1376	0.1511	1.0	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel	U BDY	
TC3-D-101	Focus	5/1/2011	2:55:45 PM	12954233.65	274985.37	888.7548	0.0493	0.1216	0.1312	0.3	0.8	0.9	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Sand over Silt		
TC3-D-102	Focus	5/1/2011	2:57:07 PM	12954227.10	274984.28	888.8143	0.0773	0.1787	0.1947	0.5	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-103	Focus	5/1/2011	2:58:45 PM	12954216.16	274990.00	888.6225	0.1517	0.1919	0.2446	0.2	0.1	0.1	Heavy	Moderate	Many	Left	1-3 ft/sec		Point Bar	None	Sand over Silt		
TC3-D-104	Focus	5/1/2011	3:00:54 PM	12954196.31	274997.62	888.8704	0.0571	0.1149	0.1283	0.4	0.1	0.1	Light	Light	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	D BDY	
TC3-D-105	Focus	5/1/2011	3:02:20 PM	12954195.19	274993.53	888.7634	0.0747	0.1479	0.1657	0.7	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LAT BDY	
TC3-D-106	Focus	5/1/2011	3:06:46 PM	12954183.91	275002.75	888.1069	0.0385	0.0968	0.1042	0.5	0.2	0.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand	U BDY	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC3-D-107	Focus	5/1/2011	3:07:24 PM	12954175.05	275005.09	888.4839	0.0384	0.0968	0.1041	0.8	1.0	1.1	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-108	Focus	5/1/2011	3:08:41 PM	12954173.11	275001.39	888.5511	0.0366	0.0931	0.1	0.9	0.8	0.9	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-109	Focus	5/1/2011	3:10:52 PM	12954159.88	275008.08	888.6238	0.0468	0.1208	0.1295	1.1	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	
TC3-D-110	Focus	5/1/2011	3:11:58 PM	12954153.77	275007.10	888.5312	0.0651	0.0916	0.1124	0.4	0.2	0.5	Heavy	Moderate	Many	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-111	Focus	5/1/2011	3:13:18 PM	12954158.07	275008.83	888.9749	0.7897	1.8063	1.9714	0.9	0.2	0.3	Light	Light	Few	Center	1-3 ft/sec		Point Bar	None	Sand	U BDY	
TC3-D-112	Focus	5/1/2011	3:14:39 PM	12954143.81	275005.22	888.714	0.0376	0.1118	0.118	1.1	0.0	0.0	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-113	Focus	5/1/2011	3:18:57 PM	12954135.26	274990.03	888.2949	0.0557	0.091	0.1067	0.9	0.0	0.0	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel	D BDY	
TC3-D-114	Focus	5/1/2011	3:21:02 PM	12954116.36	274992.13	888.6352	0.1279	0.214	0.2493	0.0	0.3	0.7	Moderate	Moderate	Common	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-115	Focus	5/1/2011	3:22:21 PM	12954115.02	274989.58	888.5852	0.0672	0.2091	0.2196	0.8	0.1	0.2	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel	LAT BDY	
TC3-D-116	Focus	5/1/2011	3:23:17 PM	12954126.19	274989.21	888.6325	0.0239	0.0746	0.0784	0.7	0.0	0.0	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
MP 1.50-1.75																							
TC3-D-117	Focus	5/1/2011	3:25:06 PM	12954106.61	275001.22	888.5459	0.0425	0.1335	0.1401	0.4	0.0	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel	D BDY	
TC3-D-118	Focus	5/1/2011	3:26:37 PM	12954086.04	274994.43	888.3439	0.043	0.1353	0.1419	0.2	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-119	Focus	5/1/2011	3:28:09 PM	12954044.61	275008.72	888.4692	0.03	0.0829	0.0881	0.2	0.4	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC3-D-120	Focus	5/1/2011	3:30:02 PM	12954040.87	275007.30	888.1023	0.0323	0.0885	0.0942	0.7	0.0	0.0	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-121	Focus	5/1/2011	3:32:20 PM	12954030.55	275023.08	888.0082	0.0454	0.1227	0.1308	0.0	0.2	0.6	Moderate	Moderate	Common	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-122	Focus	5/1/2011	3:34:09 PM	12954037.06	275021.17	888.243	0.0508	0.1356	0.1448	1.1	0.1	0.1	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-123	Focus	5/1/2011	3:35:26 PM	12954032.13	275026.97	888.0649	0.0336	0.0887	0.0949	0.8	0.0	0.0	None	None	None	Right	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-124	Focus	5/1/2011	3:36:52 PM	12954015.42	275024.26	888.1109	0.0764	0.1991	0.2133	0.4	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-125	Focus	5/1/2011	3:40:48 PM	12953990.12	275022.47	887.8821	0.069	0.172	0.1854	0.3	0.0	0.0	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-126	Focus	5/1/2011	3:42:11 PM	12953984.63	275026.43	887.7321	0.0675	0.1049	0.1247	0.0	0.7	0.7	Heavy	Heavy	Common	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-127	Focus	5/1/2011	3:43:06 PM	12953979.69	275024.32	887.8191	0.0462	0.1124	0.1215	0.8	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-128	Focus	5/1/2011	3:44:54 PM	12953988.12	275047.59	887.712	0.1246	0.1932	0.2299	0.4	0.0	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel	D BDY	
TC3-D-129	Focus	5/1/2011	3:47:55 PM	12953979.64	275048.99	887.4216	0.1492	0.2948	0.3304	0.4	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel	D BDY	
TC3-D-130	Focus	5/1/2011	3:49:10 PM	12953970.04	275056.16	887.6744	0.0861	0.148	0.1713	0.2	0.5	0.5	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-131	Focus	5/1/2011	3:50:04 PM	12953963.22	275055.75	887.6403	0.0674	0.1138	0.1323	0.3	0.5	0.9	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-132	Focus	5/1/2011	3:50:44 PM	12953965.57	275061.94	887.6959	0.0576	0.0958	0.1118	0.5	0.0	0.0	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-133	Focus	5/1/2011	3:52:21 PM	12953944.96	275053.65	887.6106	0.052	0.0878	0.102	0.7	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-134	Focus	5/1/2011	3:53:04 PM	12953947.88	275049.86	887.5586	0.0494	0.1007	0.1121	0.5	0.1	0.3	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-135	Focus	5/1/2011	3:54:13 PM	12953926.90	275049.34	887.492	0.0458	0.0936	0.1042	0.4	0.3	0.5	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-136	Focus	5/1/2011	3:55:00 PM	12953927.29	275045.76	887.5635	0.0428	0.0868	0.0967	0.7	0.5	1.3	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-137	Focus	5/1/2011	3:56:26 PM	12953916.68	275054.68	887.3964	0.0459	0.0916	0.1025	0.1	0.3	0.4	Heavy	Heavy	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-138	Focus	5/1/2011	3:57:53 PM	12953923.50	275050.61	887.5324	0.0395	0.0774	0.0869	0.3	0.1	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand over Silt	U BDY	
TC3-D-139	Focus	5/1/2011	3:59:08 PM	12953914.12	275052.70	887.4901	0.0519	0.1005	0.1131	0.8	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt	LAT BDY	
TC3-D-140	Focus	5/1/2011	4:00:15 PM	12953905.66	275060.46	887.5002	0.0384	0.0739	0.0833	0.5	0.4	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-141	Focus	5/1/2011	4:04:52 PM	12953891.63	275058.29	887.542	0.0581	0.1053	0.1202	0.6	0.4	0.4	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-142	Focus	5/1/2011	4:06:38 PM	12953904.35	275056.34	887.5604	0.0507	0.0905	0.1037	0.7	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC3-D-143	Focus	5/1/2011	4:08:27 PM	12953887.62	275066.64	887.6844	0.0341	0.0595	0.0686	1.0	0.5	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-144	Focus	5/1/2011	4:09:43 PM	12953896.02	275062.01	887.4702	0.051	0.0877	0.1014	0.9	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LAT BDY	
TC3-D-145	Focus	5/1/2011	4:14:00 PM	12953869.41	275077.79	887.515	0.0456	0.0753	0.088	0.5	0.5	0.6	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC3-D-146	Focus	5/1/2011	4:15:01 PM	12953878.92	275074.92	887.6666	0.0638	0.1041	0.122	0.5	0.8	0.8	Moderate	Moderate	Common	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC3-D-147	Focus	5/1/2011	4:17:23 PM	12953865.97	275070.33	887.481	0.0502	0.0808	0.0951	0.9	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-148	Focus	5/1/2011	4:18:16 PM	12953858.91	275066.39	887.5486	0.0617	0.084	0.1043	0.1	0.8	1.0	Heavy	Heavy	Many	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-149	Focus	5/1/2011	4:20:03 PM	12953850.73	275063.88	887.7748	0.0471	0.0746	0.0882	1.1	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-150	Focus	5/1/2011	4:21:27 PM	12953848.24	275049.40	887.959	0.1126	0.1546	0.1913	0.5	0.5	0.6	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-151	Focus	5/1/2011	4:23:08 PM	12953834.29	275052.32	887.8573	0.0713	0.1051	0.1271	0.9	0.8	0.9	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel	D BDY	
TC3-D-152	Focus	5/1/2011	4:25:01 PM	12953836.30	275059.89	887.4521	0.0741	0.1184	0.1397	0.1	0.9	1.0	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-153	Focus	5/1/2011	4:26:12 PM	12953841.63	275056.60	887.3442	0.0765	0.1283	0.1494	1.0	0.1	0.1	Light	Light	None	Right	1-3 ft/sec		Point Bar	None	Sand	U BDY	
TC3-D-154	Focus	5/1/2011	4:28:46 PM	12953828.02	275081.04	887.3722	0.0547	0.0803	0.0971	1.2	0.0	0.0	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-155	Focus	5/1/2011	4:29:47 PM	12953822.04	275079.90	887.6042	0.0698	0.1041	0.1254	0.4	0.7	0.7	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-156	Focus	5/1/2011	4:31:21 PM	12953828.13	275075.98	887.5929	0.0544	0.1125	0.125	1.2	0.2	0.4	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel	U BDY	
TC3-D-157	Focus	5/1/2011	4:32:59 PM	12953803.29	275076.92	887.6774	0.0674	0.148	0.1626	0.5	0.4	0.5	Heavy	Heavy	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC3-D-158	Focus	5/1/2011	4:34:01 PM	12953803.98	275081.29	887.5745	0.0751	0.171	0.1868	1.0	0.1	0.1	Light	Light	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-159	Focus	5/1/2011	4:35:13 PM	12953798.49	275074.50	887.4191	0.057	0.1349	0.1465	0.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-160	Focus	5/2/2011	8:48:44 AM	12953394.68	275268.24	885.7948	1.1932	2.0892	2.4059	0.2	0.4	0.7	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-161	Focus	5/2/2011	8:49:30 AM	12953397.62	275273.25	884.3144	0.0608	0.1102	0.1259	0.5	0.1	0.1	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
TC3-D-162	Focus	5/2/2011	8:50:12 AM	12953398.97	275276.74	884.2364	0.0465	0.0898	0.1011	0.6	0.0	0.0	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
TC3-D-163	Focus	5/2/2011	8:51:09 AM	12953374.93	275269.44	884.0909	0.0812	0.1548	0.1748	0.2	0.3	0.8	Moderate	Moderate	Common	Left	1-3 ft/sec		Point Bar	None	Sand over Silt		
TC3-D-164	Focus	5/2/2011	8:52:07 AM	12953373.38	275273.01	884.0583	0.0515	0.0913	0.1049	0.7	0.0	0.0	Moderate	Moderate	Common	Center	1-3 ft/sec		Point Bar	None	Sand & Gravel	LAT BDY	
TC3-D-165	Focus	5/2/2011	8:54:33 AM	12953382.36	275274.21	884.0868	0.0879	0.1504	0.1742	0.3	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-166	Focus	5/2/2011	8:55:23 AM	12953355.29	275271.45	883.2804	2.7324	4.9066	5.6161	0.6	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel	D BDY	
TC3-D-167	Focus	5/2/2011	8:56:25 AM	12953358.33	275274.38	884.1558	0.0313	0.0533	0.0618	0.1	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	
TC3-D-168	Focus	5/2/2011	8:57:48 AM	12953339.30	275282.97	884.0406	0.0315	0.0525	0.0612	0.2	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Sand over Silt		
TC3-D-169	Focus	5/2/2011	8:59:49 AM	12953338.74	275275.42	884.1904	0.0611	0.1005	0.1177	0.5	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-170	Focus	5/2/2011	9:02:04 AM	12953330.88	275263.69	880.7891	2.1798	3.0354	3.737	0.0	0.3	0.4	Moderate	Moderate	Common	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-171	Focus	5/2/2011	9:24:48 AM	12953309.80	275247.86	883.9382	0.0729	0.0598	0.0943	0.9	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand	D BDY	
TC3-D-172	Focus	5/2/2011	9:25:43 AM	12953303.31	275250.99	883.9579	0.0364	0.0463	0.0589	0.3	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	U BDY	
TC3-D-173	Focus	5/2/2011	9:26:30 AM	12953291.81	275246.68	883.9538	0.0624	0.0783	0.1001	0.1	0.3	0.3	Moderate	Moderate	Common	Right	1-3 ft/sec		Point Bar	None	Silt over Sand		
TC3-D-174	Focus	5/2/2011	9:27:22 AM	12953290.82	275240.93	883.9151	0.0399	0.0486	0.0629	0.4	0.1	0.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BND	
TC3-D-175	Focus	5/2/2011	9:28:26 AM	12953273.73	275226.57	883.8239	0.0455	0.053	0.0699	0.6	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-176	Focus	5/2/2011	9:31:40 AM	12953244.63	275220.75	883.7679	0.0764	0.0841	0.1136	0.3	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC3-D-177	Focus	5/2/2011	9:32:25 AM	12953234.18	275226.37	883.8246	0.0514	0.0551	0.0753	0.6	0.4	0.4	Moderate	Moderate	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-178	Focus	5/2/2011	9:33:42 AM	12953230.90	275222.80	883.678	0.052	0.0555	0.0761	0.5	0.6	0.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-179	Focus	5/2/2011	9:35:13 AM	12953205.68	275236.11	883.6562	0.0616	0.0714	0.0943	0.6	0.0	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel	D BDY	
TC3-D-180	Focus	5/2/2011	9:39:02 AM	12953204.54	275262.55	883.5668	0.0405	0.0469	0.062	0.6	0.3	0.4	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-181	Focus	5/2/2011	9:40:49 AM	12953197.85	275272.59	883.5769	0.0355	0.0415	0.0546	1.3	0.1	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel	D BDY	
TC3-D-182	Focus	5/2/2011	9:42:42 AM	12953164.95	275285.98	883.456	0.0443	0.0516	0.0681	0.3	0.1	0.3	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-183	Focus	5/2/2011	9:43:41 AM	12953159.70	275287.22	883.3858	0.0349	0.0409	0.0538	0.9	0.2	0.3	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
TC3-D-184	Focus	5/2/2011	9:46:59 AM	12953154.38	275337.95	883.2958	0.0364	0.043	0.0563	0.6	0.1	0.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC3-D-185	Focus	5/2/2011	9:47:48 AM	12953149.05	275334.92	883.3094	0.0308	0.0364	0.0477	0.7	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand	U BDY	
TC3-D-186	Focus	5/2/2011	9:49:06 AM	12953142.34	275343.88	883.1207	0.0399	0.0473	0.0619	0.3	1.1	1.3	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		OVER SEDIMENT
TC3-D-187	Focus	5/2/2011	9:53:10 AM	12953116.37	275343.24	883.1639	0.0334	0.0404	0.0524	0.6	0.2	0.3	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	
TC3-D-188	Focus	5/2/2011	9:54:22 AM	12953091.40	275381.61	883.1231	0.0443	0.0541	0.0699	0.2	0.4	0.5	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand		
TC3-D-189	Focus	5/2/2011	9:55:38 AM	12953088.48	275383.43	883.0457	0.0422	0.0519	0.0668	0.9	0.0	0.1	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-190	Focus	5/2/2011	9:58:36 AM	12953037.45	275378.25	883.016	0.0405	0.051	0.0651	0.9	0.3	0.5	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Sand	U BDY	
TC3-D-191	Focus	5/2/2011	9:59:30 AM	12953038.22	275385.58	882.9865	0.0439	0.0555	0.0708	0.2	0.3	0.7	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand	U BDY	
TC3-A-248	Focus	5/24/2011	2:06:46 PM	12953720.65	275089.36	892.388	0.9352	3.4248	3.5502	0.3	0.2	0.4	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
TC3-A-249	Focus	5/24/2011	2:09:23 PM	12953723.47	275097.86	889.6488	1.5912	7.1455	7.3206	0.8	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand		
TC3-A-250	Focus	5/24/2011	2:11:28 PM	12953702.98	275080.95	887.9914	1.4607	5.5213	5.7113	0.4	1.2	1.3	Moderate	Moderate	Few	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Soft Sediment		soft sed ovr sand
TC3-A-251	Focus	5/24/2011	2:16:33 PM	12953702.82	275091.10	894.3363	1.4959	5.6536	5.8481	0.6	0.2	0.3	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Soft Sediment	LAT BDY	
TC3-A-252	Focus	5/24/2011	2:17:57 PM	12953698.41	275080.26	886.0763	0.1076	0.6624	0.6711	0.7	0.1	0.2	Light	Light	None	Left	No	No	Cut Bank	None	Sand & Silt	D BDY	
TC3-A-253	Focus	5/24/2011	2:19:19 PM	12953678.83	275088.85	887.3056	2.089	11.945	12.1263	0.3	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
TC3-A-254	Focus	5/24/2011	2:21:13 PM	12953639.68	275110.68	896.8701	1.5597	8.0808	8.23	0.7	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
TC3-A-255	Focus	5/24/2011	2:21:52 PM	12953636.50	275103.33	885.4132	0.0501	0.2518	0.2568	0.3	0.0	0.1	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
TC3-A-256	Focus	5/24/2011	2:23:26 PM	12953598.40	275138.71	885.3002	0.0705	0.3175	0.3253	0.7	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
TC3-A-257	Focus	5/24/2011	2:26:01 PM	12953591.21	275132.89	883.5608	11.0064	21.5453	24.1938	0.3	0.4	0.5	Heavy	Heavy	Common	Left	No	No	Point Bar	None	Soft Sediment		NO FLOW
TC3-A-258	Focus	5/24/2011	2:27:52 PM	12953608.22	275130.04	885.6519	0.025	0.0925	0.0958	0.3	0.3	0.3	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Soft Sediment	U BDY	
TC3-A-259	Focus	5/24/2011	2:28:42 PM	12953598.36	275135.06	885.3546	0.0237	0.0885	0.0916	0.4	0.1	0.1	Light	Light	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-A-260	Focus	5/24/2011	2:29:58 PM	12953585.50	275142.10	877.2711	3.5538	11.8643	12.3851	0.3	0.0	0.0	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	D BDY	
TC3-A-261	Focus	5/24/2011	2:31:01 PM	12953594.34	275146.75	888.962	1.5518	4.4082	4.6733	0.3	0.4	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Silt	U BDY	
TC3-A-262	Focus	5/24/2011	2:32:43 PM	12953584.67	275162.51	884.4394	1.3863	3.5361	3.7981	0.0	0.7	0.8	Heavy	Heavy	Many	Right	No	No	Point Bar	None	Soft Sediment		
TC3-A-263	Focus	5/24/2011	2:34:45 PM	12953581.69	275158.24	886.8746	1.2102	3.3022	3.5169	0.2	0.1	0.1	Light	Light	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Silt	LAT BDY	
TC3-A-264	Focus	5/24/2011	2:37:28 PM	12953577.48	275151.31	881.7163	0.8869	1.963	2.1541	0.4	0.0	0.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Gravel & Larger		
TC3-A-265	Focus	5/24/2011	2:39:20 PM	12953564.68	275171.14	875.9948	7.7911	13.096	15.2383	0.3	0.1	0.1	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel	U BDY	
TC3-A-266	Focus	5/24/2011	2:45:37 PM	12953547.76	275165.72	880.7184	2.1525	3.6571	4.2435	0.0	0.1	0.2	Light	Light	None	Center	No	No	Mid-Channel	None	Sand & Gravel		
TC3-A-267	Focus	5/24/2011	2:46:23 PM	12953548.58	275174.57	888.9064	2.4242	4.0772	4.7434	0.6	0.5	0.5	None	None	None	Right	>3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
TC3-A-268	Focus	5/24/2011	2:48:28 PM	12953540.45	275201.33	884.3151	1.3143	2.2644	2.6182	0.0	0.3	0.3	Light	Light	None	Center	No	No	Mid-Channel	None	Sand		
TC3-A-269	Focus	5/24/2011	2:49:37 PM	12953531.63	275202.63	888.618	1.4432	2.469	2.8598	0.3	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
TC3-A-270	Focus	5/24/2011	2:51:14 PM	12953520.16	275197.54	887.1974	1.0282	1.6746	1.9651	0.0	0.5	0.6	Light	Light	Few	Left	No	No	Point Bar	None	Sand & Gravel		
TC3-A-271	Focus	5/24/2011	2:52:59 PM	12953511.41	275198.72	884.6256	0.0554	0.0882	0.1042	0.7	0.1	0.1	None	None	None	Right	No	No	Point Bar	None	Sand & Gravel		
TC3-A-272	Focus	5/24/2011	2:54:52 PM	12953494.75	275196.04	886.5252	2.337	3.4799	4.1918	0.0	0.3	0.3	Heavy	Heavy	Many	Right	No	No	Point Bar	None	Silt over Sand		
TC3-A-273	Focus	5/24/2011	2:56:22 PM	12953507.33	275198.73	884.6891	0.0391	0.0595	0.0712	0.2	0.1	0.1	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel	U BDY	
TC3-A-274	Focus	5/24/2011	2:58:35 PM	12953496.11	275195.15	883.7043	1.278	1.8512	2.2495	0.3	0.0	0.0	None	None	None	Center	No	No	Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-A-275	Focus	5/24/2011	3:00:11 PM	12953498.45	275187.61	884.5679	0.0514	0.0731	0.0893	0.4	0.0	0.0	None	None	None	Left	No	No	Strt Channel Edg	None	Sand & Gravel		
TC3-A-276	Focus	5/24/2011	3:01:44 PM	12953481.12	275191.24	884.5599	0.0412	0.0625	0.0748	0.1	0.4	0.7	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-A-277	Focus	5/24/2011	3:03:38 PM	12953457.67	275170.47	884.4458	0.0646	0.0934	0.1136	0.1	0.9	1.0	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
TC3-A-278	Focus	5/24/2011	3:05:35 PM	12953471.35	275175.63	884.4539	0.0491	0.0653	0.0817	0.2	0.1	0.2	Moderate	Moderate	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
TC3-A-279	Focus	5/24/2011	3:06:59 PM	12953476.27	275177.92	884.5033	0.0403	0.0568	0.0696	0.3	0.1	0.1	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Silt		
TC3-A-280	Focus	5/24/2011	3:07:45 PM	12953479.97	275180.29	884.4695	0.039	0.0509	0.0641	0.4	0.0	0.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	U BDY	
TC3-A-281	Focus	5/24/2011	3:09:36 PM	12953456.01	275175.74	884.1179	1.9341	3.3701	3.8856	0.6	0.1	0.2	Light	Light	None	Center	No	No	Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-A-282	Focus	5/24/2011	3:10:58 PM	12953450.61	275176.74	884.3098	0.0379	0.0511	0.0636	0.9	0.1	0.2	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	D BDY	
TC3-A-283	Focus	5/24/2011	3:12:31 PM	12953449.21	275190.72	884.4089	0.0674	0.0904	0.1128	0.2	0.0	0.0	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand		
TC3-A-284	Focus	5/24/2011	3:14:11 PM	12953440.99	275191.37	884.5057	0.0497	0.0624	0.0797	0.7	0.3	0.4	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
TC3-A-285	Focus	5/24/2011	3:15:50 PM	12953429.93	275212.79	884.2905	0.0352	0.0438	0.0562	0.0	0.2	0.3	Light	Light	Few	Center	No	No	Mid-Channel	None	Sand & Gravel	U BDY	SANDGRAVELBAR
TC3-A-286	Focus	5/24/2011	3:24:17 PM	12953432.83	275219.81	884.2417	0.0406	0.0514	0.0655	0.1	0.3	0.4	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
TC3-A-287	Focus	5/24/2011	3:27:20 PM	12953425.93	275242.10	884.2229	0.067	0.0812	0.1053	0.1	0.5	0.6	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
TC3-A-288	Focus	5/24/2011	3:28:47 PM	12953422.87	275242.15	884.1147	0.0423	0.0516	0.0667	0.2	0.1	0.2	Light	Light	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-A-289	Focus	5/24/2011	3:30:21 PM	12953402.50	275275.98	883.972	0.0851	0.0985	0.1301	0.3	0.3	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand	D BDY	
TC3-A-290	Focus	5/24/2011	3:31:39 PM	12953411.61	275269.38	884.1344	0.1776	0.2586	0.3137	0.8	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	LAT BDY	
TC3-A-291	Focus	5/24/2011	3:33:00 PM	12953406.58	275266.27	883.8733	0.0539	0.0635	0.0833	0.2	0.1	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
TC3-A-292	Focus	5/24/2011	3:34:36 PM	12953402.91	275262.25	884.1034	0.2265	0.3368	0.4058	0.0	0.3	0.4	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
TC3-A-293	Focus	5/24/2011	3:42:02 PM	12953710.05	275087.42	886.6684	1.8536	2.2039	2.8797	0.3	1.0	1.0	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand	U BDY	
MP 1.75-2.00																							
TC3-D-192	Focus	5/2/2011	10:02:36 AM	12953029.95	275390.07	882.9259	0.0521	0.0679	0.0856	1.1	0.4	0.6	Heavy	Heavy	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-193	Focus	5/2/2011	10:04:11 AM	12953021.99	275409.75	882.9254	0.0415	0.0547	0.0686	0.4	0.4	0.8	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-194	Focus	5/2/2011	10:04:58 AM	12953014.86	275407.42	883.0307	0.0466	0.0619	0.0774	0.2	0.4	0.8	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt	D BDY	
TC3-D-195	Focus	5/2/2011	10:08:56 AM	12952969.67	275465.04	882.792	0.0478	0.0669	0.0823	0.2	0.3	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-196	Focus	5/2/2011	10:09:51 AM	12952963.35	275462.64	883.0154	0.0482	0.0868	0.0993	0.7	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-197	Focus	5/2/2011	10:11:54 AM	12952948.30	275494.68	882.7391	0.0436	0.0638	0.0773	0.6	0.5	0.5	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC3-D-198	Focus	5/2/2011	10:14:55 AM	12952968.44	275525.43	880.6715	2.3587	3.6141	4.3157	0.3	1.7	3.3	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Soft Sediment		
TC3-D-199	Focus	5/2/2011	10:18:00 AM	12952980.41	275598.97	880.7593	0.0455	0.0724	0.0855	0.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-200	Focus	5/2/2011	10:18:56 AM	12952988.02	275600.39	880.6382	0.0424	0.068	0.0801	0.2	0.0	0.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	U BDY	
TC3-D-201	Focus	5/2/2011	10:21:12 AM	12953001.24	275636.02	880.5487	0.0391	0.0642	0.0752	0.0	0.2	0.3	Heavy	Heavy	Many	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
TC3-D-202	Focus	5/2/2011	10:22:07 AM	12952994.19	275633.78	880.5166	0.0344	0.0568	0.0664	0.0	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Gravel & Larger		
TC3-D-203	Focus	5/2/2011	10:23:51 AM	12952999.45	275644.15	880.568	0.032	0.0539	0.0627	0.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Point Bar	None	Gravel & Larger	LAT BDY	
TC3-D-204	Focus	5/2/2011	10:27:05 AM	12953030.89	275651.84	880.1953	0.0454	0.0805	0.0924	0.0	0.2	0.4	Heavy	Heavy	Many	Left	1-3 ft/sec		Point Bar	None	Sand		
TC3-D-205	Focus	5/2/2011	10:32:42 AM	12953029.91	275686.65	879.8832	0.0357	0.0622	0.0717	0.1	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	D BDY	
TC3-D-206	Focus	5/2/2011	10:33:20 AM	12953028.60	275697.38	879.7976	0.0346	0.0609	0.07	0.1	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	D BDY	
TC3-D-207	Focus	5/2/2011	10:35:25 AM	12953048.95	275704.23	879.7156	0.0547	0.1	0.114	0.4	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger	U BDY	
TC3-D-208	Focus	5/2/2011	10:36:12 AM	12953057.93	275710.16	879.6283	0.0384	0.0705	0.0802	0.6	1.1	1.2	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	U BDY	
TC3-D-209	Focus	5/2/2011	10:41:03 AM	12953011.16	275795.33	878.9766	0.0364	0.0661	0.0755	0.2	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	
TC3-D-210	Focus	5/2/2011	10:42:15 AM	12953015.22	275797.73	879.0752	0.0299	0.0545	0.0622	0.5	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	D BDY	
TC3-D-211	Focus	5/2/2011	10:43:37 AM	12953010.08	275813.88	878.9364	0.0422	0.0769	0.0878	0.1	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-212	Focus	5/2/2011	10:45:43 AM	12953006.10	275872.84	878.6162	0.0399	0.073	0.0832	0.3	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-213	Focus	5/2/2011	10:47:46 AM	12953002.95	275898.91	878.6141	0.0417	0.0762	0.0869	0.5	0.3	0.3	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		
TC3-D-214	Focus	5/2/2011	10:49:19 AM	12953018.88	275899.60	878.4697	0.066	0.1166	0.134	0.0	0.8	0.9	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand		
TC3-D-215	Focus	5/2/2011	10:51:47 AM	12953045.35	275919.52	878.7871	1.1713	2.1604	2.4575	0.3	0.8	0.9	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-216	Focus	5/2/2011	10:52:51 AM	12953047.48	275924.59	879.1671	0.8831	1.5281	1.7649	0.4	0.4	0.5	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
TC3-D-217	Focus	5/2/2011	10:53:56 AM	12953045.28	275931.08	878.4772	0.0368	0.0678	0.0772	0.6	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
TC3-D-218	Focus	5/2/2011	10:57:05 AM	12953079.93	275945.85	878.1934	0.0416	0.0802	0.0904	0.8	1.2	1.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC3-D-219	Focus	5/2/2011	10:58:29 AM	12953101.24	275947.34	883.0893	2.2136	3.5844	4.2129	0.6	0.4	0.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
TC3-D-220	Focus	5/2/2011	11:01:25 AM	12953083.41	275931.51	883.9407	1.5198	2.9238	3.2952	0.3	0.6	1.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC3-D-221	Focus	5/2/2011	11:04:24 AM	12953097.82	275924.70	881.909	2.4141	1.9116	3.0792	0.2	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
TC3-D-222	Focus	5/2/2011	11:07:13 AM	12953129.35	276020.50	875.2977	1.6966	2.9404	3.3948	0.1	0.0	0.0	Light	Light	Few	Left	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-223	Focus	5/2/2011	11:08:43 AM	12953138.15	276022.62	877.0784	1.7752	3.4933	3.9185	0.1	0.0	0.3	Light	Light	Few	Right	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-224	Focus	5/2/2011	11:10:37 AM	12953110.65	276071.51	876.7119	0.0386	0.0749	0.0843	0.0	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
TC3-D-225	Focus	5/2/2011	11:12:42 AM	12953171.76	276107.71	876.3003	0.0421	0.0765	0.0873	0.2	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
TC3-D-226	Focus	5/2/2011	11:14:08 AM	12953171.54	276113.18	876.5832	0.0405	0.0729	0.0834	0.3	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
TC3-D-227	Focus	5/2/2011	11:15:53 AM	12953172.11	276121.13	876.46	0.0331	0.0721	0.0793	0.1	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
TC3-D-228	Focus	5/2/2011	11:19:23 AM	12953223.02	276140.04	876.0495	0.0579	0.0882	0.1055	0.3	0.5	0.6	Heavy	Heavy	Many	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
TC3-D-229	Focus	5/2/2011	11:20:26 AM	12953215.18	276131.81	876.3809	0.0547	0.1295	0.1406	0.2	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC3-D-230	Focus	5/2/2011	11:22:26 AM	12953212.87	276140.73	876.3457	0.0554	0.1518	0.1616	0.5	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
TC3-D-231	Focus	5/2/2011	11:24:15 AM	12953204.31	276157.76	876.2758	0.0531	0.0908	0.1052	0.6	0.3	0.4	Light	Light	Few	Right	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	
TC3-D-232	Focus	5/2/2011	11:25:51 AM	12953151.77	276217.16	875.8564	0.0279	0.0489	0.0563	0.5	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
TC3-D-233	Focus	5/2/2011	11:26:47 AM	12953169.79	276226.95	875.5745	0.0352	0.0612	0.0706	0.3	0.3	0.3	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-234	Focus	5/2/2011	11:29:11 AM	12953201.32	276280.82	875.569	0.0406	0.074	0.0844	0.3	0.3	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand		
TC3-D-235	Focus	5/2/2011	11:32:00 AM	12953247.66	276312.60	875.3942	0.0544	0.0965	0.1108	0.0	0.3	0.5	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-236	Focus	5/2/2011	11:33:09 AM	12953254.01	276310.67	875.5768	0.0437	0.0877	0.098	0.3	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BDY	
TC3-D-237	Focus	5/2/2011	11:33:56 AM	12953260.52	276308.23	875.4132	0.0468	0.0816	0.0941	0.7	0.2	0.2	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
TC3-D-238	Focus	5/2/2011	11:35:01 AM	12953243.37	276297.76	875.5325	0.0353	0.0568	0.0669	0.3	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	U BDY	
TC3-D-239	Focus	5/2/2011	11:37:12 AM	12953252.66	276335.98	875.4229	0.0483	0.0764	0.0904	1.6	0.5	1.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand	D BDY	
TC3-D-240	Focus	5/2/2011	11:41:17 AM	12953264.17	276358.39	875.3825	0.0366	0.0556	0.0666	1.5	0.3	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
TC3-D-241	Focus	5/2/2011	11:42:02 AM	12953268.22	276358.06	875.488	0.0399	0.0641	0.0755	1.5	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
TC3-D-242	Focus	5/2/2011	11:42:59 AM	12953272.19	276355.38	875.525	0.0425	0.0678	0.08	0.9	0.4	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
MP 2.00-2.25																							
15MRBR-A-01	Bridge	5/1/2011	2:26:36 PM	12952446.46	277061.25	873.7266	1.886	3.2577	3.7643	1.5	0.2	0.3	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Sand		BOAT LAUNCH
15MRBR-A-02	Bridge	5/1/2011	2:28:47 PM	12952422.42	276906.40	874.5735	0.0606	0.1078	0.1237	3.1	0.2	0.3	None	None	None	Left	1-3 ft/sec		Other-Comments	None	Sand & Gravel		BRIDGE
15MRBR-B-01	Bridge	5/10/11	3:08:03 PM	12952364.34	277007.46	873.5038	0.0603	0.1083	0.124	0.5	0.1	0.2	None	None	None	Left	<1ft/sec		Other-Comments	None	Sand & Gravel		VEL .6, DWNSTRM BRIDGE
15MRBR-B-02	Bridge	5/10/11	3:18:15 PM	12952356.68	277125.65	873.4535	0.1424	0.227	0.268	0.9	0.1	0.2	None	None	None	Right	<1ft/sec		Other-Comments	None	Sand & Silt		VEL 0.2, DWNSTRM BRIDGE
2.11T-B-01	Transect	5/10/11	4:37:25 PM	12952747.76	276599.18	871.2576	1.6018	2.3361	2.8326	1.7	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger		VEL 2.9
2.11T-B-02	Transect	5/10/11	4:40:14 PM	12952761.83	276638.84	873.795	0.042	0.0595	0.0729	2.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		VEL 4.8
2.11T-B-03	Transect	5/10/11	4:44:02 PM	12952770.44	276684.08	874.6669	1.1957	1.7183	2.0934	1.0	0.3	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		VEL 1.9
2.24T-A-01	Transect	4/26/2011	9:40:13 AM	12952247.42	277250.52	874.01	0.04	0.07	0.08	1.4	0.5	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		MOVE LOC 4 VELOCT
2.24T-A-02	Transect	4/26/2011	9:45:42 AM	12952159.82	277147.09	873.93	0.05	0.09	0.10	2.8	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
2.24T-B-01	Transect	5/10/11	3:10:49 PM	12952231.38	277080.24	873.4484	0.047	0.0844	0.0967	0.3	0.4	0.7	None	None	None	Left	No		Strt Channel Edg	None	Sand & Silt		
2.24T-B-02	Transect	5/10/11	3:22:35 PM	12952310.34	277160.42	875.6988	1.6984	3.1449	3.5742	0.4	0.1	0.2	None	None	None	Right	No		Strt Channel Edg	None	Sand & Silt		
2.24T-B-03	Transect	5/10/11	3:32:56 PM	12952244.69	277131.43	873.4503	0.0653	0.1918	0.2026	3.3	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		VEL 2.7
2.44T-B-01	Transect	5/10/11	2:54:17 PM	12951534.38	277499.74	872.899	0.0597	0.0835	0.1026	2.6	0.2	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		VEL 3.6
TC3-D-243	Focus	5/2/2011	11:50:55 AM	12953234.39	276486.39	874.7896	3.644	5.0529	6.2298	1.5	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		BAD POS
TC3-D-244	Focus	5/2/2011	11:52:12 AM	12953227.60	276509.61	877.6543	1.4494	1.9093	2.3971	1.0	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		BAD POS
TC3-D-245	Focus	5/2/2011	11:53:39 AM	12953204.57	276525.81	878.2375	1.171	1.778	2.129	1.2	0.4	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		BAD POS
TC3-D-246	Focus	5/2/2011	11:55:58 AM	12953207.82	276505.11	872.1128	1.9319	2.573	3.2176	0.5	0.2	0.2	Moderate	Moderate	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		BAD POS
TC3-D-247	Focus	5/2/2011	11:57:36 AM	12953195.73	276512.54	875.1247	0.0886	0.1228	0.1514	0.5	0.4	0.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand	DBDY	
TC4-A-01	Focus	5/1/2011	2:35:29 PM	12953112.67	276548.30	875.7304	0.049	0.0791	0.093	0.9	0.2	0.3	None	None	None	Left	<1ft/sec		Other-Comments	None	Sand & Silt		INSIDE BOOM
TC4-A-02	Focus	5/1/2011	2:37:35 PM	12953109.78	276556.27	875.4731	0.0398	0.0666	0.0776	3.8	0.1	0.1	None	None	None	Left	1-3 ft/sec		Other-Comments	None	Sand & Gravel		OUTSIDE BOOM
TC4-A-03	Focus	5/1/2011	2:41:03 PM	12953132.30	276584.69	875.464	0.0641	0.0924	0.1125	2.4	1.1	1.3	Light	Light	Few	Center	<1ft/sec		Mid-Channel	None	Sand & Silt		INSIDE BOOM
TC4-A-04	Focus	5/1/2011	2:42:42 PM	12953126.32	276586.74	875.4644	0.0516	0.0886	0.1025	3.9	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		OUTSIDE BOOM
TC4-A-05	Focus	5/1/2011	2:45:54 PM	12953150.42	276620.74	875.5586	0.0427	0.0727	0.0843	2.3	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		OUTSIDE BOOM
TC4-A-06	Focus	5/1/2011	2:48:09 PM	12953181.79	276657.98	875.5018	0.0491	0.0811	0.0948	1.3	0.7	0.9	None	None	None	Left	<1ft/sec		Other-Comments	None	Sand		SHW MAR/OUTBOM
MP 2.25-2.50																							
2.29T-A-01	Transect	4/26/2011	11:40:57 AM	12952245.89	277383.44	873.96	0.05	0.09	0.11	0.5	1.1	2.7	None	None	None	Right	<1ft/sec		Strt Channel Edg	50%-75%	Sand & Silt		
2.29T-A-01	Transect	5/1/2011	2:05:15 PM	12952140.48	277369.94	872.1251	0.8198	1.4069	1.6284	1.3	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
2.29T-A-02	Transect	4/26/2011	11:47:16 AM	12952067.46	277280.54	874.03	0.05	0.06	0.08	3.0	0.1	0.2	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		HIGH FLOW NO MID
2.3N-A-01	Focus	4/26/2011	10:03:34 AM	12952239.03	277330.99	873.89	0.03	0.06	0.07	1.3	0.4	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
2.3N-A-02	Focus	4/26/2011	10:06:19 AM	12952237.35	277401.12	873.90	0.03	0.06	0.07	1.5	0.9	1.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
2.3N-A-03	Focus	4/26/2011	10:08:27 AM	12952187.41	277474.40	873.87	0.04	0.09	0.10	2.0	0.8	0.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
2.3N-A-04	Focus	4/26/2011	10:16:20 AM	12952149.58	277465.03	873.90	0.04	0.08	0.09	2.5	0.1	0.2	None	None	None	Right	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
2.3N-A-05	Focus	4/26/2011	10:21:40 AM	12952210.39	277425.57	873.95	0.04	0.08	0.09	2.6	0.4	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.3N-A-06	Focus	4/26/2011	11:37:34 AM	12952202.73	277294.26	874.14	0.05	0.07	0.09	2.3	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
2.35S-A-01	Focus	4/26/2011	11:51:26 AM	12951989.79	277326.69	874.06	0.06	0.08	0.10	0.8	0.3	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
2.35S-A-02	Focus	4/26/2011	11:54:12 AM	12951952.77	277353.04	873.97	0.05	0.07	0.09	2.0	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
2.35S-A-03	Focus	4/26/2011	11:56:53 AM	12951960.07	277414.89	875.57	1.71	2.11	2.72	1.5	0.2	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Silt		
2.35S-A-04	Focus	4/26/2011	12:01:14 PM	12951815.27	277481.78	873.28	3.13	4.51	5.48	1.4	0.1	0.2	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.35S-A-05	Focus	4/26/2011	12:03:26 PM	12951842.38	277466.26	877.10	2.39	3.23	4.02	2.6	0.0	0.0	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
2.35S-A-06	Focus	4/26/2011	12:37:17 PM	12951856.83	277518.24	874.37	1.55	2.11	2.61	1.6	0.0	0.0	None	None	None	Right	>3 ft/sec		Downstrm Island	None	Sand & Gravel		
2.35T-A-01	Transect	4/26/2011	12:15:05 PM	12951851.14	277454.13	873.62	0.06	0.08	0.11	1.4	0.6	0.6	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Silt		
2.35T-A-02	Transect	4/26/2011	12:27:30 PM	12951918.33	277471.70	876.87	2.57	3.35	4.22	1.5	0.3	0.4	None	None	None	Right	>3 ft/sec		Downstrm Island	None	Sand & Gravel		
2.35T-A-03	Transect	4/26/2011	12:32:00 PM	12951933.59	277537.38	873.61	0.04	0.05	0.06	1.0	0.2	0.4	None	None	None	Left	1-3 ft/sec		Downstrm Island	None	Sand & Silt		
2.35T-A-04	Transect	4/26/2011	12:44:43 PM	12951918.40	277623.03	879.15	2.36	3.57	4.28	2.5	0.7	0.9	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
2.44T-A-01	Transect	4/26/2011	12:51:12 PM	12951440.23	277474.35	873.13	0.11	0.15	0.18	1.4	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.44T-A-02	Transect	4/26/2011	12:56:19 PM	12951542.38	277443.91	873.36	0.06	0.11	0.12	1.5	0.1	0.1	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.50N-A-01	Focus	4/26/2011	1:01:05 PM	12951341.42	277270.45	872.97	0.05	0.09	0.10	1.9	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.50N-A-02	Focus	4/26/2011	1:06:18 PM	12951334.11	277184.77	873.16	0.05	0.08	0.10	1.0	0.1	0.1	None	None	None	Island	<1ft/sec		Downstrm Island	None	Gravel & Larger		TUFA
2.50N-A-03	Focus	4/26/2011	1:14:30 PM	12951234.88	277183.73	873.10	0.07	0.10	0.12	0.5	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	5%-25%	Silt over Sand		
2.50N-A-04	Focus	4/26/2011	1:18:51 PM	12951285.84	277152.34	873.17	0.03	0.05	0.06	1.5	0.1	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		
MP 2.50-2.75																							
2.54T-A-01	Transect	4/26/2011	1:55:52 PM	12951226.05	277118.50	881.22	2.40	3.63	4.35	2.5	0.1	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
2.54T-A-02	Transect	4/26/2011	2:00:41 PM	12951310.82	277038.73	873.06	0.04	0.06	0.07	2.0	0.4	0.5	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
2.54T-A-03	Transect	4/26/2011	2:08:44 PM	12951384.57	276979.47	892.82	3.05	4.21	5.20	2.7	0.3	0.4	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.55N-A-01	Focus	4/26/2011	1:25:39 PM	12951301.49	277076.50	872.88	0.04	0.07	0.08	1.6	0.4	0.5	Moderate	Moderate	Common	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	ABSORB IN PLACE	
2.55N-A-02	Focus	4/26/2011	1:38:58 PM	12951272.32	277035.84	867.40	1.70	3.20	3.62	1.5	0.1	0.2	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		INSIDE OF HRD BOO
2.55N-A-03	Focus	4/26/2011	1:43:52 PM	12951270.69	277100.73	873.91	1.39	2.44	2.81	1.0	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Silt		INSIDE OF HRD BOO
2.55N-A-04	Focus	4/26/2011	1:57:02 PM	12951224.96	277124.88	880.22	2.49	3.92	4.64	2.5	0.1	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
2.55N-A-05	Focus	4/26/2011	1:31:07 PM	12951302.34	277063.27	872.92	0.06	0.11	0.12	1.8	0.3	0.4	Moderate	Moderate	Common	Island	<1ft/sec		Downstrm Island	None	Sand & Silt	ABSORB IN PLACE	INSIDE OF HRD BOO
2.55N-A-06	Focus	4/26/2011	1:34:53 PM	12951292.80	277060.91	872.97	0.05	0.09	0.10	2.0	0.1	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Silt	ABSORB IN PLACE	INSIDE OF HRD BOO
2.55N-A-07	Focus	4/26/2011	1:46:27 PM	12951281.01	277097.03	874.20	1.26	2.13	2.48	1.1	0.2	0.3	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand & Silt	INSIDE ABSORB	INSIDE OF HRD BOO
2.55N-A-08	Focus	4/26/2011	1:49:21 PM	12951284.10	277085.67	872.90	0.05	0.09	0.10	1.4	0.2	0.4	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand & Silt	OUTSIDE ABSORB	INSIDE OF HRD BOO
2.60N-A-01	Focus	4/26/2011	2:29:07 PM	12950827.84	276887.97	872.46	3.09	5.14	6.00	2.3	0.1	0.2	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.60N-A-02	Focus	4/26/2011	2:37:42 PM	12950894.41	276872.93	872.62	0.04	0.07	0.08	1.9	0.4	0.5	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.60N-A-03	Focus	4/26/2011	2:41:10 PM	12950970.91	276896.07	872.63	0.03	0.06	0.07	1.5	0.6	0.7	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
2.60N-A-04	Focus	4/26/2011	2:42:29 PM	12951032.60	276920.33	873.38	0.03	0.05	0.06	1.0	0.3	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
2.60N-A-05	Focus	4/26/2011	2:43:57 PM	12951086.37	276925.25	872.72	0.06	0.09	0.11	1.2	0.8	0.9	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
2.60N-A-06	Focus	4/26/2011	2:51:51 PM	12951129.20	276915.50	872.47	0.05	0.08	0.09	1.4	0.2	0.2	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand		
2.65PA-A-01	Launch	5/1/2011	1:47:07 PM	12950726.54	276798.12	876.0574	2.311	3.0746	3.8463	2.4	0.0	0.0	Light	Light	None	Left	1-3 ft/sec		Cut Bank	None	Gravel & Larger		BAD POS
2.65PA-A-02	Launch	5/1/2011	1:49:02 PM	12950756.17	276754.82	883.0908	3.3035	5.6347	6.5317	1.2	0.3	0.4	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		BAD POS
2.65PA-A-03	Launch	5/1/2011	1:51:25 PM	12950806.95	276734.79	878.86	2.7102	4.4019	5.1693	1.5	0.2	0.3	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand		BAD POS
2.65T-A-01	Transect	4/26/2011	2:28:14 PM	12950825.26	276885.38	867.54	2.29	4.27	4.85	2.3	0.1	0.2	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.65T-A-02	Transect	4/26/2011	2:33:41 PM	12950784.11	276744.01	873.36	1.53	2.70	3.10	0.7	0.4	0.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
2.65T-B-01	Transect	5/10/11	2:46:41 PM	12950818.40	276812.03	872.0667	0.0591	0.1015	0.1174	2.1	0.2	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		VEL 3.4
2.73T-A-01	Transect	4/26/2011	3:06:17 PM	12950671.83	277269.03	871.88	0.04	0.07	0.08	2.1	0.2	0.3	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		
2.73T-A-02	Transect	4/26/2011	3:28:59 PM	12950558.38	277020.94	871.51	1.56	2.80	3.21	0.7	0.3	0.6	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
2.73T-B-01	Transect	5/10/11	2:39:51 PM	12950497.50	277138.26	871.2531	0.0975	0.0924	0.1343	0.3	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		VEL 1.3
2.73T-B-02	Transect	5/10/11	2:42:28 PM	12950567.46	277193.84	871.4231	0.0364	0.0579	0.0684	-99.0	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		VEL 3.0
2.75-A-01	Focus	4/26/2011	3:04:04 PM	12950671.67	277268.98	871.84	0.05	0.09	0.10	2.1	0.2	0.3	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		
2.75-A-02	Focus	4/26/2011	3:11:26 PM	12950676.77	277241.28	871.71	0.04	0.07	0.08	1.5	0.3	0.4	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Sand		
2.75-A-03	Focus	4/26/2011	3:13:05 PM	12950696.95	277189.31	874.88	1.17	2.07	2.37	0.6	0.2	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
2.75-A-04	Focus	4/26/2011	3:15:31 PM	12950703.32	277151.31	872.30	0.05	0.10	0.11	0.8	0.1	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Silt		
2.75-A-05	Focus	4/26/2011	3:17:13 PM	12950704.05	277089.71	871.94	0.04	0.07	0.08	0.5	0.2	0.4	None	None	None	Right	1-3 ft/sec		Cut Bank	<5%	Sand		
2.75-A-06	Focus	4/26/2011	3:21:19 PM	12950720.35	277008.19	871.80	0.03	0.05	0.06	0.2	0.0	0.0	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
MP 2.75-3.00																							
2.80S-B-01	Focus	4/26/2011	10:14:08 AM	12950165.82	277270.88	871.31	0.03	0.06	0.07	0.6	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Other-Comments		ORGANIC SAND
2.80S-B-02	Focus	4/26/2011	10:17:32 AM	12950075.26	277298.17	871.22	0.04	0.07	0.08	0.7	0.6	1.0	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Other-Comments		ORGANIC SAND
2.80S-B-03	Focus	4/26/2011	10:22:28 AM	12949999.45	277302.97	871.13	0.05	0.10	0.11	0.8	0.2	0.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Other-Comments		ORGANIC SAND
2.80S-B-04	Focus	4/26/2011	10:27:03 AM	12949940.98	277317.02	871.24	0.04	0.08	0.09	0.7	0.0	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Other-Comments		ORGANIC SAND
2.80S-B-05	Focus	4/26/2011	10:30:47 AM	12949865.76	277332.03	871.34	0.05	0.08	0.10	0.7	0.0	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		ORGANIC SAND
2.80S-B-06	Focus	4/26/2011	10:33:56 AM	12949814.31	277338.71	871.33	0.04	0.07	0.08	0.5	0.1	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		ORGANIC SAND
2.83T-B-01	Transect	4/26/2011	9:58:34 AM	12950080.75	277294.19	871.21	0.10	0.13	0.16	1.1	0.3	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		THIN SILT
2.83T-B-02	Transect	4/26/2011	10:02:12 AM	12950109.00	277401.40	871.57	0.03	0.06	0.06	1.9	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
2.83T-B-03	Transect	4/26/2011	10:06:53 AM	12950153.73	277485.22	871.15	0.04	0.08	0.09	1.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		VERY THIN SILT
2.90SA-B-01	Focus	4/26/2011	12:58:04 PM	12949509.74	277420.30	871.07	0.04	0.06	0.07	1.2	0.0	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		ORGANIC SAND
2.90SA-B-02	Focus	4/26/2011	1:00:39 PM	12949499.56	277422.25	871.17	0.03	0.04	0.05	0.9	0.5	1.0	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
2.90SA-B-03	Focus	4/26/2011	1:04:23 PM	12949533.60	277414.68	871.22	0.03	0.05	0.06	1.1	0.5	0.9	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
2.90SA-B-04	Focus	4/26/2011	1:06:26 PM	12949527.39	277427.76	871.03	0.03	0.05	0.06	1.1	0.1	0.5	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
2.90SB-B-01	Focus	4/26/2011	1:11:54 PM	12949513.08	277345.56	871.21	0.06	0.10	0.11	0.6	0.0	0.2	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	VERY SLIGHT	SILT B/T ROCKS
2.90SB-B-02	Focus	4/26/2011	1:16:38 PM	12949461.58	277347.28	870.93	0.05	0.09	0.10	0.7	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand	VERY LIGHT 1 GLOB	SILT OVER ROCKS
2.90SB-B-03	Focus	4/26/2011	1:21:27 PM	12949407.34	277344.79	871.07	0.04	0.06	0.07	0.7	0.1	0.3	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand	VERY LIGHT	SILT OVER ROCKS
2.90SB-B-04	Focus	4/26/2011	1:24:46 PM	12949316.25	277332.88	871.06	0.04	0.07	0.08	0.5	0.4	0.4	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand	VERY LIGHT	ROCKS
MP 3.00-3.25																							
3.03T-B-01	Transect	4/26/2011	1:30:48 PM	12949052.16	277326.55	871.08	0.03	0.06	0.07	1.4	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.03T-B-02	Transect	4/26/2011	1:32:01 PM	12949046.43	277357.42	871.02	0.04	0.07	0.08	1.4	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.03T-B-03	Transect	4/26/2011	1:35:10 PM	12949057.71	277390.43	870.94	0.04	0.08	0.09	1.7	0.0	0.0	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Sand		
3.03T-B-04	Transect	4/26/2011	1:44:30 PM	12949050.49	277464.68	870.74	0.04	0.07	0.08	0.9	0.0	0.1	Light	Light	None	Island	>3 ft/sec		Downstrm Island	None	Sand & Gravel	VERY SLIGHT	
3.03T-B-05	Transect	4/26/2011	1:46:42 PM	12949053.89	277516.50	870.68	0.05	0.08	0.09	2.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel	VERY SLIGHT	
3.03T-B-06	Transect	4/26/2011	1:48:08 PM	12949054.41	277567.37	867.44	7.83	5.10	9.35	1.4	0.0	0.0	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.15S-B-01	Focus	4/26/2011	1:53:08 PM	12948636.00	277503.92	870.61	0.03	0.05	0.06	1.1	0.8	1.5	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
3.15S-B-02	Focus	4/26/2011	1:55:16 PM	12948601.62	277506.62	870.75	0.05	0.09	0.10	2.3	0.2	0.5	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
3.15S-B-03	Focus	4/26/2011	2:00:19 PM	12948582.30	277486.65	870.77	0.04	0.07	0.08	2.5	0.2	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
3.15S-B-04	Focus	4/26/2011	2:04:27 PM	12948569.88	277491.25	871.07	0.04	0.05	0.06	2.0	0.1	0.1	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
3.15T-B-01	Transect	4/26/2011	2:14:33 PM	12948453.19	277392.89	871.24	1.17	1.44	1.85	1.1	0.4	0.8	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
3.15T-B-02	Transect	4/26/2011	2:16:27 PM	12948446.92	277493.64	870.62	0.83	1.27	1.51	2.1	0.1	0.3	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
3.15T-B-03	Transect	4/26/2011	2:18:23 PM	12948428.31	277532.20	870.73	0.03	0.05	0.06	2.9	0.0	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
3.15T-B-04	Transect	4/26/2011	2:20:38 PM	12948439.44	277604.34	870.73	0.04	0.08	0.09	1.3	0.0	0.1	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		THIN SILT ON TOP
3.24T-B-01	Transect	4/26/2011	2:26:18 PM	12947988.44	277583.37	870.56	0.03	0.05	0.06	1.3	0.2	0.3	Light	Light	None	Right	1-3 ft/sec		Downstrm Island	None	Silt over Sand	1 PERCENT	THIN SILT ON TOP
3.24T-B-02	Transect	4/26/2011	2:27:40 PM	12947967.91	277513.71	870.44	0.04	0.06	0.07	2.6	0.0	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand		
3.24T-B-03	Transect	4/26/2011	2:30:53 PM	12947984.94	277412.01	870.65	0.05	0.09	0.10	1.3	0.4	0.7	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
3.25R1-B-01	Focus	4/26/2011	3:27:12 PM	12947169.97	277594.63	870.28	0.03	0.06	0.07	1.6	0.4	1.4	None	None	None	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		
3.25R1-B-02	Focus	4/26/2011	3:29:24 PM	12947186.21	277684.67	870.43	0.07	0.14	0.16	0.8	1.2	2.2	None	None	None	Right	<1ft/sec		Cut Bank	None	Soft Sediment		
3.25R1-B-03	Focus	4/26/2011	3:31:19 PM	12947248.20	277667.66	870.36	0.04	0.09	0.10	0.1	0.5	0.6	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		
3.25R1-B-04	Focus	4/26/2011	3:37:25 PM	12947329.11	277675.56	870.38	0.03	0.07	0.08	0.6	0.4	0.4	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
3.25R1-B-05	Focus	4/26/2011	3:41:11 PM	12947456.21	277719.50	870.57	0.03	0.07	0.07	0.9	0.1	0.2	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		DEAD TURTLE
3.25R1-B-06	Focus	4/26/2011	3:47:48 PM	12947586.20	277698.29	870.58	0.03	0.08	0.09	0.8	0.0	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		THIN SILT
3.25R1-B-07	Focus	4/26/2011	3:50:42 PM	12947780.96	277690.77	870.40	0.03	0.06	0.06	1.4	0.6	1.1	Light	Light	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand	VERY SLIGHT	
3.25R1-B-08	Focus	4/26/2011	3:57:35 PM	12947887.47	277656.62	870.80	0.07	0.24	0.25	0.5	0.3	0.4	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	VERY SLIGHT	
MP 3.25-3.50																							
3.3SA-B-01	Focus	5/10/11	1:57:51 PM	12947558.71	277432.47	869.9098	0.0805	0.1312	0.154	2.3	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		VEL 0.2
3.3SA-B-01	Focus	4/26/2011	2:39:39 PM	12947599.56	277429.24	871.08	0.04	0.07	0.09	2.2	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
3.3SA-B-02	Focus	5/10/11	2:03:29 PM	12947546.80	277445.02	869.9428	0.0487	0.0689	0.0844	2.7	0.6	0.6	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		VEL 2.7
3.3SA-B-02	Focus	4/26/2011	2:41:18 PM	12947580.71	277432.22	870.54	0.04	0.06	0.07	1.2	0.0	0.0	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
3.3SA-B-03	Focus	5/10/11	2:07:34 PM	12947525.10	277425.81	869.8689	0.0621	0.0884	0.108	1.7	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		vel 0.6
3.3SA-B-03	Focus	4/26/2011	2:46:20 PM	12947535.25	277429.11	870.43	0.04	0.07	0.08	1.8	0.0	0.0	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.3SA-B-04	Focus	4/26/2011	2:49:37 PM	12947688.78	277427.63	870.42	0.09	0.11	0.14	1.2	0.2	0.2	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
3.3SB-A-02	Focus	4/26/2011	4:07:21 PM	12947112.59	277403.72	870.39	0.04	0.14	0.15	2.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.3SB-B-03	Focus	4/26/2011	4:06:41 PM	12947042.69	277394.42	870.58	0.07	0.24	0.25	1.2	0.0	0.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.3SB-B-04	Focus	4/26/2011	4:09:25 PM	12947081.27	277400.51	870.45	0.03	0.09	0.10	1.5	0.0	0.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.32T-B-01	Transect	4/26/2011	2:38:45 PM	12947620.31	277424.93	870.57	0.04	0.07	0.08	1.2	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
3.32T-B-02	Transect	4/26/2011	2:52:22 PM	12947618.48	277486.14	870.37	0.91	1.53	1.78	4.3	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
3.32T-B-03	Transect	4/26/2011	2:54:57 PM	12947613.05	277534.19	870.44	0.04	0.06	0.07	2.0	0.4	0.5	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
3.39T-A-01	Transect	4/26/2011	3:50:44 PM	12947152.10	277538.75	870.58	0.03	0.07	0.07	1.8	1.2	1.2	None	None	None	Right	1-3 ft/sec		Downstrm Island	None	Sand & Silt		
3.39T-A-02	Transect	4/26/2011	3:56:30 PM	12947178.59	277464.38	870.14	0.04	0.09	0.10	0.0	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		SAND TO ROCK TRAN
3.39T-A-03	Transect	4/26/2011	4:01:05 PM	12947176.97	277382.36	866.72	2.28	7.99	8.31	1.6	1.5	6.4	Light	Light	Few	Left	No/sec		Strt Channel Edg	None	Soft Sediment		3.3SOUTHB-A-01
3.45N-B-01	Focus	5/10/11	1:44:04 PM	12946800.46	277530.40	874.3043	1.2368	2.4478	2.7425	1.0	1.3	1.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	<5%	Sand & Silt		VEL 0.4 WT 63.2
3.45N-C-01	Focus	4/26/2011	3:26:58 PM	12946845.54	277560.60	870.20	0.07	0.14	0.15	1.1	0.9	1.5	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Silt over Sand		BACK CHANNEL OUTLET
3.45N-C-02	Focus	4/26/2011	3:34:36 PM	12946896.54	277593.13	872.10	0.97	2.07	2.28	0.7	1.4	1.4	None	None	None	Right	<1ft/sec		Other-Comments	25%-50%	Other-Comments	BCK CHNL OUTLET	SI/Rock
3.45N-C-03	Focus	4/26/2011	3:44:31 PM	12946897.67	277549.49	870.55	0.15	0.46	0.49	1.1	0.3	0.3	Light	Light	Few	Right	1-3 ft/sec		Other-Comments	None	Silt over Sand		BACK CHANNEL OUTLET
3.45N-C-04	Focus	4/26/2011	3:50:59 PM	12946922.77	277557.38	870.44	0.06	0.13	0.14	0.9	0.2	0.4	None	None	None	Right	No		Point Bar	None	Other-Comments	SI/SA/Marlow	BEHIND BOOM
3.45N-C-05	Focus	4/26/2011	3:53:31 PM	12946984.37	277550.11	870.63	1.04	2.47	2.68	1.1	0.5	1.4	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		UPST CHANNEL OUTLET
MP 3.50-3.75																							
3.5S-C-01	Focus	4/26/2011	2:51:25 PM	12946513.77	277183.11	870.39	0.05	0.09	0.10	1.3	0.3	0.7	Light	Light	Few	Left	1-3 ft/sec		Other-Comments	None	Silt over Sand		AREA AND TRANSEC
3.5S-C-02	Focus	4/26/2011	2:56:26 PM	12946477.86	277207.14	870.35	0.04	0.07	0.08	1.6	0.4	1.1	None	None	None	Island	1-3 ft/sec		Downstrm Island	5%-25%	Silt over Sand		
3.5S-C-03	Focus	4/26/2011	3:01:46 PM	12946535.11	277237.34	870.14	0.04	0.06	0.07	2.2	0.6	1.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
3.5S-C-04	Focus	4/26/2011	3:16:45 PM	12946612.72	277248.27	870.29	0.04	0.08	0.09	1.3	0.4	0.8	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		UPSTREAM
3.52T-C-02	Transect	4/26/2011	3:00:12 PM	12946492.58	277305.93	870.27	0.03	0.05	0.06	2.5	0.1	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand		
3.52T-C-03	Transect	4/26/2011	3:05:01 PM	12946515.24	277409.36	875.81	2.19	4.30	4.83	1.0	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
3.6S-C-01	Focus	4/26/2011	2:21:17 PM	12946303.50	277129.43	870.27	0.04	0.07	0.08	2.6	0.4	1.1	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Soft Sediment		OUTSIDE BOOM
3.6S-C-01	Focus	4/26/2011	2:27:40 PM	12946274.75	277112.61	870.12	0.03	0.05	0.06	2.5	0.3	0.9	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		INSIDE OF BOOM
3.6S-C-03	Focus	4/26/2011	2:31:32 PM	12946270.47	277075.82	870.16	0.05	0.09	0.10	1.7	0.3	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Other-Comments	56.4 SILT/Rock	WATER LEVEL POLE
3.6S-C-04	Focus	4/26/2011	2:37:51 PM	12946185.33	277092.52	870.16	0.03	0.05	0.06	1.6	0.4	1.9	Light	Light	Few	Island	1-3 ft/sec		Downstrm Island	None	Soft Sediment		OUT OF BOOM
3.6S-C-05	Focus	4/26/2011	2:47:06 PM	12946250.25	277148.66	870.59	0.05	0.08	0.09	3.4	0.2	0.3	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Silt over Sand		
3.64T-C-01	Transect	4/26/2011	1:59:45 PM	12945814.07	276952.28	870.83	0.04	0.05	0.07	1.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	USE POS FROM C 4	
3.64T-C-02	Transect	4/26/2011	2:10:48 PM	12945792.83	277172.51	870.26	0.06	0.09	0.11	1.5	0.3	0.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
3.64T-C-03	Transect	4/26/2011	2:15:10 PM	12945814.66	277069.19	870.06	0.03	0.05	0.06	2.3	0.3	0.4	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Silt over Sand		
3.64T-C-04	Transect	4/26/2011	2:17:01 PM	12945820.99	276963.61	870.20	0.06	0.09	0.11	1.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger	USE POS FROM C 4	
3.75S-C-01	Focus	4/26/2011	1:25:58 PM	12945265.02	277039.91	870.11	0.03	0.06	0.07	0.6	0.1	0.4	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		SAND BAR
3.75S-C-02	Focus	4/26/2011	1:29:27 PM	12945357.06	277029.63	870.34	0.04	0.07	0.08	0.8	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
3.75S-C-03	Focus	4/26/2011	1:33:55 PM	12945397.20	277012.61	870.25	0.04	0.06	0.07	1.3	0.1	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	5%-25%	Sand		ISLE S BANK
3.75S-C-04	Focus	4/26/2011	1:40:10 PM	12945414.90	277049.57	870.18	0.03	0.05	0.06	1.3	1.4	2.7	None	None	None	Island	1-3 ft/sec		Downstrm Island	5%-25%	Soft Sediment		OIL ON ISLE
3.75S-C-05	Focus	4/26/2011	1:46:30 PM	12945461.32	277026.79	869.98	0.04	0.07	0.08	1.3	0.2	0.3	None	None	None	Island	1-3 ft/sec		Downstrm Island	<5%	Sand & Gravel		UPSTEARM OF ISLE
3.75S-A-06	Focus	4/29/11	12:44:16 PM	12945359.10	277043.47	870.838	0.0439	0.053	0.0689	1.3	1.6	2.7	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
MP 3.75-4.00																							
3.81T-C-01	Transect	4/26/2011	1:09:06 PM	12945071.45	276942.13	870.12	1.10	1.83	2.14	1.1	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
3.81T-C-02	Transect	4/26/2011	1:16:14 PM	12945081.25	277184.29	870.05	0.04	0.07	0.08	1.3	0.6	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Other-Comments	57.6	MARSH OUTLET SILT/GRAVEL
3.81T-C-03	Transect	4/26/2011	1:22:25 PM	12945073.73	277068.02	870.13	0.04	0.07	0.08	2.0	0.1	2.8	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand over Silt		
3.99T-C-01	Transect	4/26/2011	12:47:37 PM	12944122.94	277422.29	870.00	0.04	0.06	0.07	2.2	0.7	1.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
3.99T-C-02	Transect	4/26/2011	12:55:46 PM	12944076.26	277199.83	877.76	2.70	4.13	4.94	1.4	0.2	0.3	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
3.99T-C-03	Transect	4/26/2011	1:03:20 PM	12944093.94	277298.78	870.12	0.03	0.05	0.06	1.4	0.1	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand		SAND BAR
3.99T-C-04	Transect	4/26/2011	1:05:06 PM	12944139.41	277362.94	870.09	0.03	0.05	0.06	3.3	0.3	0.9	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Silt over Sand		
MP 4.00-4.25																							
4.15N-C-01	Focus	4/26/2011	12:37:23 PM	12943543.21	277766.84	869.30	0.05	0.07	0.08	2.0	0.5	0.9	None	None	None	Right	<1ft/sec		Other-Comments	None	Soft Sediment		COVE
4.15N-A-02	Focus	4/29/11	1:57:20 PM	12943471.58	277767.09	870.5834	2.3068	4.7465	5.2774	2.7	0.1	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
4.15N-A-03	Focus	4/29/11	2:00:18 PM	12943513.18	277756.27	870.5654	0.064	0.1125	0.1294	4.9	0.3	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
4.15S-A-14	Focus	4/29/11	1:09:33 PM	12943205.71	277568.79	870.7405	0.0992	0.1391	0.1708	3.3	0.1	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand		
4.15S-A-15	Focus	4/29/11	1:13:15 PM	12943298.20	277545.98	870.7053	0.037	0.047	0.0598	3.5	0.1	0.3	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand		
4.15S-A-16	Focus	4/29/11	1:16:37 PM	12943262.09	277516.02	870.7566	0.4932	0.245	0.5507	3.5	0.1	0.5	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand		
4.15S-A-17	Focus	4/29/11	1:25:35 PM	12943217.18	277612.44	870.6723	0.0535	0.0712	0.089	2.3	0.3	2.7	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
4.15S-A-18	Focus	4/29/11	12:55:21 PM	12943633.65	277426.55	870.6439	0.1294	0.1947	0.2338	4.1	0.7	0.9	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
4.15S-A-19	Focus	4/29/11	12:58:30 PM	12943732.09	277445.05	870.6256	0.0405	0.0488	0.0634	2.4	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
4.15S-A-20	Focus	4/29/11	1:02:56 PM	12943731.06	277400.55	870.8933	0.116	0.1679	0.2041	4.8	0.7	0.8	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
4.15S-A-21	Focus	5/1/2011	12:58:53 PM	12943217.59	277698.87	870.5521	0.0368	0.0454	0.0585	2.5	2.5	2.7	Light	Light	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
4.15S-A-22	Focus	5/1/2011	1:02:13 PM	12943259.01	277712.96	870.5729	0.0385	0.0475	0.0611	2.7	0.4	0.5	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
4.15S-B-01	Focus	5/10/11	11:52:17 AM	12943664.71	277470.04	869.6041	0.3589	0.5584	0.6638	0.9	0.2	0.4	None	None	None	Center			Mid-Channel	None	Sand & Gravel		
4.15S-C-01	Focus	4/26/2011	10:00:34 AM	12943240.85	277682.64	869.91	0.03	0.06	0.07	1.9	2.6	3.6	Moderate	Moderate	Common	Island	1-3 ft/sec		Downstrm Island	None	Soft Sediment	FINE GLOBS	ISLAND E BOOM
4.15S-C-02	Focus	4/26/2011	10:04:21 AM	12943230.59	277593.33	869.88	0.03	0.06	0.07	2.4	0.6	1.2	Moderate	Moderate	Few	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
4.15S-C-03	Focus	4/26/2011	10:11:04 AM	12943203.91	277500.97	869.73	0.08	0.09	0.12	2.7	0.6	1.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Other-Comments		Silt/Sand/Gravel
4.15S-C-04	Focus	4/26/2011	10:18:08 AM	12943327.55	277583.58	869.89	0.04	0.07	0.07	1.7	0.6	2.0	Light	Light	Few	Island	1-3 ft/sec		Downstrm Island	None	Soft Sediment		INSIDE BOOM
4.15S-C-05	Focus	4/26/2011	10:25:28 AM	12943411.81	277456.46	869.90	0.13	0.18	0.22	2.0	0.1	0.1	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
4.15S-C-06	Focus	4/26/2011	10:35:32 AM	12943512.22	277504.51	869.98	0.04	0.07	0.09	2.7	0.5	0.7	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Silt over Sand		N Isle and ban
4.15S-C-07	Focus	4/26/2011	10:43:19 AM	12943674.62	277411.56	870.13	0.05	0.09	0.11	3.4	0.6	1.2	Moderate	Moderate	Many	Left	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		Downstream of tree
4.15S-C-08	Focus	4/26/2011	10:56:07 AM	12943740.83	277428.65	870.18	0.04	0.07	0.08	2.8	0.5	2.5	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Silt over Sand		DOWN TREE
4.15S-C-09	Focus	4/26/2011	11:07:09 AM	12943708.89	277498.71	870.06	0.06	0.09	0.11	1.5	0.4	2.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Other-Comments		Sand over SILTY
4.15S-C-10	Focus	4/26/2011	11:12:49 AM	12943501.99	277431.19	870.05	0.05	0.08	0.10	1.4	0.1	1.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
4.15S-C-11	Focus	4/26/2011	11:18:09 AM	12943837.93	277385.40	869.98	0.11	0.11	0.16	2.2	0.4	0.4	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		
4.15S-C-12	Focus	4/26/2011	11:22:14 AM	12943206.41	277549.94	870.06	0.08	0.11	0.13	2.6	0.5	0.9	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
4.15S-C-13	Focus	4/26/2011	11:26:24 AM	12943161.61	277732.54	870.00	0.92	1.22	1.53	2.5	0.5	0.5	None	None	None	Center	1-3 ft/sec		Downstrm Island	None	Silt over Sand		DOWNSTREAM OF ISLE
4.22T-C-01	Transect	4/26/2011	9:28:22 AM	12942945.32	277523.81	869.90	0.06	0.07	0.10	0.8	0.3	0.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	5%-25%	Silt over Sand		54.3

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
4.22T-C-02	Transect	4/26/2011	9:39:15 AM	12943039.86	277806.23	862.67	2.07	3.71	4.25	1.5	0.9	1.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	5%-25%	Silt over Sand		
4.22T-C-03	Transect	4/26/2011	9:45:08 AM	12943007.66	277672.69	870.03	0.03	0.05	0.06	2.1	0.4	0.5	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Silt over Sand		
MP 4.25-4.50																							
4.29T-A-09	Transect	4/29/11	1:43:01 PM	12942608.48	277727.61	870.5582	0.0523	0.0772	0.0933	2.5	1.2	1.4	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
4.29T-A-10	Transect	4/29/11	1:45:47 PM	12942677.36	277696.18	870.5855	0.0427	0.0641	0.077	2.1	1.5	1.7	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
4.29T-A-11	Transect	4/29/11	1:52:03 PM	12942621.58	277647.31	870.5046	0.0428	0.0668	0.0793	2.2	0.0	0.1	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
4.29T-B-01	Transect	5/10/11	11:36:48 AM	12942428.14	277715.94	869.2542	0.0583	0.0854	0.1034	1.0	0.0	0.4	Light	Light	None	Island	No		Downstrm Island	None	Sand		INSIDE BOOM
4.29T-E-01	Transect	4/26/2011	9:48:15 AM	12942820.48	277822.37	870.66	1.12	2.08	2.36	1.5	0.1	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
4.29T-E-02	Transect	4/26/2011	9:52:44 AM	12942795.07	277700.06	869.88	0.04	0.07	0.08	3.6	0.7	1.9	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand over Silt		
4.29T-E-03	Transect	4/26/2011	10:02:21 AM	12942798.93	277545.96	869.95	0.05	0.09	0.10	0.7	0.3	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
4.29T-E-04	Transect	4/26/2011	10:23:02 AM	12942555.18	277551.75	869.99	0.12	0.16	0.20	1.5	0.4	0.6	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		NEW L BANK
4.29T-E-05	Transect	4/26/2011	1:10:11 PM	12942583.18	277634.19	870.17	0.04	0.07	0.08	2.3	1.1	1.8	Light	Light	Few	Center	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		OUTSIDE BOOM
4.29T-E-06	Transect	4/26/2011	1:20:34 PM	12942608.62	277691.62	870.01	0.03	0.05	0.06	1.0	0.2	0.2	Moderate	Moderate	Common	Center	1-3 ft/sec		Other-Comments	<5%	Sand		SUBMERGED ISLAND
4.29T-E-07	Transect	4/26/2011	1:32:15 PM	12942620.61	277726.73	869.95	0.04	0.07	0.08	2.5	1.0	2.0	None	None	None	Center	1-3 ft/sec		Other-Comments	None	Sand over Silt		OUTSIDE BOOM
4.29T-E-08	Transect	4/26/2011	1:40:19 PM	12942631.75	277844.37	871.46	1.22	2.34	2.64	1.8	0.4	0.4	None	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		NEW R BANK
4.30S-A-14	Focus	4/29/11	2:13:43 PM	12942101.71	277712.51	870.4344	0.0516	0.0943	0.1075	3.6	0.6	1.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
4.30S-E-01	Focus	4/26/2011	10:39:00 AM	12942344.28	277590.43	870.00	0.05	0.08	0.09	0.4	1.1	4.6	Moderate	Moderate	Common	Left	<1ft/sec		Downstrm Island	<5%	Soft Sediment		POLE SNAPPED
4.30S-E-02	Focus	4/26/2011	12:43:37 PM	12942323.69	277661.40	870.02	0.05	0.06	0.08	2.4	1.6	2.3	Light	Light	Few	Center	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
4.30S-E-03	Focus	4/26/2011	12:53:27 PM	12942478.69	277617.38	870.28	0.03	0.04	0.05	3.1	1.1	2.4	Moderate	Moderate	Common	Center	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		PHOTO 327 AT2.7F
4.30S-E-04	Focus	4/26/2011	12:58:16 PM	12942483.99	277633.13	870.05	0.04	0.06	0.07	3.7	1.4	1.8	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt	BOUNDARY	
4.30S-E-05	Focus	4/26/2011	1:50:46 PM	12942134.15	277702.28	869.96	0.04	0.07	0.08	3.1	0.9	1.0	Moderate	Moderate	Common	Center	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
4.30S-E-06	Focus	4/26/2011	2:10:52 PM	12942141.78	277763.71	869.83	0.05	0.07	0.09	3.0	1.0	1.1	None	None	None	Center	<1ft/sec		Strt Channel Edg	None	Sand	BOUNDARY	
4.30S-E-07	Focus	4/26/2011	2:21:13 PM	12941894.16	277732.41	869.89	0.03	0.05	0.06	2.3	1.7	4.6	Light	Light	None	Center	<1ft/sec		Strt Channel Edg	None	Soft Sediment	BOUNDARY	
4.30S-E-08	Focus	4/26/2011	2:29:53 PM	12941756.87	277759.51	869.84	0.04	0.06	0.07	3.9	0.6	0.6	None	None	None	Center	<1ft/sec		Strt Channel Edg	None	Sand	BOUNDARY	
4.30S-E-09	Focus	4/26/2011	2:37:29 PM	12941467.95	277764.84	869.92	0.04	0.06	0.07	4.8	1.7	3.7	Light	Light	Few	Center	<1ft/sec		Strt Channel Edg	None	Sand & Silt	BOUNDARY	
4.30S-E-10	Focus	4/26/2011	2:54:43 PM	12941474.36	277727.57	869.89	0.04	0.06	0.08	2.0	1.8	3.6	Heavy	Heavy	Common	Center	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
4.30S-E-11	Focus	4/26/2011	3:10:03 PM	12941758.43	277712.60	869.86	0.04	0.07	0.08	1.1	2.7	3.4	Moderate	Light	Common	Center	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
4.30S-E-12	Focus	4/26/2011	3:22:52 PM	12941893.39	277721.60	869.85	0.04	0.06	0.07	0.6	2.2	4.0	Moderate	Light	Common	Center	<1ft/sec		Strt Channel Edg	25%-50%	Soft Sediment		
4.3S-B-01	Focus	5/10/11	9:47:24 AM	12941436.50	277705.33	869.0406	0.0438	0.0709	0.0833	0.7	1.3	2.4	Moderate	Heavy	None	Left	No		Other-Comments	None	Soft Sediment		MARSH
4.3S-B-02	Focus	5/10/11	9:50:39 AM	12941363.41	277700.87	869.0497	0.0455	0.0764	0.089	1.3	1.3	2.5	Light	Moderate	None	Left	No		Other-Comments	<5%	Soft Sediment	HVY RESIDUAL SHN	MARSH
4.3S-B-03	Focus	5/10/11	9:53:35 AM	12941450.25	277735.47	869.082	0.0532	0.0911	0.1055	2.5	1.5	2.3	Light	Moderate	None	Center	<1ft/sec		Other-Comments	None	Soft Sediment		VEL 0.4, OUTSIDE OF BOOM
4.3S-B-04	Focus	5/10/11	10:15:38 AM	12941993.56	277715.32	869.1687	0.0584	0.1052	0.1203	0.6	0.3	0.3	None	None	None	Left	1-3 ft/sec		Other-Comments	None	Sand & Silt	HVY RESID SHN	TRIB ENTCE/VEL2
4.3S-B-05	Focus	5/10/11	10:21:15 AM	12942223.76	277666.53	869.17	0.04	0.0731	0.0833	1.1	1.4	2.0	Light	Moderate	None	Left	No		Other-Comments	5%-25%	Sand & Silt		MARSH
4.3S-B-06	Focus	5/10/11	10:26:55 AM	12942418.57	277625.64	869.1456	0.0362	0.0659	0.0752	1.1	0.9	1.9	Heavy	Heavy	Many	Other-Comments	No		Other-Comments	None	Sand & Silt	HVY RESIDUAL SHN	COVE
4.3S-B-07	Focus	5/10/11	10:37:37 AM	12942452.45	277583.97	869.1571	0.0655	0.1258	0.1419	1.2	1.1	1.6	Heavy	Heavy	Many	Other-Comments	No		Other-Comments	None	Soft Sediment	HVY RESIDUAL SHN	COVE
4.3S-B-08	Focus	5/10/11	10:52:17 AM	12942510.19	277611.21	869.2967	0.0622	0.1103	0.1266	2.3	0.6	1.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		VEL 1.7, OUTSIDE OF BOOM
4.3S-B-09	Focus	5/10/11	10:58:29 AM	12942479.45	277628.24	869.2545	0.0432	0.0727	0.0846	3.5	0.2	0.9	None	None	None	Center	1-3 ft/sec		Other-Comments	None	Sand		VEL 1.7, OUTSIDE OF BOOM
4.40T-E-01	Transect	4/26/2011	3:34:34 PM	12941991.67	277688.23	869.82	0.03	0.06	0.07	1.6	2.3	2.3	Light	Light	Few	Center	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
4.40T-E-02	Transect	4/26/2011	3:54:42 PM	12942047.19	277772.17	870.06	0.03	0.08	0.09	4.6	0.3	1.8	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		
4.40T-E-03	Transect	4/26/2011	4:02:22 PM	12942021.99	277833.23	869.89	0.05	0.19	0.19	2.8	1.4	1.4	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Other-Comments		BRANCHES AND SILT
4.48T-E-01	Transect	4/26/2011	3:46:04 PM	12941583.93	277726.78	870.02	0.04	0.07	0.08	0.7	1.3	4.6	Light	Light	Few	Center	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
4.48T-E-02	Transect	4/26/2011	4:11:42 PM	12941622.68	277888.10	869.75	0.04	0.13	0.13	2.0	0.4	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		BRANCHES AND SILT
4.48T-E-03	Transect	4/26/2011	4:23:49 PM	12941599.53	277815.53	869.83	0.04	0.09	0.10	3.1	0.5	0.7	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
MP 4.50-4.75																							
4.6C-B-01	Focus	5/10/11	9:41:19 AM	12941113.21	277908.44	868.942	0.0612	0.092	0.1105	0.6	0.1	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		VEL 1.0
4.6C-C-01	Focus	4/27/11	9:21:48 AM	12941024.26	277972.83	869.7482	0.0463	0.066	0.0806	1.3	0.4	2.9	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Sand over Silt	57	
4.6C-C-02	Focus	4/27/11	9:28:32 AM	12941064.19	277920.54	869.6041	0.0645	0.0861	0.1076	0.9	0.2	0.4	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Sand		SUBMERGED ISLE
4.6C-C-03	Focus	4/27/11	9:33:59 AM	12941075.74	277982.82	869.0057	0.0384	0.051	0.0639	1.5	0.6	1.5	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		
4.64LG-B-01		5/11/2011	9:16:45 AM	12940828.51	278074.36	868.9679	0.0462	0.0561	0.0727	1.8	0.5	0.7	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt	HVY SHN KICKED UP BY JET PROP	
4.72LG-A-01	Other	5/16/2011	3:43:11 PM	12940378.17	278258.83	869.7188	0.042	0.0536	0.0681	3.6	1.1	2.0	None	None	None	Center	No	No	Strt Channel Edg	None	Sand & Silt		
MP 4.75-5.00																							
4.80LG-A-01	Other	5/16/2011	3:39:17 PM	12940200.19	278619.94	869.7856	0.0321	0.046	0.0561	4.0	1.0	1.8	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
4.80LG-A-02	Other	5/16/2011	3:58:45 PM	12940202.94	278608.53	869.9669	0.0337	0.0449	0.0561	3.8	1.0	1.7	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	U BDY	
4.80LG-A-03	Other	5/16/2011	4:05:46 PM	12940181.34	278671.95	869.728	0.031	0.0403	0.0509	1.7	1.1	2.1	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg				FARRIGHT AS POSIBL, THICK REEDS 2 RIGHT
4.80LG-A-04	Other	5/16/2011	4:07:54 PM	12940190.84	278645.49	869.9194	0.0292	0.0397	0.0493	2.6	1.6	2.7	Light	Light	Few	Right	No	No	Strt Channel Edg	None	Soft Sediment	D BDY	
4.80LG-A-05	Other	5/16/2011	4:15:00 PM	12940185.25	278605.37	869.872	0.051	0.0676	0.0846	3.9	0.7	1.6	Light	Light	Few	Right	No	No	Strt Channel Edg	None	Soft Sediment	LAT BDY	
4.80LG-E-06	Other	5/17/2011	3:04:38 PM	12940139.72	278733.75	869.7483	0.0374	0.0513	0.0635	0.8	2.4	3.9	Light	Light	Few	Right	No	No	Strt Channel Edg	<5%	Soft Sediment		
4.80LG-E-07	Other	5/17/2011	3:13:56 PM	12940265.40	278604.54	869.7865	0.0541	0.0657	0.0851	0.9	3.2	4.7	Light	Light	Few	Right	No	No	Strt Channel Edg	5%-25%	Soft Sediment		
4.85LG-B-01		5/11/2011	9:28:57 AM	12939832.99	278663.70	868.0335	0.9354	1.2553	1.5655	0.7	0.1	0.2	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		TRIB ENTRANCE
4.9N-A-01	Focus	5/1/2011	12:32:23 PM	12939789.49	279029.99	870.3056	0.0443	0.0544	0.0702	2.2	3.8	4.8	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		TEMP 59
4.9N-A-02	Focus	5/1/2011	12:34:54 PM	12939814.20	279026.66	870.2611	0.0402	0.0492	0.0635	2.9	3.1	4.1	Light	Light	Few	Right	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		EDG BCK EDDY
4.95N-C-01	Focus	4/27/11	9:43:44 AM	12939862.50	278937.42	869.7012	0.0542	0.0701	0.0886	0.6	0.7	3.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		MARSH EDGE
4.95N-C-02	Focus	4/27/11	9:52:39 AM	12939819.24	279024.96	869.6002	0.0441	0.0526	0.0686	1.1	2.9	4.6	Heavy	Heavy	Common	Right	1-3 ft/sec		Other-Comments	50%-75%	Soft Sediment		MARSH EDGE
4.95N-C-03	Focus	4/27/11	10:02:13 AM	12939813.66	279062.57	869.7034	0.0737	0.0705	0.102	1.3	0.3	1.4	Moderate	Moderate	Few	Right	1-3 ft/sec		Other-Comments	None	Silt over Sand		COVE DWNSM MARSH
4.95N-C-04	Focus	4/27/11	10:09:31 AM	12939771.71	279089.39	869.6692	0.0788	0.0832	0.1146	1.4	1.5	4.2	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
4.95N-C-05	Focus	4/27/11	10:16:51 AM	12939779.65	279053.27	869.6751	0.0523	0.0613	0.0806	1.8	2.9	4.4	Light	Light	None	Other-Comments	1-3 ft/sec		Other-Comments	None	Soft Sediment		COVE MEETS RIVER
4.95S-C-01	Focus	4/27/11	10:26:01 AM	12939611.98	278822.77	869.7681	0.0489	0.0656	0.0818	1.7	0.8	1.0	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
4.95S-C-02	Focus	4/27/11	10:49:10 AM	12939563.63	278853.42	869.9163	0.041	0.0733	0.084	1.8	0.8	1.7	None	None	None	Left	1-3 ft/sec		Other-Comments	None	Soft Sediment		MARSH EDGE
4.95S-C-03	Focus	4/27/11	10:42:53 AM	12939507.73	278886.85	869.7709	0.0412	0.0692	0.0805	1.8	0.2	0.5	None	None	None	Left	1-3 ft/sec		Other-Comments	None	Soft Sediment		MARSH EDGE
4.95S-C-04	Focus	4/27/11	10:50:54 AM	12939391.42	278944.11	869.7701	0.0364	0.0634	0.0731	1.7	0.6	0.8	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
4.97LG-A-01	Other	5/16/2011	3:34:59 PM	12939468.52	279235.84	869.8153	0.0363	0.0532	0.0644	2.0	2.0	3.0	Light	Light	Few	Right	No	No	Mid-Channel	None	Soft Sediment		
MP 5.00-5.25																							
5.04LG-B-01		5/11/2011	9:36:14 AM	12939081.91	279261.46	868.8391	0.0326	0.0519	0.0613	2.1	1.8	2.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Soft Sediment		
5.14LG-B-01		5/11/2011	9:43:16 AM	12938605.63	279523.16	868.8389	0.0315	0.051	0.0599	1.9	0.4	2.2	Light	Light	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	<5%	Soft Sediment		
5.25N-C-01	Focus	4/27/11	11:20:51 AM	12938792.11	279596.63	869.7916	0.0468	0.0855	0.0974	2.4	1.0	1.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
5.25N-C-02	Focus	4/27/11	11:26:21 AM	12938725.92	279635.56	869.7928	0.0304	0.0546	0.0625	2.4	0.4	0.8	Light	Light	None	Right	1-3 ft/sec		Other-Comments	None	Soft Sediment		RNOFF OUTLT/MARS
5.25N-C-03	Focus	4/27/11	11:30:14 AM	12938657.70	279687.14	869.7143	0.0235	0.0417	0.0479	2.0	1.0	1.3	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Silt over Sand		RNOFF OULT/MRSH

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
5.25N-C-04	Focus	4/27/11	11:36:18 AM	12938555.95	279747.20	869.794	0.0377	0.0658	0.0759	2.2	0.3	0.6	Light	Light	None	Island	1-3 ft/sec		Other-Comments	None	Soft Sediment	57.1	RUNOFF MARSH
5.25N-C-05	Focus	4/27/11	11:40:55 AM	12938532.65	279710.08	869.8439	0.0344	0.0596	0.0688	3.8	3.9	4.0	Heavy	Heavy	Few	Center	>3 ft/sec		Strt Channel Edg	None			15 20FT OFF BANK
5.25N-C-06	Focus	4/27/11	11:46:40 AM	12938541.49	279695.01	869.8087	0.0485	0.0845	0.0974	3.3	2.5	3.0	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Soft Sediment		25 30FT OFFBANK
5.25N-C-07	Focus	4/27/11	11:48:47 AM	12938633.96	279667.04	869.8164	0.0472	0.0808	0.0936	4.4	3.3	3.9	Heavy	Heavy	Few	Right	>3 ft/sec		Strt Channel Edg	None	Soft Sediment		15 20FT OFFBANK
5.25N-C-08	Focus	4/27/11	11:51:18 AM	12938687.43	279640.27	869.7102	0.0413	0.0691	0.0805	4.3	3.2	4.6	Light	Light	None	Right	>3 ft/sec		Strt Channel Edg	None	Soft Sediment		15 20FT OFFBANK
5.25N-C-09	Focus	4/27/11	11:53:28 AM	12938621.13	279650.05	869.8217	0.0412	0.0675	0.0791	3.6	2.5	2.9	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Soft Sediment		25 30FT OFFBANK
5.25N-C-10	Focus	4/27/11	11:56:59 AM	12938464.18	279781.25	869.8814	0.0478	0.0756	0.0894	2.6	1.4	3.0	Heavy	Heavy	Many	Right	1-3 ft/sec		Other-Comments	None	Soft Sediment		MARSH EDGE
5.25N-A-11	Focus	5/1/2011	10:23:55 AM	12938157.54	279846.68	870.1721	0.0298	0.0484	0.0568	2.4	1.8	4.0	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25N-A-12	Focus	5/1/2011	10:29:07 AM	12938143.72	279848.08	870.2645	0.0314	0.0535	0.062	2.7	2.3	4.7	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25N-A-13	Focus	5/1/2011	10:32:07 AM	12938160.36	279831.90	870.2869	0.0382	0.0663	0.0766	3.9	3.1	5.0	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		SBMRGD TREE
5.25N-A-14	Focus	5/1/2011	10:34:54 AM	12938150.53	279825.13	870.2967	0.0283	0.0492	0.0568	5.8	3.2	3.8	Heavy	Heavy	Many	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25N-A-15	Focus	5/1/2011	10:40:20 AM	12938155.72	279817.85	870.2815	0.0233	0.0417	0.0477	7.0	2.5	2.8	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment		
5.25N-A-16	Focus	5/1/2011	10:44:22 AM	12938202.90	279816.27	870.2569	0.0277	0.0503	0.0574	3.2	5.3	6.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		SBMRGD TREE
5.25N-A-17	Focus	5/1/2011	10:49:10 AM	12938303.25	279764.01	870.2659	0.0339	0.0621	0.0708	5.0	3.0	4.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25N-E-18	Focus	5/13/2011	10:23:52 AM	12938187.16	279739.36	861.2816	9.9845	13.5505	16.8317	2.8	3.1	5.1	Moderate	Light	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		MIDCNHL
5.25N-E-19	Focus	5/13/2011	10:28:06 AM	12938288.59	279710.88	862.4275	9.6632	12.7338	15.9852	3.1	3.3	4.9	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		MIDCHNL
5.25N-E-20	Focus	5/13/2011	10:31:43 AM	12938374.38	279650.76	859.8336	12.3313	16.5885	20.6698	2.7	4.0	4.8	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-21	Focus	5/13/2011	10:35:51 AM	12938487.67	279634.81	866.7439	8.2957	10.4417	13.336	2.9	2.3	2.6	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		MIDCHNL
5.25N-E-22	Focus	5/16/2011	10:34:19 AM	12938179.77	279778.59	869.7308	0.0415	0.0527	0.0671	6.1	2.8	2.9	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-23	Focus	5/16/2011	10:43:08 AM	12938264.09	279791.18	869.4475	0.3932	0.5266	0.6572	5.4	2.6	3.9	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25N-E-24	Focus	5/16/2011	10:50:56 AM	12938430.80	279784.46	856.7532	6.6729	8.8717	11.1012	2.0	0.8	1.0	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		ON BANK
5.25N-E-25	Focus	5/16/2011	12:00:46 PM	12938688.48	279667.24	869.7452	0.1464	0.231	0.2735	2.1	0.6	1.9	Light	Light	Few	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.25N-E-26	Focus	5/16/2011	12:06:39 PM	12938603.66	279721.33	874.6101	2.3649	3.7751	4.4546	2.2	0.5	0.8	Light	Light	Few	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.25N-E-27	Focus	5/16/2011	12:08:25 PM	12938605.48	279710.50	870.147	0.3657	0.5798	0.6855	2.1	1.9	2.4	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25N-E-28	Focus	5/16/2011	12:14:23 PM	12938509.73	279772.66	869.942	0.0349	0.0632	0.0722	1.0	1.0	1.5	None	None	None	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.25N-E-29	Focus	5/16/2011	12:17:20 PM	12938512.93	279764.60	869.7566	0.0893	0.1522	0.1765	2.6	1.8	2.1	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.25N-E-30	Focus	5/16/2011	12:24:56 PM	12938405.56	279695.27	869.8526	0.0355	0.0609	0.0705	3.6	3.6	4.5	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-31	Focus	5/17/2011	10:19:28 AM	12937972.99	279878.39	869.8083	0.0537	0.0802	0.0965	4.8	3.8	5.2	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-32	Focus	5/17/2011	8:41:10 AM	12938165.85	279715.25	869.5944	0.0365	0.0615	0.0715	3.2	4.4	6.0	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-33	Focus	5/17/2011	8:52:11 AM	12938071.62	279786.38	869.5849	0.0179	0.0325	0.0371	3.7	2.9	3.0	Heavy	Moderate	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-34	Focus	5/17/2011	9:15:23 AM	12937987.39	279959.49	869.653	0.0354	0.0662	0.0751	1.5	2.7	3.5	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg	<5%	Soft Sediment		
5.25N-E-35	Focus	5/17/2011	9:27:08 AM	12937913.60	280006.31	869.6109	0.0346	0.0577	0.0673	1.9	1.3	1.6	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.25N-E-36	Focus	5/17/2011	8:19:12 AM	12938426.50	279660.06	869.4723	0.0223	0.0361	0.0424	3.3	2.5	2.6	Moderate	Moderate	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-37	Focus	5/17/2011	8:22:37 AM	12938388.72	279599.24	869.5184	0.0194	0.0324	0.0378	2.6	3.9	6.0	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-38	Focus	5/17/2011	8:28:08 AM	12938486.32	279625.72	869.4599	0.0249	0.0423	0.0491	3.1	2.9	3.8	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25N-E-39	Focus	5/17/2011	8:34:16 AM	12938270.40	279655.74	869.6544	0.3093	0.505	0.5922	3.2	4.9	5.8	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25N-E-40	Focus	5/17/2011	3:45:22 PM	12938350.33	279727.01	869.7709	0.041	0.0488	0.0637	3.5	4.3	5.6	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-A-01	Focus	5/1/2011	9:31:30 AM	12937900.45	279767.75	869.9123	0.0435	0.0505	0.0666	4.1	5.4	5.6	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25S-A-02	Focus	5/1/2011	9:37:22 AM	12937946.92	279772.40	870.1976	0.0299	0.0346	0.0457	4.0	3.5	4.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment		
5.25S-A-03	Focus	5/1/2011	9:41:19 AM	12937940.92	279757.08	870.1967	0.0326	0.0377	0.0498	4.2	3.1	4.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25S-A-04	Focus	5/1/2011	9:45:03 AM	12937976.97	279754.95	870.2449	0.0312	0.0362	0.0477	4.2	2.9	3.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment		
5.25S-A-05	Focus	5/1/2011	9:49:01 AM	12937978.56	279720.72	870.247	0.0425	0.0497	0.0654	4.0	3.5	4.0	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25S-A-06	Focus	5/1/2011	10:03:40 AM	12938054.57	279671.72	870.1536	0.0293	0.0371	0.0473	3.9	2.8	3.6	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		TEMP 57
5.25S-A-07	Focus	5/1/2011	9:51:39 AM	12937969.33	279726.17	870.1919	0.0375	0.0443	0.058	4.0	3.8	4.9	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		DBDY
5.25S-A-08	Focus	5/1/2011	9:56:18 AM	12937989.29	279741.79	870.1654	0.0306	0.0369	0.048	4.1	4.1	5.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment		LAT BDY
5.25S-A-09	Focus	5/1/2011	9:59:14 AM	12937995.85	279714.94	870.2361	0.0356	0.0409	0.0542	4.0	3.4	3.6	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.25S-E-10	Focus	5/13/2011	10:07:00 AM	12937878.90	279863.70	865.8457	7.2486	8.605	11.2511	3.4	3.2	4.3	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		100FT OFF LFTBNK
5.25S-E-11	Focus	5/13/2011	10:11:38 AM	12937973.02	279775.94	863.6924	6.9181	8.0064	10.5813	3.4	2.0	2.6	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		100FT OFF LFTBNK
5.25S-E-12	Focus	5/16/2011	3:51:45 PM	12937038.88	280236.34	848.3171	7.9413	13.072	15.2952	2.4	0.5	0.7	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
5.25S-E-13	Focus	5/16/2011	1:47:12 PM	12937452.49	280089.67	869.8326	0.0368	0.0548	0.066	4.1	4.0	5.7	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-E-14	Focus	5/16/2011	1:55:35 PM	12937329.42	280026.42	869.788	0.051	0.08	0.0948	2.0	1.2	1.4	Light	Light	Few	Left	No	No	Strt Channel Edg	None	Soft Sediment		
5.25S-E-15	Focus	5/16/2011	2:03:07 PM	12937196.45	280139.89	869.9212	0.0374	0.0666	0.0764	4.4	3.7	4.5	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25S-E-16	Focus	5/16/2011	1:04:37 PM	12937708.22	279870.73	869.8583	0.173	0.1688	0.2417	3.4	4.3	6.1	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25S-E-17	Focus	5/16/2011	1:19:24 PM	12937647.71	279909.01	869.6837	0.0773	0.0782	0.1099	3.3	3.9	6.6	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25S-E-18	Focus	5/16/2011	1:25:37 PM	12937549.86	279998.66	869.7184	0.0476	0.0458	0.066	3.5	3.7	4.3	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel				
5.25S-E-19	Focus	5/16/2011	9:34:20 AM	12937707.30	279970.38	869.6801	0.0321	0.0541	0.0629	4.4	3.5	5.7	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-E-20	Focus	5/16/2011	12:53:35 PM	12937813.60	279819.77	869.8399	0.038	0.0525	0.0648	3.9	4.1	4.6	Moderate	Moderate	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	HVY SHNGLB IN DEEP SED	
5.25S-E-21	Focus	5/16/2011	9:46:26 AM	12937829.65	279847.76	869.7214	0.0358	0.0538	0.0646	3.2	2.7	3.9	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-E-22	Focus	5/16/2011	9:53:16 AM	12937917.21	279768.93	869.5932	0.0612	0.0648	0.0891	3.2	4.2	4.9	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25S-E-23	Focus	5/16/2011	9:59:16 AM	12938032.51	279653.09	866.4758	2.3438	3.0169	3.8203	2.0	0.1	0.1	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
5.25S-E-24	Focus	5/16/2011	10:16:16 AM	12938017.44	279717.50	869.7691	0.0552	0.0831	0.0997	3.9	3.5	5.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25S-E-25	Focus	5/17/2011	3:53:57 PM	12937358.54	280054.85	869.7342	0.0558	0.0678	0.0879	6.4	0.7	0.8	None	None	None	Left	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
5.25S-E-26	Focus	5/17/2011	3:58:20 PM	12937275.09	280129.68	869.6605	0.0364	0.0448	0.0577	3.6	4.1	5.0	None	None	None	Left	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-E-27	Focus	5/17/2011	4:03:17 PM	12937537.91	279935.00	869.6676	0.0927	0.0787	0.1216	4.8	0.8	0.9	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.25S-E-28	Focus	5/17/2011	4:08:48 PM	12937490.29	280008.54	869.6115	0.0491	0.0505	0.0704	3.2	4.3	5.9	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-E-29	Focus	5/17/2011	9:00:46 AM	12938000.57	279772.86	869.5442	0.0258	0.0466	0.0533	3.6	2.6	3.3	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-E-30	Focus	5/17/2011	9:07:23 AM	12937969.64	279819.17	869.6318	0.0237	0.047	0.0527	4.2	3.0	3.3	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.25S-A-PUBLIC-1	Focus	4/30/11	11:19:43 AM	12937487.61	279960.34	870.2847	0.1368	0.1249	0.1852	2.2	0.3	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
5.25S-A-PUBLIC-2	Focus	4/30/11	11:21:16 AM	12937464.58	279972.51	870.5665	0.0546	0.1123	0.1249	2.2	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
5.25S-A-PUBLIC-3	Focus	4/30/11	11:22:44 AM	12937446.27	279981.19	870.8594	0.1553	0.205	0.2572	1.7	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
MP 5.25-5.50																							
5.35N-A-01	Focus	4/30/11	1:09:28 PM	12937680.37	280205.73	870.3629	0.0358	0.0442	0.0569	2.4	2.7	2.9	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
5.35N-A-02	Focus	4/30/11	1:15:57 PM	12937700.25	280199.09	870.2583	0.0432	0.0554	0.0703	2.5	3.1	3.5	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
5.35N-A-03	Focus	4/30/11	1:18:31 PM	12937711.71	280175.77	870.4014	0.0321	0.0418	0.0527	2.5	1.5	1.6	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
5.35N-E-04	Focus	5/13/2011	8:44:51 AM	12937734.18	280109.15	876.0803	8.386	13.2619	15.6909	2.1	1.4	2.1	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		APPROX 25FT OFFBK
5.35N-E-05	Focus	5/13/2011	8:53:32 AM	12937741.49	280161.43	874.0661	7.9042	12.9031	15.1316	0.9	1.4	2.1	Moderate	Light	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	<5%	Soft Sediment		ON BANK
5.35N-E-06	Focus	5/13/2011	9:01:08 AM	12937670.90	280171.44	870.8568	7.9466	13.0388	15.2695	2.1	3.7	4.4	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		30FT OFF BANK
5.35N-E-07	Focus	5/13/2011	9:06:39 AM	12937609.50	280177.70	870.5714	8.0177	13.008	15.2804	2.2	2.9	3.4	Moderate	Light	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		50FT OFF BANK

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
5.35N-E-08	Focus	5/13/2011	9:11:18 AM	12937525.76	280232.36	870.6484	8.1941	13.0533	15.4121	2.5	1.8	2.3	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.35N-E-09	Focus	5/13/2011	9:22:21 AM	12937481.56	280278.74	869.0269	8.2001	12.1965	14.6968	2.5	2.1	2.5	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		50FT OFFBANK
5.35N-E-10	Focus	5/13/2011	9:27:32 AM	12937394.36	280338.48	866.7395	8.1456	12.2313	14.6954	2.8	1.7	2.1	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.35N-E-11	Focus	5/13/2011	9:32:07 AM	12937327.27	280426.33	866.0876	7.7974	11.2979	13.7274	2.3	2.1	2.4	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		30FT OFFBANK
5.35N-E-12	Focus	5/13/2011	9:34:54 AM	12937373.70	280422.65	866.2762	7.7682	11.0045	13.4701	0.9	1.7	2.6	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	<5%	Soft Sediment		ON BANK
5.35N-E-13	Focus	5/13/2011	9:42:03 AM	12937282.05	280498.75	866.1612	7.8323	11.1989	13.666	0.8	1.4	2.1	Light	Light	Few							PHT375N376N377 SHEEN B4 AGG ON BANK	
5.35N-E-14	Focus	5/13/2011	9:49:28 AM	12937473.28	280336.63	864.8712	7.5869	10.2311	12.7372	0.8	1.5	2.0	Moderate	Light	Common	Right	No	No	Strt Channel Edg	<5%	Soft Sediment		ON BANK
5.35N-E-15	Focus	5/13/2011	9:53:56 AM	12937555.00	280279.41	865.5461	7.5599	9.8502	12.4169	0.7	1.3	1.8	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg	5%-25%	Soft Sediment	SHEEN B4 AGG	ON BANK
5.35N-E-16	Focus	5/13/2011	9:58:33 AM	12937648.40	280226.69	866.2504	7.3002	9.1908	11.7373	1.6	1.4	1.7	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	None	Soft Sediment		ON BANK
5.35N-E-17	Focus	5/16/2011	8:35:16 AM	12937136.34	280518.10	869.6427	0.0373	0.063	0.0733	2.1	3.0	3.7	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-18	Focus	5/16/2011	8:43:20 AM	12937185.92	280466.26	869.5918	0.0286	0.0513	0.0587	2.5	2.4	2.7	Moderate	Moderate	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-19	Focus	5/16/2011	8:56:01 AM	12937251.73	280398.89	869.7086	0.0385	0.0666	0.0769	2.5	2.6	4.4	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-20	Focus	5/16/2011	3:36:36 PM	12936918.23	280433.22	869.7189	0.0443	0.0644	0.0781	2.8	4.4	7.4	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-21	Focus	5/16/2011	3:41:43 PM	12937083.16	280320.76	869.7182	0.0516	0.0809	0.0959	2.5	4.3	6.7	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-22	Focus	5/16/2011	3:46:12 PM	12937234.25	280207.79	848.425	6.728	11.9334	13.6993	2.7	4.5	7.0	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-23	Focus	5/16/2011	9:04:16 AM	12937317.38	280334.75	869.5155	0.0241	0.0435	0.0498	2.4	3.2	4.7	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-24	Focus	5/16/2011	9:08:33 AM	12937402.80	280255.13	869.5625	0.0248	0.0461	0.0524	2.5	3.8	4.9	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-25	Focus	5/16/2011	9:15:43 AM	12937519.37	280136.88	869.5632	0.0579	0.0886	0.1058	2.8	3.4	5.5	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand over Silt		
5.35N-E-26	Focus	5/17/2011	10:28:22 AM	12937289.45	280234.28	869.6234	0.0237	0.0289	0.0374	2.1	4.4	7.7	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-27	Focus	5/17/2011	10:32:00 AM	12937321.67	280290.31	869.6325	0.0311	0.0369	0.0482	2.5	4.8	5.2	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-28	Focus	5/17/2011	10:35:57 AM	12937217.07	280311.38	869.7752	0.0505	0.0622	0.0801	2.1	5.1	7.3	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-29	Focus	5/17/2011	4:13:08 PM	12937317.06	280414.51	869.9148	0.8053	0.8615	1.1793	2.7	1.9	2.2	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.35N-E-30	Focus	5/17/2011	10:41:53 AM	12937156.23	280365.17	869.6796	0.0379	0.0451	0.0589	2.1	4.5	7.1	Light	Light	Few	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-31	Focus	5/17/2011	10:03:14 AM	12937648.38	280155.92	870.5131	2.369	3.2433	4.0163	2.8	3.7	4.4	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-32	Focus	5/17/2011	10:07:54 AM	12937708.97	280062.00	869.6081	0.0367	0.0518	0.0635	3.4	4.5	4.9	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-33	Focus	5/17/2011	10:13:07 AM	12937863.26	279937.17	869.7016	0.0458	0.0645	0.0791	4.2	3.8	5.2	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.35N-E-34	Focus	5/17/2011	9:42:21 AM	12937818.79	280080.41	869.7519	0.1518	0.2125	0.2612	1.9	0.9	1.2	Light	Light	Few	Right	No	No	Strt Channel Edg	<5%	Soft Sediment		
5.35N-E-35	Focus	5/17/2011	9:52:18 AM	12937743.38	280152.28	868.0428	1.2468	1.9556	2.3192	1.5	2.0	2.5	Light	Light	Few	Right	No	No	Strt Channel Edg	<5%	Soft Sediment		
5.37LG-B-01		5/11/2011	9:52:19 AM	12937593.41	280158.63	868.961	0.0403	0.0688	0.0797	3.2	0.8	1.8	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.46LG-B-01		5/11/2011	10:11:32 AM	12937054.14	280225.66	868.2349	0.7301	1.8768	2.0138	2.2	0.2	0.3	Light	Light	None	Left	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Other-Comments		
MP 5.50-5.75																							
5.55N-A-01	Focus	4/27/11	10:24:47 AM	12936932.93	280721.46	869.8568	0.0367	0.0489	0.0612	1.5	0.6	1.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-02	Focus	4/27/11	10:28:06 AM	12936943.52	280675.01	869.8328	0.0445	0.0614	0.0759	2.1	2.1	2.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-03	Focus	4/27/11	10:32:52 AM	12936846.20	280769.91	869.8408	0.0349	0.052	0.0626	1.6	1.1	1.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-04	Focus	4/27/11	10:36:20 AM	12936841.93	280732.72	869.8681	0.0368	0.0572	0.0681	2.2	1.9	3.6	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-05	Focus	4/27/11	10:40:51 AM	12936746.34	280727.51	869.8201	0.0321	0.0525	0.0616	2.1	1.0	3.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-06	Focus	4/27/11	10:45:43 AM	12936762.87	280755.50	869.8857	0.0264	0.0453	0.0524	2.3	2.2	2.7	Light	Light	Common	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-07	Focus	4/27/11	10:51:00 AM	12936765.51	280765.74	869.8784	0.0328	0.057	0.0658	2.1	2.5	2.6	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-08	Focus	4/27/11	10:54:44 AM	12936779.71	280792.92	869.8507	0.0313	0.0555	0.0637	1.7	1.6	2.9	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-09	Focus	4/27/11	10:58:03 AM	12936779.68	280806.09	869.8364	0.032	0.0593	0.0674	1.6	1.1	1.2	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-10	Focus	4/27/11	11:01:42 AM	12936711.61	280706.70	869.8529	0.0288	0.0525	0.0599	2.2	2.3	3.0	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-11	Focus	4/27/11	11:06:23 AM	12936699.28	280719.79	869.8373	0.0309	0.0569	0.0647	2.2	2.9	5.3	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-12	Focus	4/27/11	11:11:26 AM	12936690.02	280728.75	869.7643	0.0287	0.053	0.0603	2.3	2.7	5.9	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-13	Focus	4/27/11	11:14:42 AM	12936675.04	280734.81	869.7782	0.0356	0.0656	0.0746	2.4	4.6	5.7	Light	None	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-14	Focus	4/27/11	11:19:17 AM	12936729.44	280760.22	869.8263	0.0392	0.072	0.0819	2.3	2.7	3.5	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-15	Focus	4/27/11	11:22:13 AM	12936724.69	280771.59	869.9649	0.0303	0.0552	0.0629	2.2	2.9	3.3	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-16	Focus	4/27/11	11:24:43 AM	12936711.19	280783.36	869.9279	0.0287	0.0518	0.0592	2.2	2.6	2.9	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-17	Focus	4/27/11	11:27:59 AM	12936741.02	280795.45	869.8882	0.03	0.0536	0.0614	2.0	2.6	2.7	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-18	Focus	4/27/11	11:31:17 AM	12936721.67	280820.65	869.7603	0.0317	0.058	0.0661	1.6	0.7	1.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-19	Focus	4/27/11	11:39:13 AM	12936614.25	280824.36	869.8338	0.0409	0.0716	0.0825	3.3	1.3	1.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
5.55N-A-20	Focus	4/27/11	11:42:09 AM	12936614.77	280820.61	869.8262	0.032	0.0549	0.0635	3.3	1.8	2.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-21	Focus	4/27/11	11:45:59 AM	12936527.60	280809.91	870.0088	0.0253	0.0423	0.0494	4.6	4.9	6.0	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.55N-A-24	Focus	5/16/2011	2:07:55 PM	12936448.82	280906.95	869.7883	0.0292	0.0513	0.059	3.8	1.2	1.8	Light	Light	None	Center	No	No	Mid-Channel	None	Soft Sediment		
5.55N-A-25	Focus	5/16/2011	2:21:59 PM	12936457.24	280855.03	869.7941	0.0246	0.0519	0.0575	5.2	1.4	3.0	Light	Light	None	Center	No	No	Mid-Channel	None	Soft Sediment		
5.55N-A-26	Focus	5/16/2011	2:55:26 PM	12936494.05	280757.64	870.0867	0.039	0.0995	0.1069	4.2	0.9	1.4	Light	Light	Few	Center	No	No	Mid-Channel	None	Soft Sediment		
5.55N-A-27	Focus	5/16/2011	3:01:22 PM	12936591.94	280752.38	869.891	0.0348	0.0867	0.0934	3.4	0.8	1.6	Light	Light	None	Center	No	No	Mid-Channel	None	Soft Sediment		
5.55N-B-01	Focus	5/11/2011	10:55:31 AM	12936141.15	281040.80	869.3205	1.1497	2.1552	2.4427	3.1	0.8	1.9	Light	Light	Few	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-B-02	Focus	5/11/2011	11:00:12 AM	12936137.10	281030.24	868.9264	0.0714	0.1228	0.1421	2.8	1.1	2.2	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-28	Focus	5/16/2011	2:16:38 PM	12936953.24	280613.85	866.0786	1.7789	3.4056	3.8422	2.1	3.4	3.7	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.55N-E-29	Focus	5/16/2011	2:24:41 PM	12936705.54	280662.19	869.9559	0.0502	0.1074	0.1186	2.6	4.7	7.4	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-30	Focus	5/16/2011	2:57:45 PM	12936905.49	280707.01	869.9198	0.0423	0.1114	0.1192	1.5	2.3	2.5	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.55N-E-31	Focus	5/16/2011	3:01:55 PM	12936819.53	280726.27	869.8533	0.0628	0.1308	0.1451	2.2	1.9	3.4	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.55N-E-32	Focus	5/16/2011	3:06:36 PM	12936705.89	280744.97	869.7897	0.0386	0.0787	0.0877	2.0	5.0	6.4	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.55N-E-33	Focus	5/16/2011	3:13:58 PM	12936716.65	280838.78	869.8857	0.0418	0.0754	0.0862	1.2	0.4	1.2	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	None	Soft Sediment	VERY HEAVY SHEEN GLOBS PHT 378N379	
5.55N-E-34	Focus	5/16/2011	3:23:18 PM	12936833.32	280791.79	873.0692	2.5894	3.2942	4.1901	0.9	1.4	1.5	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	5%-25%	Soft Sediment		
5.55N-E-35	Focus	5/16/2011	3:30:03 PM	12936751.20	280526.90	869.7499	0.0317	0.0477	0.0573	3.3	4.6	4.8	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-36	Focus	5/17/2011	12:11:26 PM	12936676.95	280833.94	869.6608	0.0478	0.1072	0.1174	1.8	1.0	1.1	Moderate	Moderate	Common	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.55N-E-37	Focus	5/17/2011	12:16:18 PM	12936645.60	280812.93	869.6272	0.0314	0.0757	0.082	2.6	2.3	2.6	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.55N-E-38	Focus	5/17/2011	12:22:27 PM	12936653.77	280755.66	869.6253	0.053	0.1439	0.1534	2.4	4.9	6.0	Moderate	Moderate	Common	Center	No	No	Mid-Channel	None	Soft Sediment		
5.55N-E-39	Focus	5/17/2011	12:26:17 PM	12936695.90	280716.60	869.6963	0.0741	0.1762	0.1912	2.1	4.4	7.5	Heavy	Heavy	Many	Center	No	No	Mid-Channel	None	Soft Sediment		
5.55N-E-40	Focus	5/17/2011	12:30:13 PM	12936743.98	280706.96	869.5889	0.0629	0.1459	0.1588	2.1	4.4	5.0	Moderate	Moderate	Common	Center	No	No	Mid-Channel	None	Soft Sediment		
5.55N-E-41	Focus	5/17/2011	12:35:04 PM	12936913.87	280687.21	869.8893	0.0902	0.1933	0.2133	2.1	2.1	3.2	Moderate	Moderate	Common	Right	No	No	Mid-Channel	None	Soft Sediment		
5.55N-E-42	Focus	5/17/2011	12:44:06 PM	12936883.84	280653.78	869.71	0.0269	0.0626	0.0681	1.9	3.9	4.4	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-43	Focus	5/17/2011	1:50:34 PM	12936666.90	280678.27	869.7182	0.0245	0.0488	0.0546	2.6	5.5	7.2	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-44	Focus	5/17/2011	2:03:48 PM	12936603.98	280700.28	869.6613	0.0354	0.072	0.0802	2.8	5.2	5.3	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-45	Focus	5/17/2011	2:11:57 PM	12936707.17	280619.60	869.7387	0.0514	0.1072	0.1189	2.4	5.2	7.2	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-46	Focus	5/17/2011	2:16:47 PM	12936673.69	280577.57	870.2613	0.114	0.2747	0.2974	4.1	4.7	5.4	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
5.55N-E-47	Focus	5/17/2011	2:30:02 PM	12936554.80	280602.75	869.3383	0.1226	0.2949	0.3194	6.5	2.5	3.0	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-48	Focus	5/17/2011	2:35:41 PM	12936592.10	280675.19	869.4419	0.0679	0.1663	0.1796	3.0	4.5	5.5	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-49	Focus	5/17/2011	2:39:57 PM	12936691.12	280617.84	869.7917	0.0804	0.1978	0.2135	2.6	5.0	5.8	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-50	Focus	5/17/2011	2:44:06 PM	12936773.09	280614.13	869.9294	0.0944	0.2544	0.2714	2.1	4.2	7.1	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-51	Focus	5/17/2011	2:50:08 PM	12936905.58	280591.39	869.7466	0.0469	0.0851	0.0972	2.1	3.5	5.2	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.55N-E-52	Focus	5/17/2011	2:53:14 PM	12936886.25	280541.87	869.607	0.055	0.0884	0.1041	2.1	5.1	6.5	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.63S-A-01	Focus	4/28/11	9:02:31 AM	12936638.56	280503.24	870.0595	0.0351	0.0559	0.066	5.0	3.0	4.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-02	Focus	4/28/11	9:11:31 AM	12936623.26	280511.43	869.9716	0.0439	0.0656	0.0789	4.7	2.9	3.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-03	Focus	4/28/11	9:16:40 AM	12936509.62	280563.34	870.019	0.0591	0.0855	0.104	2.9	4.4	5.1	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-04	Focus	4/28/11	9:22:15 AM	12936479.42	280585.89	869.9725	0.04	0.0558	0.0687	2.2	4.9	5.9	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-05	Focus	4/28/11	9:30:01 AM	12936498.77	280658.78	870.0492	0.0318	0.0413	0.0521	6.6	3.0	4.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment	2 DEEP 4 VIEW	2 DEEP 4 VIEW
5.63S-A-06	Focus	4/28/11	9:33:12 AM	12936481.12	280684.10	870.0617	0.0323	0.0422	0.0531	7.0	2.5	3.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment	2 DEEP 4 VIEW	2 DEEP 4 VIEW
5.63S-A-07	Focus	4/28/11	9:44:29 AM	12936413.76	280614.27	870.0538	0.043	0.0498	0.0658	2.8	3.3	3.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-08	Focus	4/28/11	9:49:26 AM	12936404.20	280616.97	870.0258	0.0511	0.059	0.0781	2.9	2.3	2.6	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-09	Focus	4/28/11	9:52:06 AM	12936396.00	280640.44	869.9971	0.0483	0.0558	0.0738	3.3	3.8	4.9	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-10	Focus	4/28/11	10:00:16 AM	12936337.50	280670.84	870.0775	0.0482	0.0568	0.0745	3.2	3.7	4.4	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-11	Focus	4/28/11	10:04:44 AM	12936280.33	280733.39	870.0619	0.0404	0.0478	0.0626	2.0	1.7	1.8	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.63S-A-12	Focus	4/28/11	10:11:54 AM	12936240.71	280781.82	869.9368	0.0418	0.0514	0.0663	2.5	3.1	3.6	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.63S-A-14	Focus	5/16/2011	3:08:01 PM	12936147.75	280813.86	869.784	0.0322	0.0638	0.0715	3.2	1.0	2.3	Light	Light	Few	Left	No	No	Cove	None	Soft Sediment		
5.63S-A-15	Focus	5/16/2011	2:43:56 PM	12936276.94	280814.32	870.6593	0.7856	3.0252	3.1255	3.1	1.1	1.8	Light	Light	Few	Center	No	No	Mid-Channel	None	Soft Sediment		
5.63S-A-16	Focus	5/16/2011	2:48:11 PM	12936329.54	280767.77	869.9952	0.0416	0.1557	0.1612	3.0	1.5	2.5	None	None	None	Center	No	No	Mid-Channel	None	Soft Sediment		
5.63S-E-17	Focus	5/17/2011	2:23:59 PM	12936661.03	280450.43	873.0207	2.8026	6.2408	6.8412	1.6	1.9	2.9	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.63S-B-01	Focus	5/11/2011	11:51:15 AM	12936177.63	280814.59	869.1617	0.0616	0.0637	0.0886	2.7	1.4	2.3	Light	Light	None	Left	<1ft/sec	No	Cove	None	Soft Sediment		
5.63S-A-PUBLIC-1	Focus	4/30/11	11:09:09 AM	12936323.67	280621.43	870.3241	0.0566	0.107	0.121	0.7	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
5.63S-A-PUBLIC-2	Focus	4/30/11	11:10:51 AM	12936305.13	280623.38	870.34	0.0317	0.0596	0.0675	0.7	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
5.63S-A-PUBLIC-3	Focus	4/30/11	11:12:12 AM	12936290.00	280628.57	870.2086	0.0285	0.057	0.0637	2.5	0.2	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
5.75N-A-01	Focus	4/28/11	12:53:56 PM	12936520.17	280974.82	870.2465	0.0421	0.0543	0.0688	1.7	2.1	2.3	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75N-A-02	Focus	4/28/11	1:00:34 PM	12936517.80	280975.50	870.1181	0.0384	0.0457	0.0597	1.9	1.7	2.0	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75N-A-03	Focus	4/28/11	1:02:38 PM	12936505.89	280965.16	870.2414	0.0487	0.0586	0.0762	1.9	2.2	2.3	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75N-A-04	Focus	4/28/11	1:06:26 PM	12936494.29	280985.89	870.1952	0.0382	0.0464	0.0601	2.0	2.0	2.5	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75N-A-05	Focus	4/29/11	9:21:26 AM	12936119.00	281264.24	870.2713	0.0421	0.0605	0.0737	3.1	0.9	1.1	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
5.75N-A-06	Focus	4/29/11	9:24:07 AM	12936206.42	281202.35	870.2389	0.0473	0.0622	0.0781	3.2	1.4	1.8	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
5.75N-A-07	Focus	4/29/11	9:26:56 AM	12936297.23	281165.19	870.2439	0.0717	0.0735	0.1027	1.3	0.7	0.8	None	None	None	Right	<1ft/sec		Strt Channel Edg	50%-75%	Sand & Silt		GLOBS SHEEN SURFC
5.75N-A-08	Focus	4/29/11	9:30:36 AM	12936351.13	281094.59	870.1977	0.0407	0.0528	0.0667	2.6	1.6	1.9	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
5.75N-A-09	Focus	4/29/11	9:33:22 AM	12936430.86	281069.41	870.0078	0.0566	0.0725	0.092	2.1	0.3	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
5.75N-A-10	Focus	4/29/11	9:09:50 AM	12935905.46	281349.38	870.3932	0.1136	0.202	0.2318	4.0	0.1	0.1	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
5.75N-A-11	Focus	4/29/11	9:14:43 AM	12935947.94	281321.88	870.2124	0.0388	0.0609	0.0722	4.3	0.1	0.1	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
5.75N-A-12	Focus	4/29/11	9:19:09 AM	12936094.80	281296.82	870.3186	0.0443	0.0615	0.0758	1.6	0.3	0.4	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
5.75N-A-13	Focus	4/30/11	9:57:50 AM	12936464.00	281016.02	870.256	0.0461	0.0548	0.0716	2.2	1.2	1.3	Moderate	Moderate	Common	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75N-A-14	Focus	4/30/11	10:00:25 AM	12936448.39	281018.14	870.2944	0.0445	0.0535	0.0696	2.5	1.2	1.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75N-A-15	Focus	4/30/11	10:03:07 AM	12936453.82	281006.54	870.2647	0.0451	0.0518	0.0687	2.5	1.5	1.7	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75N-A-16	Focus	4/30/11	10:05:17 AM	12936439.69	281008.93	870.2923	0.0424	0.0502	0.0658	2.9	1.2	1.3	Moderate	Moderate	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75N-A-17	Focus	4/30/11	10:08:37 AM	12936451.61	280979.91	870.3115	0.0369	0.0474	0.0601	2.5	2.1	2.4	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		OUTSIDE HRD BOOM
5.75N-A-18	Focus	4/30/11	10:15:44 AM	12936433.37	280997.87	870.2551	0.0326	0.0449	0.0555	2.7	1.9	2.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		OUTSIDE HRD BOOM
5.75N-A-19	Focus	4/30/11	10:17:13 AM	12936419.47	281009.45	870.1737	0.0305	0.0433	0.0529	2.7	2.0	2.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		OUTSIDE HRD BOOM
5.75N-A-20	Focus	4/30/11	10:20:09 AM	12936479.32	280952.68	870.1739	0.0352	0.052	0.0628	2.6	2.2	2.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		OUTSIDE HRD BOOM
5.75N-A-21	Focus	4/30/11	10:22:11 AM	12936506.13	280921.20	870.1858	0.0301	0.0457	0.0548	1.7	2.5	3.4	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		OUTSIDE HRD BOOM
5.75N-A-22	Focus	4/30/11	10:24:57 AM	12936519.96	280905.13	870.2262	0.0336	0.0526	0.0624	1.8	0.5	0.6	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		OUTSIDE HRD BOOM
5.75N-A-23	Focus	4/30/11	10:26:56 AM	12936539.28	280931.41	870.0812	0.0346	0.0554	0.0653	1.7	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75N-A-24	Focus	4/30/11	10:29:35 AM	12936538.20	280947.96	870.1621	0.0339	0.0559	0.0654	1.8	2.1	2.4	Moderate	Moderate	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75N-A-25	Focus	4/30/11	10:35:18 AM	12936561.70	280948.98	870.1491	0.0334	0.0581	0.067	1.0	0.6	0.9	Light	Light	None	Right	No		Strt Channel Edg	50%-75%	Silt over Sand		HEVY SURFCE SHEEN
5.75N-A-26	Focus	4/30/11	10:39:46 AM	12936494.63	281015.97	870.11	0.0287	0.0513	0.0588	1.9	1.1	1.3	Moderate	Moderate	Common	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		HEVY SURFCE SHEEN
5.75N-A-27	Focus	5/16/2011	1:34:04 PM	12935678.67	281397.40	869.8202	0.0388	0.0496	0.0629	6.0	2.0	2.8	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	LAT BDY	
5.75N-A-28	Focus	5/16/2011	12:35:44 PM	12935729.16	281424.03	869.9085	0.0383	0.064	0.0746	4.8	1.3	1.8	Light	Light	Few	Right	No	No	Strt Channel Edg	None	Soft Sediment	U BDY	
5.75N-A-29	Focus	5/16/2011	12:42:18 PM	12935745.87	281382.87	869.6937	0.5617	0.8647	1.0311	5.5	0.6	1.1	None	None	None	Center	No	No	Mid-Channel	None	Soft Sediment	LAT BDY	
5.75N-A-30	Focus	5/16/2011	1:42:15 PM	12935744.22	281368.59	869.8682	0.0345	0.0479	0.059	5.5	2.0	2.8	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	LAT BDY	
5.75N-A-31	Focus	5/16/2011	12:46:51 PM	12935799.85	281393.23	871.1223	1.0694	1.5057	1.8468	3.5	0.0	0.0	None	None	None	Right	No	No	Strt Channel Edg	None	Gravel & Larger		
5.75N-A-32	Focus	5/16/2011	12:50:30 PM	12935826.11	281380.00	870.0355	0.9175	1.2272	1.5323	3.0	0.0	0.0	None	None	None	Right	No	No	Strt Channel Edg	None	Sand & Gravel		
5.75N-A-33	Focus	5/16/2011	12:59:02 PM	12935856.50	281360.98	869.7368	0.0791	0.1217	0.1452	5.0	1.0	2.5	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
5.75N-A-34	Focus	5/16/2011	1:51:38 PM	12936177.55	281122.67	869.9234	0.0324	0.0503	0.0599	5.2	1.2	2.0	None	None	None	Center	No	No	Mid-Channel	None	Soft Sediment		
5.75N-A-35	Focus	5/16/2011	1:55:34 PM	12936228.28	281097.83	869.9067	0.0482	0.0773	0.091	4.8	1.6	2.2	None	None	None	Center	No	No	Mid-Channel	None	Soft Sediment		
5.75N-A-36	Focus	5/16/2011	2:00:50 PM	12936261.72	281051.95	869.8678	0.0262	0.0441	0.0513	4.4	1.4	2.6	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
5.75N-A-37	Focus	5/16/2011	12:02:54 PM	12935633.88	281474.68	869.8519	0.0508	0.0854	0.0993	4.9	1.3	1.3	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	None	Soft Sediment	SURFSHEENUPONARIV	
5.75N-A-38	Focus	5/16/2011	12:08:42 PM	12935604.39	281518.70	889.1467	2.0329	4.617	5.0448	4.2	1.6	3.2	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	<5%	Soft Sediment	LAT BDY, SURFSHEENONARIVAL	5PERFLOATORGANIC
5.75N-A-39	Focus	5/16/2011	12:14:52 PM	12935542.29	281509.14	870.1331	1.0749	2.3109	2.5486	4.1	2.0	2.5	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	None	Soft Sediment		
5.75N-A-40	Focus	5/16/2011	12:21:16 PM	12935611.85	281462.28	869.7413	0.0329	0.0598	0.0683	6.1	1.9	3.2	Heavy	Heavy	Many	Right	No	No	Mid-Channel	None	Soft Sediment	SURFSHEENONARIVAL	
5.75N-A-41	Focus	5/16/2011	1:29:54 PM	12935619.50	281430.10	869.8984	0.0295	0.036	0.0465	9.4	1.1	1.6	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	LAT BDY	10FTOUTOFBOOM
5.75N-A-42	Focus	5/16/2011	12:29:39 PM	12935671.53	281449.13	869.8187	0.0288	0.0501	0.0578	4.9	1.5	2.3	Heavy	Heavy	Many	Right	No	No	Strt Channel Edg	5%-25%	Soft Sediment		ALGAEONSURFACE
5.75S-A-01	Focus	4/29/11	9:43:08 AM	12935541.83	281146.45	870.1008	0.0558	0.0599	0.0819	3.5	2.1	2.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75S-A-02	Focus	4/29/11	9:47:27 AM	12935683.63	281180.69	870.1954	0.041	0.0486	0.0636	3.5	4.0	4.7	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-03	Focus	4/29/11	9:51:03 AM	12935695.81	281107.20	870.2188	0.0502	0.058	0.0767	3.3	3.4	4.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-04	Focus	4/29/11	9:54:41 AM	12935807.20	281114.64	870.2669	0.043	0.05	0.066	3.5	3.6	4.9	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-05	Focus	4/29/11	9:58:30 AM	12935777.84	281068.72	870.1441	0.0348	0.0409	0.0537	3.5	3.5	4.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-06	Focus	4/29/11	10:02:08 AM	12935827.04	281050.60	870.2875	0.041	0.0489	0.0638	3.5	3.6	4.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-07	Focus	4/29/11	10:06:49 AM	12935871.97	281098.51	870.1978	0.0303	0.037	0.0479	3.1	3.5	4.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-08	Focus	4/29/11	10:10:20 AM	12935843.94	281142.29	870.2049	0.0355	0.0444	0.0568	3.3	2.7	2.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-09	Focus	4/29/11	10:14:43 AM	12935919.22	280979.24	870.2733	0.0496	0.0645	0.0813	3.4	3.2	4.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-10	Focus	4/29/11	10:21:55 AM	12935960.98	280950.79	870.2376	0.0384	0.0538	0.0661	3.6	4.1	4.9	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
5.75S-A-11	Focus	4/29/11	10:26:57 AM	12936010.31	280973.95	870.1976	0.0305	0.0455	0.0548	3.8	3.8	4.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-12	Focus	4/29/11	10:30:28 AM	12936066.04	281010.60	870.2086	0.034	0.0541	0.0639	3.5	3.2	4.0	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-13	Focus	4/29/11	10:37:52 AM	12936115.44	280919.64	870.4041	0.0353	0.0607	0.0702	3.2	1.1	1.1	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.75S-A-14	Focus	4/29/11	10:42:32 AM	12936180.83	280957.71	870.1343	0.0351	0.0609	0.0703	3.8	2.7	3.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-15	Focus	4/29/11	10:49:22 AM	12936227.48	280935.80	870.1359	0.0223	0.0399	0.0457	4.9	1.2	1.7	Light	Light	Common	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.75S-A-19	Focus	5/13/2011	8:48:03 AM	12935606.48	281219.94	869.025	0.0985	0.161	0.1887	2.6	1.5	8.2	Heavy	Heavy	Many	Center	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-20	Focus	5/13/2011	9:01:47 AM	12935606.81	281256.67	869.05	0.032	0.0582	0.0664	3.0	3.0	5.0	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	HVYSURFACESHEEN	JUST INSIDEBOOM
5.75S-A-21	Focus	5/13/2011	9:08:23 AM	12935650.97	281188.66	869.0418	0.0413	0.0753	0.0859	3.0	2.6	4.2	Heavy	Heavy	Many	Left	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-22	Focus	5/13/2011	9:16:55 AM	12935690.84	281207.30	869.2675	0.0306	0.0554	0.0633	3.0	2.6	3.5	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		OUTSIDEOFBOOM
5.75S-A-23	Focus	5/13/2011	9:22:35 AM	12935552.11	281164.07	869.154	0.0299	0.0535	0.0613	3.3	1.4	2.3	Heavy	Heavy	Many	Left	No	No	Strt Channel Edg	None	Soft Sediment		
5.75S-A-24	Focus	5/13/2011	9:36:16 AM	12935517.97	281147.53	869.2025	0.048	0.058	0.0753	1.5	0.1	0.2	None	None	None	Left	No	No	Strt Channel Edg	None	Soft Sediment	LAT BDY	SILTOVERGRAVEL
5.75S-A-25	Focus	5/13/2011	9:42:09 AM	12935502.52	281207.27	869.149	0.0287	0.0536	0.0608	4.6	0.2	1.4	Light	Light	Few	Center	No	No	Mid-Channel	None	Soft Sediment	D BDY	
5.75S-A-26	Focus	5/13/2011	9:50:08 AM	12935547.71	281280.27	869.2532	0.0365	0.0595	0.0698	5.6	0.4	1.9	Moderate	Moderate	Common	Center	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-27	Focus	5/13/2011	9:59:45 AM	12935536.86	281290.42	869.209	0.0379	0.0602	0.0711	3.2	1.3	3.3	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	D BDY	
5.75S-A-28	Focus	5/13/2011	10:04:31 AM	12935609.16	281140.80	869.2202	0.075	0.0779	0.1081	3.1	1.4	2.9	Moderate	Moderate	Common	Center	No	No	Strt Channel Edg	None	Soft Sediment		
5.75S-A-29	Focus	5/13/2011	10:11:56 AM	12935647.59	281128.26	869.1195	0.0718	0.084	0.1105	4.5	1.5	2.5	Moderate	Moderate	Common	Left	No	No	Strt Channel Edg	None	Soft Sediment		
5.75S-A-30	Focus	5/13/2011	10:16:42 AM	12935665.55	281175.38	869.0786	0.044	0.0586	0.0733	3.0	2.5	4.5	Heavy	Heavy	Many	Center	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-31	Focus	5/13/2011	10:24:24 AM	12935626.76	281278.26	869.1602	0.0446	0.0627	0.077	2.3	2.4	2.9	Heavy	Heavy	Many	Center	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-32	Focus	5/16/2011	8:33:00 AM	12935556.96	281213.76	869.707	0.0311	0.0531	0.0615	3.5	2.5	4.0	Light	Light	Few	Left	No	No	Mid-Channel	None	Soft Sediment	D BDY	
5.75S-A-33	Focus	5/16/2011	11:54:00 AM	12935639.95	281292.74	869.8068	0.0341	0.0563	0.0658	3.0	2.0	3.0	Light	Light	Few	Center	No	No	Mid-Channel	None	Soft Sediment	LAT BDY	
5.75S-A-34	Focus	5/16/2011	8:39:41 AM	12935762.91	281149.74	869.6456	0.025	0.044	0.0506	3.9	1.7	2.3	Moderate	Moderate	Few	Left	No	No	Mid-Channel	None	Soft Sediment		JUSTINSIDEBOOM
5.75S-A-35	Focus	5/16/2011	8:45:22 AM	12935804.37	281118.74	869.6872	0.0265	0.0469	0.0539	3.0	2.0	3.0	Moderate	Moderate	Common	Left	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-36	Focus	5/16/2011	8:50:49 AM	12935848.40	281102.12	869.5559	0.0231	0.0419	0.0478	3.2	1.8	3.2	Light	Light	Few	Left	No	No	Mid-Channel	None	Soft Sediment	U BDY	
5.75S-A-37	Focus	5/16/2011	8:57:07 AM	12935774.26	281090.51	869.5832	0.049	0.0941	0.1061	3.0	2.0	4.0	Moderate	Moderate	Common	Left	No	No	Strt Channel Edg	None			
5.75S-A-38	Focus	5/16/2011	9:02:28 AM	12935737.78	281045.20	869.6905	0.044	0.1048	0.1137	2.2	0.3	0.3	Light	Light	None	Left	No	No	Cut Bank	None	Gravel & Larger	LAT BDY	OVER GRAVEL
5.75S-A-39	Focus	5/16/2011	9:08:21 AM	12935815.49	281049.80	869.6371	0.0276	0.0547	0.0613	3.9	1.8	3.2	Light	Light	Few	Left	No	No	Strt Channel Edg	None	Soft Sediment	LAT BDY	
5.75S-A-40	Focus	5/16/2011	11:42:32 AM	12935780.31	281172.08	869.7229	0.0363	0.0563	0.067	3.6	2.3	2.4	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		20FTOUTOFBOOM
5.75S-A-41	Focus	5/16/2011	11:47:40 AM	12935801.05	281219.32	869.7909	0.0295	0.0472	0.0557	2.8	2.0	3.2	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	LAT BDY	
5.75S-A-42	Focus	5/16/2011	9:14:51 AM	12935969.11	281030.65	864.2697	3.4037	5.5207	6.4857	3.2	1.9	3.8	Heavy	Heavy	Many	Left	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-43	Focus	5/16/2011	9:23:25 AM	12935951.47	280968.05	869.6598	0.0353	0.0648	0.0738	3.7	1.9	3.2	Light	Light	Few	Left	No	No	Strt Channel Edg	None	Soft Sediment	LAT BDY	
5.75S-A-44	Focus	5/16/2011	9:41:21 AM	12936077.26	280968.93	869.678	0.0395	0.0619	0.0735	3.6	1.8	2.3	Heavy	Heavy	Common	Left	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-45	Focus	5/16/2011	9:46:35 AM	12936092.45	280921.53	869.7328	0.0478	0.0719	0.0863	3.4	2.3	3.2	Moderate	Moderate	Common	Left	No	No	Strt Channel Edg	None	Soft Sediment		
5.75S-A-46	Focus	5/16/2011	9:51:25 AM	12936143.70	280953.79	869.6631	0.0414	0.059	0.0721	3.1	1.7	2.4	Heavy	Heavy	Many	Left	No	No	Mid-Channel	None	Soft Sediment		
5.75S-A-47	Focus	5/16/2011	9:57:02 AM	12936188.21	280925.50	869.6495	0.0638	0.0816	0.1036	4.0	1.2	2.8	Light	Light	Few	Left	No	No	Cove	None	Soft Sediment	U BDY	
5.75S-A-48	Focus	5/16/2011	10:07:37 AM	12935980.81	281071.54	869.7456	0.0466	0.0663	0.081	3.4	2.3	4.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		20FTOUTFROMBOOM
5.75S-A-49	Focus	5/16/2011	11:37:08 AM	12935988.38	281130.63	869.7354	0.032	0.0481	0.0577	3.4	2.0	3.2	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	LAT BDY	
5.75S-B-01	Focus	5/11/2011	11:21:42 AM	12935497.59	281176.79	872.886	1.7631	2.2533	2.861	2.9	1.6	2.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Other-Comments	None	Soft Sediment		BACK EDDY BY DAM
5.75S-B-02	Focus	5/11/2011	11:28:57 AM	12935540.01	281268.39	868.8254	1.3218	1.6407	2.1069	2.7	1.6	2.2	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Other-Comments	None	Soft Sediment		BACK EDDY BY DAM
5.75S-B-03	Focus	5/11/2011	11:41:03 AM	12935599.08	281178.36	869	0.1275	0.1776	0.2186	2.3	1.6	2.5	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Other-Comments	None	Soft Sediment	HY SHN KICKED UP BY JETS	BACK EDDY BY DAM
MP 5.75-6.00																							
5.80N-A-01	Focus	4/19/11	1:25:29 PM	12935431.84	281514.89	858.3	1.99	2.59	3.27	2.9	0.1	0.1	Light	Light	None	Right	<1ft/sec		Other-Comments	None	Gravel & Larger		Excavation area
5.80N-A-02	Focus	4/19/11	1:29:01 PM	12935427.16	281489.98	858.8	5.72	8.94	10.61	2.6	0.0	0.0	None	None	None	Right	<1ft/sec		Other-Comments	None	Gravel & Larger		Excavation area
5.80N-A-03	Focus	4/19/11	1:37:20 PM	12935330.44	281457.30	857.7	4.10	6.66	7.82	2.9	0.1	0.3	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Sand & Gravel		Excavation area
5.90N-E-01	Focus	4/19/11	1:43:14 PM	12934781.37	281702.99	856.6	2.58	2.88	3.87	0.5	0.2	0.6	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.90N-E-02	Focus	4/19/11	1:54:01 PM	12934811.49	281677.95	862.1	2.33	3.22	3.97	1.0	0.2	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
5.90N-E-03	Focus	4/19/11	2:06:26 PM	12934839.68	281658.38	854.3	1.42	2.18	2.60	1.0	0.9	1.0	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
5.90N-E-04	Focus	4/19/11	2:09:08 PM	12934837.05	281646.21	856.6	1.17	1.72	2.08	1.3	0.3	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		BDY
5.90N-E-05	Focus	4/19/11	2:16:04 PM	12934759.74	281679.95	859.5	0.95	1.44	1.73	2.5	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		BDY
5.90N-E-06	Focus	4/19/11	2:22:55 PM	12934760.58	281688.51	861.7	1.22	1.96	2.31	2.0	0.5	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
5.90SA-A-01	Focus	5/11/2011	9:28:13 AM	12935088.05	281436.93	858.4511	0.0904	0.1076	0.1405	1.6	0.1	0.3	Moderate	Moderate	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	LIGHTSHEENONSURFU	0.4FPS
5.90SA-A-02	Focus	5/11/2011	9:32:00 AM	12935117.36	281421.10	859.3081	1.8344	2.6079	3.1885	0.9	0.1	0.3	Light	Light	None	Left	<1ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	U BDY	
5.90SA-A-03	Focus	5/11/2011	9:38:49 AM	12935071.07	281432.32	858.2	0.0549	0.0926	0.1077	0.7	0.3	0.5	Heavy	Heavy	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	SHEENONBANKARIVAL	
5.90SA-A-04	Focus	5/11/2011	9:44:19 AM	12935035.42	281432.57	864.9457	1.305	2.2745	2.6223	0.4	0.3	0.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	D BDY, SHEENONSHORE	
5.90SA-A-05	Focus	5/11/2011	10:10:37 AM	12935044.58	281448.67	858.4086	0.0399	0.0722	0.0824	1.6	0.1	0.2	None	None	None	Left	<1ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
5.90SA-A-06	Focus	5/11/2011	10:12:53 AM	12935038.37	281444.10	858.4764	0.0528	0.1039	0.1165	1.5	0.1	0.2	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	LAT BDY	LARGE BOULDERS
5.90SA-A-07	Focus	5/11/2011	10:19:52 AM	12935059.83	281440.56	858.417	0.0685	0.1395	0.1555	1.4	0.2	0.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
5.90SA-B-01	Focus	4/19/11	1:47:11 PM	12935006.74	281436.29	863.7	4.14	4.53	6.14	0.5	0.3	0.3	Light	Light	None	Left	--		Cut Bank	<5%	Silt over Sand		FAST CURRENT
5.90SA-B-02	Focus	4/19/11	1:53:28 PM	12934921.83	281460.56	854.6	5.07	6.44	8.20	0.7	0.7	0.8	Light	Light	None	Left	--		Cut Bank	<5%	Silt over Sand	VERY SLIGHT	FAST CURRENT
5.9SA-B-03	Focus	4/27/11	10:23:04 AM	12935192.31	281411.68	856.4515	1.9561	3.0592	3.6311	0.5	0.0	0.0	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
5.9SA-B-04	Focus	4/27/11	10:37:17 AM	12935208.70	281406.62	859.0457	2.1244	4.2032	4.7096	1.0	0.0	0.0	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		OILY ROCKS SHORE
5.90SB-A-01	Focus	5/11/2011	10:33:34 AM	12934725.23	281555.99	858.1277	0.0589	0.1263	0.1393	1.0	0.1	0.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
5.90SB-A-02	Focus	5/11/2011	10:37:48 AM	12934741.83	281541.94	862.8232	1.4995	3.0618	3.4092	0.6	0.1	0.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
5.90SB-A-03	Focus	5/11/2011	10:41:32 AM	12934718.01	281557.99	857.9699	1.7548	3.4788	3.8963	0.6	0.1	0.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
5.90SB-A-04	Focus	5/11/2011	10:43:48 AM	12934699.92	281565.40	858.5793	0.0856	0.1482	0.1712	0.5	0.1	0.2	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
5.90SB-D-01	Focus	4/19/11	2:13:58 PM	12934771.08	281531.74	862.9	3.88	4.91	6.26	0.5	0.6	1.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
5.90SB-D-02	Focus	4/19/11	2:16:58 PM	12934746.57	281539.55	853.6	2.95	4.27	5.19	0.6	0.2	0.3	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
5.90SB-D-03	Focus	4/19/11	2:21:00 PM	12934702.24	281574.55	859.3	1.41	2.17	2.59	1.1	0.3	0.4	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
5.96T-D-01	Transect	4/19/11	1:37:44 PM	12934869.35	281632.43	858.5	0.05	0.07	0.09	0.8	0.3	0.8	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	<5%	Sand & Silt		FALLEN TREES SUB
5.96T-D-02	Transect	4/19/11	1:46:23 PM	12934810.76	281530.33	863.4	2.79	2.86	3.99	1.3	0.0	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		FALLEN TREES SUB
5.96T-D-03	Transect	4/19/11	1:59:18 PM	12934800.10	281607.96	858.4	0.04	0.05	0.07	2.2	0.0	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		HIGH VELOCITY
MS6BR-A-01	Bridge	5/11/2011	1:47:51 PM	12935279.95	281472.36	862.0439	1.9605	3.5455	4.0515	1.5	0.0	0.0	None	None	None	Right	>3 ft/sec	>3 ft/sec	Strt Channel Edg	None	Gravel & Larger		
MS6BR-A-02	Bridge	5/11/2011	1:56:08 PM	12935272.03	281372.48	869.6235	1.361	2.224	2.6073	0.6	0.1	0.1	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
MS6BR-A-03	Bridge	5/11/2011	2:01:26 PM	12935345.96	281345.27	859.1291	0.0523	0.0876	0.1021	0.5	0.1	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Cove	None	Sand & Gravel		
MP 6.00-6.25																							
6.09T-D-01	Transect	4/19/11	3:49:01 PM	12934362.41	282110.15	857.2	1.43	2.13	2.57	0.8	0.1	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Silt		
6.09T-D-02	Transect	4/19/11	3:58:17 PM	12934296.28	282084.84	861.0	1.48	2.34	2.76	2.9	0.0	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
6.09T-D-03	Transect	4/19/11	4:02:45 PM	12934242.70	282072.89	863.5	2.92	4.29	5.19	1.9	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
6.10N-A-01	Focus	4/19/11	2:27:22 PM	12934347.23	282120.25	857.0	1.31	2.05	2.44	1.2	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Gravel & Larger		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
6.10N-A-02	Focus	4/19/11	2:38:18 PM	12934373.28	282062.37	856.8	1.28	2.09	2.45	1.9	0.1	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Gravel & Larger		
6.10N-A-03	Focus	4/19/11	2:40:43 PM	12934417.84	282004.93	858.6	1.05	1.82	2.10	1.2	0.2	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
6.10N-A-04	Focus	4/19/11	2:45:41 PM	12934445.20	281942.61	857.4	0.07	0.14	0.16	1.8	0.2	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
6.10N-A-05	Focus	4/19/11	2:47:58 PM	12934477.86	281891.94	862.1	1.57	2.73	3.15	1.5	0.1	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
6.10N-A-06	Focus	4/19/11	2:58:56 PM	12934508.97	281834.79	856.3	2.62	4.02	4.80	2.6	0.2	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Gravel & Larger		
6.10T-A-01	Transect	4/19/11	3:03:06 PM	12934268.48	282122.52	858.7	1.01	2.00	2.24	2.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
6.20S-D-01	Focus	4/19/11	2:48:03 PM	12934018.15	282525.63	857.8	0.06	0.11	0.13	1.8	0.0	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
6.20S-E-01	Focus	4/19/11	2:42:48 PM	12934081.56	282410.59	869.2	1.77	3.28	3.73	1.5	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
6.20S-E-02	Focus	4/19/11	2:47:08 PM	12934071.48	282448.00	857.6	1.43	2.49	2.87	2.0	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
6.20S-E-03	Focus	4/19/11	2:55:31 PM	12934079.18	282398.19	845.2	2.99	6.84	7.46	1.7	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
6.20T-D-01	Transect	4/19/11	2:51:09 PM	12934004.89	282528.36	857.0	0.08	0.15	0.17	1.6	0.1	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
6.20T-D-02	Transect	4/19/11	2:57:11 PM	12934136.79	282532.85	857.8	0.06	0.11	0.12	1.3	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
6.20T-D-03	Transect	4/19/11	3:01:57 PM	12934073.43	282509.94	857.9	0.05	0.08	0.10	3.3	0.0	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
6.25N-B-01	Focus	4/19/11	2:52:16 PM	12933974.48	282779.39	857.3	0.09	0.19	0.21	0.7	0.5	0.5	Light	Light	None	Island	--		Downstrm Island	None	Silt over Sand	VERY SLIGHT	
6.25N-B-01	Focus	4/27/11	11:42:27 AM	12933999.92	282836.74	857.6317	0.0558	0.1072	0.1208	1.2	0.2	0.5	Light	Light	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Silt	WOODY DEBRIS	
6.25N-B-02	Focus	4/19/11	2:58:11 PM	12933958.92	282859.77	857.4	0.06	0.11	0.13	0.8	0.1	0.1	None	None	None	Island	--		Downstrm Island	None	Sand	FAST CURRENT	
6.25N-B-02	Focus	4/27/11	11:50:03 AM	12933989.13	282893.05	863.3947	3.3484	3.6913	4.9837	1.4	0.1	0.2	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Sand & Gravel	HIGH WATER	HIGH WATER
6.25N-B-03	Focus	4/27/11	11:55:45 AM	12933957.04	282862.99	857.6912	0.0744	0.0794	0.1088	0.9	0.2	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Silt		WOODY DEBRIS
6.25N-B-04	Focus	4/27/11	12:00:24 PM	12933960.88	282934.32	857.51	0.0708	0.0878	0.1129	0.8	0.6	0.7	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Sand & Silt		
6.25N-B-05	Focus	4/27/11	12:22:46 PM	12934015.06	282992.30	865.7019	2.002	3.2975	3.8576	1.1	0.7	1.0	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
6.25N-B-06	Focus	4/27/11	12:32:03 PM	12933906.11	283208.69	865.436	3.0935	3.6057	4.7509	1.8	0.9	1.1	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Soft Sediment		WOOD
6.25N-B-07	Focus	4/20/11	2:37:09 PM	12933852.46	283223.13	855.5	1.31	2.27	2.63	1.5	0.2	0.2	None	None	None	Right	<1ft/sec		Other-Comments	None	Silt over Sand		45 DEG
6.25N-B-07	Focus	4/27/11	12:39:43 PM	12933937.93	283164.66	858.9285	4.2186	7.5309	8.632	1.2	1.0	1.3	Light	Light	None	Right	<1ft/sec		Cut Bank	None	Soft Sediment		WOOD
6.25N-B-08	Focus	4/20/11	2:41:05 PM	12933783.81	283158.67	855.6	1.94	2.97	3.55	1.5	0.0	0.0	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		45 DEG
6.25N-B-08	Focus	4/27/11	10:54:41 AM	12933936.85	282587.54	865.8544	2.0623	4.9915	5.4007	0.7	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	5%-25%	Sand & Gravel		
6.25S-B-01	Focus	4/19/11	2:40:38 PM	12933931.82	282597.88	873.8	3.50	6.28	7.19	0.8	0.0	0.1	None	None	None	Left	--		Strt Channel Edg	None	Silt over Sand		
6.25S-B-02	Focus	4/19/11	2:44:47 PM	12933917.25	282637.26	855.4	1.44	2.77	3.12	1.5	0.0	0.0	None	None	None	Left	--		Strt Channel Edg	None	Sand & Gravel		
MP 6.25-6.50																							
6.30T-E-01	Transect	4/19/11	3:04:28 PM	12933778.02	282958.27	865.2	2.23	3.23	3.92	1.6	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
6.30T-E-02	Transect	4/19/11	3:18:52 PM	12933842.01	283007.41	859.4	2.30	2.92	3.71	2.1	0.5	0.5	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		
6.30T-E-03	Transect	4/19/11	3:31:57 PM	12933812.16	282985.65	855.8	1.29	2.27	2.61	2.1	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
6.41T-A-01	Transect	5/11/2011	11:00:47 AM	12933619.08	283517.70	856.6503	0.058	0.063	0.0857	0.8	0.5	0.6	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
6.41T-A-02	Transect	5/11/2011	11:08:49 AM	12933616.69	283464.88	860.9968	3.4988	5.2365	6.2978	0.7	0.3	0.9	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment	U BDY	
6.41T-A-03	Transect	5/11/2011	11:14:40 AM	12933599.20	283561.28	856.2797	0.2035	0.2705	0.3385	0.6	0.4	0.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment	D BDY	
6.41T-A-04	Transect	5/11/2011	11:19:01 AM	12933625.74	283518.06	856.2498	0.1136	0.1576	0.1943	1.6	0.3	0.5	Heavy	Heavy	Common	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
6.41T-A-05	Transect	5/11/2011	11:23:38 AM	12933647.32	283534.58	856.526	0.0414	0.0614	0.0741	3.0	0.1	0.2	None	None	None	Center	<1ft/sec	No	Point Bar	None	Sand & Gravel	LAT BDY	
6.41T-E-01	Transect	4/19/11	3:54:58 PM	12933728.77	283525.64	859.8	1.99	2.98	3.58	1.4	0.4	0.5	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Silt over Sand		
6.41T-E-02	Transect	4/19/11	4:11:18 PM	12933630.47	283502.35	856.1	1.64	1.83	2.46	1.4	0.6	0.7	Moderate	Moderate	Common	Left	1-3 ft/sec		Point Bar	None	Soft Sediment		
6.41T-E-03	Transect	4/19/11	4:17:35 PM	12933675.79	283517.98	856.7	0.80	1.42	1.63	3.6	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
6.45NA-A-01	Focus	4/19/11	3:42:37 PM	12933574.82	283827.07	857.9	1.98	2.53	3.21	1.6	1.1	1.3	Moderate	Heavy	Few	Right	<1ft/sec		Cut Bank	None	Gravel & Larger		
6.45NA-A-02	Focus	4/19/11	3:48:16 PM	12933584.23	283802.06	854.6	1.59	1.90	2.47	1.2	0.5	0.6	Light	Light	None	Right	<1ft/sec		Cut Bank	None	Sand		
6.45NA-A-03	Focus	4/19/11	4:09:09 PM	12933538.83	283884.47	855.7	1.46	1.74	2.27	0.7	0.5	0.5	Light	Light	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		
6.45NA-A-04	Focus	4/19/11	4:13:31 PM	12933531.27	283876.50	854.5	1.20	1.50	1.92	1.1	0.6	0.7	Light	Light	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		
6.45NA-A-05	Focus	5/11/2011	11:33:08 AM	12933581.89	283816.83	855.7594	1.0649	1.7285	2.0302	1.1	0.3	0.9	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		D STR SUBMRG TREE
6.45NA-A-06	Focus	5/11/2011	11:38:06 AM	12933638.46	283745.28	859.2632	2.78	4.3887	5.1951	1.5	0.2	0.3	Light	Light	None	Right	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel	U BDY	U STRM SUBMRGD TR
6.45NA-A-07	Focus	5/11/2011	11:40:15 AM	12933606.22	283763.90	858.0147	1.1326	1.6826	2.0283	2.4	0.0	0.0	None	None	None	Right	>3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	LAT BDY	
6.45NA-A-08	Focus	5/11/2011	11:44:19 AM	12933575.93	283791.79	856.3072	0.0801	0.0753	0.1099	1.5	0.0	0.0	None	None	None	Right	>3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
6.45NA-A-09	Focus	5/11/2011	11:52:44 AM	12933522.83	283881.46	858.1674	1.5004	1.9055	2.4253	1.1	0.4	0.5	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
6.45NA-A-10	Focus	5/11/2011	11:56:47 AM	12933480.19	283855.06	856.4452	0.0738	0.1061	0.1292	3.5	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	LAT BDY	
6.45NA-A-11	Focus	5/11/2011	12:01:03 PM	12933443.13	283903.08	857.7005	1.9709	2.4222	3.1228	1.6	0.1	0.2	None	None	None	Right	No	No	Cut Bank	None	Sand & Gravel	D BDY	
6.45NB-A-01	Focus	4/20/11	4:00:50 PM	12933249.00	283971.21	856.5	2.29	6.76	7.14	2.0	0.0	0.2	Light	Light	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand	TEMP 45.0	
6.45NB-A-02	Focus	4/20/11	4:04:56 PM	12933295.57	283959.93	856.5	2.23	6.29	6.67	1.5	1.3	1.4	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand	TEMP 45.0	
6.45NB-A-03	Focus	4/20/11	4:07:49 PM	12933323.81	283930.07	838.5	6.16	15.58	16.75	1.4	0.1	0.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel	TEMP 45.0	
6.49T-E-01	Transect	4/19/11	4:25:47 PM	12933508.67	283884.83	855.0	0.11	0.16	0.19	1.1	0.5	0.5	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
6.49T-E-02	Transect	4/19/11	4:31:57 PM	12933430.16	283796.23	856.1	0.89	1.57	1.80	1.1	0.0	0.0	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
6.49T-E-03	Transect	4/19/11	4:48:21 PM	12933452.98	283841.32	856.2	0.06	0.11	0.13	3.0	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		SHEEN PRIOR 2 AGI
MP 6.50-6.75																							
6.59T-B-01	Transect	4/27/11	3:13:04 PM	12932883.31	283974.41	857.558	1.1434	2.5255	2.7722	1.9	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		INSIDE BOOM AREA
6.59T-B-02	Transect	4/27/11	3:17:18 PM	12932871.29	283908.53	854.3035	0.2846	0.859	0.905	2.8	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		CENTER
6.59T-B-03	Transect	4/27/11	3:19:05 PM	12932883.69	283840.75	855.255	1.9178	3.9778	4.416	1.2	0.1	0.1	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		BANK
6.68T-B-01	Transect	4/27/11	3:25:28 PM	12932420.03	283967.40	853.318	1.1071	2.5361	2.7672	1.3	0.2	0.3	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger	COMING DOWN RIVER	BANK
6.68T-B-02	Transect	4/27/11	3:32:20 PM	12932413.91	283887.01	856.3201	0.0761	0.255	0.2661	2.2	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
6.68T-B-03	Transect	4/27/11	3:34:59 PM	12932444.06	283693.77	853.7692	4.0463	10.9639	11.6867	0.7	1.1	1.5	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
6.68T-B-04	Transect	4/27/11	3:37:56 PM	12932437.17	283698.26	848.8993	4.0896	4.0736	5.7722	1.5	0.8	0.8	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		EDGE OF SEDIMENT
6.7N-B-01	Focus	4/27/11	2:36:08 PM	12932211.04	283935.45	859.1153	5.0254	11.0247	12.1161	0.9	0.2	0.3	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		ROOTS
6.7N-B-02	Focus	4/27/11	2:40:42 PM	12932249.83	283944.06	851.3288	2.5677	6.7672	7.238	1.0	0.1	0.1	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		ROOTS
6.7N-B-03	Focus	4/27/11	2:44:20 PM	12932305.52	283971.63	851.7767	2.0452	5.5358	5.9016	0.5	0.2	0.3	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
6.7N-B-04	Focus	4/27/11	2:47:38 PM	12932331.09	283962.40	851.585	1.8598	4.7411	5.0928	0.6	0.2	0.4	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		FLOODED TER VEG
6.70N-A-01	Focus	4/20/11	1:57:50 PM	12932302.60	283950.33	861.1	1.59	2.83	3.25	1.4	0.1	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg		Silt over Sand	TEMP 45.5	
6.75S-A-01	Focus	4/20/11	2:16:35 PM	12932133.88	283741.98	855.7	0.02	0.04	0.05	1.0	0.3	0.5	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
6.75S-A-02	Focus	4/20/11	2:18:05 PM	12932199.48	283782.74	855.8	0.02	0.04	0.04	1.2	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand	TEMP 45.0	
6.75S-A-03	Focus	4/20/11	2:20:46 PM	12932228.28	283755.03	855.8	0.03	0.05	0.06	0.6	0.4	0.6	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	OBSER OVBANK SHEN
6.75S-A-04	Focus	4/20/11	2:22:57 PM	12932182.28	283743.14	855.7	0.03	0.05	0.05	1.2	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel	TEMP 45.0	OBSER OVBANK SHEN
MP 6.75-7.00																							
6.84T-B-01	Transect	4/27/11	3:46:05 PM	12931830.81	283541.00	855.575	0.0384	0.1031	0.1101	1.3	0.0	0.0	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		EDGE OF ISLAND
6.84T-B-02	Transect	4/27/11	4:02:42 PM	12931795.98	283574.97	855.317	0.1962	0.1028	0.2214	2.7	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
6.84T-B-03	Transect	4/27/11	4:04:27 PM	12931781.52	283640.90	854.5347	1.2713	2.7931	3.0689	1.8	0.0	0.0	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Gravel & Larger		BANK
6.98T-B-01	Transect	4/27/11	4:10:09 PM	12930932.38	283182.25	852.1593	1.8907	1.6829	2.5312	1.5	0.1	0.1	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		BANK
6.98T-B-02	Transect	4/27/11	4:17:13 PM	12930926.27	283253.97	854.9589	1.6068	2.5764	3.0364	2.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
6.98T-B-03	Transect	4/27/11	4:19:36 PM	12930976.07	283346.58	862.5657	2.0204	3.1726	3.7613	1.3	0.9	0.9	Light	Light	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand over Silt		
7.0R1-A-02	Focus	4/20/11	1:26:26 PM	12932923.79	284032.81	856.2	0.04	0.07	0.08	2.1	0.3	0.4	Moderate	Moderate	Few	Other-Comments	<1ft/sec		Other-Comments		Silt over Sand	TEMP 45.5	CUT OUT OFF RIVER
7.0R1-A-03	Focus	4/20/11	1:29:21 PM	12932935.39	284014.57	856.0	0.05	0.08	0.09	1.4	0.1	0.2	None	None	None	Other-Comments	<1ft/sec		Other-Comments		Silt over Sand	TEMP 45.5	CUT OUT OFF RIVER
7.0R1-E-04	Focus	4/30/11	10:16:16 AM	12932890.13	283999.72	859.1502	0.0843	0.1154	0.143	-99.0	-99.0	-99.0	Light		Few	Right			Other-Comments	None	Soft Sediment		FROM SHORE
7.0R1-E-05	Focus	4/30/11	10:20:37 AM	12932890.85	284001.47	859.0459	0.0761	0.1067	0.1311	-99.0	-99.0	-99.0	Light		Few	Right			Other-Comments	None	Soft Sediment		8 FT FROM SHORE
7.0R1-E-06	Focus	4/30/11	10:20:44 AM	12932890.81	284001.47	859.2599	0.0407	0.0574	0.0704	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		FROM SHORE
7.0R1-E-07	Focus	4/30/11	10:22:45 AM	12932887.57	283994.06	859.0844	0.0389	0.0607	0.0721	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		FROM SHORE
7.0R1-E-08	Focus	4/30/11	10:23:42 AM	12932887.67	283994.30	859.1058	0.0521	0.085	0.0997	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-09	Focus	4/30/11	10:29:23 AM	12932890.30	284006.68	858.5608	0.0344	0.0566	0.0663	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		FM SHORE
7.0R1-E-10	Focus	4/30/11	10:32:21 AM	12932890.15	284007.05	858.6481	0.0421	0.0713	0.0827	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-11	Focus	4/30/11	10:34:03 AM	12932893.54	284026.42	859.4538	0.0356	0.0645	0.0737	-99.0	-99.0	-99.0	None	None	None	Right			Other-Comments	None	Soft Sediment		FM SHORE
7.0R1-E-12	Focus	4/30/11	10:36:10 AM	12932893.41	284027.56	859.8919	0.6568	1.0862	1.2693	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-13	Focus	4/30/11	10:38:24 AM	12932932.73	284034.33	858.6936	0.0327	0.0615	0.0697	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		FM SHORE
7.0R1-E-14	Focus	4/30/11	10:40:00 AM	12932932.41	284033.84	858.7237	0.0404	0.081	0.0905	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-15	Focus	4/30/11	10:41:22 AM	12932938.88	284021.08	858.7529	0.0258	0.0494	0.0557	-99.0	-99.0	-99.0	None	None	None	Right			Other-Comments	None	Sand & Gravel		FM SHORE
7.0R1-E-16	Focus	4/30/11	10:42:49 AM	12932938.55	284021.91	858.6628	0.0328	0.0582	0.0668	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-17	Focus	4/30/11	10:45:07 AM	12932939.39	284004.65	858.9946	0.0536	0.138	0.148	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Sand & Gravel		FM SHORE
7.0R1-E-18	Focus	4/30/11	10:46:10 AM	12932939.48	284005.23	858.9362	0.0415	0.0811	0.0911	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-19	Focus	4/30/11	10:48:00 AM	12932936.89	283996.92	858.4902	0.0376	0.0741	0.0831	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		FM SHORE
7.0R1-E-20	Focus	4/30/11	10:48:04 AM	12932936.88	283996.98	858.5624	0.0462	0.0903	0.1014	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-21	Focus	4/30/11	10:50:39 AM	12932937.76	283995.81	858.4028	0.0386	0.0845	0.0929	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		FM SHORE OUTSIDE
7.0R1-E-22	Focus	4/30/11	10:52:09 AM	12932940.90	283998.97	858.6474	0.0637	0.1343	0.1486	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-23	Focus	4/30/11	10:54:30 AM	12932921.51	284039.44	858.5271	0.0491	0.1082	0.1189	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Sand & Gravel		FM SHORE
7.0R1-E-24	Focus	4/30/11	10:54:31 AM	12932921.52	284039.43	858.515	0.0452	0.0995	0.1093	-99.0	-99.0	-99.0	Light	Light	Few	Right			Other-Comments	None	Soft Sediment		5-7 FT FM SHORE
7.0R1-E-25	Focus	4/30/11	11:02:02 AM	12932914.51	283977.02	856.7081	0.0305	0.0548	0.0627	-99.0	-99.0	-99.0	Heavy	Heavy	Many	Right			Other-Comments	None	Soft Sediment		MID OF BOOM
7.0R1-E-26	Focus	4/30/11	11:04:41 AM	12932895.47	283973.88	856.6676	0.0292	0.0554	0.0626	-99.0	-99.0	-99.0	Moderate	Moderate	Common	Right			Other-Comments	None	Soft Sediment		END OF BOOM
7.0R1-A-27	Focus	5/11/2011	1:10:38 PM	12932952.51	283978.81	855.95	0.0353	0.0573	0.0673	1.4	0.1	0.2	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
7.0R1-A-28	Focus	5/11/2011	1:13:11 PM	12932989.43	283978.22	855.9595	0.0482	0.0791	0.0926	0.9	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	U BDY	
7.0R1-A-29	Focus	5/11/2011	1:15:05 PM	12932979.07	283970.46	855.9422	0.0432	0.0716	0.0836	1.6	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
7.0R1-A-30	Focus	5/11/2011	1:22:45 PM	12932921.30	283977.68	856.0176	0.0476	0.0865	0.0987	2.3	0.1	0.3	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cove	None	Sand & Silt	BIGGLOBSINCOVE	PHOTO 2013
7.0R1-A-31	Focus	5/11/2011	1:29:28 PM	12932918.58	283963.91	856.0253	0.0417	0.0761	0.0868	1.8	0.2	0.3	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Mid-Channel	<5%	Sand & Gravel	LAT BDY	
7.0R1-A-32	Focus	5/11/2011	1:35:28 PM	12932892.45	283977.43	855.9072	0.03	0.0542	0.062	1.6	0.2	0.3	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	D BDY	
7.0S-A-01	Focus	4/20/11	2:34:46 PM	12931486.37	283277.62	854.8	2.28	3.15	3.89	0.7	0.5	1.7	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	OBSER OVBANK SHEN
7.0S-A-02	Focus	4/20/11	2:42:56 PM	12931604.35	283193.48	860.5	4.35	3.89	5.84	1.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand	TEMP 45.0	
7.0S-A-03	Focus	4/20/11	2:54:01 PM	12931733.10	283257.00	856.4	3.64	5.41	6.52	2.0	0.0	0.0	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Gravel & Larger	TEMP 45.0	
7.0S-A-04	Focus	4/20/11	2:57:23 PM	12931804.64	283283.99	861.1	1.85	2.81	3.37	1.1	0.5	0.6	Moderate	Moderate	Common	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
7.0S-A-05	Focus	4/20/11	3:05:06 PM	12931788.21	283277.93	851.9	1.70	2.80	3.28	1.2	0.6	0.6	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
7.0S-A-06	Focus	4/20/11	3:15:24 PM	12932017.01	283409.42	855.7	2.42	4.23	4.88	1.0	0.3	0.4	Light	Light	None	Left	<1ft/sec		Cut Bank	None	Sand	TEMP 45.0	
7.0S-A-07	Focus	4/20/11	3:17:38 PM	12932047.13	283484.32	857.1	2.94	2.07	3.59	1.0	0.1	0.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand	TEMP 45.0	
7.0S-A-08	Focus	4/20/11	3:29:03 PM	12932009.39	283537.55	854.9	0.95	6.08	6.16	1.0	0.4	0.7	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
7.0S-A-09	Focus	4/20/11	3:39:39 PM	12931100.68	283229.27	854.4	0.04	0.16	0.16	1.0	0.2	0.4	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
7.0S-A-10	Focus	4/20/11	3:44:10 PM	12931252.70	283265.53	854.7	0.04	0.17	0.18	0.9	0.1	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
7.0S-A-11	Focus	4/20/11	3:48:55 PM	12931360.86	283253.12	856.3	1.85	6.79	7.04	1.2	0.2	0.2	None	None	None	Left	1-3 ft/sec		Point Bar	None	Gravel & Larger	TEMP 45.0	
7.0S-A-12	Focus	5/3/2011	10:38:08 AM	12931847.50	283310.81	856.8779	0.6742	1.1668	1.3476	1.4	0.1	0.2	None	None	None	Right	1-3 ft/sec		Oxbow	None	Sand & Silt	U BDY	
7.0S-A-13	Focus	5/3/2011	10:55:52 AM	12931820.29	283281.16	854.7686	0.0309	0.067	0.0738	1.9	0.1	0.2	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand & Gravel	LAT BND	
7.0S-A-14	Focus	5/3/2011	11:13:16 AM	12931811.60	283288.52	855.2956	0.0264	0.0492	0.0558	1.3	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Oxbow	None	Sand & Silt	U BDY	
7.0S-A-15	Focus	5/3/2011	11:16:50 AM	12931804.92	283275.68	855.3711	0.0485	0.0882	0.1007	1.8	0.2	0.2	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand & Gravel	LAT BDY	
MP 7.00-7.25																							
7.03T-A-01	Transect	5/3/2011	11:30:33 AM	12930689.68	283260.33	850.6162	2.2551	4.6907	5.2047	0.4	0.1	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		POOR POSITION
7.03T-A-02	Transect	5/3/2011	11:35:22 AM	12930711.25	283197.67	853.6842	0.0297	0.0491	0.0574	3.0	0.1	0.1	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
7.03T-B-01	Transect	4/20/11	2:54:56 PM	12930767.45	283159.70	854.2	0.06	0.06	0.09	1.4	0.0	0.0	None	None	None	Left	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		45 DEG
7.14T-A-02	Transect	5/3/2011	2:04:09 PM	12930193.40	283116.50	850.6139	1.4504	2.3474	2.7594	2.0	0.0	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
7.14T-A-03	Transect	5/3/2011	2:11:49 PM	12930184.48	283054.35	853.844	0.0453	0.0844	0.0958	3.5	0.0	0.0	None	None	None	Center			Mid-Channel	None			
7.14T-A-04	Transect	5/3/2011	2:15:56 PM	12930228.70	282955.06	852.7996	0.9657	1.7867	2.031	1.5	0.2	0.5	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment	SURF SHN PRE ARR	
7.14T-B-01	Transect	4/20/11	3:10:05 PM	12930398.14	283158.53	854.1	0.07	0.11	0.13	1.7	1.1	1.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		45 DEG
7.14T-B-02	Transect	4/20/11	3:19:03 PM	12930405.18	283109.33	854.0	0.04	0.09	0.10	2.7	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		45 DEG
7.14T-B-03	Transect	4/20/11	3:22:56 PM	12930440.75	283015.87	854.0	0.03	0.05	0.06	0.5	0.5	0.9	None	None	None	Left	<1ft/sec		Strt Channel Edg	5%-25%	Organic		45 DEG
7.21T-A-01	Transect	5/3/2011	2:57:51 PM	12929829.17	283141.16	862.3943	4.6604	7.511	8.8394	1.5	0.1	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand		
7.21T-A-02	Transect	5/3/2011	3:02:33 PM	12929764.82	283097.03	852.4837	0.9819	1.6372	1.909	1.7	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
7.21T-A-03	Transect	5/3/2011	3:12:29 PM	12929736.24	283027.54	859.78	1.4271	2.9394	3.2675	1.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
11MRBR-A-01	Bridge	5/3/2011	2:31:45 PM	12930032.68	283001.90	856.3604	2.2165	3.6893	4.304	1.3	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
11MRBR-A-02	Bridge	5/3/2011	2:42:27 PM	12930038.45	283110.51	850.3055	1.97	2.9136	3.5171	1.5	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
11MRBR-A-03	Bridge	5/11/2011	2:10:38 PM	12929938.28	283102.37	853.8124	1.5022	2.2802	2.7306	1.3	0.0	0.0	None	None	None	Right	>3 ft/sec	1-3 ft/sec	Point Bar	None	Gravel & Larger		
11MRBR-A-04	Bridge	5/11/2011	2:18:03 PM	12929936.91	283009.80	852.4994	0.0761	0.0717	0.1046	0.8	0.0	0.0	None	None	None	Left	<1ft/sec	1-3 ft/sec	Cut Bank	None	Gravel & Larger		
MP 7.25-7.50																							
7.35C-A-01	Focus	5/3/2011	3:33:26 PM	12929248.54	283444.47	851.5216	0.0355	0.0621	0.0715	0.7	0.2	0.7	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand over Silt		LT SHN ON ISLAND
7.35C-A-02	Focus	5/3/2011	3:37:09 PM	12929286.68	283411.50	851.6384	0.0355	0.0623	0.0717	0.9	0.1	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
7.35C-A-03	Focus	5/3/2011	3:39:40 PM	12929287.91	283418.46	851.4423	0.03	0.0526	0.0605	0.9	0.1	0.2	Light	Light	Few	Island	1-3 ft/sec		Downstrm Island	None	Sand over Silt		
7.35C-A-04	Focus	5/3/2011	3:48:27 PM	12929331.71	283398.29	851.816	0.0326	0.0577	0.0662	0.5	0.2	0.6	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Sand & Silt		PHOTO 195
7.35C-A-05	Focus	5/3/2011	3:52:13 PM	12929383.13	283381.86	851.8955	0.0261	0.0466	0.0534	1.5	0.0	0.0	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
7.35C-A-06	Focus	5/3/2011	3:55:57 PM	12929338.99	283419.84	851.729	0.0323	0.0583	0.0666	1.4	0.1	0.1	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
7.37T-A-01	Transect	5/3/2011	4:06:21 PM	12929013.12	283471.92	851.7099	0.0379	0.0751	0.0841	1.4	0.3	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		SLT SHN SURF ARR
7.37T-A-02	Transect	5/3/2011	4:08:38 PM	12929043.68	283532.90	851.3776	0.0327	0.0677	0.0752	1.0	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
7.37T-A-03	Transect	5/3/2011	4:16:52 PM	12929082.50	283618.95	851.4739	0.0518	0.1834	0.1906	2.0	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
7.45N-A-01	Focus	4/20/11	4:23:08 PM	12928736.00	283803.50	851.2	0.06	0.22	0.23	0.9	0.2	0.3	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
7.45N-A-02	Focus	4/20/11	4:24:27 PM	12928705.17	283836.42	851.0	0.05	0.16	0.17	1.3	0.1	0.2	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	TEMP 45.0	
7.45N-A-03	Focus	4/20/11	4:28:54 PM	12928673.52	283888.42	850.8	0.10	0.28	0.30	1.2	0.8	0.9	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand	TEMP 45.0	
7.45N-A-04	Focus	4/20/11	4:31:48 PM	12928763.80	283823.81	851.3	0.06	0.20	0.20	0.9	0.7	0.8	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand	TEMP 45.0	
7.49T-A-01	Transect	5/3/2011	4:37:49 PM	12928523.09	283834.22	850.698	0.0489	0.1642	0.1714	1.7	0.1	0.1	None	None	None	Left	>3 ft/sec		Point Bar	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
7.49T-A-02	Transect	5/3/2011	4:39:19 PM	12928542.81	283853.63	850.8245	0.0498	0.1637	0.1711	3.0	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
7.49T-A-03	Transect	5/3/2011	4:48:42 PM	12928609.30	283926.84	846.5912	2.0514	5.4972	5.8675	0.8	0.2	0.3	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Silt		POOR POS HVY TREE
7.49T-A-04	Transect	5/3/2011	5:00:53 PM	12928661.75	283895.57	863.884	3.2918	4.2977	5.4135	0.0	0.4	0.6	Moderate	Heavy	Few	Right	No		Point Bar	None	Sand & Silt	HVY SHEEN OBSV BK	
7.49T-A-05	Transect	5/4/2011	10:02:48 AM	12928679.86	283892.80	852.9952	2.453	3.9172	4.6219	1.0	0.5	0.6	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	None	Soft Sediment		
7.49T-A-06	Transect	5/4/2011	10:09:05 AM	12928703.30	283886.33	850.1051	19.3085	23.2058	30.1882	0.6	0.1	0.4	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Soft Sediment	U BDY	
7.49T-A-07	Transect	5/4/2011	10:15:39 AM	12928655.38	283882.18	850.4142	1.8167	3.1363	3.6245	1.5	0.5	0.5	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment	LAT BDY	
MP 7.50-7.75																							
7.55S-A-01	Focus	5/4/2011	10:25:56 AM	12928204.02	283786.05	850.2624	0.0513	0.0945	0.1075	0.9	0.2	0.6	None	None	None	Left	<1ft/sec		Point Bar	None	Soft Sediment		
7.55S-A-02	Focus	5/4/2011	10:29:49 AM	12928232.19	283787.25	850.1156	0.0404	0.0746	0.0848	0.7	0.2	0.6	None	None	None	Left	<1ft/sec		Point Bar	5%-25%	Soft Sediment		
7.55S-A-03	Focus	5/4/2011	10:33:13 AM	12928264.82	283790.57	847.5713	1.5044	2.967	3.3266	0.4	0.2	0.7	None	None	None	Left	<1ft/sec		Point Bar	None	Soft Sediment		
7.55S-A-04	Focus	5/4/2011	10:37:28 AM	12928203.26	283795.58	850.0639	0.0413	0.0837	0.0933	1.5	0.5	0.8	None	None	None	Left	1-3 ft/sec		Point Bar	None	Soft Sediment		
7.57T-A-01	Transect	5/4/2011	10:51:38 AM	12928144.03	283782.35	851.4201	1.3793	2.8249	3.1436	1.0	0.3	0.4	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Soft Sediment		
7.57T-A-02	Transect	5/4/2011	11:00:15 AM	12928123.64	283868.55	849.9954	0.0311	0.0611	0.0685	2.8	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
7.57T-A-03	Transect	5/4/2011	11:09:18 AM	12928164.39	283933.53	850.1605	0.1854	0.1956	0.2695	2.0	0.2	0.7	Light	Light	None	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		
7.65N-A-01	Focus	5/4/2011	11:32:46 AM	12927884.64	283999.73	851.8366	1.7216	3.0946	3.5412	1.0	0.1	0.1	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand over Silt		
7.65N-A-02	Focus	5/4/2011	11:37:21 AM	12927825.86	284017.54	852.3078	2.3613	2.7576	3.6304	2.0	0.1	0.1	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
7.65N-A-03	Focus	5/4/2011	11:41:48 AM	12927867.02	284018.62	850.9597	1.3616	2.2501	2.63	2.0	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
7.65N-A-04	Focus	5/4/2011	11:56:39 AM	12927845.74	284076.24	850.0914	0.0411	0.0597	0.0725	1.5	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
7.65N-A-05	Focus	5/4/2011	12:02:32 PM	12927793.92	284095.52	857.6644	2.6159	3.9276	4.719	2.0	0.2	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
7.65N-A-06	Focus	5/4/2011	12:12:12 PM	12927920.19	284072.03	872.5115	2.847	2.434	3.7457	1.6	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
7.68T-A-01	Transect	5/4/2011	2:31:59 PM	12927583.76	284041.78	850.0309	0.1197	0.1319	0.1782	2.0	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
7.68T-A-02	Transect	5/4/2011	2:34:53 PM	12927601.24	284075.32	849.9508	0.0458	0.0688	0.0827	3.0	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None			
7.68T-A-03	Transect	5/4/2011	2:39:30 PM	12927649.74	284138.53	857.126	1.8097	2.6224	3.1862	1.3	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
7.75-B-01	Focus	5/3/2011	10:33:40 AM	12927307.83	284132.51	847.8448	1.3776	2.627	2.9663	1.3	0.3	0.4	Light	Light	None	Left	<1ft/sec		Other-Comments	25%-50%	Silt over Sand		SIDE CHNL INLET
7.75-B-02	Focus	5/3/2011	10:46:00 AM	12927198.04	284195.27	845.6964	1.7112	3.3326	3.7462	0.9	1.3	1.3	Light	Light	Few	Island	No		Downstrm Island	None	Soft Sediment		BAD POS
7.75-B-03	Focus	5/3/2011	10:55:06 AM	12927122.75	284177.42	849.6419	1.3037	2.8381	3.1232	2.3	0.2	0.2	Light	Light	None	Left	1-3 ft/sec		Other-Comments	None	Sand & Gravel		BACK STRM CHNL
7.75-B-04	Focus	5/3/2011	11:06:48 AM	12927081.17	284170.91	853.5273	2.9486	6.931	7.5321	1.2	0.0	0.6	Light	Light	Few	Left	No		Other-Comments	None	Sand & Gravel	BAD POS	BCK STM CHNL
7.75-B-05	Focus	5/3/2011	11:17:50 AM	12927069.12	284203.89	852.7469	2.1781	6.1307	6.5061	2.2	0.2	0.3	None	None	None	Center	1-3 ft/sec		Other-Comments	None	Sand & Gravel	BAD POS	BCK STM CHNL
7.75-B-06	Focus	5/3/2011	11:26:24 AM	12927100.51	284222.53	849.0149	3.0493	7.0088	7.6434	1.1	0.3	1.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Other-Comments	BAD POS	SI OVR SA/GR
7.75-B-07	Focus	5/3/2011	1:34:17 PM	12926779.99	284302.43	842.704	1.4797	2.8241	3.1882	0.9	0.1	0.2	Light	Light	None	Left	<1ft/sec		Other-Comments	<5%	Sand & Gravel	REALLY BAD POS	BCK STRM CHNL
7.75-B-08	Focus	5/3/2011	1:45:52 PM	12926841.68	284291.28	889.6608	3.5823	4.3534	5.6378	1.6	0.4	0.5	None	None	None	Island	<1ft/sec		Downstrm Island	5%-25%	Sand		
7.75-B-09	Focus	5/3/2011	1:55:05 PM	12926923.02	284237.07	871.783	4.1286	6.9434	8.0781	1.5	0.8	0.9	Light	Light	Few	Left	<1ft/sec		Other-Comments	25%-50%	Soft Sediment	BAD POS	BCK STRM CHNL
MP 7.75-8.00																							
7.81T-A-01	Transect	5/4/2011	2:50:10 PM	12926988.75	284404.47	845.2636	2.8127	4.3716	5.1983	2.0	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
7.81T-A-02	Transect	5/4/2011	2:54:00 PM	12926986.18	284362.19	853.6986	1.3651	2.1838	2.5754	3.1	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
7.81T-A-03	Transect	5/4/2011	2:56:44 PM	12926987.68	284327.42	849.1376	2.3613	3.4264	4.1612	1.5	0.1	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
7.81T-A-04	Transect	5/4/2011	3:00:33 PM	12926977.21	284262.12	858.9823	2.8211	3.2134	4.276	1.2	0.2	0.3	Light	Light	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
7.81T-A-05	Transect	5/4/2011	3:10:25 PM	12926946.12	284235.85	851.495	2.7788	3.255	4.2798	1.4	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
7.84T-B-01	Transect	5/3/2011	3:47:22 PM	12926824.95	284351.71	845.3892	1.5746	3.0255	3.4107	1.7	0.3	0.3	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
7.84T-B-02	Transect	5/3/2011	3:52:17 PM	12926845.28	284449.49	839.9479	1.8038	2.9614	3.4675	1.7	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
7.84T-B-03	Transect	5/3/2011	4:01:40 PM	12926784.46	284332.80	860.6001	3.584	7.5722	8.3775	1.7	0.1	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		BAD POS
7.95T-B-01	Transect	5/4/2011	10:04:56 AM	12926251.09	284815.24	860.9832	2.9441	5.2556	6.024	1.4	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		DWN TREE BAD POS
7.95T-B-02	Transect	5/4/2011	10:17:41 AM	12926332.57	284875.99	850.1648	1.2025	1.5587	1.9686	2.1	0.4	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
7.95T-B-03	Transect	5/4/2011	10:23:28 AM	12926307.98	284943.35	846.7961	1.9623	2.9102	3.51	1.0	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
MP 8.00-8.25																							
8.02C-B-01	Focus	5/3/2011	4:23:48 PM	12925970.65	285044.82	851.3506	1.3392	3.0936	3.371	2.1	0.2	0.2	None	None	None	Center	<1ft/sec		Downstrm Island	None	Sand & Gravel		
8.02C-B-02	Focus	5/3/2011	4:29:55 PM	12925977.10	285096.14	851.8831	2.1245	5.8069	6.1834	1.2	0.2	0.2	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Sand & Gravel	BAD POS	END OF CUT BANK
8.02C-B-03	Focus	5/3/2011	4:37:05 PM	12925920.35	285079.36	848.6916	0.0497	0.1261	0.1356	1.9	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		BEHIND DWN TREE
8.05C-A-01	Focus	5/11/2011	2:27:53 PM	12925977.21	285019.97	848.3998	0.0302	0.0476	0.0564	2.0	0.1	0.1	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
8.05C-A-02	Focus	5/11/2011	2:40:01 PM	12926004.46	285032.61	848.3321	0.0508	0.0855	0.0994	1.4	0.1	0.1	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Sand & Gravel		
8.05C-A-03	Focus	5/11/2011	2:46:05 PM	12926000.33	285000.01	848.1551	0.0247	0.0429	0.0495	3.0	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
8.07T-B-01	Transect	5/4/2011	10:37:32 AM	12925827.02	285035.22	847.8976	0.0426	0.0695	0.0815	3.0	0.3	0.8	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
8.07T-B-02	Transect	5/4/2011	10:43:43 AM	12925820.75	284997.99	847.9622	0.0585	0.0989	0.1149	1.3	0.0	0.1	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		BEHIND DWN TREE
8.07T-B-03	Transect	5/4/2011	10:51:09 AM	12925788.44	285133.13	871.2758	3.623	8.4693	9.2116	1.3	0.5	0.5	Light	Light	None	Right	<1ft/sec		Other-Comments	5%-25%	Silt over Sand	BA POS	Cut Bank, BCK EDDY DWN TRE
8.21T-B-02	Transect	5/4/2011	11:54:51 AM	12925068.07	284990.39	845.2346	2.5733	3.5442	4.3799	0.2	0.0	0.0	None	None	None	Island	1-3 ft/sec		Downstrm Island	>75%	Soft Sediment		BAD POS
8.21T-B-03	Transect	5/4/2011	12:09:14 PM	12925154.97	285154.83	902.1769	10.4284	15.0919	18.3444	1.0	0.4	0.5	Moderate	Moderate	Few	Right	<1ft/sec		Strt Channel Edg	50%-75%	Silt over Sand		BAD POS
8.21T-B-04	Transect	5/4/2011	12:16:05 PM	12925141.23	285164.86	875.42	50.4609	65.9963	83.0772	0.3	0.2	0.5	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	50%-75%	Soft Sediment		BAD POS 60FTUP
8.21T-B-05	Transect	5/4/2011	12:23:06 PM	12924998.69	285138.80	857.2548	7.2025	9.0046	11.5308	0.2	0.1	0.2	None	None	None	Right	No		Downstrm Island	<5%	Soft Sediment	MOD BANK SHEEN	BAD POS 60FTDN
8.21T-B-06	Transect	5/4/2011	12:33:49 PM	12925099.21	285123.94	850.8201	6.32	9.1879	11.1517	1.7	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		DWN TREE BAD POS
8.25I-B-01	Focus	5/4/2011	11:08:35 AM	12925548.26	285040.39	847.9659	0.0983	0.1913	0.2151	0.9	0.1	0.1	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		
8.25I-B-02	Focus	5/4/2011	11:20:07 AM	12925105.37	285101.81	858.8645	6.1216	4.1559	7.399	1.5	0.2	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		BAD POS
8.25I-B-03	Focus	5/4/2011	11:26:05 AM	12925133.11	285040.23	848.0532	6.2336	4.554	7.7199	0.7	0.2	0.4	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	HVY OIL ON BANK	BCK EDDY/BAD POS
8.25I-B-05	Focus	5/4/2011	11:48:40 AM	12924973.11	284992.04	844.4686	7.9667	10.1122	12.8734	0.9	0.3	0.4	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		BAD POS
8.25I-B-06	Focus	5/4/2011	12:44:01 PM	12924760.82	285128.18	857.1801	3.1832	5.7657	6.586	1.1	0.3	0.9	None	None	None	Right	<1ft/sec		Other-Comments	None	Soft Sediment	BAD POS	BACK CHNL OUTLET
8.25I-D-05	Focus	4/20/11	1:45:26 PM	12924853.02	284949.39	847.7	0.06	0.12	0.14	2.9	0.1	0.3	None	None	None	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel		H20 TEMP 46.0F
8.25I-D-06	Focus	4/20/11	1:55:12 PM	12925083.41	284883.09	849.4	2.36	3.59	4.30	1.5	0.6	1.3	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		H20 TEMP 45.0F
8.25I-D-07	Focus	4/20/11	2:07:33 PM	12925401.91	284933.74	848.2	0.07	0.13	0.15	1.6	0.2	0.7	Light	Light	Few	Left	1-3 ft/sec		Downstrm Island	None	Silt over Sand		45.5F H2O TEMP
8.25I-D-09	Focus	4/20/11	2:36:23 PM	12925329.38	284985.25	853.5	4.99	5.43	7.38	0.2	0.4	1.0	None	None	None	Island	<1ft/sec		Downstrm Island	<5%	Sand & Silt		46.0 F H2O TEMP
8.25I-D-10	Focus	4/20/11	2:42:05 PM	12925398.33	285011.33	846.9	2.48	3.28	4.11	0.8	0.7	0.8	Light	Light	None	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		46.0 F H2O TEMP
8.25I-D-11	Focus	4/20/11	2:52:47 PM	12925225.44	284954.96	848.0	0.09	0.08	0.12	1.1	0.5	0.5	Light	Light	Few	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		46.0 F H2O TEMP
8.25I-D-13	Focus	4/20/11	3:16:59 PM	12925021.26	285084.12	854.3	2.55	5.35	5.93	2.0	0.1	0.3	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		46.0 F H2O TEMP
8.25I-D-14	Focus	4/20/11	3:26:41 PM	12925346.49	285130.63	873.6	3.09	5.42	6.24	2.5	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		45.0 F H2O TEMP
MP 8.25-8.50																							
8.43T-A-01	Transect	5/11/2011	2:52:31 PM	12924215.33	285548.50	846.5218	2.8368	4.4424	5.2709	1.9	0.2	0.5	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
8.43T-A-02	Transect	5/11/2011	3:07:42 PM	12923978.38	285394.94	852.8462	2.1781	4.4481	4.9527	0.5	0.3	0.5	None	None	None	Left	No	No	Backwater	5%-25%	Soft Sediment		SWAMP AREA, NARROW BACK CHANL, CANTGETTOPOINT
8.43T-B-01	Transect	5/4/2011	12:58:38 PM	12924049.71	285501.51	846.3006	2.5964	3.6297	4.4627	1.0	0.3	0.5	None	None	None	Left	<1ft/sec		Point Bar	5%-25%	Soft Sediment		BAD POS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
8.43T-B-02	Transect	5/4/2011	1:03:52 PM	12924046.26	285603.16	853.234	2.2008	3.0558	3.7659	1.2	0.1	0.2	Light	Light	None	Right	No		Cut Bank	<5%	Other-Comments		SOOVRRCK/BADPOS
MP 8.50-8.75																							
8.58T-C-01	Transect	5/3/2011	4:04:05 PM	12923596.22	286069.98	842.2562	0.9805	2.1192	2.335	1.6	0.1	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
8.58T-C-02	Transect	5/3/2011	4:15:24 PM	12923540.50	286047.42	846.2914	0.026	0.0582	0.0637	3.3	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
8.58T-C-03	Transect	5/3/2011	4:19:18 PM	12923495.70	286003.03	845.5337	2.0801	4.4048	4.8712	1.5	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
8.60N-E-02	Focus	4/20/11	1:22:47 PM	12923653.35	286006.95	848.6	1.43	1.56	2.12	0.9	1.1	1.1	Heavy	Moderate	Many	Right			Other-Comments	None	Soft Sediment	PHOTO 324	H20 46.2 -SIDECHL
8.60N-C-01	Focus	5/3/2011	3:36:22 PM	12923646.52	286001.64	846.4727	0.0376	0.0659	0.0759	0.5	0.5	1.0	Moderate	Moderate	Common	Right	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment		SIDE INLET
8.60N-C-02	Focus	5/3/2011	3:40:09 PM	12923626.73	286003.82	846.5309	0.0957	0.2091	0.23	1.2	0.3	0.8	None	None	None	Right	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		
8.60N-C-03	Focus	5/3/2011	3:43:07 PM	12923674.95	285937.66	846.0009	1.3285	2.3962	2.7399	1.5	0.3	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		
8.60N-C-04	Focus	5/3/2011	3:51:14 PM	12923669.83	286010.66	845.0911	0.9558	1.7833	2.0233	1.1	0.8	1.0	Heavy	Heavy	Many	Right	<1ft/sec		Other-Comments	5%-25%	Soft Sediment	PHOTOS 737-732	LAGOON
8.60N-C-05	Focus	5/3/2011	3:58:01 PM	12923627.98	286028.40	846.2954	0.0482	0.0904	0.1024	1.1	0.7	0.8	Light	Light	Few	Right	<1ft/sec		Other-Comments	5%-25%	Silt over Sand		INLET ENTRANCE
8.68T-C-01	Transect	5/3/2011	4:27:51 PM	12923306.23	286336.77	844.6975	1.953	4.0056	4.4563	1.4	0.9	1.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
8.68T-C-02	Transect	5/3/2011	4:31:00 PM	12923342.70	286388.06	846.148	0.0658	0.2331	0.2422	2.5	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
8.68T-C-03	Transect	5/3/2011	4:33:54 PM	12923407.93	286427.39	846.02	0.0706	0.2477	0.2575	1.9	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
8.75N-A-01	Focus	5/11/2011	3:42:14 PM	12923329.58	286577.58	845.5199	0.0365	0.1044	0.1106	1.4	1.0	1.4	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	U BDY	
8.75N-A-02	Focus	5/11/2011	3:45:09 PM	12923313.51	286596.59	845.739	0.0575	0.1321	0.1441	2.6	0.1	0.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
8.75N-A-03	Focus	5/11/2011	3:51:50 PM	12923289.74	286715.98	845.1214	0.115	0.2298	0.257	1.6	0.2	0.3	Light	Light	Few	Right	<1ft/sec	No	Strt Channel Edg	None	Sand & Silt	D BDY	
8.75N-A-04	Focus	5/11/2011	3:58:31 PM	12923150.73	286854.09	845.0329	0.0784	0.2755	0.2864	1.5	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec	<1 ft/sec	Downstrm Island	None	Soft Sediment	POSSIBLE BDY	
8.75N-A-05	Focus	5/11/2011	4:06:38 PM	12923140.85	286912.84	845.1794	0.0508	0.1666	0.1742	1.3	0.4	0.6	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	POSSIBLE D BDY	
8.75N-A-06	Focus	5/11/2011	4:11:23 PM	12923222.47	286857.61	845.9268	0.0861	0.258	0.2719	2.0	0.1	0.2	None	None	None	Right	<1ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	CANTACCESSCHANL	
8.75N-A-07	Focus	5/11/2011	4:18:38 PM	12922935.17	287111.57	846.1463	1.0466	2.4185	2.6352	1.9	0.0	0.0	None	None	None	Right	>3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	D BDY	
8.75N-C-01	Focus	5/3/2011	1:29:21 PM	12923217.49	286803.89	845.9689	0.7824	1.1251	1.3704	1.2	0.2	0.3	Light	Light	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
8.75N-C-02	Focus	5/3/2011	1:40:14 PM	12923166.62	286890.62	853.3342	1.4889	2.3274	2.7629	1.5	0.2	0.2	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		
8.75N-C-03	Focus	5/3/2011	1:48:23 PM	12923126.94	286839.34	845.646	0.0339	0.0573	0.0665	1.2	0.4	1.3	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		
8.75N-C-04	Focus	5/3/2011	1:49:53 PM	12923126.43	286843.49	845.7337	0.0342	0.0583	0.0676	1.6	0.4	0.5	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		
8.75N-C-05	Focus	5/3/2011	1:52:35 PM	12923126.08	286843.12	845.7579	0.0472	0.0919	0.1033	1.3	0.6	0.7	Heavy	Heavy	Common	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		DNSTRM OF EXCAVAN
8.75N-C-06	Focus	5/3/2011	1:56:18 PM	12923129.72	286849.69	845.8527	0.0384	0.0681	0.0782	1.4	1.2	1.5	Moderate	Moderate	Few	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		DNSTRM OF EXCAVAN
8.75N-C-07	Focus	5/3/2011	2:02:26 PM	12923116.85	286827.87	845.6991	0.0286	0.0568	0.0636	2.1	0.2	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
8.75N-C-08	Focus	5/3/2011	2:06:23 PM	12923109.70	286860.27	845.8048	0.0737	0.1402	0.1584	2.2	0.1	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand		
8.75N-C-09	Focus	5/3/2011	2:09:19 PM	12923135.27	286929.79	845.6514	0.0397	0.0639	0.0752	2.0	0.4	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
8.75N-C-10	Focus	5/3/2011	2:12:22 PM	12923056.61	286927.54	846.1383	1.3724	2.4387	2.7984	0.9	0.1	0.3	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
8.75N-C-11	Focus	5/3/2011	2:18:25 PM	12923047.35	287057.69	852.5006	1.3111	2.725	3.024	2.4	0.2	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
8.75N-C-12	Focus	5/3/2011	2:28:56 PM	12922967.31	287046.96	846.4158	0.9387	1.5868	1.8436	0.7	0.2	0.3	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
8.75N-C-13	Focus	5/3/2011	2:32:40 PM	12922941.06	287120.26	847.1727	1.6301	2.6683	3.1268	1.9	0.3	0.4	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
8.75N-C-14	Focus	5/3/2011	3:03:07 PM	12923333.85	286607.34	845.9972	0.0578	0.1125	0.1265	1.5	0.6	0.6	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
8.75N-C-15	Focus	5/3/2011	3:09:52 PM	12923257.85	286663.24	845.9955	0.0653	0.1126	0.1301	1.5	0.2	0.3	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
8.75N-C-16	Focus	5/3/2011	3:13:47 PM	12923282.86	286749.03	848.0977	4.1292	6.7	7.8702	1.2	0.7	0.8	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
8.75N-E-04	Focus	4/20/11	3:34:49 PM	12923187.38	286822.78	843.9	0.00	0.00	0.00	0.4	0.3	0.6	Heavy	Heavy	Many	Island			Strt Channel Edg	None	Soft Sediment	INSIDE AQUADAM	43.9 H2O-PHT325-6
8.75N-E-05	Focus	4/20/11	3:49:55 PM	12923333.30	286605.09	849.1	1.22	2.01	2.35	1.3	0.8	1.0	Moderate	Light	Common	Right			Strt Channel Edg	None	Soft Sediment		44.0 H2O
MP 8.75-9.00																							
8.77T-C-01	Transect	5/3/2011	2:47:44 PM	12923050.82	286772.52	863.1966	2.1834	2.8021	3.5523	2.1	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		
8.77T-C-02	Transect	5/3/2011	2:58:47 PM	12923071.84	286800.21	845.7435	0.0629	0.0808	0.1024	2.7	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
8.92T-C-01	Transect	5/3/2011	10:48:53 AM	12922710.13	287424.82	844.9715	0.0676	0.1263	0.1433	2.5	0.1	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		SHEEN FLOATING BY
8.92T-C-02	Transect	5/3/2011	10:57:43 AM	12922633.21	287384.10	845.0858	0.0258	0.0606	0.0658	2.3	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
8.92T-C-03	Transect	5/3/2011	11:00:33 AM	12922569.45	287321.22	849.2582	1.6893	5.457	5.7125	1.5	0.7	0.8	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
8.95S-C-01	Focus	5/3/2011	11:06:59 AM	12922624.71	287262.92	843.1123	7.9761	1.9046	8.2004	2.1	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
8.95S-C-02	Focus	5/3/2011	11:14:09 AM	12922541.91	287450.51	851.0873	1.1307	2.2053	2.4783	2.8	0.1	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
8.95S-C-03	Focus	5/3/2011	11:26:47 AM	12922447.73	287459.10	847.2186	3.7065	8.4328	9.2114	2.1	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
8.95S-C-04	Focus	5/3/2011	11:31:04 AM	12922456.25	287523.53	854.1354	1.8495	4.3504	4.7273	1.5	0.1	0.4	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Gravel & Larger		
8.95S-C-05	Focus	5/3/2011	11:38:19 AM	12922391.90	287572.89	833.1904	5.1604	8.2278	9.7121	3.1	0.9	0.9	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		
8.95S-C-06	Focus	5/3/2011	11:42:38 AM	12922448.84	287626.02	848.5964	2.0461	3.2411	3.8329	2.1	0.3	0.4	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		
8.95S-C-07	Focus	5/3/2011	11:47:35 AM	12922431.51	287699.98	853.6723	2.3329	3.2864	4.0303	3.2	0.3	0.4	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Gravel		
MP 9.00-9.25																							
9.04T-A-01	Transect	5/4/2011	3:31:21 PM	12922188.59	287958.46	844.2777	0.0549	0.0877	0.1035	1.7	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
9.04T-A-02	Transect	5/4/2011	3:33:02 PM	12922208.90	287995.24	844.3464	0.0333	0.0559	0.0651	2.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
9.04T-A-03	Transect	5/4/2011	3:35:27 PM	12922285.98	288040.08	844.5541	0.0685	0.1681	0.1816	1.4	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
9.12T-C-01	Transect	5/3/2011	10:30:46 AM	12921921.94	288122.01	843.9069	0.0606	0.1155	0.1304	1.6	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
9.12T-C-02	Transect	5/3/2011	10:34:11 AM	12921922.58	288180.80	844.0479	0.0225	0.0406	0.0464	2.9	0.1	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
9.12T-C-03	Transect	5/3/2011	10:37:21 AM	12921969.52	288255.01	844.0573	0.0562	0.1062	0.1201	1.7	0.3	2.4	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		
9.15S-C-01	Focus	5/3/2011	9:44:45 AM	12921707.38	288114.89	850.5091	3.084	4.0715	5.1077	0.7	1.0	1.1	Moderate	Moderate	Few	Left	<1ft/sec		Point Bar	<5%	Silt over Sand		PHOTO 739-741
9.15S-C-02	Focus	5/3/2011	9:56:31 AM	12921677.72	288143.19	843.986	0.0789	0.152	0.1713	1.4	0.7	0.8	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
9.15S-C-03	Focus	5/3/2011	10:00:01 AM	12921721.31	288151.17	844.0352	0.0304	0.043	0.0527	1.7	0.5	0.6	None	None	None	Left	<1ft/sec		Mid-Channel	None	Silt over Sand		
9.15S-C-04	Focus	5/3/2011	10:02:04 AM	12921732.65	288119.62	843.7735	0.0772	0.1636	0.1809	0.6	1.0	1.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	5%-25%	Silt over Sand		
9.15S-C-05	Focus	5/3/2011	10:09:52 AM	12921783.65	288150.72	844.0781	0.0392	0.0588	0.0707	1.4	0.3	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	<5%	Sand & Gravel		SHEEN ON BANK
9.15S-C-06	Focus	5/3/2011	10:14:35 AM	12921848.97	288145.79	844.1714	0.0325	0.0521	0.0614	1.3	0.2	0.5	None	None	None	Left	<1ft/sec		Point Bar	<5%	Soft Sediment		
9.21T-C-01	Transect	5/3/2011	9:23:27 AM	12921493.15	288418.79	843.8553	1.1988	1.4686	1.8957	2.0	0.2	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	<5%	Sand & Gravel		53.5 WATER TEMP
9.21T-C-02	Transect	5/3/2011	9:29:52 AM	12921472.28	288365.46	843.9835	0.0415	0.0479	0.0634	3.4	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		53.5 WATER TEMP
9.21T-C-03	Transect	5/3/2011	9:34:03 AM	12921455.89	288298.85	843.8887	0.0684	0.0868	0.1105	2.0	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Gravel & Larger		53.5 WATER TEMP
9.24T-A-01	Transect	5/4/2011	3:44:41 PM	12921327.97	288403.69	844.4407	0.0903	0.2567	0.2722	2.2	0.5	0.6	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
9.24T-A-02	Transect	5/4/2011	3:48:07 PM	12921362.94	288453.34	843.7678	0.0284	0.0472	0.0551	3.2	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
9.24T-A-03	Transect	5/4/2011	3:50:22 PM	12921415.21	288483.76	843.8765	0.0466	0.085	0.097	2.0	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
MP 9.25-9.50																							
9.34T-E-01	Transect	5/3/2011	10:41:45 AM	12920989.92	288832.22	843.3913	1.9567	2.7362	3.3638	2.2	0.3	0.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
9.34T-E-02	Transect	5/3/2011	10:48:34 AM	12920954.95	288759.55	843.4244	0.0809	0.081	0.1145	1.6	0.0	0.0	Light	Light	None	Island	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
9.34T-E-03	Transect	5/3/2011	10:54:53 AM	12920807.51	288688.45	843.475	0.1083	0.0987	0.1465	0.9	0.4	0.4	Light	Light	Few	Left	No		Strt Channel Edg	None	Silt over Sand		
9.35C-E-01	Focus	5/3/2011	9:46:05 AM	12920787.37	288787.92	843.451	0.0377	0.0531	0.0652	1.4	0.0	0.1	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		
9.35C-E-02	Focus	5/3/2011	9:53:09 AM	12920752.50	288780.63	843.3106	0.0464	0.0641	0.0791	0.9	0.6	0.7	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand over Silt		
9.35C-E-03	Focus	5/3/2011	9:58:29 AM	12920789.01	288752.10	843.2719	0.0445	0.0643	0.0782	1.4	1.0	1.1	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand over Silt		
9.35C-E-04	Focus	5/3/2011	10:04:57 AM	12920885.61	288713.57	843.5836	0.0524	0.0799	0.0955	1.8	0.2	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
9.35C-E-05	Focus	5/3/2011	10:11:59 AM	12920927.01	288780.78	843.3353	0.0606	0.1082	0.124	2.0	0.2	0.2	Light	Light	Few	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		53.9
9.45T-E-01	Transect	5/3/2011	11:05:12 AM	12920445.39	288980.68	799.7925	85.7583	154.9353	177.0859	1.6	1.3	1.4	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Silt over Sand		
9.45T-E-02	Transect	5/3/2011	11:09:05 AM	12920434.15	289057.03	847.4117	3.2859	2.7938	4.3131	3.8	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
9.45T-E-03	Transect	5/3/2011	11:13:30 AM	12920499.47	289061.99	842.1305	3.3363	2.7677	4.3349	1.7	0.2	0.3	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Gravel		
9.50N-E-01	Focus	5/3/2011	11:39:41 AM	12920326.16	289422.26	842.9076	0.0722	0.1495	0.166	1.3	0.2	0.2	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		VIS SHEEN BANK
9.50N-E-02	Focus	5/3/2011	11:47:38 AM	12920277.03	289437.94	842.9473	0.0479	0.0697	0.0845	1.4	0.2	0.2	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		
9.50N-E-03	Focus	5/3/2011	11:49:22 AM	12920252.26	289443.28	842.7855	0.0584	0.0903	0.1075	1.5	0.0	0.0	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		
HBP-E-01	Launch	5/3/2011	10:18:04 AM	12921063.26	288770.10	842.5695	2.9454	3.762	4.7779	2.0	0.1	0.1	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		53.9
HBP-E-02	Launch	5/3/2011	10:26:30 AM	12920855.13	288874.71	838.8151	2.5657	4.0112	4.7616	1.0	0.2	1.3	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Gravel		53.9
HBP-E-03	Launch	5/3/2011	10:28:30 AM	12920773.46	288881.49	841.2213	2.3755	3.4889	4.2208	3.6	0.0	0.0	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		53.9
HBP-E-04	Launch	5/3/2011	10:31:12 AM	12920616.11	288948.96	843.0914	0.0469	0.0632	0.0787	3.1	1.4	1.4	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		
WRBR-E-01	Bridge	5/3/2011	11:19:03 AM	12920427.65	289279.75	842.8731	0.0877	0.0673	0.1106	0.9	1.4	1.4	Light	Light	Few	Right	<1ft/sec		Point Bar	5%-25%	Sand & Gravel		
WRBR-E-02	Bridge	5/3/2011	11:25:00 AM	12920340.68	289198.53	844.7082	3.911	3.335	5.1398	4.1	0.4	0.4	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		1.8FT/S
WRBR-A-01	Bridge	5/11/2011	4:35:19 PM	12920361.04	289116.66	844.0206	2.0176	3.2607	3.8344	3.7	0.0	0.0	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Gravel & Larger		
WRBR-A-02	Bridge	5/11/2011	4:40:13 PM	12920449.17	289164.82	841.9149	1.2501	1.8474	2.2306	1.0	0.3	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
MP 9.50-9.75																							
9.50N-A-01	Focus	5/4/2011	3:58:44 PM	12920412.23	289335.94	842.7868	0.0415	0.081	0.091	2.0	0.2	0.3	None	None	None	Right	<1ft/sec		Other-Comments	None	Silt over Sand		Boat Launch
9.50N-A-02	Focus	5/4/2011	4:03:47 PM	12920423.41	289328.42	842.9146	0.0404	0.0831	0.0924	1.2	0.2	0.3	Light	Light	None	Right	<1ft/sec		Other-Comments	None	Silt over Sand		Boat Launch
9.50N-A-03	Focus	5/4/2011	4:06:04 PM	12920430.59	289306.80	843.0867	0.0424	0.1115	0.1193	1.0	1.0	1.1	None	None	None	Right	<1ft/sec		Other-Comments	5%-25%	Silt over Sand		Boat Launch
9.52T-A-01	Transect	5/4/2011	4:22:32 PM	12920299.13	289311.97	842.2884	0.097	0.3125	0.3272	1.6	0.3	0.4	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		
9.52T-A-02	Transect	5/4/2011	4:25:02 PM	12920294.41	289368.57	842.7041	0.0241	0.063	0.0674	3.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
9.52T-A-03	Transect	5/4/2011	4:27:39 PM	12920355.03	289403.58	843.1376	0.057	0.1538	0.164	1.6	0.6	0.7	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		
9.56T-E-01	Transect	5/3/2011	1:43:28 PM	12920178.81	289469.93	821.9564	7.5239	12.3928	14.498	1.8	0.2	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		CD 15
9.56T-E-02	Transect	5/3/2011	1:47:14 PM	12920148.46	289437.17	820.6413	6.937	11.4327	13.3726	3.4	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		CD 15 6.4FTS
9.56T-E-03	Transect	5/3/2011	1:53:50 PM	12920140.03	289384.27	823.7178	7.3251	11.9688	14.0324	1.3	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		CD 15
9.59T-E-01	Transect	5/3/2011	2:00:57 PM	12919944.76	289408.47	820.7318	9.3371	18.1756	20.4336	0.6	0.0	0.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 14
9.59T-E-02	Transect	5/3/2011	2:04:48 PM	12919935.70	289478.61	818.6424	6.873	10.8429	12.8377	3.1	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		CD 14 4.9FTS
9.59T-E-03	Transect	5/3/2011	2:09:18 PM	12919984.31	289519.22	819.2361	11.9672	23.2843	26.1797	1.7	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 15
9.62T-E-01	Transect	5/3/2011	2:17:27 PM	12919783.05	289409.14	820.5258	8.2908	15.2019	17.3158	1.4	0.3	0.3	Light	Light	Few	Left	No		Strt Channel Edg	None	Silt over Sand		CD 18
9.62T-E-02	Transect	5/3/2011	2:21:31 PM	12919779.61	289514.98	822.01	6.3785	10.6215	12.3895	1.8	0.0	0.0	Light	Light	Few	Center	>3 ft/sec		Mid-Channel	None	Silt over Sand		CD 13
9.62T-E-03	Transect	5/3/2011	2:26:52 PM	12919798.33	289582.54	827.4591	7.8539	11.8962	14.2549	1.4	0.0	0.0	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 13
9.65N-B-01	Focus	4/19/11	10:12:38 AM	12919588.25	289677.22	841.4	0.04	0.05	0.06	0.6	0.7	0.9	Light	Light	None	Island	--		Downstrm Island	5%-25%	Silt over Sand	VERY SLIGHT	
9.65N-B-02	Focus	4/19/11	10:21:59 AM	12919614.91	289668.80	841.4	0.07	0.11	0.13	0.5	0.5	1.2	Moderate	Moderate	Few	Island	--		Downstrm Island	5%-25%	Silt over Sand		
9.65N-B-03	Focus	4/19/11	10:27:07 AM	12919632.61	289656.45	840.0	1.43	2.09	2.53	0.4	0.2	0.3	Light	Light	None	Island	--		Downstrm Island	5%-25%	Silt over Sand		
9.65N-B-04	Focus	4/19/11	10:30:41 AM	12919670.76	289643.86	841.6	0.04	0.05	0.07	0.3	0.5	0.6	Light	Light	None	Island	--		Downstrm Island	5%-25%	Silt over Sand	VERY SLIGHT	
9.65N-B-05	Focus	4/19/11	10:33:33 AM	12919684.25	289620.40	841.6	0.06	0.07	0.09	0.8	0.3	1.0	None	None	None	Island	--		Downstrm Island	5%-25%	Silt over Sand		FAST CURRENT
9.65N-B-06	Focus	4/19/11	11:03:37 AM	12919631.90	289677.59	841.4	0.07	0.21	0.23	1.4	0.0	0.0	None	None	None	Other-Comments	--		Other-Comments	5%-25%	Sand & Gravel		FAST CURRENT
9.65N-B-07	Focus	4/19/11	11:07:02 AM	12919651.92	289666.13	841.5	0.05	0.08	0.10	1.2	0.0	0.1	None	None	None	Other-Comments	--		Other-Comments	5%-25%	Sand & Gravel		FAST CURRENT BDY
9.69T-E-01	Transect	5/3/2011	2:33:16 PM	12919564.24	289726.07	821.309	7.6749	12.937	15.0423	1.1	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 18
9.69T-E-02	Transect	5/3/2011	2:36:14 PM	12919502.39	289623.36	825.386	6.191	10.3652	12.0734	2.6	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		CD 18
9.69T-E-03	Transect	5/3/2011	2:39:37 PM	12919456.94	289547.84	823.8672	5.9673	10.0396	11.6791	1.7	0.3	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		CD 18
9.75S-A-02	Focus	4/19/11	9:52:19 AM	12919563.86	289505.51	841.8	0.95	1.13	1.47	1.7	0.3	0.4	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand		
9.75S-A-03	Focus	4/19/11	10:00:11 AM	12919535.59	289606.43	841.4	0.05	0.06	0.08	2.0	0.1	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
9.75S-B-01	Focus	4/19/11	9:40:31 AM	12919181.59	289823.04	841.2	0.06	0.11	0.12	0.7	0.1	0.8	None	None	None	Island	--		Downstrm Island	None	Sand		
9.75S-B-02	Focus	4/19/11	10:00:26 AM	12919413.25	289576.37	844.1	3.01	3.73	4.80	0.7	0.2	0.3	None	None	None	Left	--		Other-Comments	None	Sand & Gravel		
9.75S-E-01	Focus	4/19/11	10:19:14 AM	12919135.39	289903.41	839.5	1.02	1.25	1.61	0.6	0.4	0.4	None	None	None	Island	--		Downstrm Island	None	Sand & Gravel		
9.75S-E-02	Focus	4/19/11	10:25:44 AM	12919060.14	289804.71	840.9	0.06	0.07	0.10	1.7	0.2	0.3	None	None	None	Left	--		Strt Channel Edg	None	Sand & Gravel		
9.75S-E-03	Focus	5/3/2011	2:48:53 PM	12919401.56	289577.50	827.3935	10.1718	16.2805	19.1969	0.6	0.3	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 11
9.75S-E-04	Focus	5/3/2011	2:52:45 PM	12919220.68	289760.94	639.3622	195.712	312.4739	368.7047	0.9	0.2	0.2	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		CD 11
9.75S-E-05	Focus	5/3/2011	2:55:55 PM	12919204.58	289707.16	822.6868	173.2225	279.7608	329.0473	0.5	0.0	0.0	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 11
9.75S-E-06	Focus	5/3/2011	3:05:34 PM	12919391.67	289656.16	827.8199	11.8448	18.1212	21.649	2.3	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		CD 20
9.75S-E-07	Focus	5/3/2011	3:08:11 PM	12919355.24	289691.22	797.043	178.7068	328.5674	374.0223	1.6	0.2	0.3	None	None	None	Island	No		Downstrm Island	None	Sand over Silt		CD 20
9.75S-E-08	Focus	5/3/2011	3:13:28 PM	12919257.55	289759.67	839.5374	30.6442	39.9265	50.3309	1.5	0.0	0.1	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		CD 60
9.75T-E-01	Transect	5/3/2011	3:19:39 PM	12919308.95	289792.15	847.5782	24.2809	38.7335	45.7148	0.9	0.4	0.4	Light	Light	Few	Center	<1ft/sec		Downstrm Island	None	Sand over Silt		CD 22
9.75T-E-02	Transect	5/3/2011	3:29:16 PM	12919298.56	289649.72	862.9768	22.8587	33.1238	40.2455	2.7	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 40
9.75T-E-03	Transect	5/3/2011	3:36:35 PM	12919381.31	289839.00	839.5174	23.472	37.0111	43.8265	2.1	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 40
MP 9.75-10.00																							
9.80T-E-01	Transect	5/3/2011	3:43:15 PM	12919114.69	290014.33	842.9016	21.5578	34.2345	40.4566	2.3	0.2	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 40
9.80T-E-02	Transect	5/3/2011	3:45:57 PM	12919059.12	289936.94	845.5493	21.5921	34.2278	40.4692	2.3	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		CD 40
9.80T-E-03	Transect	5/3/2011	3:48:41 PM	12919024.98	289837.57	845.2929	21.7581	34.322	40.6376	2.6	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 40
9.88T-E-01	Transect	5/3/2011	3:55:19 PM	12918566.16	290020.98	848.9543	23.0178	35.3939	42.2202	2.5	0.1	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 40
9.88T-E-02	Transect	5/3/2011	3:57:46 PM	12918562.74	290067.35	847.3172	24.1947	36.741	43.9919	3.4	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		CD 40
9.88T-E-03	Transect	5/3/2011	4:00:17 PM	12918585.22	290112.05	849.6472	29.3729	40.3482	49.9074	2.0	0.3	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		CD 40
9.98T-E-01	Transect	5/3/2011	4:06:15 PM	12918177.26	290275.28	830.0319	31.6859	43.0161	53.4264	2.7	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		CD 30
9.98T-E-02	Transect	5/3/2011	4:08:36 PM	12918215.23	290325.03	823.5393	26.2814	30.2701	40.0873	2.3	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		CD 30
9.98T-E-03	Transect	5/3/2011	4:12:01 PM	12918290.31	290324.99	861.1768	182.7883	78.4428	198.9091	2.4	0.3	0.5	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		CD 30
9.95T-A-01	Transect	5/4/2011	4:39:25 PM	12918260.20	290155.01	840.929	0.0964	0.1111	0.1471	1.7	0.3	0.4	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand		
9.95T-A-02	Transect	5/4/2011	4:44:38 PM	12918292.11	290218.48	841.0882	0.0481	0.1175	0.1269	2.7	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
9.95T-A-03	Transect	5/4/2011	4:46:44 PM	12918335.69	290272.34	835.9415	1.7254	3.1096	3.5562	2.3	0.1	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
9.99T-E-01	Transect	5/3/2011	4:22:51 PM	12918262.64	290420.72	841.1009	0.0527	0.1911	0.1982	1.9	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
9.99T-E-02	Transect	5/3/2011	4:26:24 PM	12918215.72	290386.46	841.2355	0.0354	0.1231	0.1281	2.2	0.3	0.4	None	None	None	Center	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
9.99T-E-03	Transect	5/3/2011	4:29:09 PM	12918148.26	290362.92	841.225	0.0249	0.0643	0.069	2.8	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
10.00C-E-01	Focus	5/3/2011	4:36:22 PM	12918230.62	290396.31	841.0782	0.0524	0.18	0.1875	3.0	0.0	0.0	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		2FTS
10.00C-E-02	Focus	5/3/2011	4:38:31 PM	12918207.59	290427.74	840.9414	0.0495	0.1653	0.1725	2.1	0.3	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		
10.00C-E-03	Focus	5/3/2011	4:40:52 PM	12918211.02	290465.68	840.9251	0.0292	0.0935	0.0979	0.8	0.8	0.9	Light	Light	Few	Island	No		Downstrm Island	None	Sand & Gravel		
10.00C-E-04	Focus	5/3/2011	4:46:01 PM	12918214.27	290481.06	840.956	0.0423	0.1214	0.1286	1.0	0.4	0.5	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		
MP 10.00-10.25																							
10.07T-D-01	Transect	5/5/2011	10:10:26 AM	12918276.32	290832.98	840.2117	0.0516	0.1018	0.1141	1.9	0.1	0.2	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Silt		
10.07T-D-02	Transect	5/5/2011	10:15:55 AM	12918335.07	290804.71	840.0226	0.0362	0.0731	0.0815	2.6	0.1	0.1	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
10.07T-D-03	Transect	5/5/2011	10:19:00 AM	12918371.11	290770.89	840.0982	0.0342	0.0703	0.0781	2.0	0.1	0.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		
10.12T-D-01	Transect	5/5/2011	10:26:50 AM	12918299.22	290998.02	835.8712	2.8125	4.6161	5.4054	1.2	0.2	0.3	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Gravel		
10.12T-D-02	Transect	5/5/2011	10:33:45 AM	12918352.53	291011.07	839.9499	0.0439	0.0899	0.1	3.4	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		3.3FTSEC
10.12T-D-03	Transect	5/5/2011	10:36:36 AM	12918374.92	291042.22	839.8016	0.037	0.0709	0.08	2.4	0.0	0.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		3.3FTSEC
10.17T-D-01	Transect	5/5/2011	10:43:48 AM	12918167.20	291124.63	851.6963	17.7462	26.0659	31.5334	1.2	0.2	0.3	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Gravel		0
10.17T-D-02	Transect	5/5/2011	10:50:56 AM	12918186.09	291168.56	840.1036	0.0273	0.0509	0.0578	4.0	0.0	0.0	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		4FTSEC
10.17T-D-03	Transect	5/5/2011	10:55:28 AM	12918236.52	291187.88	840.1057	0.0271	0.0502	0.057	2.0	0.5	0.8	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Gravel & Larger		4FTSEC
10.20S-D-01	Focus	5/5/2011	12:56:52 PM	12918022.00	291011.89	846.4384	4.4441	5.3628	6.9648	0.1	0.4	1.4	None	None	None	Left	No		Other-Comments	None	Organic		EDDY
10.20S-D-02	Focus	5/5/2011	1:01:01 PM	12918016.64	291037.07	848.9399	3.0252	4.1733	5.1544	0.5	0.9	1.6	None	None	None	Left	No		Other-Comments	None	Soft Sediment		INSIDE SANDBAR
10.20S-D-03	Focus	5/5/2011	1:05:34 PM	12917977.25	291005.27	839.8724	0.0668	0.0892	0.1115	1.1	2.0	2.1	Light	Light	Few	Left	No		Other-Comments	None	Silt over Sand		INSIDE SANDBAR
10.20S-D-04	Focus	5/5/2011	1:09:34 PM	12917915.96	290972.41	844.5239	1.9567	2.7019	3.336	0.4	0.6	0.7	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand		
10.20S-D-05	Focus	5/5/2011	1:11:52 PM	12917857.74	290962.93	843.7191	1.5682	2.2338	2.7293	1.4	0.7	1.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand		
10.21T-D-01	Transect	5/5/2011	11:12:41 AM	12917959.13	291125.58	839.6577	0.0788	0.1583	0.1768	1.4	0.4	1.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Soft Sediment		0
10.21T-D-02	Transect	5/5/2011	11:31:48 AM	12917977.16	291081.08	839.9726	0.0433	0.0749	0.0865	3.0	0.0	0.0	Light	None	Few	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		1-3FTSEC
10.21T-D-03	Transect	5/5/2011	11:37:37 AM	12918001.05	291051.94	839.6483	0.1209	0.1558	0.1972	0.8	0.3	1.1	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Sand		
10.21T-D-04	Transect	5/5/2011	11:19:13 AM	12917938.98	291124.38	839.4391	0.1024	0.1714	0.1996	0.9	0.3	0.7	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Silt over Sand		SHEENOBSERVED
10.25N-D-01	Focus	5/5/2011	1:27:02 PM	12917793.38	291078.07	847.3002	3.9389	7.0737	8.0964	0.9	0.6	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
10.25N-D-02	Focus	5/5/2011	1:38:06 PM	12917735.11	291066.52	839.759	0.0408	0.0708	0.0817	1.8	0.2	0.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
10.25N-D-03	Focus	5/5/2011	1:44:13 PM	12917679.75	291065.07	839.9577	0.0416	0.0811	0.0911	3.0	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		SUBM. 55DRUM
10.25N-D-04	Focus	5/5/2011	1:51:57 PM	12917657.19	291061.60	839.4889	0.1068	0.311	0.3289	3.3	0.6	1.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		SUBM. 55DRUM
MP 10.25-10.50																							
10.28T-D-01	Transect	5/5/2011	1:59:01 PM	12917655.63	291052.53	839.7266	0.0954	0.1596	0.1859	3.0	0.3	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
10.28T-D-02	Transect	5/5/2011	2:05:54 PM	12917682.95	291003.93	839.7081	1.0369	1.658	1.9555	1.8	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
10.28T-D-03	Transect	5/5/2011	2:11:23 PM	12917676.18	290941.20	837.0735	1.537	2.4707	2.9098	1.4	0.0	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		
10.36T-D-01	Transect	5/5/2011	2:50:18 PM	12917349.11	291142.98	846.0396	3.714	3.4393	5.0618	1.1	0.4	0.4	Light	Light	Few	Right	<1ft/sec		Point Bar	None	Silt over Sand		
10.36T-D-02	Transect	5/5/2011	2:59:23 PM	12917293.07	291134.50	841.1097	2.9971	1.7759	3.4837	2.7	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
10.36T-D-03	Transect	5/5/2011	3:04:52 PM	12917269.99	291142.87	823.47	32.457	26.1564	41.6847	3.2	0.0	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		3.3FTSEC
10.4N-D-01	Focus	5/5/2011	3:11:57 PM	12917336.96	291358.02	839.2855	0.0406	0.0757	0.0859	1.4	1.9	1.9	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Silt over Sand		
10.4N-D-02	Focus	5/5/2011	3:27:56 PM	12917282.80	291418.65	839.5756	0.0524	0.1013	0.1141	2.1	1.3	1.4	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Silt over Sand		GREY SHEEN OBSERD
10.4N-D-03	Focus	5/5/2011	3:34:05 PM	12917237.47	291468.25	839.2262	0.0366	0.0694	0.0784	3.1	0.1	0.2	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Silt		
10.4N-C-04	Focus	5/7/2011	3:18:04 PM	12917331.13	291367.72	839.3438	0.0422	0.0738	0.085	1.4	1.4	1.8	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand	SHEEN ON BANK	0.1 FPS
10.4N-C-05	Focus	5/7/2011	3:25:46 PM	12917341.39	291337.92	839.2794	0.0399	0.0679	0.0788	0.7	1.8	1.9	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand	SOME EXISTING SHN	
10.4N-C-06	Focus	5/7/2011	3:38:54 PM	12917374.46	291302.38	839.5569	0.0832	0.153	0.1741	0.7	1.6	1.7	Heavy	Heavy	Many	Right	<1ft/sec		Cut Bank	None	Soft Sediment	PHOTO 65-68	VL FLOW
10.4N-C-07	Focus	5/7/2011	3:44:20 PM	12917389.00	291268.31	839.6056	0.0648	0.1019	0.1207	0.9	0.6	0.6	Heavy	Heavy	Many	Right	<1ft/sec		Cut Bank	None	Silt over Sand	THICK SHEEN	
10.4N-C-08	Focus	5/7/2011	3:51:26 PM	12917326.65	291296.53	839.2925	0.0424	0.0817	0.092	1.0	1.9	2.0	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	<5%	Silt over Sand		
10.4N-C-09	Focus	5/7/2011	3:55:51 PM	12917313.72	291260.27	839.2819	0.0543	0.1277	0.1387	0.5	0.4	0.6	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		1.1 FPS
10.4N-C-10	Focus	5/7/2011	4:00:28 PM	12917297.80	291305.35	839.2296	0.0295	0.0882	0.093	1.0	1.3	1.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand		1.5 FPS
10.44T-D-01	Transect	5/6/2011	9:06:12 AM	12917082.57	291543.92	838.9704	0.0368	0.0483	0.0607	1.3	0.7	1.0	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg		Sand & Silt		
10.44T-D-02	Transect	5/6/2011	9:10:20 AM	12917073.67	291489.72	838.8203	0.0331	0.0454	0.0562	3.5	0.0	0.0	Light	Light	Few	Center	1-3 ft/sec		Strt Channel Edg		Gravel & Larger		3.3FTSEC
10.44T-D-03	Transect	5/6/2011	9:14:41 AM	12917031.36	291474.28	843.8682	2.8008	3.7918	4.714	1.5	0.9	1.0	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg		Silt over Sand		
10.5N-D-01	Focus	5/6/2011	9:22:12 AM	12917005.05	291705.72	838.7876	0.0408	0.0502	0.0647	0.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg		Gravel & Larger		
10.5N-D-02	Focus	5/6/2011	9:27:42 AM	12917054.39	291786.80	838.7272	0.0651	0.0713	0.0966	0.7	0.6	0.7	Light	Light	Few	Right	<1ft/sec		Downstrm Island		Soft Sediment		
10.5N-D-03	Focus	5/6/2011	9:38:20 AM	12917066.00	291869.06	838.8284	0.0452	0.0582	0.0737	1.5	0.6	0.7	Light	Light	Few	Right	<1ft/sec		Downstrm Island		Soft Sediment		MOUTHOFBACKCHAN
10.5N-D-04	Focus	5/6/2011	9:42:44 AM	12917082.81	291838.63	838.6551	0.0314	0.0415	0.0521	1.0	0.3	0.4	None	None	None	Right	<1ft/sec		Downstrm Island		Silt over Sand		MOUTHOFBACKCHAN
10.5N-D-05	Focus	5/6/2011	9:49:47 AM	12917127.75	291830.98	838.6509	0.046	0.0725	0.0859	0.5	1.1	1.2	Heavy	Heavy	Many	Right	<1ft/sec		Other-Comments		Silt over Sand		BACKCHANNEL
10.5N-D-06	Focus	5/6/2011	9:51:57 AM	12917115.61	291833.36	838.5751	0.0597	0.1	0.1165	0.6	0.9	0.9	Heavy	Moderate	Many	Right	<1ft/sec		Other-Comments		Soft Sediment		BACKCHANNEL
10.5N-D-07	Focus	5/6/2011	9:54:37 AM	12917116.33	291842.77	838.9511	0.1463	0.2442	0.2847	0.8	0.5	0.5	Heavy	Moderate	Many	Right	<1ft/sec		Other-Comments		Silt over Sand		BACKCHANNEL
10.5N-D-09	Focus	5/6/2011	10:06:32 AM	12917153.85	291812.10	841.0036	0.0392	0.085	0.0936	0.6	0.0	0.1	Light	Light	Few	Right	<1ft/sec		Other-Comments		Silt over Sand		BACKCHANNEL
10.5L2-D-02	Focus	5/5/2011	3:53:27 PM	12917102.39	291271.13	838.5908	0.0243	0.0524	0.0578	1.3	0.7	0.8	Heavy	Heavy	Many	Left	<1ft/sec		Other-Comments	None	Silt over Sand	ODOR PRESENT	BACKCHANNEL
10.5L2-D-03	Focus	5/5/2011	4:07:06 PM	12917160.02	291290.88	839.3693	0.031	0.0734	0.0797	0.8	0.3	1.0	Moderate	Moderate	Many	Left	<1ft/sec		Other-Comments	None	Silt over Sand	ODOR PRESENT	BACKCHANNEL
10.5L2-D-04	Focus	5/5/2011	4:13:43 PM	12917139.75	291340.39	839.0304	0.0419	0.0985	0.107	0.7	0.5	0.6	Light	Light	Few	Left	<1ft/sec		Other-Comments	None	Sand & Gravel		BACKCHANNEL
10.5L2-D-05	Focus	5/5/2011	4:23:06 PM	12917084.06	291386.65	838.8633	0.0358	0.1159	0.1213	1.2	1.9	1.9	Heavy	Heavy	Many	Left	<1ft/sec		Other-Comments	None	Sand & Gravel		BACKCHANNEL
10.5L2-D-06	Focus	5/5/2011	4:59:31 PM	12917135.93	291426.88	839.3927	0.0683	0.1163	0.1349	1.4	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Other-Comments	None	Sand & Gravel		BNDRY
10.5L2-D-07	Focus	5/5/2011	4:56:38 PM	12917095.43	291437.67	839.2107	0.0962	0.1377	0.168	1.6	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Other-Comments	None	Sand & Gravel		BNDRY
10.5L2-D-08	Focus	5/5/2011	4:53:44 PM	12917071.20	291444.02	839.2862	0.0484	0.0559	0.0739	1.5	0.3	0.4	Light	Light	Few	Left	<1ft/sec		Other-Comments	None	Sand & Gravel		OUTSIDE OF BOOM
10.5L2-C-09	Focus	5/7/2011	4:06:38 PM	12917017.78	291453.65	839.3746	2.797	2.2532	3.5917	1.2	1.6	1.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt	OUTSIDE BOOM	0.3 FPS
10.5L2-C-10	Focus	5/7/2011	4:12:25 PM	12917032.61	291401.33	863.7407	2.2611	7.7656	8.0881	1.2	0.6	0.8	Light	Light	Few	Left	<1ft/sec		Cut Bank	5%-25%	Sand & Gravel		
10.5L2-C-11	Focus	5/7/2011	4:15:28 PM	12917061.19	291331.03	839.2928	0.09	0.2459	0.2618	1.0	1.0	1.2	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	5%-25%	Sand & Silt	HEAVY EXISTING	PHOTOS 69-72
10.5L2-C-12	Focus	5/7/2011	4:22:01 PM	12917097.90	291243.14	839.0903	0.0471	0.0738	0.0876	1.3	0.2	0.3	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	25%-50%	Silt over Sand		
10.5L2-C-13	Focus	5/7/2011	4:25:53 PM	12917119.81	291198.58	838.4129	0.1138	0.3557	0.3735	1.4	0.8	0.9	Heavy	Heavy	Many	Left	No		Cut Bank	25%-50%	Silt over Sand		
10.5L2-C-14	Focus	5/7/2011	4:37:17 PM	12917113.97	291320.79	839.2265	0.0237	0.0564	0.0612	1.7	0.8	1.1	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	5%-25%	Silt over Sand		
MP 10.50-10.75																							
10.51T-D-01	Transect	5/6/2011	10:17:04 AM	12917064.51	291826.33	838.7176	0.0473	0.0933	0.1045	1.0	0.2	0.3	Light	Light	Few	Right	<1ft/sec		Downstrm Island		Silt over Sand		
10.51T-D-02	Transect	5/6/2011	10:21:58 AM	12916982.74	291840.76	838.3976	0.0334	0.0653	0.0734	2.0	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel		Gravel & Larger		
10.51T-D-03	Transect	5/6/2011	10:25:04 AM	12916947.67	291848.80	838.7182	0.0172	0.0352	0.0392	3.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank		Gravel & Larger		
10.57T-C-01	Transect	5/4/2011	9:36:22 AM	12916997.11	292128.28	838.8687	0.0414	0.0502	0.0651	3.2	0.2	0.3	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
10.57T-C-02	Transect	5/4/2011	9:43:38 AM	12916968.21	292094.05	838.8584	0.0303	0.0363	0.0473	4.4	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
10.57T-C-03	Transect	5/4/2011	9:49:23 AM	12916909.58	292063.50	838.8511	0.0399	0.0521	0.0656	0.8	0.1	0.2	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Gravel		
10.65N-C-01	Focus	5/4/2011	1:22:44 PM	12916822.21	292351.58	838.6735	0.1761	0.2743	0.3259	1.4	0.4	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand		NEAR INLET ENTRAN
10.65N-C-02	Focus	5/4/2011	1:27:56 PM	12916781.96	292392.13	843.5829	1.1674	1.9487	2.2716	1.7	0.4	0.4	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		NEAR INLET ENTRAN
10.65N-C-03	Focus	5/4/2011	1:31:34 PM	12916746.90	292449.99	842.1512	1.7964	3.558	3.9857	2.1	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
10.65N-C-04	Focus	5/4/2011	1:33:22 PM	12916741.10	292494.16	838.2664	0.0239	0.0438	0.0499	1.5	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
10.65N-C-05	Focus	5/4/2011	1:36:28 PM	12916666.52	292542.70	838.4891	0.0339	0.0591	0.0681	1.7	0.3	0.4	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		
10.65N-C-06	Focus	5/4/2011	1:40:09 PM	12916636.50	292658.33	838.5106	0.0515	0.087	0.1011	1.4	0.5	0.7	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
10.65T-C-01	Transect	5/4/2011	11:27:11 AM	12916602.76	292285.75	839.7536	1.8769	2.513	3.1365	1.3	0.6	0.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
10.65T-C-02	Transect	5/4/2011	11:30:56 AM	12916634.54	292350.20	838.5043	0.0263	0.0446	0.0518	2.1	0.2	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
10.65T-C-03	Transect	5/4/2011	11:33:35 AM	12916692.61	292410.17	838.4959	0.0421	0.0747	0.0858	1.3	0.5	0.7	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Silt over Sand		
10.71T-C-01	Transect	5/4/2011	1:50:43 PM	12916592.60	292734.49	840.1282	1.4086	2.5842	2.9431	1.7	0.6	0.7	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
10.71T-C-02	Transect	5/4/2011	1:54:13 PM	12916533.42	292721.43	838.2245	0.0427	0.0807	0.0913	1.9	0.4	0.5	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
10.71T-C-03	Transect	5/4/2011	1:56:23 PM	12916482.17	292710.46	838.2123	0.0401	0.0734	0.0837	2.2	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
10.71T-C-04	Transect	5/4/2011	1:58:23 PM	12916430.24	292686.89	838.6907	0.0571	0.1034	0.1181	2.5	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		EPA-C-0285 SCAT
10.75L2-C-01	Focus	5/4/2011	9:53:44 AM	12916877.99	292075.78	838.6611	0.0506	0.0687	0.0853	0.3	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		ENTANCE TO SIDE C
10.75L2-C-02	Focus	5/4/2011	10:00:51 AM	12916817.38	292081.39	839.5283	1.0994	1.8157	2.1226	0.6	0.3	0.5	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		SIDE CHANNEL
10.75L2-C-03	Focus	5/4/2011	10:06:16 AM	12916754.57	292096.62	838.6113	0.0398	0.0594	0.0715	1.9	0.7	0.8	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Silt over Sand		SIDE CHANNEL
10.75L2-C-04	Focus	5/4/2011	10:13:48 AM	12916715.50	292106.40	838.5079	0.034	0.0562	0.0656	0.8	0.8	1.0	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand		EXCAVATED AREA
10.75L2-C-05	Focus	5/4/2011	10:19:59 AM	12916645.48	292153.05	838.4288	0.0428	0.0747	0.0862	0.9	0.5	1.0	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	None	Silt over Sand		EXCAVATED AREA
10.75L2-C-06	Focus	5/4/2011	10:31:16 AM	12916619.29	292238.17	838.2625	0.0685	0.1773	0.1901	1.8	0.4	0.5	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	None	Silt over Sand		EXCAVATED AREA
10.75L2-C-07	Focus	5/4/2011	10:37:26 AM	12916640.73	292244.05	838.532	0.0268	0.0533	0.0597	1.6	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		EXCAVATED AREA
10.75L2-C-08	Focus	5/4/2011	10:40:47 AM	12916621.99	292226.36	838.6154	0.0349	0.0904	0.0969	1.8	0.6	0.8	Moderate	Heavy	Few	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		EXCAVATED AREA
10.75L2-C-09	Focus	5/4/2011	10:44:16 AM	12916637.36	292218.30	838.4624	0.0374	0.0748	0.0836	1.6	0.4	0.4	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		EXCAVATED AREA
10.75L2-C-10	Focus	5/4/2011	10:46:07 AM	12916616.17	292181.26	838.511	0.0256	0.0511	0.0572	2.0	1.2	1.5	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	None	Silt over Sand		PHOTO 732-727
10.75L2-C-11	Focus	5/4/2011	10:54:46 AM	12916650.95	292190.99	838.4754	0.0262	0.0515	0.0578	1.2	0.2	0.4	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
10.75L2-C-12	Focus	5/4/2011	10:57:18 AM	12916691.68	292162.91	838.5204	0.0409	0.0798	0.0897	1.4	0.5	0.5	Heavy	Heavy	Many	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		PHOTO 726-728
10.75L2-C-13	Focus	5/4/2011	11:03:52 AM	12916696.20	292120.45	838.3783	0.055	0.1138	0.1264	1.4	0.3	0.5	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Sand & Gravel	PHOTO 725	BASE OF TOWER
10.75L2-C-14	Focus	5/4/2011	11:08:27 AM	12916714.77	292149.65	838.7132	0.0528	0.1145	0.1261	1.8	0.2	0.3	Heavy	Heavy	Many	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		
10.75L2-C-15	Focus	5/4/2011	11:14:02 AM	12916763.25	292127.49	838.6869	0.0712	0.1375	0.1549	1.5	0.3	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		EDGE OF SAND BAR
MP 10.75-11.00																							
10.79T-C-01	Transect	5/7/2011	4:58:39 PM	12916340.24	293111.60	837.9466	0.0997	0.2372	0.2573	3.9	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1.7 FPS
10.79T-C-02	Transect	5/7/2011	5:02:10 PM	12916308.12	293085.94	838.2837	0.0434	0.0638	0.0771	2.9	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		2.1 FPS
10.79T-C-03	Transect	5/7/2011	5:04:33 PM	12916272.46	293052.37	838.1186	0.035	0.0496	0.0607	1.9	0.0	0.0	None	None	None	Left	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		1.8 FPS
10.8N-C-01	Focus	5/4/2011	2:46:20 PM	12916317.94	293228.38	838.3059	2.0735	3.0835	3.7158	1.4	2.0	3.8	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	None	Soft Sediment		COVE
10.8N-C-02	Focus	5/4/2011	2:53:57 PM	12916299.01	293222.63	840.5625	1.4517	2.6651	3.0348	1.5	2.0	2.1	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Silt over Sand		COVE
10.8N-C-03	Focus	5/4/2011	2:59:29 PM	12916278.05	293195.31	841.8217	1.4509	2.7499	3.1092	1.5	1.7	3.8	Moderate	Moderate	Common	Right	<1ft/sec		Other-Comments	None	Soft Sediment		COVE
10.8N-C-04	Focus	5/4/2011	3:03:21 PM	12916249.38	293171.42	847.3652	2.6828	4.6689	5.3848	4.1	0.6	0.6	None	None	None	Right	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		OUTSIDE COVE
10.8N-C-05	Focus	5/4/2011	3:09:25 PM	12916257.31	293182.39	846.9996	1.7563	2.6508	3.1798	1.7	1.9	2.6	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Soft Sediment		COVE MOUTH
10.8S-C-01	Focus	5/4/2011	2:10:33 PM	12916253.46	292976.25	836.2093	2.07	3.3735	3.958	1.5	0.0	0.0	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Gravel & Larger		
10.8S-C-02	Focus	5/4/2011	2:13:47 PM	12916222.96	292997.88	838.2993	0.0442	0.0784	0.09	0.8	0.0	0.0	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Gravel & Larger		
10.8S-C-03	Focus	5/4/2011	2:17:09 PM	12916212.13	293022.54	842.8405	1.4202	2.4309	2.8154	0.3	1.0	1.7	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		
10.8S-C-04	Focus	5/4/2011	2:21:13 PM	12916181.71	293055.58	842.912	2.9218	5.6548	6.365	0.9	0.7	0.8	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
10.8S-C-05	Focus	5/4/2011	2:30:39 PM	12916120.00	293045.28	838.3462	0.0668	0.1106	0.1292	1.3	0.7	0.8	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
10.8S-C-06	Focus	5/4/2011	2:35:51 PM	12916124.89	293115.31	838.2207	0.0329	0.0513	0.0609	1.3	0.2	0.8	None	None	None	Center	<1ft/sec		Downstrm Island	None	Silt over Sand		
10.8S-C-07	Focus	5/4/2011	2:38:41 PM	12916081.04	293073.26	838.1046	0.118	0.1753	0.2113	1.3	1.2	1.7	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
10.89T-C-01	Transect	5/4/2011	3:28:02 PM	12916052.87	293425.52	838.5934	0.2004	0.2342	0.3083	3.5	0.5	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
10.89T-C-02	Transect	5/4/2011	3:32:42 PM	12915990.03	293398.79	838.1445	0.0273	0.0479	0.0551	2.7	0.0	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
10.89T-C-03	Transect	5/4/2011	3:34:28 PM	12915932.81	293350.26	837.9921	1.5081	1.9328	2.4516	2.9	0.3	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
10.95N-C-01	Focus	5/4/2011	3:50:34 PM	12915719.01	293810.10	838.0077	0.0358	0.0705	0.079	2.4	0.5	0.6	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
10.95N-C-02	Focus	5/4/2011	3:52:43 PM	12915757.44	293803.37	837.6815	0.0734	0.2639	0.2739	2.4	0.3	0.4	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		END OF T10.97T
10.95N-C-03	Focus	5/4/2011	3:55:25 PM	12915809.03	293800.21	838.0123	0.0517	0.1038	0.116	2.5	0.4	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
10.97T-C-01	Transect	5/4/2011	3:42:42 PM	12915701.55	293692.49	839.5146	1.6859	2.78	3.2512	2.0	0.4	0.7	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
10.97T-C-02	Transect	5/4/2011	3:47:39 PM	12915719.10	293724.27	838.1113	0.0368	0.0808	0.0888	2.8	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
MP 11.00-11.25																							
11.0N-C-01	Focus	5/4/2011	4:08:20 PM	12915564.81	293931.96	852.692	5.7935	14.5838	15.6925	0.5	0.7	1.5	None	None	None	Other-Comments	<1ft/sec		Strt Channel Edg	None	Soft Sediment		INLET
11.0N-C-02	Focus	5/4/2011	4:11:52 PM	12915589.10	293921.92	837.0336	1.3259	3.546	3.7858	0.3	0.8	1.2	Light	Light	Few	Other-Comments	<1ft/sec		Strt Channel Edg	None	Soft Sediment	BY RED STAKE	INLET
11.0N-C-03	Focus	5/4/2011	4:18:54 PM	12915456.54	294018.88	837.4217	0.0647	0.2341	0.2429	2.6	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		INLET EXIT
11.0N-C-04	Focus	5/4/2011	4:21:48 PM	12915508.42	293997.05	834.883	1.4073	4.9342	5.131	1.8	0.3	0.4	None	None	None	Right	<1ft/sec		Downstrm Island	None	Sand & Silt		INLET EXIT
11.0N-C-05	Focus	5/4/2011	4:38:25 PM	12915536.09	293988.88	847.6685	17.2265	52.4823	55.2371	2.1	0.2	0.3	None	None	None	Island	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		INLET MOUTH
11.0N-C-06	Focus	5/5/2011	9:00:13 AM	12915533.89	293949.97	844.7763	1.818	2.5434	3.1263	1.4	0.1	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	<5%	Silt over Sand		0.9 VEL
11.05T-C-01	Transect	5/4/2011	4:47:50 PM	12915381.27	294072.73	837.8827	0.0737	0.1578	0.1741	1.8	0.9	1.0	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
11.05T-C-02	Transect	5/4/2011	4:50:55 PM	12915324.40	294035.85	837.856	0.0261	0.0486	0.0552	4.1	0.2	0.3	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
11.05T-C-03	Transect	5/4/2011	4:53:47 PM	12915294.59	293994.92	837.7173	0.0523	0.0957	0.109	2.9	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
11.11T-C-01	Transect	5/5/2011	9:11:56 AM	12915125.98	294185.82	837.3687	0.1079	0.0978	0.1456	0.8	0.6	0.9	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		0.6 VEL
11.11T-C-02	Transect	5/5/2011	9:18:03 AM	12915143.74	294122.76	837.3992	0.0652	0.077	0.1008	3.6	0.5	0.6	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		3 VEL
11.11T-C-03	Transect	5/5/2011	9:21:51 AM	12915096.05	294072.89	837.2978	0.0704	0.09	0.1143	1.8	0.6	0.8	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		0.4 VEL
11.16T-C-01	Transect	5/5/2011	9:29:42 AM	12914846.37	294110.75	837.0419	0.0891	0.0993	0.1334	1.8	0.1	0.2	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Gravel		0.7 VEL
11.16T-C-02	Transect	5/5/2011	9:36:43 AM	12914815.18	294161.96	837.2157	0.132	0.1448	0.1959	3.2	0.2	0.6	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		3.0 VEL
11.16T-C-03	Transect	5/5/2011	9:40:34 AM	12914782.06	294225.73	837.2454	0.0748	0.1466	0.1646	3.8	0.5	0.6	None	None	None	Right	<1ft/sec		Cut Bank	<5%	Sand & Gravel		0.5 VEL
11.2S-C-01	Focus	5/5/2011	10:05:52 AM	12914638.90	293995.88	850.7508	1.8635	3.8392	4.2676	1.9	0.2	0.5	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		2.8 VEL
11.2S-C-02	Focus	5/5/2011	10:14:55 AM	12914590.59	294003.04	835.9372	1.2936	2.5156	2.8287	0.3	0.6	3.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		
11.2S-C-03	Focus	5/5/2011	10:20:08 AM	12914700.26	294075.12	836.9937	0.0236	0.0423	0.0484	1.5	0.4	0.5	None	None	None	Island	>3 ft/sec		Downstrm Island	None	Sand & Silt		1.0 VEL
11.2S-C-04	Focus	5/5/2011	10:21:54 AM	12914770.43	294089.71	836.8019	0.0284	0.0573	0.0639	2.6	0.4	0.6	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		1.9 VEL
11.24T-C-01	Transect	5/5/2011	10:30:12 AM	12914572.91	293896.15	833.1176	1.123	2.0823	2.3658	0.7	0.4	1.1	None	None	None	Left	<1ft/sec		Point Bar	<5%	Silt over Sand		0.2 VEL
11.24T-C-02	Transect	5/5/2011	10:35:14 AM	12914537.08	293941.26	836.9576	0.0355	0.0706	0.0791	2.5	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1.4 VEL
11.24T-C-03	Transect	5/5/2011	10:38:04 AM	12914509.72	294003.34	836.4527	0.1661	0.5009	0.5278	4.0	0.2	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	<5%	Sand & Gravel		2.5 VEL
MP 11.25-11.50																							
11.28T-B-01	Transect	5/4/2011	2:54:02 PM	12914310.75	293899.58	853.8885	3.3722	5.7929	6.7029	1.5	0.1	0.3	None	None	None	Left	<1ft/sec		Cut Bank	5%-25%	Sand & Silt		BAD POS/WT 56.4
11.28T-B-02	Transect	5/4/2011	3:03:10 PM	12914397.44	293964.83	831.9219	3.0628	4.0855	5.1061	1.0	0.3	0.7	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		BAD POS
11.28T-D-01	Transect	5/7/2011	4:25:49 PM	12914374.47	293935.80	836.6789	0.1514	0.145	0.2097	3.5	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
11.34T-B-01	Transect	5/4/2011	3:15:02 PM	12914306.13	294238.82	839.7135	2.2755	4.1285	4.7141	2.0	0.2	1.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Silt		
11.34T-B-02	Transect	5/4/2011	3:25:41 PM	12914533.63	294205.49	837.317	1.7354	2.9507	3.4232	0.3	0.7	0.8	None	None	None	Right	<1ft/sec		Other-Comments	None	Sand		BCK CHNL OUTLT
11.34T-D-01	Transect	5/7/2011	4:28:52 PM	12914499.08	294226.56	834.4747	2.5601	2.6485	3.6835	1.1	0.1	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
11.4S-B-01	Focus	5/4/2011	3:40:33 PM	12914448.74	294371.98	831.8721	2.0878	3.9493	4.4672	1.7	0.5	0.5	None	None	None	Island	<1ft/sec		Downstrm Island	25%-50%	Sand & Silt		
11.4S-B-02	Focus	5/4/2011	3:49:00 PM	12914382.17	294296.82	853.9806	3.9828	7.6338	8.6103	1.7	0.2	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		BAD POS
11.4S-B-03	Focus	5/4/2011	3:54:18 PM	12914461.62	294317.97	850.1349	4.7579	8.9523	10.1381	1.3	0.1	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		BAD POS/ BN ISLE
11.4S-B-04	Focus	5/4/2011	3:59:34 PM	12914489.71	294338.88	850.9675	2.2801	3.8662	4.4884	1.5	0.0	0.0	None	None	None	Island	<1ft/sec		Downstrm Island		Sand & Gravel		INVALID
11.4S-B-05	Focus	5/4/2011	4:04:45 PM	12914500.98	294327.67	837.6313	1.794	3.3734	3.8208	1.8	0.1	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		
11.4S-B-06	Focus	5/4/2011	4:19:01 PM	12914400.59	294438.13	851.4795	2.0606	4.1612	4.6434	1.1	0.1	1.1	None	None	None	Left	<1ft/sec		Cut Bank	None	Soft Sediment	LT SHEEN ON BANK	
11.4S-B-07	Focus	5/4/2011	4:25:57 PM	12914326.11	294430.35	879.8572	3.9013	10.2969	11.0112	0.2	0.4	1.9	None	None	None	Left	No		Cut Bank	None	Soft Sediment		BAD POS
11.4S-B-08	Focus	5/4/2011	4:33:33 PM	12914295.61	294320.69	843.7667	3.5002	10.4503	11.0209	1.2	0.8	1.6	None	None	None	Left	<1ft/sec		Cut Bank	5%-25%	Sand & Silt		BAD POS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
11.4S-B-09	Focus	5/4/2011	4:47:36 PM	12914501.84	294461.48	837.2924	3.9562	8.7839	9.6337	1.2	0.3	0.6	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Silt		BAD POS
11.41T-B-01	Transect	5/4/2011	4:42:01 PM	12914486.73	294512.29	884.764	18.8515	25.1883	31.4616	0.2	0.2	1.0	None	None	None	Left	<1ft/sec		Cut Bank	25%-50%	Soft Sediment		BCK EDDY/ BADPOS
11.41T-B-02	Transect	5/5/2011	9:16:00 AM	12914712.39	294487.59	835.7692	4.736	2.2507	5.2436	2.5	0.1	0.1	None	None	None	Right	<1ft/sec		Cut Bank	5%-25%	Sand		BHND BM/BADPOS
11.41T-D-01	Transect	5/7/2011	4:16:12 PM	12914618.72	294413.57	834.2564	1.521	3.1631	3.5098	1.9	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
11.44T-B-01	Transect	5/4/2011	4:53:55 PM	12914581.08	294702.45	844.6655	3.1036	6.522	7.2228	1.4	0.5	0.7	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Silt		BAD POS
11.44T-B-02	Transect	5/5/2011	9:25:00 AM	12914765.41	294651.97	830.0782	6.2669	5.4755	8.322	1.4	0.2	0.3	None	None	None	Right	No		Cut Bank	None	Soft Sediment		BHD BM/BADPOS
11.44T-B-03	Transect	5/5/2011	9:41:00 AM	12914669.21	294620.67	831.7487	9.6372	12.2684	15.6009	2.8	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		BAD POS
MP 11.50-11.75																							
11.51T-D-01	Transect	5/7/2011	3:56:58 PM	12914609.63	295034.92	840.588	2.038	5.0668	5.4613	3.4	0.4	0.5	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
11.51T-D-02	Transect	5/7/2011	4:03:08 PM	12914561.10	295008.27	836.1228	0.038	0.1087	0.1151	3.0	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
11.51T-D-03	Transect	5/7/2011	4:07:46 PM	12914524.76	294965.10	840.34	2.0231	3.1299	3.7268	2.0	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
11.53T-B-01	Transect	5/5/2011	9:52:00 AM	12914494.00	295140.96	846.2322	2.5675	3.7232	4.5226	1.7	0.3	0.5	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Soft Sediment		BAD POS
11.53T-B-02	Transect	5/5/2011	10:06:00 AM	12914518.41	295031.12	835.2109	0.062	0.0749	0.0973	2.6	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
11.53T-B-03	Transect	5/5/2011	10:24:00 AM	12914409.19	295019.89	835.365	0.144	0.4174	0.4415	0.5	0.3	1.5	None	None	None	Left	<1ft/sec		Point Bar	None	Soft Sediment		
11.60T-B-01	Transect	5/5/2011	11:00:00 AM	12914258.66	295334.90	835.4254	0.0951	0.1423	0.1712	0.9	0.4	0.5	None	None	None	Left	<1ft/sec		Cut Bank	None	Soft Sediment		
11.60T-B-02	Transect	5/5/2011	11:40:00 AM	12914322.69	295332.65	835.5005	0.1224	0.1632	0.204							Center							data coming, don't delete
11.60T-D-03	Transect	5/7/2011	3:33:56 PM	12914348.77	295265.24	837.1334	2.1084	3.1018	3.7505	2.8	0.1	0.2	Light	Light	Few	Right	>3 ft/sec		Mid-Channel	None	Sand & Gravel		AQUADAMATPOINT
11.63T-B-01	Transect	5/5/2011	11:13:00 AM	12914297.40	295440.43	861.7215	4.489	8.3991	9.5234	1.2	0.3	0.3	None	None	None	Left	<1ft/sec		Point Bar	None	Other-Comments		SI/SA OVR GR
11.63T-B-02	Transect	5/5/2011	11:33:00 AM	12914454.92	295441.99	828.9309	4.8583	7.308	8.7755	1.2	0.1	0.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		BAD POS
11.63T-B-03	Transect	5/5/2011	11:37:00 AM	12914382.73	295454.47	837.9699	2.2641	2.9317	3.7042							Center							data coming, don't delete
11.67T-B-01	Transect	5/5/2011	11:17:00 AM	12914180.04	295579.59	834.7066	0.0665	0.0892	0.1113	1.0	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
11.67T-D-01	Transect	5/7/2011	3:17:28 PM	12914250.54	295645.88	833.8341	2.7733	2.2586	3.5767	3.5	0.0	0.0	None	None	None	Right	>3 ft/sec		Cut Bank	None	Gravel & Larger		
11.67T-D-02	Transect	5/7/2011	3:19:31 PM	12914249.74	295621.09	835.7818	1.5207	1.8432	2.3895	3.5	0.3	0.3	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
11.67T-D-03	Transect	5/7/2011	3:22:00 PM	12914263.29	295589.54	832.4534	3.4122	3.0475	4.575	0.9	0.1	0.2	None	None	None	Left	>3 ft/sec		Point Bar	None	Sand & Gravel		
11.75R1-B-03	Focus	5/5/2011	10:44:00 AM	12914441.03	295333.51	835.0706	0.0925	0.2362	0.2537	0.9	0.4	0.4	None	None	None	Right	No		Other-Comments	None	Soft Sediment	SEE LEADER	BACK EDDY
11.75R1-B-04	Focus	5/5/2011	10:49:00 AM	12914381.82	295317.31	835.5453	0.0367	0.0738	0.0824	2.0	0.1	0.2	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Sand & Gravel	DELINIATION	OUT OF BOOM
11.75R1-D-01	Focus	5/7/2011	2:58:34 PM	12914476.81	295350.54	843.533	3.7535	4.1795	5.6176	0.5	0.5	0.6	Light	Light	Few	Right	No		Other-Comments	None	Organic		BACCHAN
11.75R1-D-02	Focus	5/7/2011	3:04:55 PM	12914517.08	295311.70	841.49	3.4287	4.2121	5.4312	0.3	0.3	0.7	None	None	None	Right	No		Other-Comments	None	Organic		BACCHAN
11.75S-B-01	Focus	5/5/2011	1:58:00 PM	12913973.02	295442.72	834.8503	0.0604	0.12	0.1344	0.4	0.9	0.9	None	None	None	Left			Point Bar	5%-25%	Soft Sediment		
11.75S-B-02	Focus	5/5/2011	2:25:00 PM	12913950.27	295368.08	849.5395	8.1741	12.3885	14.8422	0.6	0.3	0.7	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		BAD POS
11.75S-B-03	Focus	5/5/2011	2:08:00 PM	12913948.24	295279.43	834.8143	0.0406	0.0851	0.0943	0.7	1.1	1.1	Light	Light	None	Left	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		TIRB ENTR
11.75S-D-04	Focus	5/7/2011	2:43:11 PM	12913922.80	295290.13	838.4298	2.1797	4.0583	4.6066	0.4	0.4	0.6	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		
11.75S-D-05	Focus	5/7/2011	2:46:50 PM	12913935.00	295360.04	837.4395	1.5174	2.6657	3.0673	0.6	0.0	0.8	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
11.756-B-06	Transect	5/5/2011	1:54:00 PM	12913958.35	295398.53	846.442	2.0177	4.0458	4.521	0.2	0.7	0.8	None	None	None	Left	<1ft/sec		Point Bar		Soft Sediment		
MP 11.75-12.00																							
11.77T-C-01	Transect	5/11/2011	3:30:55 PM	12913914.88	295230.83	834.5206	0.1124	0.1039	0.1531	0.7	0.8	2.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		POINT BAR UPSTREM AT MOUTH OF TRIB
11.77T-C-02	Transect	5/11/2011	3:37:11 PM	12913831.47	295358.50	835.1338	0.0729	0.1704	0.1853	2.7	0.0	0.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		FAST CURRENT
11.77T-C-03	Transect	5/11/2011	3:49:08 PM	12913864.31	295298.84	834.7656	0.0262	0.0848	0.0888	2.3	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
11.77T-C-04	Transect	5/11/2011	3:50:34 PM	12913898.60	295266.32	834.6975	0.0491	0.1626	0.1699	1.9	0.2	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
11.77T-C-05	Transect	5/11/2011	3:52:12 PM	12913922.24	295307.74	834.4849	0.0244	0.0827	0.0862	0.4	0.6	0.8	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand	HEAVY AREA EXTEND UPSTREAM INSIDE OF POINTBAR	
11.77T-C-06	Transect	5/11/2011	3:57:44 PM	12913854.55	295195.91	842.9926	1.7351	6.1013	6.3432	3.9	0.8	0.9	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand	SHEEN FLOATING BY	INSIDE OF POINTBR
11.8N-B-01	Focus	5/5/2011	2:49:00 PM	12913821.26	295373.55	841.0742	10.5639	10.3536	14.7917	0.8	0.3	0.4	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Sand & Gravel		SEL CHL BAD POS
11.8N-B-02	Focus	5/5/2011	2:55:00 PM	12913692.66	295272.64	834.4394	4.7138	5.5947	7.3158	0.7	0.2	0.2	Light	Light	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		BAD POS
11.8N-B-03	Focus	5/5/2011	2:58:00 PM	12913688.72	295275.19	835.0754	3.1667	3.8289	4.9687	0.1	0.4	0.4	Light	Light	None	Right	<1ft/sec		Point Bar	<5%	Sand & Silt		
11.8N-B-04	Focus	5/5/2011	3:15:00 PM	12913714.18	295233.21	831.3318	4.6011	6.3335	7.8284	0.9	0.4	0.4	Light	Light	Few	Island	<1ft/sec		Downstrm Island	<5%	Silt over Sand		BAD POS
11.8N-B-05	Focus	5/5/2011	3:33:00 PM	12913616.27	295293.08	862.1196	13.1927	23.3314	26.803	1.9	0.9	1.0	None	None	None	Island	1-3 ft/sec		Downstrm Island	5%-25%	Silt over Sand		BAD POS
11.81T-B-02	Transect	5/5/2011	3:20:00 PM	12913685.33	295234.07	834.3354	0.0342	0.0487	0.0595	1.6	0.3	2.0	Light	Light	None	Island	1-3 ft/sec		Downstrm Island	5%-25%	Soft Sediment		
11.81T-B-03	Transect	5/5/2011	4:22:00 PM	12913801.98	295172.55	837.2614	5.2187	5.1335	7.3203	3.5	0.5	0.7	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand over Silt	BAD POS	DWN TREE MVD UPS
11.81T-B-04	Transect	5/5/2011	3:02:00 PM	12913677.49	295277.36	836.7943	4.2289	5.2772	6.7626	0.5	0.2	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	<5%	Sand & Gravel		BAD POS
11.81T-C-01	Transect	5/11/2011	12:24:38 PM	12913676.49	295185.24	835.0597	1.2821	1.5419	2.0053	7.4	0.2	0.2	None	None	None	Left	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		TOO FAST, TOO HARD
11.88T-B-01	Transect	5/5/2011	3:43:00 PM	12913471.69	295474.09	838.4531	2.4693	3.4423	4.2363	1.1	0.2	0.2	Light	Light	None	Right	<1ft/sec		Point Bar	None	Sand & Silt		
11.88T-B-02	Transect	5/5/2011	4:02:00 PM	12913360.70	295502.71	860.1554	17.5042	26.4766	31.7397	1.1	0.2	0.2	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Silt		BAD POS
11.88T-D-03	Transect	5/7/2011	2:27:40 PM	12913395.90	295393.17	834.3161	0.0732	0.1316	0.1506	2.1	0.8	0.9	None	None	None	Left	>3 ft/sec		Cut Bank	None	Sand & Silt		
11.88T-D-04	Transect	5/7/2011	2:35:22 PM	12913443.36	295419.00	834.2635	0.0823	0.1497	0.1709	2.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
11.94T-B-01	Transect	5/5/2011	3:53:00 PM	12913233.32	295617.44	843.1126	6.7046	9.8603	11.9239	1.3	0.1	0.1	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
11.94T-D-02	Transect	5/7/2011	2:19:10 PM	12913291.93	295648.42	835.1466	1.6652	2.5839	3.074	3.5	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
11.94T-D-03	Transect	5/7/2011	2:15:16 PM	12913298.63	295683.17	834.7582	2.0174	3.867	4.3616	1.2	0.1	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Gravel & Larger		
MP 12.00-12.25																							
12.02T-C-01	Transect	5/11/2011	4:13:58 PM	12912864.39	295533.03	842.9628	1.9707	5.5743	5.9124	1.7	0.2	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		POOR GPS SIGNAL, TOO FAST
12.02T-C-02	Transect	5/11/2011	4:15:09 PM	12912863.62	295570.74	833.1961	0.0564	0.1553	0.1653	3.1	0.0	0.0				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Silt		NO OBSERVATION, CURRENT TOO FAST, HARD BOTTOM
12.02T-C-03	Transect	5/11/2011	4:15:49 PM	12912861.05	295616.26	832.9914	0.083	0.1489	0.1704	1.9	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		HARD BOTTOM, FAST CURRENT
12.08T-C-01	Transect	5/5/2011	12:23:35 PM	12912685.60	295335.40	833.1076	0.0435	0.0603	0.0744	1.6	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		2.8 VEL
12.08T-C-02	Transect	5/5/2011	12:29:51 PM	12912650.35	295341.86	833.0367	0.0617	0.0748	0.097	3.2	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		4.6 VEL
12.08T-C-03	Transect	5/5/2011	12:32:51 PM	12912611.57	295343.03	838.8203	3.4245	5.3609	6.3614	2.1	0.0	0.0	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Gravel & Larger		2.2 VEL
12.16T-C-01	Transect	5/5/2011	12:39:36 PM	12912711.98	294942.82	832.7998	0.0648	0.1045	0.123	2.2	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1.9 VEL
12.16T-C-02	Transect	5/5/2011	12:43:17 PM	12912668.74	294927.42	833.0811	0.0396	0.0556	0.0683	2.9	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		4.0 VEL
12.16T-C-03	Transect	5/5/2011	12:45:48 PM	12912620.74	294919.25	832.9915	1.8122	2.6779	3.2335	1.8	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1.8 VEL
12.22T-C-01	Transect	5/5/2011	12:55:39 PM	12912662.59	294533.63	833.8781	1.5503	2.4591	2.907	1.7	0.2	0.3	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Gravel		0.8 VEL
12.22T-C-02	Transect	5/5/2011	12:58:44 PM	12912634.92	294563.25	832.8301	0.0506	0.0761	0.0914	3.8	0.3	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		4.0 VEL
12.22T-C-03	Transect	5/5/2011	1:01:15 PM	12912601.11	294613.23	832.7424	0.0691	0.1055	0.1261	1.8	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		1.1 VEL
RRBR-C-01	Bridge	5/5/2011	11:11:26 AM	12912776.86	295557.82	838.4312	1.5083	2.7644	3.1491	1.1	0.1	0.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel	UPSTREAM	0.1 VEL
RRBR-C-02	Bridge	5/5/2011	11:15:16 AM	12912720.28	295517.40	829.9904	4.3563	11.3615	12.1681	0.9	0.2	0.3	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel	DNSTR OF STRUC	0.7 VEL

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
RRBR-C-03	Bridge	5/5/2011	11:18:22 AM	12912683.93	295478.32	833.0782	1.7651	2.3582	2.9456	1.2	0.1	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel	DWNSTR	1.6 VEL
RRBR-C-04	Bridge	5/5/2011	11:23:31 AM	12912713.33	295396.14	833.0156	0.0815	0.1903	0.207	1.5	0.2	0.2	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel	DWNSTR	2.0 VEL
RRBR-C-05	Bridge	5/5/2011	11:30:15 AM	12912785.45	295450.77	834.7748	2.0163	4.0661	4.5386	1.5	0.4	0.5	None	None	None	Left	<1ft/sec		Point Bar	None	Sand	UPSTR	0.6 VEL
MP 12.25-12.50																							
12.29T-C-01	Transect	5/5/2011	1:05:33 PM	12912440.25	294357.89	831.5931	1.4407	2.025	2.4852	1.6	0.1	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		0 VEL
12.29T-C-02	Transect	5/5/2011	1:10:59 PM	12912408.49	294395.65	831.9711	0.1626	0.2619	0.3082	3.7	0.0	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		5 VEL
12.29T-C-03	Transect	5/5/2011	1:13:33 PM	12912374.08	294454.20	832.3661	0.0525	0.0774	0.0935	0.9	1.0	1.2	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.2 VEL
12.29T-C-04	Transect	5/5/2011	1:24:28 PM	12912369.15	294454.31	832.3653	0.0388	0.0583	0.0701	1.1	0.3	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0 VEL
12.35S-C-01	Focus	5/5/2011	1:35:07 PM	12912293.28	294240.56	832.3459	0.0325	0.0564	0.0651	1.0	0.9	1.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		1.5 VEL
12.35S-C-02	Focus	5/5/2011	1:39:13 PM	12912259.67	294220.33	834.0562	1.4919	2.6186	3.0138	1.4	0.1	0.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		1.5 VEL
12.35S-C-03	Focus	5/5/2011	1:44:00 PM	12912213.90	294193.12	836.5699	1.2142	2.3647	2.6582	0.9	0.4	0.6	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.8 VEL
12.35S-C-04	Focus	5/5/2011	1:49:09 PM	12912320.53	294277.36	832.4568	0.0484	0.0885	0.1009	0.2	0.4	1.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		0.9 VEL
12.35T-C-01	Transect	5/5/2011	2:02:07 PM	12912127.67	294178.97	834.8791	1.6611	3.1187	3.5335	1.8	0.1	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		1.7 VEL
12.35T-C-02	Transect	5/5/2011	2:06:04 PM	12912095.45	294202.45	831.528	0.8579	1.6787	1.8852	3.3	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		3.8 VEL
12.35T-C-03	Transect	5/5/2011	2:08:52 PM	12912071.88	294256.08	836.5687	1.1051	2.1642	2.43	1.5	0.2	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1.0 VEL
12.40T-C-01	Transect	5/5/2011	2:16:18 PM	12911967.52	294015.89	825.2622	3.8965	7.0383	8.0449	3.8	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.6 VEL
12.40T-C-02	Transect	5/5/2011	2:36:07 PM	12911927.26	294075.78	831.2837	1.1274	1.6375	1.9881	2.3	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		3.3 VEL
12.40T-C-03	Transect	5/5/2011	2:39:11 PM	12911914.98	294169.82	833.5553	2.6794	3.9039	4.7349	1.1	0.5	0.7	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		0.6 VEL
12.45T-C-01	Transect	5/5/2011	2:28:42 PM	12911754.50	293889.73	831.9194	0.0751	0.082	0.1112	1.7	0.2	0.7	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Gravel		0.6 VEL
12.45T-C-02	Transect	5/5/2011	2:44:13 PM	12911738.80	293928.85	832.0226	0.0377	0.0549	0.0666	3.6	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		5 VEL
12.45T-C-03	Transect	5/5/2011	2:46:29 PM	12911720.68	293955.14	832.4447	0.2547	0.176	0.3096	1.1	0.6	0.7	None	None	None	Right	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		1.9 VEL
12.5-C-01	Focus	5/6/2011	9:13:36 AM	12911073.95	293552.49	830.7044	0.0377	0.045	0.0586	1.4	0.9	1.0	None	None	None	Left	<1ft/sec		Oxbow	None	Silt over Sand		0.2 FPS
12.5-C-02	Focus	5/6/2011	9:26:19 AM	12911213.50	293683.97	830.8817	0.0566	0.0683	0.0886	2.6	0.5	0.6	None	None	None	Left	<1ft/sec		Oxbow	<5%	Silt over Sand		1.0 FPS
12.5-C-03	Focus	5/6/2011	9:32:25 AM	12911048.75	293597.24	830.8158	0.0553	0.061	0.0823	1.2	0.5	0.6	None	None	None	Center	<1ft/sec		Oxbow	None	Sand		1.1 FPS
12.5-C-04	Focus	5/6/2011	9:36:19 AM	12911058.93	293674.92	830.6081	0.0723	0.1414	0.1588	0.5	0.5	0.7	Light	Light	Few	Right	No		Oxbow	<5%	Silt over Sand		NO FLOW OBS
12.5-C-05	Focus	5/6/2011	9:43:32 AM	12911195.95	293720.84	830.8007	0.0323	0.043	0.0538	0.9	0.7	0.9	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand		2.2 FPS
12.5-C-06	Focus	5/6/2011	9:47:05 AM	12911227.55	293899.24	830.7342	0.0523	0.0801	0.0957	0.8	0.9	0.9	Heavy	Heavy	Many	Right	<1ft/sec		Oxbow	<5%	Silt over Sand	PHOTO 54-55	0.2 FPS
12.5-C-07	Focus	5/6/2011	9:54:49 AM	12911182.90	293823.88	830.6763	0.0373	0.0563	0.0675	0.8	0.3	0.4	None	None	None	Right	<1ft/sec		Oxbow	None	Sand & Gravel		0.5 FPS
12.5-C-08	Focus	5/6/2011	10:10:54 AM	12911253.45	293862.43	830.8363	0.0327	0.0598	0.0681	1.0	0.3	0.5	None	None	None	Center	<1ft/sec		Oxbow	<5%	Silt over Sand		0.2 FPS
12.5-C-09	Focus	5/6/2011	10:16:01 AM	12911269.67	293934.69	830.7517	0.0331	0.063	0.0711	0.7	0.6	0.7	Light	Light	Few	Right	<1ft/sec		Oxbow	<5%	Silt over Sand		0.2 FPS
12.5-C-10	Focus	5/6/2011	10:24:20 AM	12911284.42	294025.51	830.4721	0.0567	0.1225	0.135	0.6	0.7	0.7	None	None	None	Right	<1ft/sec		Oxbow	None	Silt over Sand		0.8 FPS
12.5-C-11	Focus	5/6/2011	10:30:48 AM	12911371.21	294034.30	830.8288	0.0517	0.1097	0.1213	0.9	0.4	0.5	Heavy	Heavy	Many	Left	<1ft/sec		Oxbow	None	Silt over Sand		0.4 FPS
12.5-C-12	Focus	5/6/2011	10:37:24 AM	12911361.29	294034.62	830.7074	0.0537	0.1166	0.1283	1.6	0.2	0.2	None	None	None	Left	1-3 ft/sec		Oxbow	None	Gravel & Larger	PHOTOS 56-57	2.5 FPS
12.5-C-13	Focus	5/6/2011	10:42:42 AM	12911375.48	293983.23	830.8926	0.0338	0.0751	0.0824	0.4	1.2	1.3	None	None	None	Left	<1ft/sec		Oxbow	<5%	Silt over Sand		0.3 FPS
12.5-C-14	Focus	5/6/2011	10:48:26 AM	12911286.07	294196.66	831.2735	0.0761	0.2108	0.2241	2.2	0.2	0.3	None	None	None	Right	1-3 ft/sec		Oxbow	None	Sand & Gravel		2.1 FPS
12.5-C-15	Focus	5/6/2011	10:53:10 AM	12911348.96	294201.50	831.0541	0.0686	0.1393	0.1553	0.4	0.2	0.4	None	None	None	Left	<1ft/sec		Oxbow	None	Sand		0.2 FPS
12.5-C-16	Focus	5/6/2011	10:57:42 AM	12911436.72	294290.37	831.1362	0.0668	0.1088	0.1277	0.5	0.4	0.5	None	None	None	Right	<1ft/sec		Oxbow	None	Sand		0.6 FPS
12.5-C-17	Focus	5/6/2011	11:05:35 AM	12911509.48	294274.01	831.2071	0.0437	0.079	0.0903	0.9	0.3	0.4	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand		2.3 VEL
12.5-C-18	Focus	5/6/2011	11:10:37 AM	12911624.35	294239.80	831.5432	0.0772	0.203	0.2172	0.6	0.3	0.4	None	None	None	Right	<1ft/sec		Oxbow	None	Silt over Sand		0.2 FPS
MP 12.50-12.75																							
12.58T-C-01	Transect	5/5/2011	3:10:05 PM	12911304.31	293340.38	835.4202	2.3349	3.9228	4.5652	2.1	0.2	0.3	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		1.5 VEL
12.58T-C-02	Transect	5/5/2011	3:14:52 PM	12911309.74	293376.94	829.3227	2.6663	3.598	4.4782	3.8	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		2.8 VEL
12.58T-C-03	Transect	5/5/2011	3:17:35 PM	12911294.36	293397.79	830.5215	0.9071	1.72	1.9446	2.0	0.7	0.9	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Silt		2.5 VEL
12.63T-C-01	Transect	5/5/2011	3:28:06 PM	12911048.59	293397.97	831.112	0.0435	0.0748	0.0865	0.6	0.0	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		NO FLOW
12.63T-C-02	Transect	5/5/2011	3:34:37 PM	12911049.65	293456.76	831.0049	0.0303	0.0583	0.0657	2.8	0.0	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		4.3 FPS
12.63T-C-03	Transect	5/5/2011	3:38:29 PM	12911040.98	293517.49	830.886	0.0324	0.06	0.0682	1.3	0.6	1.5	None	None	None	Right	No		Strt Channel Edg	None	Soft Sediment		NO FLOW
12.7N-C-01	Focus	5/5/2011	3:55:03 PM	12910660.80	293409.36	830.8236	0.0459	0.0934	0.1041	2.8	0.2	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.4 FPS
12.7N-C-02	Focus	5/5/2011	4:00:12 PM	12910638.15	293399.19	827.3436	0.0294	0.0565	0.0636	2.5	0.6	0.8	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.4 FPS
12.7N-C-03	Focus	5/5/2011	4:04:05 PM	12910611.22	293378.44	830.7744	0.0394	0.0822	0.0911	3.5	0.3	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		1.0 FPS
12.7N-C-04	Focus	5/5/2011	4:08:00 PM	12910563.43	293325.55	832.0101	0.9974	2.1384	2.3596	4.0	0.4	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand	TIE TO 12.72T	0.8 FPS
12.7N-D-05	Focus	5/7/2011	1:56:54 PM	12910694.36	293434.53	830.781	0.0331	0.0638	0.0719	1.0	0.4	0.8	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
12.7S-C-01	Focus	5/6/2011	11:31:10 AM	12910808.96	293369.17	830.6049	0.0385	0.0591	0.0706	1.6	1.1	1.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.2 FPS
12.7S-C-02	Focus	5/6/2011	11:35:50 AM	12910786.02	293360.59	833.0738	1.4071	1.8169	2.2981	1.7	0.6	0.8	None	None	None	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.3 FPS
12.7S-C-03	Focus	5/6/2011	11:39:58 AM	12910860.52	293376.86	828.8695	2.652	4.2286	4.9914	0.3	0.4	0.6	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.2 FPS
12.72T-C-02	Transect	5/5/2011	4:12:24 PM	12910595.93	293299.72	830.7406	0.0298	0.1076	0.1116	3.5	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		2.9 FPS
12.72T-C-03	Transect	5/5/2011	4:16:08 PM	12910628.37	293221.25	830.8685	0.0352	0.1263	0.1311	1.7	0.4	1.0	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		1.9 FPS
MP 12.75-13.00																							
12.76T-C-01	Transect	5/6/2011	12:16:41 PM	12910576.77	293101.04	822.627	9.6285	10.9794	14.6033	1.4	0.9	2.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		0.6 FPS
12.76T-C-02	Transect	5/6/2011	12:20:35 PM	12910525.21	293109.64	830.4771	0.0873	0.1259	0.1532	2.7	0.2	0.2	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		3.0 FPS
12.76T-C-03	Transect	5/6/2011	12:23:28 PM	12910481.35	293160.18	830.652	0.1415	0.1859	0.2336	1.4	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		2.2 FPS
12.82T-C-01	Transect	5/11/2011	11:46:31 AM	12910321.60	292886.43	835.3307	2.2888	3.9453	4.5612	1.8	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
12.82T-C-01	Transect	5/6/2011	12:29:48 PM	12910224.89	292821.26	825.9351	7.9564	7.7527	11.109	1.6	0.4	0.7	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1.4 FPS
12.82T-C-02	Transect	5/11/2011	11:53:01 AM	12910276.77	292939.43	829.9034	0.1355	0.2074	0.2477	1.6	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	<5%	Sand & Gravel		
12.82T-C-02	Transect	5/6/2011	12:34:48 PM	12910171.75	292845.68	830.3785	0.1381	0.1943	0.2383	3.0	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		3.3 FPS
12.82T-C-03	Transect	5/11/2011	11:56:25 AM	12910293.37	292906.63	830.4074	0.0546	0.0791	0.0961	3.7	0.0	0.0				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO FAST, HARD BOTTOM
12.82T-C-03	Transect	5/6/2011	12:36:49 PM	12910163.70	292894.33	830.2376	0.2018	0.2909	0.3541	2.4	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1.9 FPS
12.91T-C-03	Transect	5/6/2011	12:50:19 PM	12909884.85	292674.25	828.8616	1.3135	1.6149	2.0817	1.6	0.5	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		1.3 FPS
12.91T-C-01	Transect	5/6/2011	12:42:15 PM	12909975.33	292634.80	831.4051	3.5484	2.6192	4.4104	1.5	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		2.6 FPS
12.91T-C-02	Transect	5/6/2011	12:48:08 PM	12909922.80	292638.56	830.1525	0.0396	0.0401	0.0563	3.1	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		LESS THAN 3
MP 13.00-13.25																							
13.01T-C-01	Transect	5/6/2011	12:57:07 PM	12909555.38	292385.30	829.6902	0.0269	0.0359	0.0448	3.2	0.1	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1.5 FPS
13.01T-C-02	Transect	5/6/2011	1:00:33 PM	12909598.54	292341.93	829.7014	0.044	0.0606	0.0749	2.9	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		3.0 FPS
13.01T-C-03	Transect	5/6/2011	1:02:41 PM	12909629.76	292301.64	829.953	1.0497	1.4301	1.774	2.2	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1.5 FPS
13.09T-C-03	Transect	5/6/2011	1:21:46 PM	12909149.72	292210.63	829.5497	0.0577	0.0983	0.1139	2.0	0.7	0.9	None	None	None	Right	<1ft/sec		Oxbow	None	Soft Sediment		1.9 FPS
13.09T-C-01	Transect	5/6/2011	1:13:39 PM	12909144.20	292076.96	829.8456	0.0543	0.0835	0.0996	0.8	0.6	0.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		LOW VEL
13.09T-C-02	Transect	5/6/2011	1:19:42 PM	12909106.72	292137.48	829.5485	0.0464	0.0667	0.0812	2.9	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		3.0 FPS
13.14T-C-01	Transect	5/11/2011	11:31:24 AM	12908869.73	292158.32	829.1826	0.0557	0.081	0.0983	2.5	0.3	0.5	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
13.14T-C-02	Transect	5/11/2011	11:36:25 AM	12908893.38	292253.25	829.4162	0.0496	0.0725	0.0879	1.4	1.2	2.5	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Soft Sediment		
13.14T-C-02	Transect	5/6/2011	1:57:23 PM	12908824.11	292248.89	829.4762	0.0456	0.0858	0.0971	4.0	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		3.4 FPS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
13.14T-C-03	Transect	5/11/2011	11:39:23 AM	12908884.20	292200.58	829.2286	0.0617	0.0917	0.1105	3.1	0.2	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
13.14T-C-03	Transect	5/6/2011	1:59:18 PM	12908793.99	292211.51	829.517	0.0586	0.0876	0.1054	2.7	0.3	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		2.0 FPS
13.15N-C-01	Focus	5/6/2011	1:29:34 PM	12909063.69	292199.95	829.7895	0.0284	0.046	0.054	2.3	1.0	1.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		1.7 FPS
13.15N-C-02	Focus	5/6/2011	1:37:21 PM	12909015.85	292200.49	829.4317	0.0378	0.0652	0.0754	2.7	0.3	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
13.15N-C-03	Focus	5/6/2011	1:44:02 PM	12908941.45	292223.42	829.4734	0.0291	0.0531	0.0605	2.1	0.4	0.9	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		1.6 FPS
13.15N-C-04	Focus	5/6/2011	1:47:12 PM	12908849.17	292279.82	829.5231	0.043	0.0691	0.0814	2.3	0.4	0.9	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		1.5 FPS
13.15N-C-05	Focus	5/6/2011	2:02:31 PM	12908751.27	292388.89	829.4446	0.0318	0.0559	0.0643	2.0	0.4	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.5 FPS
13.20T-C-01	Transect	5/6/2011	2:14:14 PM	12908685.40	292504.63	829.2202	0.0934	0.1138	0.1472	2.4	1.3	1.5	None	None	None	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.6 FPS
13.20T-C-02	Transect	5/6/2011	2:18:16 PM	12908620.64	292481.72	829.5869	0.0308	0.0489	0.0578	3.3	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		2.3 FPS
13.20T-C-03	Transect	5/6/2011	2:20:18 PM	12908565.25	292446.98	829.6294	0.0478	0.0777	0.0912	1.0	0.4	1.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.6 FPS
13.24T-C-01	Transect	5/7/2011	9:16:49 AM	12908763.14	292764.08	829.3398	0.0478	0.0715	0.086	0.4	1.0	3.1	None	None	None	Right	No		Cut Bank	25%-50%	Soft Sediment		NO FLOW
13.24T-C-02	Transect	5/7/2011	9:26:28 AM	12908728.04	292737.18	829.2088	0.0763	0.1019	0.1273	0.5	1.0	3.0	None	None	None	Right	No		Cut Bank	25%-50%	Soft Sediment		NO FLOW
13.24T-C-03	Transect	5/7/2011	9:32:25 AM	12908676.92	292698.88	829.4227	0.0417	0.0526	0.0671	1.7	1.0	2.6	Moderate	Moderate	Common	Right	No		Cut Bank	25%-50%	Soft Sediment		NO FLOW
13.24T-C-04	Transect	5/7/2011	10:20:59 AM	12908563.43	292625.12	829.435	0.0228	0.0424	0.0482	3.1	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		2.0 FPS
13.24T-C-05	Transect	5/7/2011	10:26:15 AM	12908525.13	292517.96	829.3252	0.041	0.0857	0.095	2.1	0.7	0.8	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	<5%	Sand & Gravel		1.1 FPS
13.25N-C-01	Focus	5/7/2011	9:47:15 AM	12908675.61	292646.32	829.2455	0.0461	0.0621	0.0773	1.0	0.6	2.0	Light	Light	None	Right	No		Strt Channel Edg	5%-25%	Soft Sediment		NO FLOW
13.25N-C-02	Focus	5/7/2011	9:54:33 AM	12908650.34	292691.83	829.3659	0.0342	0.0551	0.0648	1.2	1.1	2.8	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	5%-25%	Soft Sediment		NO FLOW
13.25N-C-03	Focus	5/7/2011	9:59:06 AM	12908593.54	292719.22	820.3229	4.3632	6.2355	7.6104	3.6	0.4	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.6 FPS
13.25N-C-04	Focus	5/7/2011	10:17:22 AM	12908606.52	292692.35	829.3744	0.0373	0.0953	0.1023	2.2	0.7	0.9	None	None	None	Right	<1ft/sec		Mid-Channel	None	Silt over Sand		0.9 FPS
MP 13.25-13.50																							
13.38T-C-01	Transect	5/7/2011	10:40:13 AM	12907957.40	292523.19	830.3869	2.8288	4.2903	5.1389	3.1	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.6 FPS
13.38T-C-02	Transect	5/7/2011	10:59:51 AM	12908014.70	292489.80	829.0776	0.0329	0.0647	0.0726	3.1	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		3.1 FPS
13.38T-C-03	Transect	5/7/2011	11:01:48 AM	12908071.46	292480.76	828.9784	0.0226	0.0438	0.0493	1.4	1.3	1.8	None	None	None	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		1.0 FPS
13.45S-C-01	Focus	5/11/2011	10:33:15 AM	12907672.23	292150.41	828.6677	0.0487	0.0918	0.1039	3.4	0.3	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	SOME OIL IS COMING FROM UPSTREAM	SOME SED
13.45S-C-01	Focus	5/7/2011	12:39:33 PM	12907888.80	292213.00	828.9961	0.0442	0.0561	0.0715	3.3	0.7	1.7	None	None	None	Center	<1ft/sec		Mid-Channel	<5%	Soft Sediment		1.3 FPS
13.45S-C-02	Focus	5/11/2011	10:42:05 AM	12907728.25	292139.88	828.722	0.0463	0.0896	0.1009	3.5	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
13.45S-C-03	Focus	5/11/2011	10:47:46 AM	12907765.33	292133.28	828.7936	0.0635	0.121	0.1366	3.5	0.3	0.4	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
13.45S-C-04	Focus	5/11/2011	10:53:59 AM	12907851.93	292158.57	828.7396	0.0386	0.0697	0.0797	2.7	0.0	0.0	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
13.45S-C-05	Focus	5/11/2011	10:58:57 AM	12907849.79	292205.92	828.6931	0.0307	0.053	0.0613	2.6	0.2	0.3	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
13.45S-C-06	Focus	5/11/2011	11:02:17 AM	12907818.89	292209.61	828.5769	0.0342	0.0571	0.0665	2.9	0.2	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
13.45S-C-07	Focus	5/11/2011	11:04:47 AM	12907769.77	292179.32	828.6117	0.0351	0.0573	0.0672	4.5	0.1	0.2	Light	Light	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
13.45S-C-08	Focus	5/11/2011	11:06:55 AM	12907699.10	292181.30	828.7622	0.0456	0.0505	0.0681	3.7	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
13.45T-C-01	Transect	5/7/2011	12:28:38 PM	12907821.15	292141.74	829.1679	0.0449	0.0542	0.0704	3.5	0.2	0.9	None	None	None	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.7 FPS
13.45T-C-02	Transect	5/7/2011	12:36:21 PM	12907785.92	292209.56	829.013	0.0262	0.032	0.0413	2.9	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		2.5 FPS
13.45T-C-03	Transect	5/7/2011	12:53:54 PM	12907788.17	292304.57	831.6917	1.412	2.1631	2.5832	1.6	0.4	1.7	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		0.1 FPS
13.5L1-C-01	Focus	5/7/2011	11:20:06 AM	12908035.16	292337.35	828.8185	0.101	0.123	0.1592	0.8	0.8	1.6	None	None	None	Left	<1ft/sec		Cut Bank	<5%	Soft Sediment		
13.5L1-C-02	Focus	5/7/2011	11:23:35 AM	12908032.02	292379.04	829.0157	0.0342	0.0543	0.0642	0.5	0.4	1.1	None	None	None	Left	<1ft/sec		Cut Bank		Soft Sediment		SHEEN ON BANK
13.5L1-C-03	Focus	5/7/2011	11:28:14 AM	12907925.27	292190.13	828.9342	0.0321	0.0457	0.0558	3.3	1.2	1.5	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	None	Silt over Sand		PHOTO 61-64
13.5L1-C-04	Focus	5/7/2011	11:36:41 AM	12908001.94	292260.82	829.0595	0.0609	0.0909	0.1094	2.0	1.0	1.4	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.2 FPS
13.5L1-C-06	Focus	5/7/2011	12:49:46 PM	12907957.71	292273.64	821.4293	8.4624	11.7553	14.4844	3.0	0.3	0.5	None	None	None	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		1.0 FPS
MP 13.50-13.75																							
13.52T-C-01	Transect	5/7/2011	1:05:56 PM	12907460.95	292175.58	828.9194	0.061	0.099	0.1163	3.0	0.7	0.8	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.8 FPS
13.52T-C-02	Transect	5/7/2011	1:41:09 PM	12907505.80	292126.15	828.8061	0.03	0.0593	0.0664	3.9	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		1.5 FPS
13.52T-C-03	Transect	5/7/2011	1:44:39 PM	12907549.29	292106.95	831.4683	1.2825	2.385	2.708	2.0	0.4	1.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.6 FP
13.59T-D-01	Transect	5/7/2011	11:56:42 AM	12907116.67	291841.98	829.381	4.2287	7.2039	8.3533	0.8	0.7	1.0	Moderate	Moderate	Common	Right	<1ft/sec		Other-Comments	None	Soft Sediment	PHOTO2.3.4	BACKCHAN
13.59T-D-02	Transect	5/7/2011	12:14:07 PM	12907127.25	291815.67	838.4359	4.2416	5.4232	6.885	1.0	0.5	0.6	Heavy	Moderate	Many	Right	<1ft/sec		Other-Comments	None	Soft Sediment		BACKCHAN
13.59T-D-03	Transect	5/7/2011	12:31:50 PM	12907156.93	291863.55	838.7402	3.4445	4.4928	5.6613	0.5	0.3	0.6	Light	Light	Few	Right	No		Other-Comments	<5%	Soft Sediment		BACKCHAN
13.59T-D-04	Transect	5/7/2011	1:09:21 PM	12907379.86	291836.91	832.3494	1.9716	3.0925	3.6676	1.5	0.6	0.6	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
13.59T-D-05	Transect	5/7/2011	1:11:54 PM	12907340.88	291865.40	829.7848	0.8499	1.3309	1.5791	4.5	0.0	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Gravel & Larger		
13.6N-D-01	Focus	5/7/2011	11:41:19 AM	12907206.35	291781.23	829.2136	0.2432	0.4174	0.4831	0.6	0.3	0.4	None	None	None	Right	<1ft/sec		Other-Comments	None	Soft Sediment		BACKCHAN
13.6N-D-02	Focus	5/7/2011	11:44:10 AM	12907207.39	291809.63	828.6747	0.0368	0.0672	0.0766	1.0	1.0	1.4	None	None	None	Right	<1ft/sec		Other-Comments	None	Soft Sediment		BACKCHAN
13.6N-D-03	Focus	5/7/2011	11:47:40 AM	12907190.51	291837.96	824.556	2.4115	4.5245	5.127	1.5	0.9	1.3	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Soft Sediment		BACKCHAN
13.6S-D-01	Focus	5/7/2011	11:16:29 AM	12907332.05	291624.37	826.7869	11.2001	16.7591	20.1571	2.8	0.3	0.4	None	None	None	Left	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
13.6S-D-02	Focus	5/7/2011	11:22:34 AM	12907406.46	291647.39	828.3546	3.0474	4.9926	5.8492	2.3	0.5	1.1	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Sand & Silt		
13.6S-D-03	Focus	5/7/2011	11:28:15 AM	12907400.61	291684.65	865.9444	3.8317	6.5163	7.5594	0.8	0.7	0.8	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Silt over Sand		
13.6S-D-04	Focus	5/7/2011	11:33:12 AM	12907364.12	291709.78	829.133	0.0797	0.1453	0.1658	2.1	0.1	0.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Gravel		
13.62T-D-01	Transect	5/7/2011	10:54:18 AM	12907222.33	291642.31	828.5871	4.249	4.6335	6.2868	1.9	0.2	0.2	None	None	None	Right	<1ft/sec		Point Bar	None	Gravel & Larger		
13.62T-D-02	Transect	5/7/2011	11:05:02 AM	12907257.73	291599.35	828.72	0.0267	0.0598	0.0655	2.7	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
13.62T-D-03	Transect	5/7/2011	11:08:40 AM	12907313.43	291575.22	836.2446	1.9141	3.7023	4.1678	3.0	0.4	0.5	Light	Light	Few	Left	<1ft/sec		Downstrm Island	None	Silt over Sand		
13.69T-D-01	Transect	5/7/2011	10:28:15 AM	12906976.06	291591.93	831.4638	1.635	3.3622	3.7387	2.0	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		
13.69T-D-02	Transect	5/7/2011	10:30:09 AM	12906964.49	291580.31	828.3974	0.0662	0.1924	0.2035	4.0	0.4	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
13.69T-D-03	Transect	5/7/2011	10:36:02 AM	12906971.82	291541.25	828.1263	0.0629	0.1252	0.1401	1.4	0.0	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		
13.7N-D-01	Focus	5/7/2011	9:31:54 AM	12906813.86	291706.51	827.898	3.3841	5.0019	6.0392	0.8	1.1	1.2	Moderate	Light	Common	Right	No		Other-Comments		Organic	PHOTO1	BACKCHAN
13.7N-D-02	Focus	5/7/2011	9:38:22 AM	12906817.75	291689.45	828.4675	1.5614	3.7834	4.0929	1.2	1.8	2.2	Moderate	Light	Common	Right	No		Other-Comments	5%-25%	Organic	SMALLGLOBULES	REFUSE AND TRASH
13.7N-D-03	Focus	5/7/2011	9:46:23 AM	12906808.26	291655.61	825.3823	2.5701	5.0721	5.6861	1.0	1.1	1.3	Heavy	Moderate	Many	Right	No		Other-Comments	25%-50%	Organic	SMALLGLOBULES	REFUSE AND TRASH
13.7N-D-04	Focus	5/7/2011	9:47:33 AM	12906820.69	291652.26	831.0195	2.4138	4.8281	5.3978	1.0	0.4	0.6	Light	Light	Few	Right	No		Other-Comments	25%-50%	Organic		REFUSE AND TRASH
13.7N-D-05	Focus	5/7/2011	9:55:30 AM	12906842.38	291700.14	835.2427	2.3263	4.3592	4.9411	1.3	1.7	2.1	Light	Light	Few	Right	No		Other-Comments	25%-50%	Organic		REFUSE AND TRASH
13.7N-D-06	Focus	5/7/2011	10:00:34 AM	12906775.81	291696.44	830.0247	2.4431	3.285	4.0939	0.6	0.6	1.5	Heavy	Moderate	Many	Right	No		Other-Comments	>75%	Organic	SMALLGLOBULES	REFUSE AND TRASH
13.7N-D-07	Focus	5/7/2011	10:03:01 AM	12906768.93	291680.71	826.9496	0.0963	0.2102	0.2312	5.0	1.4	1.9	Light	Light	Few	Right	No		Other-Comments	50%-75%	Organic	SMALLGLOBULES	REFUSE AND TRASH
13.7N-D-08	Focus	5/7/2011	10:06:31 AM	12906735.79	291676.36	830.5304	2.2317	3.9679	4.5524	0.3	1.3	1.6	Light	Light	Few	Right	No		Other-Comments	5%-25%	Organic	1GLOBULE	ENTOFBACKCHAN
13.7N-D-09	Focus	5/7/2011	10:15:51 AM	12906741.09	291663.74	829.1544	0.1894	0.586	0.6158	0.9	1.0	1.2	None	None	None	Right	No		Other-Comments	<5%	Organic		ENTOFBACKCHAN
BLBR-D-01	Bridge	5/6/2011	2:13:26 PM	12906504.77	291658.57	827.0008	1.4381	2.8759	3.2154	2.8	0.4	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg		Silt over Sand		
BLBR-D-02	Bridge	5/6/2011	2:12:35 PM	12906579.59	291660.86	828.1686	0.0708	0.1157	0.1356	1.2	0.5	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg		Silt over Sand		
BLBR-D-03	Bridge	5/6/2011	2:18:44 PM	12906521.17	291589.58	826.8623	0.1975	0.2404	0.3111	2.2	0.2	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg		Sand & Gravel		RIPRAP
BLBR-D-04	Bridge	5/6/2011	2:23:04 PM	12906640.95	291564.14	828.0959	0.0863	0.1078	0.1381	2.0	0.6	0.7	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg		Silt over Sand		
MP 13.75-14.00																							
13.79T-D-01	Transect	5/6/2011	1:47:38 PM	12906397.69	291668.16	829.2278	6.5357	9.1723	11.2626	2.9	0.2	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg		Sand		
13.79T-D-02	Transect	5/6/2011	1:51:05 PM	12906393.07	291635.07	833.3141	2.9096	4.9787	5.7666	3.5	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel		Gravel & Larger		2.9FTSEC

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
13.79T-D-03	Transect	5/6/2011	1:54:47 PM	12906373.54	291602.18	832.3022	1.9841	3.5885	4.1005	2.8	0.4	0.6	None	None	None	Left	<1ft/sec		Strt Channel Edg		Silt over Sand		
13.80S-A-01	Focus	5/6/2011	10:58:48 AM	12905851.07	291915.30	832.8933	3.3315	6.0182	6.8788	0.7	0.3	0.7	None	None	None	Left	No		Downstrm Island	None	Soft Sediment		.6FPS
13.80S-A-02	Focus	5/6/2011	11:05:51 AM	12905805.96	291985.95	831.7357	1.7028	3.5267	3.9163	2.5	0.5	0.6	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand	U BDY	1.0FPS
13.80S-A-03	Focus	5/6/2011	11:18:51 AM	12905791.54	292026.63	854.2557	3.7046	6.4756	7.4604	1.1	0.1	0.2	Moderate	Light	Common	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
13.80S-A-04	Focus	5/6/2011	11:24:07 AM	12905781.76	292073.33	827.1856	0.0903	0.1455	0.1713	1.3	0.4	0.7	None	None	None	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		0.2FPS
13.80S-A-05	Focus	5/6/2011	11:27:50 AM	12905813.40	292073.69	831.5165	5.2227	7.8899	9.4619	1.1	0.4	0.6	Light	Light	Few	Island	No		Downstrm Island	None	Soft Sediment		CHNL SEPERATN ISL
13.80S-A-06	Focus	5/6/2011	12:54:14 PM	12905685.42	292219.95	827.1551	0.0512	0.0655	0.0832	0.8	0.4	0.7	Moderate	Light	Common	Left	No		Point Bar	None	Soft Sediment		
13.80S-A-07	Focus	5/6/2011	1:00:59 PM	12905634.25	292290.61	827.1292	0.055	0.0765	0.0942	0.3	0.5	0.7	Light	Light	Few	Left	No		Point Bar	<5%	Soft Sediment	HVY SHEEN ON BANK	0.0FPS D BDY
13.80S-A-08	Focus	5/6/2011	1:06:52 PM	12905690.42	292221.79	827.1481	0.0436	0.0589	0.0732	2.0	0.8	1.0	Heavy	Heavy	Many	Left	No		Point Bar	None	Soft Sediment		
13.80S-A-09	Focus	5/6/2011	1:13:28 PM	12905702.82	292228.00	827.4765	0.0429	0.0627	0.076	3.6	1.1	1.3	Heavy	Moderate	Many	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		.2FPS
13.80S-A-10	Focus	5/6/2011	1:19:00 PM	12905729.24	292188.90	826.8042	0.0798	0.1416	0.1626	4.2	0.6	1.0	Heavy	Moderate	Many	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		
13.80S-A-11	Focus	5/6/2011	1:23:37 PM	12905746.15	292121.94	826.958	0.062	0.1013	0.1187	2.2	0.3	0.6	Moderate	Light	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		.5FPS
13.80S-A-12	Focus	5/6/2011	1:32:19 PM	12905644.99	292367.90	826.3558	0.9189	1.5857	1.8327	1.7	1.1	2.2	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		
13.80S-A-13	Focus	5/6/2011	1:38:11 PM	12905605.90	292451.34	827.1591	0.028	0.0503	0.0575	3.7	0.1	0.1	None	None	None	Center	1-3 ft/sec		Point Bar	None	Silt over Sand	D BDY	
13.80S-A-14	Focus	5/6/2011	1:48:06 PM	12905892.71	291874.41	827.2933	0.0522	0.0959	0.1092	4.2	0.0	0.0	None	None	None	Left	<1ft/sec		Point Bar	None	Sand & Gravel	U BDY	1.3FPS
13.85N-C-01	Focus	5/11/2011	9:29:44 AM	12906218.82	291642.93	837.0236	3.3241	7.1847	7.9164	2.0	0.2	0.2	None	None	None	Island	>3 ft/sec	1-3 ft/sec	Downstrm Island	None	Sand & Gravel		SAND GRAVEL, HIGH FLOW, VELOCITY METER MALFUNCTION
13.85N-C-02	Focus	5/11/2011	9:36:37 AM	12906173.71	291599.03	828.1101	1.8678	3.4344	3.9095	0.7	0.5	0.9	Moderate	Moderate	Common	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	<5%	Silt over Sand		VELOCITY METER MALFUNCTION, LOCATION AT CONFLUENCE WITH MAIN CHANNEL
13.85N-C-03	Focus	5/11/2011	9:43:11 AM	12906187.64	291581.14	834.5695	1.8509	3.0771	3.5908	0.6	0.4	0.5	Moderate	Moderate	Common	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Silt over Sand		MAIN CHANNEL BY ISLAND, PHOTO 337-341
13.85N-C-04	Focus	5/11/2011	9:46:26 AM	12906208.12	291570.15	831.1443	2.3231	5.0327	5.5431	0.2	1.6	1.7	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Silt over Sand		
13.85N-C-05	Focus	5/11/2011	9:49:22 AM	12906179.12	291610.24	831.5972	1.6726	3.3136	3.7118	1.3	0.9	1.0	Light	Light	Few	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	<5%	Silt over Sand		BY ISLAND
13.85N-C-06	Focus	5/11/2011	10:00:37 AM	12906135.40	291586.91	827.6516	0.0317	0.0631	0.0706	3.0	0.0	0.1	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO FAST
13.85N-C-07	Focus	5/11/2011	10:07:23 AM	12906103.78	291598.86	827.3855	0.0383	0.083	0.0914	3.4	0.4	0.5	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand	HIGH FLOW	DOWNSTREAM AT CHANNEL MOUTH
13.85N-C-08	Focus	5/11/2011	10:12:26 AM	12906158.32	291644.25	829.9131	1.6074	3.3253	3.6934	4.1	0.0	0.0				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		TOO FAST, HARD BOTTOM
13.85N-C-09	Focus	5/11/2011	10:16:45 AM	12906265.35	291687.63	827.0904	0.8946	2.1861	2.362	3.7	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO FAST, HARD BOTTOM
13.85N-C-10	Focus	5/11/2011	10:22:27 AM	12906314.45	291663.65	820.925	1.8153	4.8076	5.1389	3.1	0.0	0.0				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO FAST, HARD BOTTOM
13.85N-D-01	Focus	5/6/2011	12:55:41 PM	12906250.83	291612.43	763.9116	5.3027	7.7246	9.3695	1.6	0.4	0.6	None	None	None	Island	<1ft/sec		Cut Bank		Organic		
13.85N-D-02	Focus	5/6/2011	12:58:41 PM	12906243.53	291648.22	838.4083	3.5159	3.6415	5.0618	2.2	0.3	0.4	None	None	None	Island	1-3 ft/sec		Cut Bank		Sand		
13.85N-D-03	Focus	5/6/2011	1:15:26 PM	12906199.00	291696.84	843.1671	5.8021	6.5537	8.753	3.5	0.5	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg		Soft Sediment		
13.85N-D-05	Focus	5/6/2011	1:41:21 PM	12906363.68	291700.55	820.3957	10.4037	13.2701	16.8621	2.1	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg		Soft Sediment		
13.87T-A-01	Transect	5/6/2011	9:04:07 AM	12906066.56	291624.11	828.422	0.4774	0.7155	0.8602	2.2	0.1	0.1	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		1.3FPS
13.87T-A-02	Transect	5/6/2011	9:09:14 AM	12906074.09	291574.84	827.8483	0.0459	0.0422	0.0623	4.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		5FOS
13.87T-A-03	Transect	5/6/2011	9:11:30 AM	12906078.87	291554.70	827.9807	0.0515	0.0757	0.0916	4.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		3FPS
13.8S-B-01	Focus	5/11/2011	2:52:21 PM	12905621.64	292352.45	817.0437	2.3331	3.0256	3.8207	2.6	0.4	1.2	Moderate	Moderate	Few	Left	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
13.95N-A-01	Focus	5/6/2011	9:27:29 AM	12906016.66	291978.21	839.7442	2.9543	3.4772	4.5628	0.9	0.2	0.3	Moderate	Light	Common	Right	No		Strt Channel Edg	None	Soft Sediment		0FPS
13.95N-A-02	Focus	5/6/2011	9:32:26 AM	12906010.84	292017.41	833.7158	3.0748	3.5899	4.7267	0.8	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand	D BDY	.2FPS
13.95N-A-03	Focus	5/6/2011	9:37:17 AM	12905998.19	292058.47	827.2892	0.0408	0.0459	0.0614	1.2	0.2	0.3	Light	Light	Few	Right	No		Strt Channel Edg	None	Soft Sediment		0.1
13.95N-A-04	Focus	5/6/2011	9:44:47 AM	12906010.20	291939.15	828.154	2.8525	3.8644	4.8031	0.7	0.3	0.4	Light	Light	Few	Right	No		Strt Channel Edg	None	Soft Sediment		.1FPS
13.95N-A-05	Focus	5/6/2011	9:49:55 AM	12906004.57	291915.52	827.4551	0.0983	0.0786	0.1259	0.5	0.3	0.6	Light	Light	None	Right	No		Point Bar	None	Soft Sediment	U BDY	.1FPS
13.95N-A-06	Focus	5/6/2011	9:54:09 AM	12905996.36	291921.57	827.4169	0.1047	0.1462	0.1798	0.8	0.5	0.8	Heavy	Heavy	Common	Right	No		Point Bar	None	Soft Sediment		.1FPS
13.95N-A-07	Focus	5/6/2011	10:00:11 AM	12905977.43	291903.69	827.6715	0.1413	0.1825	0.2308	0.9	0.5	0.9	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Sand & Silt	LAT BDY	
13.95N-A-08	Focus	5/6/2011	10:08:09 AM	12905991.15	291856.70	827.3871	0.039	0.0865	0.0949	1.3	0.4	0.7	Light	Light	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		.6FPS
13.95T-A-01	Transect	5/6/2011	10:16:20 AM	12905994.00	292047.58	827.4395	0.0432	0.0675	0.0801	1.2	0.5	0.9	Moderate	Moderate	Few	Right	No		Point Bar	None	Soft Sediment		0.5
13.95T-A-02	Transect	5/6/2011	10:22:26 AM	12906006.12	292013.35	836.3345	2.2888	4.12	4.713	1.0	0.1	0.1	Moderate	Light	Common	Right	No		Point Bar	None	Silt over Sand		.1FPS
13.95T-A-03	Transect	5/6/2011	10:28:16 AM	12905968.26	292044.67	827.6597	0.0455	0.083	0.0946	1.8	0.2	0.8	Light	Light	Few	Right	<1ft/sec		Point Bar	None	Sand & Silt	LAT BDY	1.1FPS
13.95T-A-04	Transect	5/6/2011	10:32:20 AM	12905985.95	292072.71	828.0879	0.3533	0.6083	0.7035	1.6	0.9	1.2	Light	Light	Few	Right	<1ft/sec		Point Bar	None	Soft Sediment	D BDY	.3FPS
13.95T-A-05	Transect	5/6/2011	10:40:37 AM	12905912.69	292023.52	827.509	0.0406	0.0997	0.1076	2.6	0.1	0.1	None	None	None	Center	No		Mid-Channel	None	Gravel & Larger		
13.95T-A-06	Transect	5/6/2011	10:52:58 AM	12905826.89	291967.44	825.0623	2.3733	5.4505	5.9448	1.9	0.2	0.6	None	None	None	Left	No		Downstrm Island	None	Silt over Sand	LEFT BANK UNACSBL	
MS14BR-A-01	Bridge	5/6/2011	1:55:33 PM	12905972.49	291645.52	828.4258	2.0255	3.5453	4.0831	1.2	0.0	0.0	None	None	None	Left	No		Strt Channel Edg	None	Gravel & Larger		PUBLIC ACCESS
MP 14.00-14.25																							
14.09T-A-01	Transect	5/6/2011	2:32:10 PM	12905533.13	292663.22	826.0241	1.9339	2.5817	3.2258	1.1	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		.7FPS
14.09T-A-02	Transect	5/6/2011	2:38:17 PM	12905456.74	292584.26	824.478	1.645	2.516	3.006	1.7	0.4	0.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
14.09T-A-03	Transect	5/6/2011	2:41:28 PM	12905501.54	292622.94	827.315	0.0416	0.0566	0.0702	4.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		2.3
14.20S-A-01	Focus	5/6/2011	2:48:34 PM	12905042.48	292611.78	827.0496	0.0496	0.0771	0.0916	0.5	0.8	1.3	Light	Light	None	Left	No		Other-Comments	None	Soft Sediment		0.1FPS MARSH
14.20S-A-02	Focus	5/6/2011	2:53:22 PM	12905072.05	292570.78	827.1153	0.0434	0.0698	0.0822	0.5	1.0	1.5	Moderate	Moderate	Common	Left	No		Other-Comments	5%-25%	Soft Sediment		
14.20S-A-03	Focus	5/6/2011	2:55:32 PM	12905032.92	292566.16	827.0096	0.0295	0.0475	0.0559	0.5	1.0	1.6	Light	Light	Few	Left	No		Other-Comments	5%-25%	Soft Sediment		MARSH
14.20S-A-04	Focus	5/6/2011	2:59:21 PM	12904986.65	292582.88	826.8214	0.0276	0.0452	0.053	0.6	0.9	1.5	Light	None	Few	Left	No		Other-Comments	5%-25%	Soft Sediment		MARSH
14.20S-A-20	Focus	5/10/11	4:06:54 PM	12904930.38	292672.68	827.011	0.0218	0.051	0.0555	1.3	0.7	1.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand	LAT BDY	1.1FPS
14.20S-A-21	Focus	5/10/11	4:10:28 PM	12905009.87	292668.35	827.1501	0.0327	0.0857	0.0917	1.4	1.1	1.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt	LAT BDY	.9FPS
14.22T-A-01	Transect	5/7/2011	9:15:30 AM	12904823.52	292814.65	827.1345	0.0851	0.1297	0.1552	1.2	0.8	1.4	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.2FPS PHOTO201
14.22T-A-03	Transect	5/7/2011	9:48:18 AM	12904827.76	292791.80	826.902	0.0679	0.1007	0.1215	3.5	0.3	0.3	None	None	None	Right	No		Strt Channel Edg	None	Soft Sediment	LAT BDY	
14.22T-A-04	Transect	5/7/2011	10:06:36 AM	12904878.32	292820.46	829.2481	1.6442	3.2068	3.6038	1.3	0.9	2.0	Heavy	Heavy	Common	Right	No		Strt Channel Edg	None	Soft Sediment		.2FPS
14.22T-A-05	Transect	5/7/2011	10:13:54 AM	12904944.05	292823.12	826.9561	0.0858	0.1555	0.1776	1.1	0.7	0.9	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment	U BDY	
14.22T-A-06	Transect	5/7/2011	10:24:11 AM	12904755.81	292791.04	826.6353	0.0535	0.1166	0.1283	3.6	0.3	0.4	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		0.4FPS
14.22T-A-07	Transect	5/7/2011	10:43:41 AM	12904677.33	292763.55	826.7672	0.0529	0.1131	0.1248	2.2	0.5	0.8	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.6FPS
14.22T-A-08	Transect	5/7/2011	10:53:59 AM	12904562.40	292761.55	826.6133	0.1084	0.2198	0.2451	1.0	0.1	0.2	Moderate	Light	Common	Right	No		Strt Channel Edg	None	Soft Sediment		
14.22T-A-09	Transect	5/7/2011	10:59:46 AM	12904579.85	292733.89	827.0631	0.048	0.0942	0.1057	2.2	1.1	1.4	Heavy	Heavy	Many	Right	<1ft/sec		Mid-Channel	None	Soft Sediment		.8PS
14.22T-A-10	Transect	5/7/2011	11:03:23 AM	12904564.77	292706.93	826.7637	0.0246	0.0442	0.0506	3.3	0.1	0.2	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
14.22T-A-11	Transect	5/7/2011	11:12:00 AM	12904488.95	292727.84	827.0019	0.0732	0.149	0.166	1.6	0.3	0.5	Moderate	Moderate	Common	Right	No		Point Bar	None	Sand & Silt		.2FPS
14.22T-A-12	Transect	5/7/2011	11:21:23 AM	12904851.68	292651.11	827.1302	0.0255	0.0379	0.0457	1.9	0.3	0.4	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
14.22T-A-13	Transect	5/7/2011	11:24:29 AM	12904821.01	292710.36	826.9418	0.0276	0.0406	0.0491	2.1	0.4	0.6	None	None	None	Center	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		2.1FPS
14.22T-A-14	Transect	5/7/2011	1:13:07 PM	12904873.61	292656.26	826.9317	0.022	0.0329	0.0396	2.5	0.2	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	LAT BDY	
14.22T-A-15	Transect	5/7/2011	1:19:08 PM	12904921.48	292625.26	826.8911	0.0268	0.0417	0.0496	1.7	0.8	1.2	Moderate	Light	Common	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.8FPS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
14.22T-A-16	Transect	5/7/2011	1:33:12 PM	12904957.61	292602.95	826.9283	0.0373	0.0624	0.0727	1.7	0.8	1.1	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment	U BDY	
14.22T-A-17	Transect	5/7/2011	1:45:46 PM	12904761.46	292636.59	823.1743	1.326	2.4238	2.7628	1.9	0.3	0.5	Moderate	Moderate	Few	Left	No		Strt Channel Edg	None	Soft Sediment		.6FPS
14.22T-A-18	Transect	5/7/2011	1:53:58 PM	12904690.44	292616.83	826.8577	0.0892	0.1258	0.1542	1.5	0.3	0.4	Heavy	Heavy	Common	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
14.22T-A-19	Transect	5/7/2011	2:01:36 PM	12904621.99	292600.80	826.7272	0.0321	0.0555	0.0641	1.1	0.8	1.5	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	D BDY	
14.22T-A-20	Transect	5/10/11	4:02:47 PM	12904858.46	292677.81	826.8836	0.0289	0.0662	0.0722	2.5	0.5	0.7	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand	LAT BDY	1.4FPS
14.22T-A-21	Transect	5/10/11	4:19:04 PM	12904701.86	292652.59	826.7811	0.0589	0.1471	0.1585	2.8	0.2	0.5	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	1.2FPS
CABR-A-01	Bridge	5/6/2011	2:21:50 PM	12905616.50	292563.17	820.0327	2.5859	2.6075	3.6723	2.5	0.1	0.2	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel	OIL ON BANK ROCKS	
CABR-A-02	Bridge	5/6/2011	2:25:08 PM	12905486.94	292551.06	827.1971	0.0506	0.0829	0.0971	1.6	0.2	0.4	Light	Light	Few	Left	<1ft/sec		Mid-Channel	None	Soft Sediment		.3FPS
CABR-B-04	Bridge	5/11/2011	2:23:44 PM	12905689.43	292488.18	825.2854	2.1225	3.2	3.84	4.1	0.2	0.2	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Other-Comments	None	Sand & Gravel		
CABR-B-05	Bridge	5/11/2011	2:33:29 PM	12905582.87	292457.15	829.4398	2.139	3.1133	3.7773	1.6	1.0	1.3	Moderate	Moderate	Few	Left	<1ft/sec	<1 ft/sec	Other-Comments	None	Sand & Silt		
CABR-B-06	Bridge	5/11/2011	2:39:27 PM	12905587.86	292455.26	826.434	2.1488	3.0677	3.7454	3.1	0.6	0.6	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
PARKPA-A-01	Launch	5/7/2011	8:48:35 AM	12905048.20	292820.56	829.4226	2.2053	3.2328	3.9134	0.8	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		NO PA OBSERVED
PARKPA-A-02	Launch	5/7/2011	8:52:42 AM	12904970.59	292838.46	848.2352	4.3638	5.9654	7.3911	0.8	0.3	0.4	Light	Light	Few	Right	<1ft/sec		Mid-Channel	None	Sand & Silt		
PARKPA-A-03	Launch	5/7/2011	8:57:25 AM	12905035.97	292828.53	828.9195	2.8449	4.1017	4.9917	0.9	0.1	0.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.2FPS NO PA
PARKPA-A-04	Launch	5/7/2011	9:04:23 AM	12905150.60	292805.81	833.7954	3.235	3.9823	5.1307	0.5	0.1	0.7	Light	Light	Few	Right	No		Mid-Channel	None	Soft Sediment		0.0FPS NO PA OBS
MP 14.25-14.50																							
14.28T-A-01	Transect	5/7/2011	2:14:05 PM	12904487.86	292727.88	826.703	0.0526	0.1022	0.115	1.6	0.5	0.7	Moderate	Light	Common	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.5FPS
14.28T-A-02	Transect	5/7/2011	2:24:19 PM	12904423.57	292699.62	826.9498	0.0457	0.0823	0.0942	1.7	1.3	1.7	Heavy	Heavy	Many	Right	No						
14.28T-A-03	Transect	5/10/11	4:24:21 PM	12904520.72	292584.02	826.9391	0.0243	0.0513	0.0567	1.7	0.6	1.0	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	None	Soft Sediment		
14.28T-A-04	Transect	5/10/11	4:31:18 PM	12904574.18	292604.84	826.8323	0.0531	0.094	0.108	1.8	0.8	1.5	None	None	None	Left	No		Cut Bank	None	Sand & Silt	U BDY	
14.28T-A-05	Transect	5/10/11	4:34:43 PM	12904536.33	292616.69	826.8562	0.0374	0.0631	0.0734	2.9	0.5	0.8	Light	Light	Few	Center	<1ft/sec		Mid-Channel	None	Sand & Silt	LAT BDY	1.4FPS
14.28T-A-06	Transect	5/10/11	4:39:34 PM	12904465.20	292570.26	826.9714	0.0339	0.0531	0.063	0.8	0.8	1.1	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Soft Sediment	D BDY	.7FPS
14.28T-A-07	Transect	5/10/11	4:42:35 PM	12904508.61	292648.17	826.7843	0.0255	0.0385	0.0461	4.0	0.2	0.4	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel		
14.33LG-B-01	Other	5/12/2011	11:23:12 AM	12904283.65	292589.82	826.5985	0.0614	0.0917	0.1104	3.8	0.4	0.6	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand		
14.35LG-B-01	Other	5/12/2011	11:18:35 AM	12904119.06	292616.73	826.5762	0.0597	0.0708	0.0926	4.1	0.5	0.5	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		BESIDE DWND TREE
14.35N-A-01	Focus	5/10/11	1:23:04 PM	12903599.96	292932.27	826.6194	0.0609	0.1009	0.1179	1.6	0.4	0.5	Heavy	Heavy	Many	Right	<1ft/sec		Point Bar	None	Sand & Silt		.4FPS
14.35N-A-01	Focus	5/7/2011	9:36:56 AM	12904801.79	292809.20	827.3641	0.0457	0.0992	0.1092	2.5	1.2	1.4	Heavy	Heavy	Many	Right	No		Strt Channel Edg	None	Soft Sediment		
14.35N-A-02	Focus	5/10/11	1:26:39 PM	12903593.25	292916.38	826.6073	0.0326	0.0548	0.0638	3.2	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand	LAT BDY	1.8FPS
14.35N-A-03	Focus	5/10/11	1:35:34 PM	12903781.21	292844.74	826.8457	0.0287	0.0537	0.0609	3.0	0.1	0.2	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Gravel	LAT BDY	1.2FPS
14.35N-A-04	Focus	5/10/11	1:38:09 PM	12903775.99	292858.81	826.6919	0.0409	0.076	0.0863	2.3	0.2	0.3	Moderate	Moderate	Few	Right	<1ft/sec		Point Bar	None	Soft Sediment		.8FPS
14.35N-A-05	Focus	5/10/11	1:42:56 PM	12903950.58	292816.21	826.5805	0.0568	0.0973	0.1126	1.4	0.3	0.6	Heavy	Heavy	Common	Right	<1ft/sec		Point Bar	None	Soft Sediment		.8FPS
14.35N-A-06	Focus	5/10/11	1:48:03 PM	12904079.89	292779.88	826.6277	0.0409	0.0714	0.0823	1.8	0.3	0.4	Heavy	Moderate	Many	Right	<1ft/sec		Point Bar	None	Sand & Silt		.4FPS
14.35N-A-07	Focus	5/10/11	1:56:03 PM	12904125.74	292718.47	826.6131	0.0322	0.0542	0.0631	1.9	0.1	0.2	Light	Light	Few	Center	<1ft/sec		Mid-Channel	None	Sand & Silt	LAT BDY	
14.35N-A-08	Focus	5/10/11	2:02:52 PM	12904237.66	292710.71	826.5534	0.0549	0.0851	0.1013	1.9	0.1	0.3	Heavy	Heavy	Many	Right	<1ft/sec		Point Bar	None	Silt over Sand		
14.35N-A-09	Focus	5/10/11	2:10:53 PM	12904357.80	292711.25	826.6099	0.0473	0.0673	0.0822	1.3	0.5	1.0	Moderate	Light	Common	Right	<1ft/sec		Point Bar	None	Soft Sediment		
14.35N-A-10	Focus	5/10/11	2:15:35 PM	12904390.41	292661.71	826.682	0.0251	0.0408	0.0479	4.3	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
14.35N-A-11	Focus	5/10/11	2:41:26 PM	12904478.33	292742.70	827.1283	1.3958	2.719	3.0564	0.8	0.2	0.6	Heavy	Heavy	Many	Right	<1ft/sec		Point Bar	None	Soft Sediment		0.1FPS
14.35N-A-12	Focus	5/10/11	2:47:05 PM	12904497.66	292701.55	826.6758	0.0422	0.0716	0.0831	3.0	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BDY	2.1FPS
14.40T-A-01	Transect	5/10/11	4:47:27 PM	12903970.24	292789.16	826.7916	0.0323	0.0474	0.0574	1.7	0.6	1.3	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.7FPS
14.40T-A-02	Transect	5/10/11	4:51:13 PM	12903965.57	292717.81	826.7183	0.05	0.072	0.0877	2.3	0.5	0.7	None	None	None	Center	No		Mid-Channel	None	Sand & Gravel		1.4FPS
14.40T-A-03	Transect	5/10/11	4:55:58 PM	12903888.58	292638.48	826.8311	0.0445	0.0555	0.0712	1.9	0.1	0.2	Moderate	Moderate	Common	Left	No		Cut Bank	None	Sand & Silt		
14.40T-A-04	Transect	5/10/11	4:58:10 PM	12903936.73	292623.25	826.7083	0.0666	0.0713	0.0976	3.0	0.1	0.2	None	None	None	Left	No		Cut Bank	None	Sand & Silt	U BDY	
14.40T-A-05	Transect	5/10/11	5:01:52 PM	12903810.87	292671.62	826.8975	0.0901	0.0912	0.1282	3.0	0.1	0.1	Light	Light	None	Left	<1ft/sec		Cut Bank	None	Sand & Silt	D BDY	
14.40T-A-06	Transect	5/10/11	5:04:39 PM	12903840.60	292688.73	826.8342	0.0356	0.0464	0.0585	3.5	0.1	0.1	Light	Light	None	Center	No		Mid-Channel	None	Sand & Gravel	LAT BDY	
14.43LG-B-01	Other	5/12/2011	11:13:07 AM	12903769.62	292783.56	826.5709	0.059	0.0884	0.1063	2.2	0.7	0.8	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
14.44LG-B-01	Other	5/12/2011	11:09:38 AM	12903694.12	292755.60	826.234	0.0692	0.1131	0.1326	3.7	0.3	0.4	Light	Light	None	Left	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Sand		ABOVE DWNED TREE
14.46LG-B-01	Other	5/12/2011	11:03:28 AM	12903585.02	292774.93	818.5674	1.6251	2.665	3.1214	-99.0	-99.0	-99.0	Heavy	Heavy	Many	Left			Cut Bank				BEHIND DWN TREE
14.47LG-B-01	Other	5/12/2011	10:52:31 AM	12903515.58	292829.29	822.456	1.7029	3.9187	4.2728	2.5	0.7	0.8	Moderate	Heavy	Few	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment	LIGHT SURFACE SH	
14.48LG-B-01	Other	5/12/2011	10:59:22 AM	12903511.00	292903.43	826.3628	0.0758	0.1672	0.1836	4.5	0.3	0.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
14.49LG-B-01	Other	5/12/2011	10:47:18 AM	12903459.97	292898.76	834.3129	2.1536	5.1183	5.5529	4.0	0.5	0.5	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Silt		
MP 14.50-14.75																							
14.52LG-B-01	Other	5/12/2011	10:31:17 AM	12903346.69	293042.69	826.3573	0.0617	0.1774	0.1879	4.0	0.5	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
14.60S-A-01	Focus	5/7/2011	3:23:44 PM	12903166.47	293228.14	826.8111	0.0509	0.0762	0.0916	4.3	0.1	0.2	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
14.60S-A-02	Focus	5/7/2011	3:29:41 PM	12903203.76	293177.34	826.993	0.0575	0.1063	0.1209	4.5	0.3	0.4	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.8FPS
14.60S-A-03	Focus	5/7/2011	3:36:29 PM	12903217.30	293143.43	827.8551	3.0051	4.5272	5.4338	3.2	0.6	0.8	Moderate	Moderate	Common	Left	<1ft/sec		Mid-Channel	None	Soft Sediment		.8FPS
14.60S-A-04	Focus	5/7/2011	3:40:47 PM	12903247.42	293088.47	835.2897	1.5232	2.7685	3.1599	2.0	0.5	0.6	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment	U BDY	
14.60S-A-05	Focus	5/7/2011	3:48:13 PM	12903149.29	293291.38	826.6947	0.0363	0.0689	0.0779	2.5	1.1	1.7	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment	EXTRM HVY BY TREE	0.6FPS PHOTO 204
14.60S-A-06	Focus	5/7/2011	3:58:51 PM	12903136.17	293334.82	826.7885	0.0214	0.0443	0.0492	3.0	0.3	0.4	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt	D AND LAT BDY	.5FPS
14.60S-A-07	Focus	5/7/2011	4:02:26 PM	12903115.29	293362.62	826.8235	0.0358	0.0836	0.091	3.1	0.3	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.9FPS
14.64LG-B-01	Other	5/11/2011	2:11:24 PM	12902954.48	293553.12	826.2385	2.9312	4.7972	5.6219	1.0	0.2	0.4	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
14.6S-B-01	Focus	5/11/2011	1:48:42 PM	12903268.90	293213.19	826.5306	0.0318	0.0526	0.0614	3.2	0.6	0.8	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
14.6S-B-02	Focus	5/11/2011	1:53:17 PM	12903220.60	293264.87	826.5874	0.0413	0.0683	0.0799	4.4	0.4	0.5	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
14.6S-B-03	Focus	5/11/2011	2:00:25 PM	12903175.56	293343.35	826.339	0.0348	0.0554	0.0654	4.2	0.1	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
14.71LG-B-01	Other	5/11/2011	3:25:41 PM	12902864.69	293924.27	813.9676	3.5155	4.9487	6.0703	5.0	0.4	0.8	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand	BAD POS	
14.75-A-01	Focus	5/10/11	9:13:03 AM	12902852.87	294097.36	826.5281	0.0431	0.0436	0.0613	1.4	0.5	0.9	Light	Light	Few	Center	<1ft/sec		Oxbow	None	Sand & Silt	D BDY	1.0FPS
14.75-A-02	Focus	5/10/11	9:17:43 AM	12902950.23	294058.61	826.5603	0.043	0.0464	0.0633	2.0	0.4	0.5	Heavy	Moderate	Many	Center	<1ft/sec		Oxbow	None	Soft Sediment		.9FPS
14.75-A-03	Focus	5/10/11	9:21:27 AM	12902945.06	294045.93	826.4753	0.0487	0.0499	0.0698	1.0	0.3	0.5	Moderate	Moderate	Common	Left	<1ft/sec		Oxbow	None	Sand & Silt		.8FPS
14.75-A-04	Focus	5/10/11	9:25:12 AM	12902960.92	294084.32	826.5714	0.0936	0.1018	0.1383	1.7	0.8	0.8	Heavy	Heavy	Many	Right	<1ft/sec		Oxbow	None	Soft Sediment		.5FPS
14.75-A-05	Focus	5/10/11	9:43:10 AM	12903019.68	294004.21	826.6418	0.0707	0.1365	0.1537	1.4	0.9	1.1	Heavy	Heavy	Many	Island	<1ft/sec		Oxbow	None	Soft Sediment		.4FPS
14.75-A-06	Focus	5/10/11	9:55:40 AM	12903094.44	293922.07	826.6513	0.0381	0.0707	0.0803	0.9	0.6	0.9	Light	Light	Few	Island	<1ft/sec		Oxbow	None	Soft Sediment	U BDY LEFTBANK	.5FPS
14.75-A-07	Focus	5/10/11	9:59:41 AM	12903149.39	293836.91	826.6057	0.051	0.0928	0.1059	0.5	0.2	0.3	Light	Light	Few	Island	<1ft/sec		Oxbow	None	Silt over Sand		.5FPS
14.75-A-08	Focus	5/10/11	10:04:20 AM	12903179.30	293718.98	826.4944	0.0382	0.081	0.0896	0.2	0.1	0.3	Light	Light	Few	Island	<1ft/sec		Oxbow	None	Silt over Sand	D BDY LEFTBANK	.4FPS
14.75-A-09	Focus	5/10/11	10:08:40 AM	12903164.71	293589.69	826.7827	0.0514	0.1086	0.1201	1.2	0.9	1.1	Heavy	Heavy	Many	Island	<1ft/sec		Oxbow	None	Sand & Silt		0.4FPS
14.75-A-10	Focus	5/10/11	10:43:01 AM	12903134.48	293495.84	826.1092	0.041	0.0897	0.0986	2.7	0.3	0.4	None	None	None	Island	No		Downstrm Island	None	Soft Sediment	LAT BDY	
14.75-A-11	Focus	5/10/11	10:50:22 AM	12903177.05	293463.81	820.9019	8.8173	13.7225	16.3111	2.9	0.2	0.3	Heavy	Heavy	Many	Center	<1ft/sec		Oxbow	None	Sand & Silt		1FPS
14.75-A-12	Focus	5/10/11	10:59:58 AM	12903149.36	293433.08	826.5132	0.0351	0.0647	0.0736	3.8	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	2.1FPS
14.75-A-13	Focus	5/10/11	11:06:20 AM	12903212.28	293424.33	830.1415	1.6232	2.9635	3.3789	1.1	0.7	1.0	Light	Light	Few	Right	<1ft/sec		Oxbow	None	Soft Sediment	U BDY	
14.75-A-14	Focus	5/10/11	11:13:53 AM	12903254.60	293315.11	826.6176	0.0495	0.0767	0.0913	2.1	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		1.2FPS
14.75-A-15	Focus	5/10/11	11:20:48 AM	12903340.10	293194.61	826.6524	0.0596	0.1083	0.1236	1.2	0.3	1.0	Heavy	Heavy	Many	Right	<1ft/sec		Point Bar	None	Soft Sediment		.3FPS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
14.75-A-16	Focus	5/10/11	11:27:12 AM	12903300.32	293174.76	826.5001	0.0394	0.0585	0.0705	3.0	0.3	0.6	None	None	None	Right	<1ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	1.4FPS
14.75-A-17	Focus	5/10/11	11:32:18 AM	12903302.36	293254.60	826.5888	0.0373	0.0526	0.0645	0.9	0.6	0.7	Light	None	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt	D BDY	
14.75-A-18	Focus	5/10/11	1:02:43 PM	12903360.27	293155.75	823.4347	1.3638	2.2162	2.6022	1.4	0.5	0.6	Heavy	Heavy	Common	Right	<1ft/sec		Point Bar	None	Soft Sediment		.4FPS
14.75-A-19	Focus	5/10/11	1:12:52 PM	12903463.95	293045.75	826.415	0.0386	0.0736	0.0831	1.2	0.8	1.6	Heavy	Heavy	Many	Right	<1ft/sec		Point Bar	None	Soft Sediment		
14.75-A-20	Focus	5/10/11	3:02:02 PM	12903048.46	294006.62	826.5451	0.0408	0.0635	0.0755	2.9	0.2	0.4	Heavy	Heavy	Many	Center	<1ft/sec		Oxbow	None	Soft Sediment		1FPS
14.75-A-21	Focus	5/10/11	3:03:03 PM	12903045.64	294012.58	826.7045	0.0425	0.0632	0.0761	2.4	0.1	0.1	Light	Light	Few	Right	<1ft/sec		Oxbow	None	Sand & Gravel	U BDY RIGHTBANK	
14.75-A-22	Focus	5/10/11	3:08:02 PM	12903144.90	293920.89	826.6251	0.0693	0.1143	0.1337	2.3	0.0	0.0	Light	Light	Few	Right	<1ft/sec		Oxbow	None	Sand & Gravel	LAT BDY	.8FPS
14.75-A-23	Focus	5/10/11	3:10:03 PM	12903128.71	293908.78	826.5908	0.0732	0.1226	0.1427	1.8	0.6	2.1	Heavy	Heavy	Many	Center	<1ft/sec		Oxbow	None	Soft Sediment		
14.75-A-24	Focus	5/10/11	3:17:57 PM	12903204.81	293812.82	826.4575	0.0331	0.0577	0.0666	2.8	0.5	1.1	Heavy	Heavy	Many	Right	No		Oxbow	None	Sand & Silt		.4FPS
14.75-A-25	Focus	5/10/11	3:27:29 PM	12903207.01	293740.82	826.4688	0.0407	0.075	0.0853	1.8	0.3	0.6	Light	Light	Few	Center	<1ft/sec		Oxbow	None	Sand & Silt		
14.75-A-26	Focus	5/10/11	3:31:42 PM	12903220.71	293635.15	826.6437	0.0515	0.1112	0.1226	1.0	0.5	0.7	Heavy	Heavy	Common	Right	<1ft/sec		Oxbow	None	Soft Sediment		0.6
14.75-A-27	Focus	5/10/11	3:36:33 PM	12903197.26	293570.49	826.6257	0.0461	0.0848	0.0966	1.8	0.4	0.8	Moderate	Light	Common	Right	<1ft/sec		Oxbow	None	Soft Sediment		.8FTS
14.75-B-01	Focus	5/7/2011	1:37:20 PM	12902848.34	294146.77	830.7814	2.5804	4.411	5.1103	0.9	1.5	2.1	Heavy	Heavy	Common	Right	<1ft/sec		Strt Channel Edg	25%-50%	Soft Sediment		
14.75-B-02	Focus	5/7/2011	1:45:18 PM	12902791.53	294179.16	838.9689	2.0329	3.5751	4.1126	0.7	0.1	0.4	None	None	None	Right	>3 ft/sec		Strt Channel Edg	50%-75%	Sand & Silt		
14.75-B-03	Focus	5/7/2011	1:51:16 PM	12902845.54	294118.00	827.208	1.2551	2.2082	2.5399	2.4	1.1	1.1	Light	Light	None	Center	<1ft/sec		Strt Channel Edg	None	Sand		
14.75-B-04	Focus	5/7/2011	1:57:40 PM	12902911.17	294057.88	826.2567	0.0477	0.0802	0.0933	1.1	0.9	1.5	Light	Light	None	Island	>3 ft/sec		Downstrm Island	5%-25%	Soft Sediment		
14.75-B-05	Focus	5/7/2011	2:02:59 PM	12903136.63	293849.11	827.9104	11.1078	15.8174	19.328	0.5	0.1	0.1	Light	Light	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
14.75-B-06	Focus	5/7/2011	2:12:15 PM	12902892.08	294121.50	825.9482	1.6353	2.6783	3.1381	2.0	0.7	0.7	Moderate	Heavy	Few	Right	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment		
14.75LG-B-01	Other	5/11/2011	3:33:25 PM	12902710.03	294025.88	826.2296	0.0437	0.0838	0.0945	1.8	0.7	0.8	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
MP 14.75-15.00																							
14.79LG-B-01	Other	5/11/2011	3:39:55 PM	12902582.50	294106.31	826.4296	0.1035	0.3171	0.3336	2.7	0.2	0.3	Light	Moderate	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
14.80LG-B-01	Other	5/12/2011	10:06:09 AM	12902593.36	294262.80	826.4121	0.0381	0.0671	0.0771	2.2	0.2	0.3	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
14.8S-B-01	Focus	5/7/2011	1:21:59 PM	12902416.90	294168.66	833.0643	1.9085	3.2227	3.7454	1.0	0.3	0.3	Light	Light	None	Left	No		Strt Channel Edg	<5%	Soft Sediment		WATER TEMP 60.5
14.8S-B-02	Focus	5/7/2011	1:24:29 PM	12902428.85	294165.45	825.0392	1.2041	1.9945	2.3298	1.0	0.5	0.5	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment		
14.8S-B-03	Focus	5/7/2011	1:27:00 PM	12902422.76	294176.97	825.128	1.2009	1.951	2.291	1.3	0.0	0.2	Light	Light	Few	Left	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		
14.9S-B-01	Focus	5/7/2011	10:28:04 AM	12901663.38	294507.40	817.5478	8.3016	13.7224	16.0381	0.5	0.1	0.1	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
14.9S-B-02	Focus	5/7/2011	10:35:14 AM	12901635.28	294436.87	821.9654	8.3403	13.5086	15.8759	2.4	0.0	0.2	Light	Light	Few	Left	No		Other-Comments	None	Silt over Sand		SEC CHANNEL
14.9S-B-03	Focus	5/7/2011	10:41:56 AM	12901774.89	294364.14	819.9501	7.7563	12.1472	14.4122	0.5	0.5	0.5	Light	Light	None	Island	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		COVE
14.9S-B-04	Focus	5/7/2011	10:48:14 AM	12901706.15	294316.20	818.3024	8.0298	12.0726	14.4991	2.9	0.4	0.9	Light	Light	Few	Left	<1ft/sec		Other-Comments	<5%	Soft Sediment		SEC CHANNEL
14.9S-B-05	Focus	5/7/2011	10:54:08 AM	12901831.50	294298.39	820.521	8.0161	11.5404	14.0513	1.1	0.1	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		SEC CHAN
14.9S-B-06	Focus	5/7/2011	10:58:14 AM	12901790.66	294229.32	828.3445	9.8666	15.3254	18.2268	0.8	2.6	3.0	None	None	None	Left	<1ft/sec			<5%	Soft Sediment		MOD RES SHEEN
14.9S-B-07	Focus	5/7/2011	11:01:00 AM	12901795.56	294217.92	829.7627	10.3514	15.7688	18.8628	0.8	2.6	3.0	None	None	None	Left	<1ft/sec		Other-Comments	<5%	Soft Sediment	SEC CHAN	MOD RES SHEEN
14.9S-B-08	Focus	5/7/2011	11:06:54 AM	12901920.24	294217.30	816.6027	8.406	12.2601	14.8651	0.8	1.1	2.8	Light	Light	Few	Left	<1ft/sec		Other-Comments	<5%	Silt over Sand		SEC CHANNEL
14.9S-B-09	Focus	5/7/2011	11:14:06 AM	12902027.43	294154.76	817.9229	8.7749	12.1128	14.9572	0.8	2.8	3.4	Light	Moderate	None	Left	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		MARSH
14.9S-B-10	Focus	5/7/2011	11:30:38 AM	12901946.82	294167.26	826.3636	0.0363	0.0503	0.062	0.8	3.0	3.3	Moderate	Moderate	Few	Left	No		Other-Comments	None	Soft Sediment		MARSH
14.9S-B-11	Focus	5/7/2011	11:36:09 AM	12901892.81	294179.21	826.4309	0.046	0.0661	0.0806	0.8	2.6	3.3	Light	Light	Few	Left	No		Other-Comments	25%-50%	Soft Sediment	MARSH	HEV RED SHEEN
14.9S-B-12	Focus	5/7/2011	11:42:01 AM	12901924.00	294206.88	826.391	0.0425	0.0541	0.0688	0.8	1.4	1.5	Moderate	Moderate	Few	Left	No		Other-Comments	None	Soft Sediment	MARSH	HEV RES SHEEN
14.90LG-B-01	Other	5/11/2011	3:45:49 PM	12902044.32	294368.59	826.3179	0.0228	0.0479	0.0531	2.9	0.2	0.7	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
14.96LG-B-01	Other	5/11/2011	3:51:06 PM	12901800.14	294560.18	826.4383	0.0657	0.2205	0.2301	5.6	0.9	0.9	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
15.00LG-B-01	Other	5/12/2011	9:55:13 AM	12901560.79	294623.77	826.302	0.0426	0.0602	0.0737	0.8	0.5	0.6	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
PA-B-01	Launch	5/7/2011	1:09:27 PM	12902437.08	294373.87	832.7254	1.8709	2.8315	3.3938	0.4	0.1	0.1	None	None	None	Right	No		Strt Channel Edg	<5%	Sand		
PA-B-02	Launch	5/7/2011	1:10:56 PM	12902415.47	294378.83	826.2131	0.0823	0.1267	0.1511	0.5	0.1	0.1	None	None	None	Right	<1ft/sec		Strt Channel Edg	<5%	Sand		
MP 15.00-15.25																							
15.02LG-B-01	Other	5/11/2011	3:57:16 PM	12901542.83	294752.84	826.1267	0.0336	0.1153	0.12	1.7	0.4	0.5	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Downstrm Island	5%-25%	Soft Sediment		
15.05S-B-01	Focus	5/7/2011	9:21:43 AM	12901208.15	294885.91	825.3641	10.4817	13.4096	17.0201	1.1	0.4	0.4	Light	Moderate	None	Left	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment	MOD RES SHEEN	
15.05S-B-02	Focus	5/7/2011	9:32:30 AM	12901258.54	294852.01	819.9883	11.8393	16.0844	19.9719	3.0	0.3	0.8	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	50%-75%	Sand & Silt		DOWN TREES
15.05S-B-03	Focus	5/7/2011	9:39:28 AM	12901409.27	294686.67	822.6847	10.0951	12.9575	16.4258	1.1	2.4	2.7	Moderate	Heavy	Few	Left	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment		
15.05S-B-05	Focus	5/7/2011	9:53:05 AM	12901345.04	294738.87	825.9491	11.4584	14.1466	18.205	1.3	0.2	0.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
15.05S-B-06	Focus	5/7/2011	9:59:40 AM	12901429.72	294693.95	820.8544	11.4319	16.6437	20.1916	1.6	1.4	1.5	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
15.05S-B-07	Focus	5/7/2011	10:05:10 AM	12901433.80	294618.62	822.5071	12.4548	27.1682	29.887	1.0	0.1	0.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		COVE
15.05S-B-08	Focus	5/7/2011	10:10:21 AM	12901439.40	294648.22	828.3704	8.3919	13.4224	15.8298	1.1	0.3	0.4	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		
15.05S-B-09	Focus	5/7/2011	10:15:02 AM	12901477.44	294580.32	820.3559	8.1799	13.3473	15.6544	1.1	0.3	0.3	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		COVE
15.05S-B-10	Focus	5/7/2011	10:19:08 AM	12901550.88	294539.19	819.6208	8.3117	13.7148	16.0369	1.0	0.1	0.1	None	None	None	Left	<1ft/sec		Other-Comments	None	Sand		SEC CHA
15.10LG-B-01	Other	5/12/2011	9:47:35 AM	12901234.23	295029.98	826.1804	0.0617	0.091	0.1099	2.2	0.8	0.8	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand		South Mill Pond
15.11LG-B-01	Other	5/12/2011	11:48:09 AM	12901244.96	295075.72	826.122	0.0829	0.1318	0.1557	1.2	0.6	0.9	Light	Light	None	Right	No	No	Point Bar	None	Sand & Silt		
15.13LG-B-01	Other	5/12/2011	11:45:11 AM	12901183.57	295145.53	825.8642	0.0968	0.1547	0.1825	1.0	0.0	0.0	Moderate	Moderate	Few	Right			Point Bar				
15.13LG-B-02	Other	5/12/2011	11:54:36 AM	12901133.53	295138.40	826.262	0.04	0.0483	0.0628	3.1	0.8	1.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
15.15LG-B-01	Other	5/12/2011	11:41:54 AM	12901078.83	295244.93	826.0501	0.0826	0.1231	0.1482	2.1	0.0	0.2	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
15.15LG-B-01	Other	5/11/2011	4:05:43 PM	12901132.80	295224.96	825.8601	0.0408	0.0998	0.1078	0.6	0.7	1.1	Moderate	Moderate	Few	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt	HVY SHN FROM JET	
15.16LG-B-01	Other	5/11/2011	4:09:44 PM	12901094.67	295278.87	826.3069	0.0453	0.1094	0.1184	1.1	0.9	1.7	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
15.16LG-B-02	Other	5/11/2011	4:30:59 PM	12901088.13	295277.87	828.0869	1.208	1.9112	2.2609	0.6	0.5	1.5	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt	HVY SHN FROM JET	
15.18LG-B-01	Other	5/11/2011	4:36:45 PM	12901028.71	295364.86	826.3022	0.0353	0.0522	0.063	0.7	0.9	0.6	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
15.22LG-B-01	Other	5/12/2011	11:34:52 AM	12900876.68	295534.35	826.2537	0.0534	0.0751	0.0922	3.0	0.3	0.7	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
15.25-B-01	Focus	5/9/2011	9:04:51 AM	12901184.13	296114.05	826.2813	2.6379	3.0932	4.0652	1.7	1.1	1.3	Light	Light	None	Right	No		Point Bar	5%-25%	Soft Sediment		
15.25-B-02	Focus	5/9/2011	9:10:52 AM	12901087.28	295991.48	826.1838	0.0397	0.0618	0.0734	0.7	0.1	1.1	Light	Light	None	Right	No		Point Bar	5%-25%	Sand & Silt		
15.25-B-03	Focus	5/9/2011	9:15:58 AM	12901000.54	295894.80	822.4676	1.3968	1.7337	2.2264	2.8	0.9	1.3	Light	Light	None	Right	<1ft/sec		Point Bar	5%-25%	Soft Sediment	UP STM BOOM	
15.25-B-05	Focus	5/9/2011	11:43:01 AM	12900962.17	295861.72	826.216	0.0516	0.0722	0.0888	3.4	2.1	3.0	Light	Light	Few	Right	1-3 ft/sec	Point Bar	None	Soft Sediment			
15.25-B-06	Focus	5/9/2011	11:43:32 AM	12900972.82	295854.35	826.2091	0.0454	0.0635	0.078	2.1	1.3	2.3	Moderate	Moderate	Few	Right	1-3 ft/sec	Point Bar	None	Sand			
15.25-B-07	Focus	5/9/2011	11:51:11 AM	12900931.78	295805.52	826.1906	0.0419	0.0546	0.0688	1.8	1.6	2.0	Light	Moderate	None	Right	1-3 ft/sec		Point Bar	25%-50%	Soft Sediment		
BSBR-B-01	Bridge	5/9/2011	11:57:07 AM	12900895.65	295721.38	826.2004	0.0474	0.0655	0.0809	2.6	0.8	0.9	Moderate	Heavy	Few	Right	<1ft/sec		Point Bar	None	Sand over Silt		
BSBR-B-02	Bridge	5/9/2011	12:07:43 PM	12900873.06	295716.72	826.0851	0.0528	0.0628	0.082	5.8	0.0	0.5	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand		
BSBR-B-03	Bridge	5/9/2011	12:12:24 PM	12900806.34	295721.35	826.2034	0.0603	0.0723	0.0942	4.8	0.2	0.3	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Gravel		
BSBR-B-04	Bridge	5/9/2011	12:16:39 PM	12900800.28	295617.34	826.1765	0.0722	0.0942	0.1187	4.0	0.0	0.0	None	None	None	Left	<1ft/sec		Point Bar	None	Gravel & Larger		
BSBR-B-05	Bridge	5/9/2011	12:20:48 PM	12900909.70	295633.50	826.1755	0.0858	0.111	0.1403	0.6	0.2	0.2	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		
BSBR-B-06	Bridge	5/11/2011	4:57:41 PM	12900902.49	295753.00	826.0602	0.0705	0.0918	0.1158	2.3	1.0	1.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
SMP-B-01	Focus	5/6/2011	9:12:04 AM	12901585.90	295637.29	826.3209	0.0371	0.0431	0.0569	1.2	3.2	3.7	Light	Moderate	None	Other-Comments	No		Other-Comments	50%-75%	Soft Sediment		MARSH
SMP-B-03	Focus	5/6/2011	9:23:36 AM	12901525.76	295593.99	826.2528	0.0308	0.0349	0.0465	1.0	2.4	5.0	Moderate	Heavy	Few	Center	No		Other-Comments	50%-75%	Soft Sediment		MARSH
SMP-B-04	Focus	5/6/2011	9:34:46 AM	12901448.69	295623.03	826.1038	0.04	0.0469	0.0616	1.2	3.1	5.5	Light	Light	Few	Center	No		Other-Comments	25%-50%	Soft Sediment		MARSH

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
SMP-B-05	Focus	5/6/2011	9:42:49 AM	12901495.52	295643.93	826.343	0.028	0.0506	0.0578	1.5	2.5	5.4	None	None	None	Center	No		Other-Comments	25%-50%	Soft Sediment	RSID SURF SHN	MARSH
SMP-B-06	Focus	5/6/2011	9:50:26 AM	12901529.45	295663.72	826.2655	0.0394	0.0538	0.0667	1.3	1.7	4.7	Light	Light	Few	Center	No		Other-Comments	25%-50%	Soft Sediment	RSID SURF SHN	MARSH
SMP-B-07	Focus	5/6/2011	9:57:35 AM	12901447.82	295665.87	826.2931	0.031	0.0446	0.0543	0.9	1.5	3.2	Light	Light	None	Center	No		Other-Comments	25%-50%	Sand over Silt	HVY RISD SURFSHN	MARSH
SMP-B-08	Focus	5/6/2011	10:03:29 AM	12901386.64	295659.25	826.2655	0.0338	0.0534	0.0632	1.0	2.4	2.4	Light	Light	None	Center	No		Other-Comments	25%-50%	Silt over Sand	HVY RISD SURFSHN	MARSH
SMP-B-09	Focus	5/6/2011	10:08:40 AM	12901364.76	295581.02	826.1637	0.038	0.0628	0.0735	1.0	3.1	5.7	Light	Light	Few	Center	No		Other-Comments	50%-75%	Soft Sediment	HVY RISD SURFSHN	MARSH
SMP-B-10	Focus	5/6/2011	10:14:48 AM	12901336.18	295610.41	826.2734	0.0349	0.0585	0.0682	1.5	3.7	5.0	Light	Light	Few	Center	No		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-11	Focus	5/6/2011	10:19:40 AM	12901269.18	295643.13	826.3115	0.0321	0.0551	0.0638	1.0	4.3	5.5	Light	Light	None	Center	No		Other-Comments	50%-75%	Soft Sediment		MARSH
SMP-B-12	Focus	5/6/2011	10:25:28 AM	12901195.55	295637.62	826.364	0.028	0.0506	0.0578	1.3	3.9	4.6	Light	Light	None	Center	No		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-13	Focus	5/6/2011	10:30:38 AM	12901118.88	295630.66	826.3718	0.0468	0.0986	0.1092	1.1	3.6	5.2	Light	Light	None	Center	No		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-14	Focus	5/6/2011	10:36:10 AM	12901025.25	295613.18	826.3009	0.0356	0.0656	0.0746	2.0	3.9	4.3	None	None	None	Center	No		Other-Comments	5%-25%	Soft Sediment	HVY RSDL SRF SHN	MARSH
SMP-B-15	Focus	5/6/2011	10:40:49 AM	12900965.73	295613.48	826.3466	0.0352	0.0646	0.0735	2.5	0.5	1.6	None	None	None	Center	No		Other-Comments	25%-50%	Sand over Silt	HVY RSDL SRF SHN	MARSH
SMP-B-16	Focus	5/6/2011	10:44:19 AM	12900950.70	295566.64	826.2936	0.0342	0.0623	0.071	1.7	2.6	2.6	Light	Light	None	Center	No		Other-Comments	25%-50%	Silt over Sand	HVY RSDL SRF SHN	MARSH
SMP-B-17	Focus	5/6/2011	10:48:22 AM	12901031.50	295500.76	826.3351	0.0364	0.0658	0.0752	0.7	2.6	3.0	Light	Light	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment	MARSH	
SMP-B-18	Focus	5/6/2011	10:51:08 AM	12901044.30	295457.59	826.318	0.0344	0.0617	0.0706	0.4	2.9	3.7	Light	Light	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment		MARSH
SMP-B-19	Focus	5/6/2011	10:56:49 AM	12901104.00	295453.56	826.3463	0.0444	0.0762	0.0882	0.6	0.6	0.9	Light	Light	None	Center	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		MARSH
SMP-B-20	Focus	5/6/2011	11:01:35 AM	12901072.62	295560.96	826.3466	0.0348	0.0638	0.0726	1.2	3.1	4.2	None	None	None	Center	<1ft/sec		Other-Comments	None	Soft Sediment		MARSH
SMP-B-21	Focus	5/6/2011	11:06:00 AM	12901186.05	295588.52	826.0738	0.0524	0.1029	0.1155	1.4	3.7	4.1	None	None	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment		MARSH
SMP-B-22	Focus	5/6/2011	11:11:53 AM	12901337.66	295574.84	826.1783	0.036	0.0626	0.0722	1.0	4.0	6.0	Light	Light	None	Center	<1ft/sec		Other-Comments	>75%	Soft Sediment		MARSH
SMP-B-23	Focus	5/6/2011	11:18:33 AM	12901278.36	295582.94	826.3735	0.0313	0.0522	0.0609	1.4	4.2	5.1	None	None	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment		MARSH
SMP-B-24	Focus	5/6/2011	1:02:58 PM	12901644.21	294800.11	826.4782	0.0261	0.0379	0.046	0.5	1.8	2.3	Light	Light	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment		MARSH
SMP-B-25	Focus	5/6/2011	1:07:09 PM	12901609.05	294778.02	824.5511	3.2125	5.1423	6.0633	2.7	0.4	0.5	Light	Light	None	Center	<1ft/sec		Other-Comments	None	Silt over Sand		MARSH
SMP-B-26	Focus	5/6/2011	1:18:02 PM	12901593.62	295001.43	826.3996	0.0653	0.1233	0.1395	0.8	3.1	2.8	Light	Moderate	None	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-27	Focus	5/6/2011	1:27:31 PM	12901580.42	295036.39	826.3789	0.051	0.12	0.1304	0.5	0.5	1.6	Light	Light	None	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-28	Focus	5/6/2011	1:30:56 PM	12901558.65	295001.74	824.7923	2.318	3.8699	4.511	1.1	3.0	3.4	None	None	None	Center	<1ft/sec		Other-Comments	<5%	Silt over Sand		MARSH
SMP-B-29	Focus	5/6/2011	1:37:06 PM	12901610.05	294987.18	825.7718	0.0665	0.1881	0.1995	0.6	1.7	2.1	Light	Light	None	Center	<1ft/sec		Other-Comments	<5%	Silt over Sand		MARSH
SMP-B-30	Focus	5/6/2011	1:43:38 PM	12901491.21	295105.85	823.2189	0.0786	0.1431	0.1633	0.7	1.8	2.3	Light	Light	None	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-31	Focus	5/6/2011	1:46:55 PM	12901405.21	295186.74	826.204	0.0235	0.0412	0.0474	0.6	1.5	3.0	Light	Light	None	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-32	Focus	5/6/2011	1:50:34 PM	12901297.99	295289.48	826.387	0.04	0.0766	0.0865	0.6	2.7	3.9	Light	Light	Few	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-33	Focus	5/6/2011	1:56:20 PM	12901238.69	295416.81	826.4024	0.0745	0.1435	0.1617	0.5	2.7	4.8	Light	Moderate	None	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-34	Focus	5/6/2011	1:58:47 PM	12901280.44	295498.01	826.2875	0.0269	0.0524	0.0589	0.6	3.0	4.1	Light	Light	Few	Center	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		MARSH
SMP-B-35	Focus	5/6/2011	2:07:03 PM	12901192.43	295520.92	826.3972	0.027	0.0483	0.0554	0.5	3.3	4.7	Light	Light	None	Center	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		MARSH
SMP-B-36	Focus	5/6/2011	2:10:36 PM	12901150.83	295398.46	826.273	0.0358	0.0594	0.0693	0.9	2.2	3.1	Light	Light	None	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		MARSH
SMP-B-37	Focus	5/6/2011	2:13:48 PM	12901213.16	295374.33	826.179	0.0263	0.0434	0.0508	0.9	1.8	2.4	None	None	None	Center	<1ft/sec		Other-Comments	None	Soft Sediment		MARSH
SMP-B-38	Focus	5/6/2011	2:19:11 PM	12901244.07	295276.40	826.3449	0.0316	0.0512	0.0602	1.0	1.7	2.2	Light	Light	None	Center	<1ft/sec		Other-Comments	5%-25%	Soft Sediment	HEV RED SHE	MARSH
SMP-B-39	Focus	5/6/2011	2:24:02 PM	12901314.81	295162.03	826.3319	0.0966	0.1073	0.1444	0.6	1.3	2.7	Light	Light	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment		MARSH
SMP-B-40	Focus	5/6/2011	2:27:30 PM	12901406.57	295128.70	826.3857	0.0279	0.0424	0.0508	0.5	0.6	2.6	Light	Light	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment		MARSH
SMP-B-41	Focus	5/6/2011	2:31:52 PM	12901396.18	295031.92	826.3938	0.0388	0.0541	0.0666	0.5	1.4	3.2	Light	Moderate	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment	HEV SHEEN	MARSH
SMP-B-42	Focus	5/6/2011	2:39:33 PM	12901693.96	294797.32	826.4465	0.0347	0.0535	0.0638	0.5	1.7	2.4	Light	Light	None	Center	<1ft/sec		Other-Comments	25%-50%	Soft Sediment	HEV SHEEN	MARSH
SMP-B-43	Focus	5/6/2011	2:42:52 PM	12901770.20	294821.64	825.9577	1.3031	1.7769	2.2035	0.6	1.5	1.5	Moderate	Heavy	Few	Center	<1ft/sec		Other-Comments	25%-50%	Soft Sediment	HEV SHEEN	MARSH
SMP-B-44	Focus	5/6/2011	2:47:56 PM	12901806.67	294787.16	829.4211	1.2852	1.9282	2.3173	1.0	1.2	1.2	Light	Moderate	None	Center	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		MARSH
SMP-B-45	Focus	5/6/2011	2:51:27 PM	12901824.88	294726.80	827.8062	1.9272	2.7522	3.3599	0.5	2.1	2.5	Moderate	Moderate	Few	Center	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		MARSH
SMP-B-46	Focus	5/6/2011	2:53:47 PM	12901850.61	294643.05	834.4061	3.1521	4.6322	5.6029	0.4	0.3	0.3	Light	Light	None	Center	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		MARSH
SMP-B-47	Focus	5/7/2011	8:54:57 AM	12901641.24	294814.46	823.7458	7.1222	10.4651	12.6588	0.8	1.0	1.1	None	None	None	Center	<1ft/sec		Other-Comments	5%-25%		WATER TEMP 56.8	MARSH
SMP-B-48	Focus	5/7/2011	9:03:17 AM	12901731.43	294785.12	822.2832	9.214	10.832	14.2207	1.2	2.1	2.4	Moderate	Heavy	Few	Center	<1ft/sec		Other-Comments	5%-25%	Silt over Sand	WATER TEMP 56.8	MARSH
SMP-B-49	Focus	5/7/2011	9:05:46 AM	12901749.21	294751.70	821.1148	6.7862	10.0106	12.094	1.1	1.0	1.8	None	None	None	Center	<1ft/sec		Other-Comments	<5%	Silt over Sand	WATER TEMP 56.8	MARSH
SMP-B-50	Focus	5/12/2011	9:26:09 AM	12901732.05	294826.98	826.1616	0.0693	0.0499	0.0854	0.7	0.8	1.3	Heavy	Heavy	Many	Other-Comments	No	No	Pond	None	Soft Sediment		
SMP-B-50	Focus	5/7/2011	9:08:21 AM	12901747.73	294708.21	821.9764	9.1419	11.2261	14.4776	0.9	1.5	1.7	Light	Light	None	Center	<1ft/sec		Other-Comments	<5%	Soft Sediment	WATER TEMP 56.8	MARSH
SMP-B-51	Focus	5/12/2011	9:32:35 AM	12901774.83	294861.75	826.3599	0.3171	0.3331	0.4599	0.3	1.5	1.3	Heavy	Heavy	Many	Other-Comments	No	No	Pond	None	Soft Sediment		South Mill Pond, BAD POS/NO NTRIP
SMP-B-52	Focus	5/12/2011	9:36:42 AM	12901665.80	294845.24	826.2416	0.1006	0.1022	0.1434	0.7	0.9	1.1	Moderate	Heavy	Few	Other-Comments	No	No	Pond	<5%	Soft Sediment		South Mill Pond
SMP-B-53	Focus	5/12/2011	9:40:23 AM	12901618.54	294844.94	826.2501	0.0655	0.0812	0.1043	1.0	0.9	1.3	Light	Light	Few	Other-Comments	<1ft/sec	<1 ft/sec	Pond	None	Sand & Silt		South Mill Pond
SMP-B-54	Focus	5/12/2011	12:08:58 PM	12901620.07	294943.09	826.3023	0.0463	0.0544	0.0714	0.8	0.0	0.0	Heavy	Heavy	Many	Other-Comments	<1ft/sec	<1 ft/sec	Pond	None	Sand & Silt		South Mill Pond
SMP-B-55	Focus	5/12/2011	12:12:36 PM	12901564.76	294981.25	826.203	0.0403	0.0479	0.0626	0.7	2.0	2.8	Light	Moderate	None	Other-Comments	<1ft/sec	<1 ft/sec	Pond	None	Soft Sediment		South Mill Pond
MP 15.25-15.75																							
15.4-B-01	Focus	5/9/2011	8:47:48 AM	12901480.28	296471.07	826.2385	0.0694	0.0967	0.119	2.5	0.1	0.1	None	None	None	Left	<1ft/sec		Cut Bank	<5%	Sand & Gravel		
15.4-B-02	Focus	5/9/2011	8:52:37 AM	12901391.76	296451.49	825.8641	1.5955	2.0589	2.6048	3.7	0.0	0.0	None	None	None	Left	<1ft/sec		Cut Bank	<5%	Sand & Gravel		
15.4-B-03	Focus	5/9/2011	8:57:11 AM	12901311.47	296382.89	826.0363	0.9488	1.3868	1.6803	4.6	0.4	0.6	None	None	None	Center	1-3 ft/sec		Mid-Channel	<5%	Sand & Silt		
15.4-B-04	Focus	5/11/2011	5:11:19 PM	12901218.96	296351.41	826.1374	0.045	0.0504	0.0676	0.9	2.6	3.4	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Other-Comments	>75%	Soft Sediment	HVY SURFACE SHN	MARSH
EDRBR-B-01	Bridge	5/8/2011	4:19:25 PM	12902002.04	296807.36	824.7557	1.7039	3.7844	4.1503	1.6	0.6	0.9	Heavy	Heavy	Common	Right	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment		DOWSTR ROCK BOT, MARSH
EDRBR-B-02	Bridge	5/8/2011	4:23:52 PM	12901956.93	296808.85	828.2329	1.631	3.8889	4.2171	4.7	1.0	2.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	5%-25%	Silt over Sand		DOWSTR ROCK BOT, MARSH
EDRBR-B-03	Bridge	5/8/2011	4:26:42 PM	12901919.54	296818.12	826.1163	0.0317	0.0676	0.0747	3.8	0.3	2.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	5%-25%	Sand		DOWSTR ROCK BOT, MARSH
EDRBR-B-04	Bridge	5/8/2011	4:36:07 PM	12901854.98	296828.09	828.3607	1.3532	2.3591	2.7196	1.1	0.5	0.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	5%-25%	Sand	HEV SUR SHEEN	DOWSTR ROCK BOT
EDRBR-B-05	Bridge	5/8/2011	4:41:46 PM	12902003.69	296768.12	830.8265	2.1675	3.9396	4.4965	2.0	0.5	0.7	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	5%-25%	Sand & Silt		INSIDE BOOM
NMP-B-01	Focus	5/8/2011	10:27:11 AM	12901949.23	296715.35	826.1099	0.1121	0.0681	0.1311	4.8	1.6	1.8	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	None	Soft Sediment	HEV RES SHEEN	North Mill Pond, MARSH
NMP-B-02	Focus	5/8/2011	10:36:35 AM	12901889.29	296675.12	827.292	4.4019	2.3567	4.9931	5.2	2.0	2.1	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	None	Sand & Silt	HEV RES SHEEN	North Mill Pond, MARSH
NMP-B-03	Focus	5/8/2011	10:41:04 AM	12901810.19	296603.90	826.0217	0.0949	0.0513	0.1079	5.7	1.2	1.7	None	None	None	Other-Comments	<1ft/sec		Other-Comments	None	Sand & Silt	HEV RES SHEEN	North Mill Pond, MARSH
NMP-B-04	Focus	5/8/2011	10:46:56 AM	12901738.21	296534.86	826.7579	3.3126	1.9168	3.8272	6.1	1.1	1.6	None	None	None	Other-Comments	<1ft/sec		Other-Comments	None	Sand		North Mill Pond, BOOM LINE, MARSH
NMP-B-05	Focus	5/8/2011	10:56:41 AM	12901659.99	296465.81	823.1525	3.1334	1.9744	3.7035	5.5	0.9	1.0	Light	Moderate	None	Other-Comments	<1ft/sec		Other-Comments	None	Silt over Sand		North Mill Pond, BOOM LINE, MARSH
NMP-B-06	Focus	5/8/2011	11:04:33 AM	12901660.61	296431.76	825.3601	4.6526	3.5197	5.834	0.6	1.1	3.0	Heavy	Heavy	Many	Other-Comments	<1ft/sec		Other-Comments	5%-25%	Silt over Sand		North Mill Pond, MARSH
NMP-B-07	Focus	5/8/2011	11:12:43 AM	12901716.12	296481.51	825.9733	0.0919	0.0784	0.1208	0.5	1.2	1.4	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	5%-25%	Sand		North Mill Pond, MARSH
NMP-B-08	Focus	5/8/2011	11:28:23 AM	12901809.67	296543.59	827.6425	3.4067	3.463	4.8578	0.4	0.4	1.3	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	5%-25%	Sand		North Mill Pond, MARSH
NMP-B-09	Focus	5/8/2011	11:36:32 AM	12901866.55	296592.89	826.0388	0.0588	0.0662	0.0886	0.6	0.2	0.3	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	None	Sand		North Mill Pond, MARSH
NMP-B-10	Focus	5/8/2011	11:45:47 AM	12901953.57	296664.37	825.2739	3.3682	4.1643	5.3559	0.7	1.7	2.2	Heavy	Heavy	Many	Other-Comments	<1ft/sec		Other-Comments	<5%	Soft Sediment		North Mill Pond, MARSH
NMP-B-11	Focus	5/8/2011	11:54:16 AM	12902020.81	296655.84	823.6419	2.1454	2.1496	3.037	1.0	1.5	1.5	Heavy	Heavy	Common	Other-Comments	<1ft/sec		Other-Comments	None	Soft Sediment		North Mill Pond, MARSH

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
NMP-B-12	Focus	5/8/2011	11:58:19 AM	12902000.85	296572.93	824.7714	2.0447	1.9911	2.854	1.1	2.3	4.8	Moderate	Heavy	Few	Other-Comments	<1ft/sec		Other-Comments	None	Soft Sediment		North Mill Pond, MARSH
NMP-B-13	Focus	5/8/2011	12:03:11 PM	12901938.11	296439.57	824.251	1.6472	1.5945	2.2925	1.2	1.8	1.8	Moderate	Moderate	Common	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-14	Focus	5/8/2011	12:07:17 PM	12901894.47	296264.19	823.9535	1.8723	1.6799	2.5155	1.4	0.9	1.6	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Silt over Sand		North Mill Pond, MARSH
NMP-B-15	Focus	5/8/2011	12:11:39 PM	12901770.70	296071.18	822.8211	3.569	3.3623	4.9034	1.8	2.7	3.8	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-16	Focus	5/8/2011	12:15:40 PM	12901678.10	295922.19	824.251	2.159	2.2202	3.0969	1.8	2.2	2.8	None	None	None	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-17	Focus	5/8/2011	12:23:05 PM	12901560.40	295824.18	826.5118	1.373	1.3802	1.9469	1.5	3.0	4.2	None	None	None	Other-Comments	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-18	Focus	5/8/2011	2:27:07 PM	12901939.07	296519.15	828.3575	1.1679	1.8303	2.1711	1.0	2.4	3.2	Light	Light	Few	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-19	Focus	5/8/2011	2:31:24 PM	12901863.72	296389.88	826.1344	0.0413	0.0749	0.0855	1.5	3.2	5.2	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-20	Focus	5/8/2011	2:37:13 PM	12901663.30	296265.02	827.6498	0.91	1.497	1.7519	1.4	2.7	4.4	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-21	Focus	5/8/2011	2:42:52 PM	12901430.99	296227.03	826.0199	0.043	0.0721	0.0839	1.4	3.3	4.8	Moderate	Moderate	Few	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-22	Focus	5/8/2011	2:48:10 PM	12901390.17	296188.37	825.9623	0.1263	0.1666	0.209	1.5	3.3	4.6	Moderate	Moderate	Few	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-23	Focus	5/8/2011	2:54:27 PM	12901308.63	296078.87	826.079	0.0453	0.0772	0.0895	1.5	1.7	3.5	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-24	Focus	5/8/2011	2:59:21 PM	12901283.32	296034.79	824.3975	1.6683	2.9125	3.3565	1.5	2.8	3.2	Light	Moderate	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-25	Focus	5/8/2011	3:05:24 PM	12901326.93	295853.63	826.1559	0.037	0.0606	0.071	1.9	2.3	3.7	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-26	Focus	5/8/2011	3:12:39 PM	12901347.23	295786.67	824.1196	1.1306	1.828	2.1494	1.7	2.9	3.8	Light	Light	Few	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-27	Focus	5/8/2011	3:17:39 PM	12901406.65	295778.02	827.1159	0.7735	1.2394	1.461	1.7	2.7	3.7	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-28	Focus	5/8/2011	3:21:52 PM	12901348.22	295834.46	825.9673	0.8071	1.3069	1.536	2.1	2.6	5.7	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-29	Focus	5/8/2011	3:26:05 PM	12901441.90	295933.65	825.9884	1.127	1.8544	2.1701	2.9	2.7	4.5	None	None	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-30	Focus	5/8/2011	3:36:41 PM	12901386.13	296071.12	826.9771	0.8697	1.4129	1.6591	2.4	3.4	5.0	Light	Moderate	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-31	Focus	5/8/2011	3:40:23 PM	12901517.13	296149.36	826.1282	0.0402	0.0662	0.0774	2.5	3.1	5.3	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-32	Focus	5/8/2011	3:44:04 PM	12901622.12	296114.37	826.2538	0.0634	0.1082	0.1254	2.1	3.1	3.3	None	None	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-33	Focus	5/8/2011	3:46:25 PM	12901683.69	296043.67	826.3804	0.8452	1.6228	1.8297	2.3	2.6	3.6	None	None	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-34	Focus	5/8/2011	3:53:19 PM	12901804.20	296237.23	826.3007	0.0372	0.067	0.0766	1.8	3.7	4.8	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-35	Focus	5/8/2011	4:03:37 PM	12901879.22	296453.68	828.745	1.3463	2.7992	3.1061	1.0	2.0	3.1	Light	Light	Few	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-36	Focus	5/9/2011	10:14:38 AM	12902000.33	296718.07	825.9453	0.0394	0.0727	0.0827	1.0	2.0	3.0	Moderate	Heavy	None	Other-Comments	<1ft/sec		Other-Comments	None	Soft Sediment	MOD RESIDUAL SHN	North Mill Pond, MARSH
NMP-B-37	Focus	5/9/2011	10:36:34 AM	12901751.63	296324.56	825.8878	0.0222	0.042	0.0475	1.3	3.1	4.5	Light	Light	None	Other-Comments	No		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-38	Focus	5/9/2011	10:46:25 AM	12901561.19	296273.20	825.9724	0.0278	0.0528	0.0597	1.2	3.5	4.8	Moderate	Heavy	None	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment		North Mill Pond, MARSH
NMP-B-39	Focus	5/9/2011	10:51:18 AM	12901588.09	296208.80	826.0802	0.0358	0.0659	0.075	1.3	3.3	4.7	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-40	Focus	5/9/2011	10:57:18 AM	12901467.82	296189.33	826.1017	0.0328	0.0577	0.0664	1.8	2.8	3.9	Light	Moderate	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
NMP-B-41	Focus	5/9/2011	11:05:10 AM	12901371.97	296178.14	826.1205	0.0401	0.0658	0.0771	1.5	2.5	3.6	Light	Moderate	None	Other-Comments	<1ft/sec		Other-Comments	25%-50%	Soft Sediment	RESIDUAL SHN MOD	North Mill Pond, MARSH
NMP-B-42	Focus	5/9/2011	11:22:44 AM	12901903.73	296338.88	825.9713	0.0544	0.08	0.0967	1.5	1.6	2.5	Light	Light	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		North Mill Pond, MARSH
MP 16.50-16.75																							
SKB-E-01	Bridge	5/6/2011	10:04:27 AM	12898582.42	301477.84	802.4108	0.0405	0.0661	0.0776	1.2	0.3	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1-3 FTS
SKB-E-02	Bridge	5/6/2011	10:11:23 AM	12898567.81	301356.87	802.1749	0.0355	0.0619	0.0713	4.4	0.1	0.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		WTRTMP 57.8 1-3FT
MP 16.75-17.00																							
16.95PA-E-01	Launch	5/6/2011	10:19:43 AM	12897484.02	301906.09	801.6548	0.1238	0.3135	0.337	1.4	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1-3 FTS
16.95PA-E-02	Launch	5/6/2011	10:24:37 AM	12897584.62	301851.94	801.63	0.0623	0.14	0.1533	3.3	0.7	0.8	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1-3FTS
16.95PA-A-03	Public Access	5/12/2011	9:20:03 AM	12897527.16	301884.75	801.0018	0.1162	0.1708	0.2066	1.7	0.2	0.3	None	None	None	Left			Strt Channel Edg	None	Sand & Silt		PHOTO208, INSIDE BOOM
16.95PA-A-04	Public Access	5/12/2011	9:24:30 AM	12897533.41	301881.75	800.9009	0.0453	0.1171	0.1256	1.9	0.1	0.1	None	None	None	Left			Strt Channel Edg	None	Soft Sediment	INSIDE HARDBOOM	
MP 17.00-17.25																							
ASBR-E-01	Bridge	5/6/2011	10:31:59 AM	12896856.07	302434.41	800.7388	0.0707	0.1526	0.1682	2.9	0.1	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		LESS 1FTS
ASBR-E-02	Bridge	5/6/2011	10:36:34 AM	12896770.62	302358.55	801.1301	0.0645	0.1631	0.1754	1.0	0.3	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		LESS 1FTS
ASBR-A-03	Bridge	5/12/2011	9:38:02 AM	12896878.19	302274.67	801.0718	0.0366	0.0614	0.0715	1.5	0.0	0.0	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		CLOSE AS POSS TO BR
ASBR-A-04	Bridge	5/12/2011	9:43:15 AM	12896923.75	302383.75	800.783	0.0355	0.069	0.0775	1.4	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Gravel & Larger		
MP 18.00-18.25																							
18.15S-E-01	Focus	5/6/2011	11:07:20 AM	12892535.84	305524.65	799.6193	0.0368	0.0671	0.0765	1.6	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.15S-E-02	Focus	5/6/2011	11:15:51 AM	12892552.10	305514.91	799.4841	0.0208	0.0345	0.0403	1.7	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.15S-E-03	Focus	5/6/2011	11:23:54 AM	12892575.99	305502.79	799.6229	0.037	0.0541	0.0656	1.5	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.15S-E-04	Focus	5/6/2011	11:29:42 AM	12892614.56	305489.55	799.5716	0.0469	0.0603	0.0764	1.8	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		1FTS
18.15S-E-05	Focus	5/6/2011	11:36:04 AM	12892482.82	305544.32	799.5135	0.1791	0.1872	0.2591	1.6	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.15S-E-06	Focus	5/6/2011	11:45:37 AM	12892436.62	305564.11	799.5569	0.0448	0.059	0.0741	1.9	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.15S-E-07	Focus	5/6/2011	11:49:54 AM	12892471.31	305576.16	799.4884	0.0349	0.049	0.0602	2.3	0.3	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
20SBR-E-01	Bridge	5/6/2011	10:47:48 AM	12892737.46	305668.68	799.6385	0.0283	0.0561	0.0629	2.5	0.1	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Gravel & Larger	VIS SHEEN	LESS 1FTS
20SBR-E-02	Bridge	5/6/2011	10:55:18 AM	12892756.27	305415.73	799.4372	0.0285	0.0604	0.0668	1.7	0.2	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
20SBR-A-01	Bridge	5/12/2011	9:55:31 AM	12892856.30	305360.14	799.4333	0.0268	0.0566	0.0626	1.9	0.3	0.4	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Gravel		
20SBR-A-02	Bridge	5/12/2011	9:59:51 AM	12892866.11	305595.20	799.3106	0.0327	0.0637	0.0715	1.5	0.3	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
MP 18.25-18.50																							
18.5S-E-01	Focus	5/6/2011	12:38:21 PM	12890748.52	305916.12	799.3751	0.0385	0.0504	0.0634	0.6	0.5	0.6	Moderate	Light	Common	Left	<1ft/sec		Downstrm Island	None	Silt over Sand		LESS 1FTS
18.5S-E-02	Focus	5/6/2011	12:46:11 PM	12890675.10	305928.06	799.2706	0.027	0.0334	0.0429	0.3	0.7	1.1	Moderate	Light	Common	Left	<1ft/sec		Downstrm Island	None	Sand & Silt		LESS 1FTS BD
18.5S-E-03	Focus	5/6/2011	12:49:56 PM	12890549.85	305965.60	799.2503	0.0361	0.0459	0.0584	2.1	0.3	0.4	None	None	None	Left	1-3 ft/sec		Downstrm Island	None	Sand		1-3FTS BD
18.5S-E-04	Focus	5/6/2011	12:59:21 PM	12890506.34	305907.20	799.1196	0.0375	0.0506	0.063	1.4	0.6	0.7	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
18.5S-E-05	Focus	5/6/2011	1:05:27 PM	12890597.93	305897.67	799.2575	0.0397	0.0548	0.0677	1.5	0.3	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.5S-E-06	Focus	5/6/2011	1:11:06 PM	12890766.15	305866.92	798.9414	0.0899	0.0995	0.1341	1.2	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.5S-E-07	Focus	5/6/2011	1:15:33 PM	12890821.98	305889.26	799.3532	0.0269	0.0411	0.0491	0.9	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.5S-E-08	Focus	5/6/2011	1:23:32 PM	12890981.42	305815.11	804.3611	1.7492	2.9966	3.4698	1.8	0.2	0.3	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Sand & Silt		LESS 1FTS
18.5S-E-09	Focus	5/6/2011	1:28:46 PM	12890697.56	305970.85	799.176	0.0219	0.0374	0.0433	4.4	0.1	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3 FTS
18.5S-E-10	Focus	5/6/2011	1:35:01 PM	12890716.94	305957.89	799.0841	0.034	0.0603	0.0692	3.8	0.2	0.3	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand		
MP 18.50-18.75																							
18.65N-E-01	Focus	5/6/2011	2:03:33 PM	12889870.90	306282.88	799.0491	0.056	0.098	0.1129	2.1	0.1	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.65N-E-02	Focus	5/6/2011	2:06:53 PM	12889919.83	306260.08	798.8494	1.2504	2.2061	2.5358	2.1	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.65N-E-03	Focus	5/6/2011	2:10:57 PM	12889796.55	306313.39	801.0441	0.846	1.436	1.6667	2.1	0.3	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.65S-A-05	Focus	5/12/2011	10:19:01 AM	12889711.08	306132.58	798.8116	0.0252	0.0509	0.0568	1.8	0.4	0.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		OUTFALL PIPE ON BANK
18.65S-A-06	Focus	5/12/2011	10:24:12 AM	12889650.51	306159.03	798.7149	0.0303	0.0602	0.0674	2.7	0.3	0.5	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
18.65S-E-01	Focus	5/6/2011	1:43:37 PM	12889862.51	306103.17	799.1838	0.0309	0.0563	0.0642	1.7	0.4	0.7	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand		LESS 1FTS
18.65S-E-02	Focus	5/6/2011	1:47:48 PM	12889975.54	306070.40	799.048	0.0521	0.0909	0.1047	2.5	0.7	1.6	None	None	None	Left	<1ft/sec		Mid-Channel	None	Soft Sediment		LESS 1FTS
18.65S-E-03	Focus	5/6/2011	1:52:27 PM	12889882.55	306059.82	808.4776	1.57	2.8684	3.27	2.2	1.0	1.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
18.65S-E-04	Focus	5/6/2011	1:58:42 PM	12889715.61	306108.37	804.2178	2.0767	3.9642	4.4752	1.9	0.3	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		
MP 18.75-19.00																							
18.8C-E-01	Focus	5/6/2011	2:20:40 PM	12889023.03	306452.48	799.1066	0.0611	0.0882	0.1073	1.8	0.4	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		LESS 1FTS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
18.8C-E-02	Focus	5/6/2011	2:27:42 PM	12888979.94	306616.41	798.985	0.0415	0.0602	0.0732	2.5	0.5	0.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
18.8C-E-03	Focus	5/6/2011	2:32:46 PM	12889097.74	306673.34	799.6372	1.2038	1.5295	1.9464	2.1	0.3	0.4	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
18.8C-E-04	Focus	5/6/2011	2:39:38 PM	12889225.37	306603.42	802.122	3.4167	3.0525	4.5817	1.6	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
18.8C-E-05	Focus	5/6/2011	2:47:51 PM	12889096.78	306424.71	798.3991	3.7502	4.3994	5.7809	1.7	0.6	0.7	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
18.8C-E-06	Focus	5/6/2011	2:58:15 PM	12889177.90	306373.78	798.9951	0.0272	0.0508	0.0576	1.7	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand	LESS 1FTS	
18.8C-E-07	Focus	5/7/2011	8:45:41 AM	12889318.29	306559.61	799.4693	0.1544	0.1436	0.2109	2.0	0.6	0.7	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		LESS 1FTS
18.8C-E-08	Focus	5/7/2011	8:53:26 AM	12889356.78	306536.80	799.3741	1.5815	1.8657	2.4458	2.9	0.2	0.4	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	<5%	Sand & Silt		LESS 1FTS
18.8C-E-09	Focus	5/7/2011	9:02:38 AM	12889294.91	306541.68	802.8487	1.7506	2.4586	3.0182	1.5	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Gravel & Larger		LESS 1FTS
18.8C-E-10	Focus	5/7/2011	9:10:09 AM	12889337.12	306399.13	799.1067	0.0315	0.0363	0.0481	2.6	0.5	0.7	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		LESS 1FTS
18.8C-A-11	Focus	5/12/2011	10:32:21 AM	12889268.12	306400.72	798.7075	0.0233	0.0412	0.0473	3.1	0.4	0.9	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
18.8C-A-12	Focus	5/12/2011	10:36:16 AM	12889311.48	306498.11	798.6357	0.0894	0.1282	0.1563	2.4	0.3	0.6	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
18.8C-A-13	Focus	5/12/2011	10:40:12 AM	12889157.81	306518.97	798.6762	0.0303	0.0553	0.0631	2.7	0.3	0.5	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
18.85N-E-01	Focus	5/7/2011	9:21:46 AM	12888942.20	306766.74	798.9273	0.0531	0.0649	0.0839	1.2	0.3	0.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
18.85N-E-02	Focus	5/7/2011	9:25:40 AM	12888989.37	306734.84	801.6279	1.9527	2.36	3.0631	2.1	0.2	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.85N-E-03	Focus	5/7/2011	9:30:23 AM	12888893.44	306776.82	798.9224	0.0321	0.0336	0.0464	2.7	0.2	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.95N-E-01	Focus	5/7/2011	9:35:17 AM	12888575.44	306947.62	813.5437	2.7426	3.3015	4.2921	2.6	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.95N-E-02	Focus	5/7/2011	9:38:54 AM	12888604.48	306929.09	807.9025	1.9092	2.7914	3.3819	2.9	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
18.95N-E-03	Focus	5/7/2011	9:43:37 AM	12888509.01	306972.12	799.1671	1.8857	2.8073	3.3819	2.8	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
19.0C-E-01	Focus	5/7/2011	9:49:45 AM	12888147.54	307021.88	798.9053	0.0488	0.0738	0.0885	3.5	0.4	0.9	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		1-3FTS
19.0C-E-02	Focus	5/7/2011	9:57:01 AM	12888161.25	307017.26	798.7877	0.0312	0.0537	0.0621	3.6	0.4	1.1	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		1-3FTS
19.0C-E-03	Focus	5/7/2011	9:59:44 AM	12888188.12	306999.26	798.8387	0.0252	0.0448	0.0514	3.6	0.6	1.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand over Silt		1-3FTS
19.0C-E-04	Focus	5/7/2011	10:05:42 AM	12888092.49	306984.72	798.8545	0.0327	0.0594	0.0678	3.2	0.3	1.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		LESS 1FTS
19.0C-E-05	Focus	5/7/2011	10:11:55 AM	12888082.53	307111.87	798.9629	0.0373	0.0707	0.08	3.1	0.5	1.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		LESS 1FTS
19.0C-A-06	Focus	5/12/2011	10:51:57 AM	12888155.71	306977.01	798.4166	0.0259	0.0429	0.0501	3.6	0.4	0.4	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
19.0C-A-07	Focus	5/12/2011	10:54:44 AM	12888189.14	307054.84	798.5426	0.032	0.0568	0.0652	2.3	0.4	0.7	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
MP 19.00-19.25																							
19.15S-A-04	Focus	5/12/2011	11:06:19 AM	12887486.48	307361.11	798.4807	0.0373	0.0574	0.0685	2.4	0.4	0.6	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
19.15S-A-05	Focus	5/12/2011	11:08:25 AM	12887503.79	307346.15	798.3601	0.0556	0.0647	0.0853	2.0	0.5	0.8	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt	U BDY	
19.15S-A-06	Focus	5/12/2011	11:12:34 AM	12887475.18	307378.13	798.3521	0.0388	0.056	0.0682	2.3	0.5	0.8	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt	D BDY	
19.15S-A-07	Focus	5/12/2011	11:15:46 AM	12887472.86	307355.59	798.4604	0.0434	0.0641	0.0774	2.5	0.5	1.0	Heavy	Heavy	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment		
19.15S-A-08	Focus	5/12/2011	11:20:45 AM	12887462.91	307341.23	798.2907	0.0663	0.0985	0.1188	2.5	0.5	1.0	Light	Light	Few	Center	No	No	Mid-Channel	None	Soft Sediment	L BDY	
19.15S-A-09	Focus	5/12/2011	11:26:21 AM	12887495.95	307412.37	798.5479	0.035	0.0493	0.0605	2.4	0.3	0.6	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand	LAT BDY	
19.15S-E-01	Focus	5/7/2011	10:25:10 AM	12887406.25	307327.99	798.8409	0.057	0.1244	0.1368	1.6	0.3	0.4	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
19.15S-E-02	Focus	5/7/2011	10:45:41 AM	12887477.77	307312.00	798.5685	0.0549	0.0869	0.1028	2.9	0.6	0.9	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
19.15S-E-03	Focus	5/7/2011	10:50:44 AM	12887393.97	307390.35	798.8437	0.0683	0.1525	0.1671	2.9	0.8	1.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		LESS 1FTS
19.25L1-E-01	Focus	5/7/2011	12:51:30 PM	12887001.58	307794.82	798.7535	0.037	0.0601	0.0706	1.1	0.2	0.3	None	None	None	Left	<1ft/sec		Downstrm Island	None	Silt over Sand		LESS 1FTS
19.25L1-E-02	Focus	5/7/2011	12:58:46 PM	12886976.25	307786.02	798.8776	0.0971	0.1656	0.192	1.1	0.4	0.6	Moderate	Moderate	Common	Left	<1ft/sec		Downstrm Island	None	Soft Sediment		LESS 1FTS
19.25L1-E-03	Focus	5/7/2011	1:01:42 PM	12886998.42	307770.68	798.736	0.0399	0.0694	0.0801	1.9	0.2	0.3	Light	Light	Few	Left	<1ft/sec		Downstrm Island	None	Silt over Sand		LESS 1FTS
19.25L1-E-04	Focus	5/7/2011	1:08:03 PM	12886966.93	307790.93	808.6221	2.3643	3.7952	4.4714	0.8	0.8	1.0	Moderate	Moderate	Common	Left	<1ft/sec		Downstrm Island	None	Soft Sediment		LESS 1FTS NO GO
19.25L1-E-05	Focus	5/7/2011	1:11:50 PM	12886972.88	307739.06	801.3224	2.1279	4.0878	4.6085	1.1	0.5	0.6	Moderate	Moderate	Common	Left	<1ft/sec		Downstrm Island	None	Soft Sediment		LESS 1FTS
19.25L1-E-06	Focus	5/7/2011	1:15:52 PM	12886998.67	307730.28	798.0285	0.1187	0.1563	0.1963	1.4	0.1	0.2	Moderate	Moderate	Common	Left	<1ft/sec		Downstrm Island	None	Soft Sediment		NO
19.25L1-E-08	Focus	5/7/2011	1:38:20 PM	12886788.34	307894.30	795.4004	3.3774	6.715	7.5165	0.8	0.6	0.7	Light	Light	Few	Island	No		Downstrm Island	None	Soft Sediment		MOD SHN PRIOR
19.25L1-E-09	Focus	5/7/2011	1:40:07 PM	12886794.00	307883.84	795.9913	2.3926	3.7542	4.4517	0.6	1.2	1.4	Moderate	Moderate	Common	Island	No		Downstrm Island	None	Soft Sediment		0FTS
19.25L1-E-10	Focus	5/7/2011	1:50:32 PM	12886806.01	307913.71	797.4728	1.6976	3.2789	3.6923	0.6	1.2	1.4	Moderate	Moderate	Common	Island	No		Downstrm Island	None	Soft Sediment		0FTS
19.25L1-E-11	Focus	5/7/2011	1:58:12 PM	12886765.98	307943.05	804.0543	2.7846	5.0517	5.7684	1.4	0.2	0.4	Light	Light	Few	Island	No		Downstrm Island	None	Silt over Sand		0FTS
19.25L1-E-12	Focus	5/7/2011	2:04:29 PM	12886780.09	307950.00	801.003	1.5753	3.0184	3.4048	1.2	1.1	1.3	Moderate	Moderate	Common	Island	No		Downstrm Island	None	Silt over Sand		PHT 353 SHN B4 AG
19.25L1-E-13	Focus	5/7/2011	2:10:32 PM	12886720.02	307979.70	768.6651	7.5694	11.395	13.68	1.2	0.7	0.9	Heavy	Heavy	Many	Left	No		Downstrm Island	None	Silt over Sand		0FTS
19.25L1-E-14	Focus	5/7/2011	2:15:15 PM	12886736.05	308052.08	809.5761	3.9943	5.6009	6.8793	1.1	0.4	0.5	Light	Light	Few	Island	No		Other-Comments	None	Silt over Sand	0FTS	
19.25L1-E-15	Focus	5/7/2011	2:20:04 PM	12886690.37	308062.43	801.0569	3.0884	4.0847	5.1208	1.1	0.7	0.9	Light	Light	Few	Island	No		Other-Comments	None	Silt over Sand		0FTS
19.25L1-E-16	Focus	5/7/2011	2:26:45 PM	12886687.87	308068.51	812.5264	2.7163	3.3122	4.2836	1.2	0.4	0.5	Light	Light	Few	Island	No		Other-Comments	None	Silt over Sand		0FTS
19.25L1-E-17	Focus	5/7/2011	2:31:53 PM	12886651.56	308149.75	808.4822	4.1605	3.3514	5.3425	1.5	0.4	0.5	Light	Light	Few	Island	No		Other-Comments	None	Silt over Sand		0FTS
19.25L1-E-18	Focus	5/7/2011	2:36:09 PM	12886629.02	308251.34	804.9781	1.323	2.2112	2.5767	0.6	1.1	1.2	Light	Light	Few	Island	No		Other-Comments	None	Other-Comments		0FTS SILTYSAND
19.25L1-E-19	Focus	5/7/2011	2:41:45 PM	12886649.95	308339.78	796.7113	1.2271	1.7589	2.1446	1.5	0.3	0.4	Moderate	Moderate	Common	Island	No		Downstrm Island	None	Soft Sediment		0FTS
19.25L1-E-20	Focus	5/7/2011	2:45:35 PM	12886620.21	308384.04	798.6117	0.0392	0.0578	0.0699	1.2	0.8	0.9	Heavy	Heavy	Many	Left	No		Strt Channel Edg	None	Silt over Sand		0FTS PHT359N360
19.25L1-E-21	Focus	5/7/2011	2:51:38 PM	12886623.87	308391.34	798.6239	0.0395	0.0612	0.0728	1.9	0.8	0.9	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS OTSDBOM
19.25L1-E-22	Focus	5/7/2011	2:58:23 PM	12886644.94	308416.73	798.5795	0.0272	0.0444	0.0521	4.2	0.2	1.8	None	None	None	Left	<1ft/sec		Downstrm Island	None	Sand over Silt		LS 1FTS
19.25L1-E-23	Focus	5/7/2011	3:02:34 PM	12886680.69	308339.35	798.4689	0.0583	0.0983	0.1143	1.9	0.2	0.4	None	None	None	Island	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
19.25S-E-01	Focus	5/7/2011	11:16:53 AM	12887042.19	307757.53	798.6245	0.0428	0.0725	0.0842	0.5	0.4	0.5	Heavy	Heavy	Many	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		LESS 1FTS
19.25S-E-02	Focus	5/7/2011	11:19:29 AM	12887050.10	307762.14	798.5497	0.0358	0.0655	0.0746	1.0	0.4	0.5	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		BD
19.25S-E-03	Focus	5/7/2011	11:25:33 AM	12887033.37	307732.37	798.7185	0.0436	0.0677	0.0805	1.6	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		LESS 1FTS
19.25S-E-04	Focus	5/7/2011	11:26:40 AM	12887039.46	307738.38	798.5435	0.078	0.154	0.1727	0.5	0.3	0.5	Moderate	Moderate	Common	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		LESS 1FTS
19.25S-E-05	Focus	5/7/2011	11:29:51 AM	12887056.92	307703.19	798.7844	0.076	0.0888	0.1169	0.6	0.5	0.6	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand & Silt		LESS 1FTS
19.25S-E-06	Focus	5/7/2011	11:39:20 AM	12887105.39	307645.38	798.0978	2.0621	3.0365	3.6705	0.5	0.2	0.2	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		LESS 1FTS
19.25S-E-07	Focus	5/7/2011	1:19:57 PM	12887038.99	307664.15	799.5024	1.894	3.9564	4.3864	2.8	0.2	0.8	Moderate	Moderate	Common	Left	<1ft/sec		Downstrm Island	None	Soft Sediment		LESS 1FTS
19.45N-A-04	Focus	5/12/2011	12:41:36 PM	12886590.29	308658.18	799.8371	1.7743	2.9274	3.4231	1.2	0.1	0.2	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt	SHEEN UPON ARRIVAL, U BDY	DOWNSTRMOFBOOM
19.45N-A-05	Focus	5/12/2011	12:45:40 PM	12886612.56	308661.80	804.6047	3.7597	6.0806	7.1491	0.6	0.2	0.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt	SHEEN UPON ARRIVAL	DOWN OFBOOM
19.45N-A-06	Focus	5/12/2011	12:49:39 PM	12886568.61	308672.99	803.0302	2.7584	4.5467	5.318	1.2	0.2	0.3	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment	SHEEN UPON ARRIVAL	
19.45N-A-07	Focus	5/12/2011	12:54:06 PM	12886522.03	308690.35	797.37	2.7382	5.0282	5.7254	1.3	0.2	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt	D BDY	
19.45N-A-08	Focus	5/12/2011	1:01:31 PM	12886541.89	308652.05	801.8317	2.4711	3.5123	4.2945	3.6	0.3	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt	LAT BDY	
19.45N-E-01	Focus	5/7/2011	3:09:26 PM	12886615.41	308637.75	804.3592	3.049	5.5928	6.3699	1.5	0.1	0.1	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		LESS 1FTS
19.45N-E-02	Focus	5/7/2011	3:14:22 PM	12886646.21	308573.73	798.5233	0.039	0.0616	0.0729	3.0	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
19.45N-E-03	Focus	5/7/2011	3:20:04 PM	12886685.20	308624.33	800.1093	1.5582	2.651	3.075	1.6	0.2	0.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand		LESS 1FTS
19.47T-A-01	Transect	5/12/2011	1:08:40 PM	12886518.62	308680.02	809.3507	2.0773	3.8908	4.4106	1.9	0.2	0.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
19.47T-A-02	Transect	5/12/2011	1:13:55 PM	12886430.78	308595.73	798.2186	0.0203	0.0342	0.0398	3.6	0.2	0.4	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
19.47T-E-01	Transect	5/7/2011	3:29:42 PM	12886359.06	308720.09	798.4355	0.0225	0.0591	0.0633	2.1	0.1	0.2	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand		
19.47T-E-02	Transect	5/7/2011	3:33:16 PM	12886335.53	308613.95	798.4811	0.0268	0.0543	0.0606	3.3	0.7	0.9	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		LESS 1FTS
19.47T-E-03	Transect	5/7/2011	3:46:01 PM	12886445.67	308466.37	798.8113	0.0586	0.1319	0.1443	1.1	0.4	0.7	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
19.47T-E-04	Transect	5/7/2011	3:49:02 PM	12886468.73	308488.75	798.3158	0.0397	0.0809	0.0901	1.0	0.2	0.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		BD

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
19.47T-E-05	Transect	5/7/2011	3:52:04 PM	12886385.96	308526.87	798.4317	0.0321	0.0662	0.0736	1.5	0.2	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		BD
MP 19.25-19.50																							
19.5N-A-01	Focus	5/12/2011	1:18:17 PM	12886294.31	308719.64	798.2311	0.0464	0.1047	0.1145	3.0	0.2	0.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
19.5N-A-02	Focus	5/12/2011	1:22:05 PM	12886274.91	308723.68	798.0318	0.1104	0.2528	0.2758	2.4	0.1	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
19.5N-E-01	Focus	5/7/2011	3:58:28 PM	12886161.93	308718.43	809.5801	1.5178	3.283	3.6169	1.5	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		LESS 1FTS
19.5N-E-02	Focus	5/7/2011	4:01:56 PM	12886207.31	308716.67	798.7741	0.0453	0.1618	0.168	2.3	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		LESS 1FTS
19.5N-E-03	Focus	5/7/2011	4:05:46 PM	12886082.74	308714.80	809.5654	2.5209	6.1726	6.6675	3.1	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		LESS 1FTS
MP 19.50-19.75																							
19.56T-A-01	Transect	5/8/2011	1:14:00 PM	12886007.05	308513.87	798.4116	0.0439	0.0678	0.0808	1.6	0.2	0.4	None	None	None	Left	No		Point Bar	None	Silt over Sand		
19.56T-A-02	Transect	5/8/2011	1:21:00 PM	12886030.85	308720.18	798.4226	0.0753	0.1541	0.1715	2.8	0.2	0.3	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Gravel		1.6FPS
19.56T-A-03	Transect	5/8/2011	1:25:00 PM	12886009.36	308620.80	798.3108	0.0682	0.11	0.1294	3.0	0.5	0.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		2.1FPS
19.60S-A-01	Focus	5/8/2011	10:56:00 AM	12886148.59	308520.71	798.5329	0.0244	0.0444	0.0506	0.7	0.3	0.6	None	None	None	Left	<1ft/sec		Point Bar	None	Soft Sediment		.8FPS
19.60S-A-02	Focus	5/8/2011	11:02:00 AM	12886002.66	308510.22	798.4176	0.0724	0.1259	0.1452	1.5	0.5	1.0	None	None	None	Left	No		Strt Channel Edg	None	Sand		.8FPS
19.60S-A-03	Focus	5/8/2011	11:08:00 AM	12885851.50	308538.63	798.3691	0.0232	0.0382	0.0447	1.1	0.6	1.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		.8FPS
19.60S-A-04	Focus	5/8/2011	11:14:00 AM	12885680.36	308467.65	798.3046	0.0678	0.0732	0.0998	0.9	0.4	0.6	Light	Light	None	Left	No		Cut Bank	None	Sand & Silt		0FPS
19.60S-A-05	Focus	5/8/2011	11:26:00 AM	12885626.00	308505.54	798.3403	0.1084	0.1272	0.1671	2.2	1.1	1.2	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Sand & Silt		.4FPS
19.60S-A-06	Focus	5/8/2011	11:31:00 AM	12885604.76	308593.11	798.3016	0.0373	0.0493	0.0618	2.0	0.2	0.5	None	None	None	Center	<1ft/sec		Mid-Channel	<5%	Silt over Sand		1.2FPS
19.60S-A-07	Focus	5/8/2011	11:37:00 AM	12885432.50	308655.38	798.3925	0.0415	0.0573	0.0707	2.8	0.2	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		1.3FPS
19.60S-A-08	Focus	5/8/2011	11:58:00 AM	12885453.07	308597.28	805.173	4.493	4.7405	6.5314	1.8	0.2	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		.2FPS
19.64T-A-01	Transect	5/8/2011	11:48:00 AM	12885524.10	308562.93	798.357	0.0613	0.0916	0.1102	1.4	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Downstrm Island	None	Silt over Sand		.5FPS
19.64T-A-02	Transect	5/8/2011	1:33:00 PM	12885650.10	308758.84	798.7625	0.0623	0.1815	0.1919	2.4	0.1	0.2	None	None	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		
19.64T-A-03	Transect	5/8/2011	1:37:00 PM	12885624.74	308643.07	798.2448	0.0286	0.0523	0.0596	2.9	0.2	0.3	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand		2.1FPS
19.73T-A-01	Transect	5/8/2011	1:47:00 PM	12885204.56	308924.96	798.3413	0.0619	0.1191	0.1342	2.7	0.3	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1.5FPS
19.73T-A-02	Transect	5/8/2011	1:54:00 PM	12885116.05	308764.63	800.744	1.5313	2.9918	3.3609	3.7	0.3	0.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		1.9FPS
19.73T-A-03	Transect	5/8/2011	1:57:00 PM	12885146.54	308835.06	798.3567	0.0362	0.0654	0.0747	2.7	0.3	0.8	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1.9FPS
19.98T-A-02	Transect	5/9/2011	8:55:06 AM	12883950.14	309408.16	798.2283	0.0648	0.082	0.1045	2.8	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		1.0FPS
19.98T-A-03	Transect	5/9/2011	8:59:24 AM	12883950.74	309302.83	798.0598	0.0307	0.0367	0.0478	2.8	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1.6FPS
MP 19.75-20.00																							
19.85S-A-01	Focus	5/8/2011	2:12:00 PM	12884520.82	309042.60	798.2249	0.0453	0.0746	0.0873	2.4	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt	D BDY	.8FPS
19.85S-A-02	Focus	5/8/2011	2:19:00 PM	12884564.44	309017.55	798.3999	0.2928	0.3525	0.4583	1.7	0.7	1.2	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
19.85S-A-03	Focus	5/8/2011	2:25:00 PM	12884614.87	308996.89	797.9693	0.2071	0.2275	0.3076	1.5	0.5	1.0	Moderate	Moderate	Common	Left	No		Strt Channel Edg	None	Soft Sediment		.6FPS
19.85S-A-04	Focus	5/8/2011	2:29:00 PM	12884695.89	308969.55	798.0994	0.2389	0.2481	0.3444	2.6	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		.5FPS
19.85S-A-05	Focus	5/8/2011	2:36:00 PM	12884601.22	309038.42	798.2277	0.0879	0.0864	0.1232	3.5	0.2	0.4	None	None	None	Center	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment	LAT BDY	
19.85S-A-06	Focus	5/8/2011	2:42:00 PM	12884509.56	309068.01	798.3691	0.0476	0.0588	0.0756	2.9	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		1.9FPS D BDY
19.85S-A-07	Focus	5/8/2011	2:45:00 PM	12884490.99	309059.84	798.2754	0.1134	0.1101	0.1581	2.2	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	D BDY	1.4FPS
19.89T-A-01	Transect	5/8/2011	3:03:00 PM	12884330.73	309098.45	795.0059	4.0137	4.3256	5.9009	1.5	0.2	0.3	None	None	None	Left	No		Strt Channel Edg	None			
19.89T-A-02	Transect	5/8/2011	3:08:00 PM	12884415.99	309306.44	799.5503	0.1598	0.2401	0.2884	2.7	0.3	0.7	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
19.89T-A-03	Transect	5/8/2011	3:12:00 PM	12884373.64	309214.58	798.1795	0.0295	0.0515	0.0593	3.4	0.3	0.6	None	None	None	Center	1-3ft/sec		Mid-Channel	None	Sand		1.6FPS
19.98T-A-01	Transect	5/8/2011	3:56:00 PM	12883914.38	309186.95	797.7886	0.0591	0.1503	0.1615	1.3	0.7	1.7	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.3FPS
MP 20.00-20.25																							
20.08T-A-02	Transect	5/9/2011	9:11:34 AM	12883402.30	309175.43	799.4609	1.5063	1.7745	2.3277	1.5	0.5	0.8	Moderate	Moderate	Common	Left	<1ft/sec		Mid-Channel	None	Sand & Silt		.8FPS
20.08T-C-01	Transect	5/10/11	4:53:10 PM	12883426.80	309469.72	794.9261	2.1381	3.4547	4.0628	3.0	0.3	1.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		2.3FPS
20.08T-C-02	Transect	5/10/11	4:56:42 PM	12883423.05	309354.42	797.6913	0.0234	0.0325	0.0401	2.3	0.3	0.8	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		2.1 FPS
20.10S-A-01	Focus	5/9/2011	9:27:12 AM	12882796.54	309330.26	798.1383	0.0398	0.0489	0.0631	1.1	0.4	0.8	Heavy	Heavy	Many	Left	No		Strt Channel Edg	5%-25%	Sand & Silt		.6FPS SOME ORGANC
20.10S-A-02	Focus	5/9/2011	9:36:36 AM	12882722.28	309305.13	797.7656	0.0734	0.1099	0.1321	1.8	0.2	0.4	Moderate	Light	Common	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.5FPS
20.10S-A-03	Focus	5/9/2011	9:41:06 AM	12882697.54	309312.57	798.167	0.0361	0.0455	0.0581	2.3	0.2	0.4	Moderate	Moderate	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
20.10S-A-04	Focus	5/9/2011	9:54:27 AM	12882578.48	309331.84	798.7539	1.1504	2.0903	2.386	2.2	1.1	1.7	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt	D BDY	
20.10S-A-05	Focus	5/9/2011	10:03:01 AM	12882939.13	309324.94	798.0164	0.0264	0.0458	0.0528	0.5	0.2	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.5FPS
20.10S-A-06	Focus	5/9/2011	10:10:04 AM	12883148.81	309243.24	794.8856	1.1606	2.5542	2.8055	0.5	0.5	0.8	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.3FPS
20.10S-A-07	Focus	5/9/2011	10:18:10 AM	12883244.90	309262.76	797.9088	0.0312	0.0564	0.0645	1.5	0.5	1.1	Light	Light	Few	Left	<1ft/sec		Mid-Channel	None	Sand over Silt	LAT BDY	
20.10S-A-08	Focus	5/9/2011	10:22:48 AM	12883325.45	309200.84	797.9478	0.1158	0.1497	0.1892	2.2	0.3	0.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.7FPS
20.10S-A-09	Focus	5/9/2011	10:30:17 AM	12883419.31	309237.54	798.0339	0.0284	0.0517	0.059	0.6	0.2	0.4	None	None	None	Center	<1ft/sec		Strt Channel Edg	None	Sand	LAT BDY 40FT LEFT	.6FPS
20.10S-A-10	Focus	5/9/2011	10:38:19 AM	12883460.54	309163.61	797.9302	0.2574	0.0638	0.2652	1.7	0.3	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment	U BDY	1.0FPS
20.10S-A-11	Focus	5/9/2011	10:44:50 AM	12883552.15	309192.08	798.0148	0.038	0.0727	0.082	1.1	0.4	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		.7FPS
20.10S-A-12	Focus	5/9/2011	10:51:12 AM	12883672.89	309197.89	800.4631	2.5631	3.0206	3.9615	1.3	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		0.5FPS
20.10S-A-13	Focus	5/9/2011	11:04:25 AM	12883538.76	309280.30	797.9963	0.0349	0.0577	0.0674	1.1	0.3	0.4	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand		.09FPS
20.10S-A-14	Focus	5/9/2011	11:08:14 AM	12883371.64	309341.09	797.9248	0.0287	0.0457	0.054	1.9	0.2	0.4	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand		1.0FPS
20.10S-A-15	Focus	5/12/2011	1:40:29 PM	12883158.42	309276.04	797.6237	0.0474	0.0861	0.0982	2.3	0.5	1.5	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	LAT BDY, PRE SHEEN ON ARIVAL	
20.10S-A-16	Focus	5/12/2011	2:01:08 PM	12882950.17	309285.60	797.8031	1.8208	2.7801	3.3233	2.2	0.4	0.5	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	HVYONARRIVAL	
20.10S-A-17	Focus	5/12/2011	2:06:41 PM	12882963.41	309305.20	797.8994	0.0922	0.0923	0.1304	0.5	0.3	0.5	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	LAT BDY	
20.10S-A-18	Focus	5/12/2011	2:14:24 PM	12882826.08	309295.40	797.7653	0.0878	0.0826	0.1205	2.0	0.3	0.5	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	D BDY	
20.10S-A-19	Focus	5/12/2011	2:20:46 PM	12882688.54	309394.27	797.8087	0.024	0.0374	0.0445	2.7	0.3	0.5	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand	LAT BDY	
20.10S-A-20	Focus	5/12/2011	2:26:38 PM	12882580.88	309387.62	797.7479	0.0476	0.0785	0.0918	2.0	0.9	1.4	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	<5%	Sand	LAT BDY	
20.22T-A-01	Transect	5/9/2011	11:16:25 AM	12882682.40	309534.75	797.7575	2.4672	5.0243	5.5973	3.3	0.4	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1.2FPS
20.22T-A-02	Transect	5/9/2011	11:21:19 AM	12882657.18	309324.23	798.0182	0.0578	0.0598	0.0832	2.3	1.2	1.8	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.5FPS
20.22T-A-03	Transect	5/9/2011	11:25:41 AM	12882662.87	309433.46	798.0336	0.0204	0.0284	0.0349	3.4	0.4	0.7	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand		
MP 20.25-20.50																							
20.30S-A-01	Focus	5/9/2011	1:16:40 PM	12881971.15	309394.25	797.6449	0.0488	0.084	0.0972	2.1	0.5	0.7	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand over Silt		.9FPS
20.30S-A-02	Focus	5/9/2011	1:20:12 PM	12882110.73	309407.96	797.6195	0.0387	0.0678	0.0781	3.0	0.4	0.6	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Sand & Silt		.7FPS
20.30S-A-03	Focus	5/9/2011	1:23:44 PM	12882193.20	309392.56	797.6262	0.0399	0.0644	0.0757	3.4	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
20.30S-A-04	Focus	5/9/2011	1:26:57 PM	12882277.54	309380.62	797.6889	0.061	0.1101	0.1259	1.9	0.2	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		.6FPS
20.32T-A-01	Transect	5/9/2011	12:52:47 PM	12882180.16	309610.34	796.2171	3.0455	5.2658	6.0831	3.1	0.3	0.4	None	None	None	Right	No		Strt Channel Edg	None	Sand & Gravel	.8FPS	
20.32T-A-02	Transect	5/9/2011	1:01:00 PM	12882121.93	309394.09	798.089	0.054	0.0562	0.0779	2.9	0.5	0.7	Light	Light	Few	Left	No		Strt Channel Edg	None	Sand & Silt		.9FPS
20.32T-C-01	Transect	5/10/11	4:46:48 PM	12882166.23	309499.02	797.6012	0.0327	0.0488	0.0587	2.5	0.5	1.5	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		2.5 FPS
20.46T-A-01	Transect	5/9/2011	2:07:36 PM	12881500.62	309746.81	800.2303	2.1622	3.5316	4.1409	0.3	0.4	0.6	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		.9FPS
20.46T-A-02	Transect	5/9/2011	2:12:05 PM	12881410.66	309553.56	797.4756	0.1882	0.235	0.3011	2.3	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		.8FPS
20.46T-A-03	Transect	5/9/2011	2:15:31 PM	12881472.58	309661.07	797.658	0.029	0.0451	0.0536	3.5	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1.5FPS
MP 20.50-20.75																							

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
20.60S-A-01	Focus	5/9/2011	1:45:28 PM	12880986.97	309833.53	798.414	0.871	1.6378	1.855	2.2	0.2	0.3	Moderate	Moderate	Few	Left	No		Other-Comments	None	Soft Sediment		0.1FPS INLET
20.60S-A-02	Focus	5/9/2011	1:48:44 PM	12880955.09	309822.98	797.57	0.0339	0.0665	0.0746	1.7	0.4	0.7	Heavy	Heavy	Many	Left	No		Other-Comments	<5%	Soft Sediment		0.0FPS INLET
20.60S-A-03	Focus	5/9/2011	1:52:14 PM	12880984.04	309790.17	801.7469	3.4461	6.375	7.2468	1.5	0.2	0.4	Light	Light	None	Left	No		Other-Comments	<5%	Soft Sediment		0.0FPS INLET
20.60S-A-04	Focus	5/9/2011	1:59:04 PM	12881014.29	309857.20	798.0376	0.038	0.064	0.0744	2.9	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand	BDY ACROSS MOUTH	.4FPS
20.63T-B-01	Transect	5/9/2011	2:43:10 PM	12880872.87	310304.10	802.6173	2.8003	4.2138	5.0594	1.7	0.3	0.7	Light	Moderate	None	Right	<1ft/sec		Strt Channel Edg	25%-50%	Sand & Silt		BAD POS
20.63T-B-02	Transect	5/9/2011	2:48:02 PM	12880759.13	310211.06	797.1831	0.0377	0.0675	0.0773	3.5	1.1	1.5	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
20.63T-B-03	Transect	5/9/2011	2:53:35 PM	12880708.84	310123.78	799.6974	2.1049	2.7804	3.4873	2.4	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
20.7N-B-01	Focus	5/9/2011	3:02:22 PM	12880517.99	310565.84	797.4736	0.0498	0.0949	0.1072	1.9	0.5	0.6	Light	Light	None	Right	<1ft/sec		Cut Bank	5%-25%	Sand & Silt		
20.7N-B-02	Focus	5/9/2011	3:07:04 PM	12880617.06	310478.02	804.004	1.7357	2.8577	3.3435	3.2	0.4	0.5	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		
20.7N-B-03	Focus	5/9/2011	3:09:22 PM	12880452.97	310574.40	801.2375	1.0444	2.0754	2.3234	3.8	0.0	0.1	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		
20.7N-B-04	Focus	5/9/2011	3:13:50 PM	12880369.13	310630.11	826.0903	2.0175	4.3874	4.8291	2.0	0.3	0.4	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		BAD POS
MP 20.75-21.00																							
20.81T-A-01	Transect	5/12/2011	3:07:43 PM	12879980.41	310775.19	802.8934	1.5143	2.8114	3.1933	2.2	0.2	0.3	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt		
20.81T-A-02	Transect	5/12/2011	3:16:17 PM	12879910.04	310565.46	797.1255	1.7071	2.7415	3.2295	3.3	0.5	0.8	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Gravel		
20.81T-A-03	Transect	5/12/2011	3:19:48 PM	12879940.13	310674.12	797.1399	0.0354	0.0638	0.0729	0.4	1.2	1.6	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
20.81T-B-01	Transect	5/9/2011	3:20:31 PM	12879831.63	310810.40	806.4193	1.135	2.4228	2.6754	2.7	0.3	0.5	Light	Light	None	Right	<1ft/sec		Cut Bank	<5%	Sand & Silt		DWN TREE MVDUPST
20.81T-B-02	Transect	5/9/2011	3:22:31 PM	12879766.75	310723.50	797.1455	0.0405	0.0685	0.0796	3.0	0.6	0.8	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Silt over Sand		
20.81T-B-03	Transect	5/9/2011	3:27:58 PM	12879708.29	310590.80	797.2573	1.6844	2.6735	3.1599	1.3	0.0	0.1	None	None	None	Left	1-3 ft/sec		Point Bar	5%-25%	Silt over Sand		
20.9S-B-01	Focus	5/9/2011	3:35:54 PM	12879253.75	310422.54	806.8191	4.7345	13.3268	14.1428	0.9	2.1	2.1	None	None	None	Other-Comments	No		Other-Comments	None	Soft Sediment		COVE BAD POS
20.9S-B-02	Focus	5/9/2011	3:42:29 PM	12879192.06	310513.36	813.834	2.4293	7.0769	7.4823	1.7	0.2	0.3	Light	Light	None	Other-Comments	No		Other-Comments	50%-75%	Sand & Silt		COVE BAD POS
20.9S-B-03	Focus	5/9/2011	3:46:41 PM	12879191.05	310575.04	846.5359	3.4205	9.2891	9.8988	2.0	2.2	2.4	Light	Moderate	None	Other-Comments	<1ft/sec		Other-Comments	>75%	Soft Sediment		COVE BAD POS
20.95T-B-01	Transect	5/9/2011	3:50:50 PM	12879143.40	310599.24	799.9353	2.818	6.044	6.6687	2.0	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	5%-25%	Sand & Gravel	WT 61.3 BAD POS	DWN TREE MVD UPS
20.95T-B-03	Transect	5/9/2011	4:03:49 PM	12879162.00	310834.90	804.5015	1.2497	3.1941	3.4299	2.4	0.8	0.9	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	50%-75%	Silt over Sand		
20.95T-C-01	Transect	5/10/11	4:39:57 PM	12879107.53	310689.60	796.6715	0.0244	0.0387	0.0458	3.9	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		2.3 FPS
MP 21.00-21.25																							
21.11T-B-01	Transect	5/9/2011	4:11:00 PM	12878391.96	310718.66	797.1675	0.0621	0.216	0.2248	4.3	0.4	1.0	None	None	None	Left	<1ft/sec		Cut Bank	None	Soft Sediment		BEHIND DWND TREE
21.11T-B-03	Transect	5/9/2011	4:18:07 PM	12878467.78	310906.29	815.6381	2.5323	7.7731	8.1752	3.6	0.3	0.3	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Gravel		BAD POS
21.11T-C-01	Transect	5/10/11	4:32:26 PM	12878376.71	310802.47	796.8506	0.0353	0.0666	0.0754	4.0	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		2.1 FPS
21.24T-A-01	Transect	5/12/2011	3:43:11 PM	12877702.72	311074.32	798.8624	1.7717	2.5875	3.1359	3.7	0.3	0.5	None	None	None	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt		
21.24T-A-02	Transect	5/12/2011	3:48:52 PM	12877801.92	311158.37	797.1409	0.0402	0.0911	0.0996	4.2	0.3	0.5	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
21.24T-B-02	Transect	5/9/2011	4:35:09 PM	12877760.33	311004.54	810.2038	1.9963	4.1821	4.6341	2.4	0.2	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
21.24T-B-03	Transect	5/9/2011	4:37:08 PM	12877872.01	311228.85	797.097	0.0459	0.0806	0.0928	3.3	1.3	1.5	None	None	None	Other-Comments	<1ft/sec		Other-Comments	None	Silt over Sand		TRIBUTARY MOUTH
21.25N-B-01	Focus	5/9/2011	4:42:53 PM	12877996.57	311299.44	836.5213	8.6253	13.9319	16.3858	1.4	0.2	0.2	None	None	None	Left	<1ft/sec		Other-Comments	None	Sand & Gravel		TRIB BAD POS
21.25N-B-02	Focus	5/9/2011	4:45:41 PM	12878080.88	311356.79	797.1013	0.1341	0.2574	0.2902	1.6	1.5	2.4	Light	Light	None	Left	<1ft/sec		Other-Comments	50%-75%	Soft Sediment		TRIB
21.25N-B-03	Focus	5/9/2011	4:51:49 PM	12878079.81	311503.82	797.0769	0.0572	0.0892	0.1059	1.5	0.6	0.6	Light	Light	None	Left	<1ft/sec		Other-Comments	25%-50%	Sand & Silt		TRIB/ DWN TREE
21.25N-B-04	Focus	5/9/2011	4:54:21 PM	12878026.70	311563.53	797.1262	0.088	0.1297	0.1567	3.1	1.7	1.8	Light	Light	None	Center	<1ft/sec		Other-Comments	None	Soft Sediment		TRIB
21.25N-B-05	Focus	5/9/2011	4:58:10 PM	12877969.51	311482.39	796.7638	0.2496	0.4192	0.4878	1.2	1.1	1.3	Light	Light	None	Right	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		TRIB
21.25N-B-06	Focus	5/9/2011	5:00:50 PM	12878012.21	311425.05	797.3214	0.0894	0.1436	0.1692	2.5	1.4	1.4	None	None	None	Center	<1ft/sec		Other-Comments	None	Soft Sediment		TRIB
MP 21.25-21.50																							
21.33T-A-01	Transect	5/5/2011	2:53:16 PM	12877420.45	311411.71	807.6455	2.6964	3.9541	4.786	2.0	0.8	1.0	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.2FOS - OVER ROOT
21.33T-A-02	Transect	5/5/2011	3:20:52 PM	12877540.84	311620.03	807.9251	1.9166	3.2874	3.8053	1.8	0.2	0.8	Moderate	Heavy	Few	Island	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
21.33T-A-03	Transect	5/5/2011	3:25:52 PM	12877528.90	311591.33	798.0586	0.0357	0.0637	0.073	3.1	0.3	0.3	Light	Light	Few	Center	<1ft/sec		Strt Channel Edg	None	Silt over Sand	LAT BDY	
21.33T-A-04	Transect	5/5/2011	3:30:13 PM	12877559.84	311605.46	802.45	1.9451	3.265	3.8005	1.4	0.5	0.7	Moderate	Moderate	Common	Island	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
21.33T-A-05	Transect	5/5/2011	3:34:52 PM	12877577.92	311566.47	797.97	0.0283	0.0537	0.0607	2.0	0.3	0.5	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		.2FPS PHOTO198
21.33T-A-06	Transect	5/5/2011	3:43:36 PM	12877484.32	311627.73	800.2271	1.4665	2.9664	3.3091	3.0	0.5	1.2	Heavy	Moderate	Many	Island	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
21.33T-A-07	Transect	5/5/2011	3:51:23 PM	12877463.13	311645.37	794.3222	1.6681	4.5944	4.8879	3.5	1.5	2.0	None	None	None	Island	<1ft/sec		Strt Channel Edg	None	Sand & Silt	D BDY	.2FPS
21.33T-A-08	Transect	5/5/2011	4:02:56 PM	12877470.80	311544.69	797.9749	0.0225	0.0525	0.0571	7.2	0.2	0.4	Heavy	Heavy	Many	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1.9FPS
21.33T-A-09	Transect	5/5/2011	4:07:39 PM	12877500.39	311551.09	797.6706	0.0362	0.0757	0.0839	8.9	0.1	0.2	Light	Light	Few	Center	No		Mid-Channel	None	Sand & Gravel	U BDY	
21.33T-A-10	Transect	5/5/2011	4:17:32 PM	12877401.54	311556.44	797.8818	0.0289	0.0594	0.0661	5.4	0.0	0.0	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	D BDY	2.1FPS
21.40-A-01	Focus	5/5/2011	4:36:56 PM	12876745.39	311655.75	795.5336	1.7963	3.2418	3.7062	2.3	0.1	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		1.8FPS
21.40-A-02	Focus	5/5/2011	4:49:52 PM	12876863.41	311646.27	797.9227	0.0718	0.0814	0.1085	6.4	0.1	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Silt		
21.40-A-03	Focus	5/5/2011	4:53:31 PM	12877010.37	311657.41	797.9566	0.055	0.0603	0.0816	6.2	0.1	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel		
21.40-A-04	Focus	5/5/2011	4:56:12 PM	12877029.18	311551.08	796.2369	1.2098	1.4433	1.8833	3.3	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		1.8FPS
21.40-A-05	Focus	5/5/2011	4:58:33 PM	12877139.17	311560.01	797.8504	0.0386	0.0491	0.0624	3.1	0.1	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Silt		
21.40-A-06	Focus	5/9/2011	2:52:48 PM	12877582.85	311468.53	797.1341	0.0307	0.0508	0.0594	10.6	0.0	0.0	None	None	None	Center	<1ft/sec		Mid-Channel	None	Gravel & Larger	LAT BDY	
21.40-A-07	Focus	5/9/2011	2:59:45 PM	12877464.77	311539.09	797.2606	0.0259	0.0433	0.0504	4.6	0.0	0.0	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
21.40-A-08	Focus	5/9/2011	3:06:39 PM	12877390.53	311624.86	797.0543	0.0426	0.0727	0.0843	6.6	0.3	0.6	None	None	None	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		
21.40-A-09	Focus	5/9/2011	3:11:25 PM	12877476.21	311616.02	797.1091	0.0297	0.0522	0.06	4.9	0.1	0.4	Light	Light	Few	Right	<1ft/sec		Mid-Channel	None			1FPS
21.40-A-10	Focus	5/9/2011	3:20:39 PM	12877346.49	311672.96	802.7659	1.2364	2.3117	2.6216	3.0	0.2	0.4	Light	Light	Few	Right	<1ft/sec		Downstrm Island	None	Soft Sediment		.3FPS
21.40-A-11	Focus	5/9/2011	3:54:17 PM	12877330.17	311581.32	797.1809	0.0277	0.0652	0.0709	4.0	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1.5FPS
21.40-A-12	Focus	5/9/2011	3:57:14 PM	12877289.41	311469.40	797.2691	0.0761	0.1826	0.1979	2.0	0.2	0.4	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		1FPS
21.40-A-13	Focus	5/9/2011	4:03:13 PM	12876932.90	311679.69	797.3446	0.062	0.1338	0.1474	3.5	0.2	0.4	None	None	None	Right	<1ft/sec		Mid-Channel	None	Sand & Silt		1FPS
21.40-A-14	Focus	5/9/2011	4:07:06 PM	12876925.50	311567.76	797.3552	0.0281	0.1001	0.104	2.7	0.2	0.4	None	None	None	Center	No		Mid-Channel	None	Sand & Silt		1.5FPS
21.40-A-15	Focus	5/9/2011	4:11:42 PM	12876957.25	311490.47	797.3285	0.144	0.2556	0.2933	2.0	0.3	0.6	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		.8FPS
21.40-A-16	Focus	5/9/2011	4:38:19 PM	12876653.05	311646.75	811.5152	2.1989	4.4465	4.9605	2.0	0.0	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		1FPS
21.40-A-17	Focus	5/9/2011	4:40:26 PM	12876652.17	311567.31	798.6064	1.0095	1.8543	2.1113	1.5	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		1.2FPS
21.40-A-18	Focus	5/9/2011	4:42:34 PM	12876687.78	311510.37	796.8349	0.0662	0.137	0.1522	5.2	0.1	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		.8FPS
21.40-A-19	Focus	5/9/2011	4:48:20 PM	12877548.82	311437.35	797.2363	0.0257	0.0392	0.0468	9.9	0.1	0.1	None	None	None	Center	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		
21.44T-A-01	Transect	5/5/2011	3:02:08 PM	12876873.51	311463.50	800.4387	6.2537	9.5795	11.44	2.0	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
21.44T-A-02	Transect	5/5/2011	4:31:53 PM	12876864.53	311716.16	843.2226	1.936	4.9472	5.3125	0.3	0.2	0.2	None	None	None	Right	No		Strt Channel Edg	None	Soft Sediment	SHEEN ON SHORE	HEAVY ROOTS
21.44T-A-03	Transect	5/5/2011	4:44:19 PM	12876830.14	311577.19	797.8634	0.0641	0.0842	0.1058	4.9	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand over Silt		
21.5R1-A-01	Focus	5/5/2011	10:14:32 AM	12877601.73	311520.00	798.0951	0.0211	0.0364	0.0421	-99.0	-99.0	-99.0	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		0.2FPS OUTOFBOOM
21.5R1-A-02	Focus	5/5/2011	10:22:15 AM	12877633.04	311546.73	798.0364	0.0272	0.0493	0.0564	2.0	0.5	1.6	Moderate	Light	Common	Center	<1ft/sec		Oxbow	None	Soft Sediment		.2FPS
21.5R1-A-03	Focus	5/5/2011	10:28:12 AM	12877676.24	311651.61	798.1753	0.0443	0.082	0.0932	2.4	0.8	1.0	Moderate	Moderate	Common	Right	<1ft/sec		Oxbow	None	Soft Sediment		0.2FPS
21.5R1-A-04	Focus	5/5/2011	10:36:08 AM	12877651.29	311720.27	798.0668	0.0602	0.1395	0.1519	2.2	0.8	1.6	Heavy	Heavy	Common	Center	<1ft/sec		Oxbow	None	Soft Sediment	VERY HEAVY	.2FPS
21.5R1-A-05	Focus	5/5/2011	10:43:44 AM	12877703.58	311815.94	798.4359	0.0453	0.113	0.1217	3.7	0.6	1.3	Moderate	Moderate	Few	Center	No		Oxbow	None	Soft Sediment		0.0FPS
21.5R1-A-06	Focus	5/5/2011	10:51:08 AM	12877664.23	311931.70	798.1438	0.0847	0.1819	0.2007	3.3	0.3	1.1	Moderate	Moderate	Common	Center	<1ft/sec		Oxbow	None	Soft Sediment		0.1FPS
21.5R1-A-07	Focus	5/5/2011	11:04:50 AM	12877556.00	312178.85	797.9908	0.0587	0.1433	0.1548	1.0	0.4	1.0	None	None	None	Right	No		Oxbow	None	Soft Sediment	SURF SHEEN OBSV	0FPS
21.5R1-A-08	Focus	5/5/2011	11:11:01 AM	12877484.02	312202.86	813.337	2.3521	5.2108	5.717	0.8	0.2	0.2	None	None	None	Right	No		Oxbow	5%-25%	Soft Sediment	SHEEN ON ARIVAL	0FPS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
21.5R1-A-09	Focus	5/5/2011	11:19:26 AM	12877492.35	312137.26	797.9694	0.1327	0.328	0.3538	3.4	1.0	1.9	Moderate	Moderate	Few	Center	No		Oxbow	None	Soft Sediment		0.0FPS PHOTO196
21.5R1-A-10	Focus	5/5/2011	11:27:38 AM	12877379.15	312086.80	798.5416	0.115	0.204	0.2342	1.5	0.4	0.5	Light	Light	None	Island	No		Oxbow	None	Soft Sediment	SURF SHEEN ON ARV	0.0FPS
21.5R1-A-11	Focus	5/5/2011	11:33:05 AM	12877268.94	312022.87	798.3457	0.1584	0.2481	0.2943	1.3	0.3	0.4	None	None	None	Island	No		Oxbow	None	Soft Sediment		0.0FPS
21.5R1-A-12	Focus	5/5/2011	11:37:41 AM	12877201.50	311955.54	798.1472	2.1529	3.4219	4.0428	1.4	0.1	0.1	Light	Light	Few	Island	<1ft/sec		Oxbow	None	Soft Sediment		0.0FPS
21.5R1-A-13	Focus	5/5/2011	1:26:46 PM	12877694.98	311408.64	798.029	0.0337	0.0522	0.0621	2.4	0.1	0.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment	U BDY	0.1
21.5R1-A-14	Focus	5/5/2011	1:37:12 PM	12877622.44	312062.93	797.9449	0.0433	0.0733	0.0851	3.6	0.7	1.0	Heavy	Heavy	Many	Center	<1ft/sec		Oxbow	None	Soft Sediment		
21.5R1-A-15	Focus	5/5/2011	1:46:44 PM	12877347.22	312122.72	798.0776	0.0511	0.0887	0.1024	3.5	0.7	1.7	Heavy	Heavy	Common	Center	<1ft/sec		Oxbow	None	Soft Sediment		
21.5R1-A-16	Focus	5/5/2011	1:55:41 PM	12877139.68	311987.48	797.9742	0.0677	0.1342	0.1503	3.0	0.7	0.8	Moderate	Light	Common	Center	<1ft/sec		Oxbow	None	Silt over Sand		1FPS
21.5R1-A-17	Focus	5/5/2011	2:01:21 PM	12877001.51	311941.13	820.7482	3.4528	6.5316	7.3881	0.8	0.2	0.3	None	None	None	Right	<1ft/sec		Oxbow	5%-25%	Silt over Sand		.1FPS
21.5R1-A-18	Focus	5/5/2011	2:06:33 PM	12876949.57	311832.07	796.0744	1.4873	3.3271	3.6444	1.3	0.2	0.5	Light	Light	Few	Right	No		Oxbow	None	Soft Sediment		0.0FTS
21.5R1-A-19	Focus	5/5/2011	2:14:40 PM	12877029.53	311844.74	798.1714	0.0613	0.1034	0.1202	2.5	0.4	0.6	Heavy	Heavy	Many	Center	<1ft/sec		Oxbow	None	Soft Sediment		0.2FPS PHOTO197
21.5R1-A-20	Focus	5/5/2011	2:22:55 PM	12876970.47	311739.05	797.8614	0.0555	0.0987	0.1132	2.3	0.2	0.3	Light	Light	None	Center	<1ft/sec		Oxbow	None	Soft Sediment	D BDY	
CUBR-A-01	Bridge	5/5/2011	1:29:50 PM	12877707.85	311447.45	797.8261	0.0401	0.0691	0.0799	1.2	0.2	0.3	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
CUBR-A-02	Bridge	5/5/2011	2:32:21 PM	12877484.92	311385.55	798.2244	0.0638	0.0971	0.1162	1.7	0.5	0.6	Moderate	Light	Common	Left	No		Strt Channel Edg	None	Silt over Sand		0.0FPS
CUBR-A-03	Bridge	5/5/2011	2:36:44 PM	12877522.55	311381.34	797.9117	0.0722	0.1057	0.128	0.7	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand	U BDY	.2FPS
CUBR-A-04	Bridge	5/5/2011	2:40:35 PM	12877450.83	311407.56	799.1669	2.9381	4.6469	5.4978	2.4	0.4	0.6	Moderate	Moderate	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
CUBR-A-05	Bridge	5/5/2011	2:44:01 PM	12877419.88	311416.31	793.7064	2.9194	4.0319	4.9779	2.7	0.2	0.3	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment	D BDY	
CUBR-A-06	Bridge	5/5/2011	3:12:18 PM	12877510.40	311399.83	797.8557	0.0415	0.0774	0.0878	2.6	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		
CUBR-A-07	Bridge	5/5/2011	3:14:30 PM	12877511.34	311411.52	797.9162	0.0315	0.0591	0.067	3.6	0.1	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand	LAT BDY	.2FPS
MP 21.50-21.75																							
21.54T-C-01	Transect	5/10/11	9:31:22 AM	12876354.44	311684.92	795.7025	1.8361	3.2458	3.7291	1.4	0.2	0.4	Moderate	Light	Common	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.1 FPS
21.54T-C-02	Transect	5/10/11	9:42:17 AM	12876321.38	311732.67	796.0106	3.5464	6.7082	7.588	1.7	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.1 FPS
21.54T-C-03	Transect	5/10/11	9:46:20 AM	12876380.52	311670.37	802.7219	2.0421	3.2472	3.8359	1.8	0.6	0.7	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.2 FPS
21.54T-C-04	Transect	5/10/11	9:50:17 AM	12876333.89	311676.46	800.1842	0.9399	1.6459	1.8953	2.3	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Mid-Channel	None	Silt over Sand		0.2 FPS
21.54T-C-05	Transect	5/10/11	9:53:25 AM	12876307.07	311614.64	796.7322	0.0459	0.0883	0.0995	8.2	0.2	0.5				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST DEEP	2.3 FPS
21.54T-C-06	Transect	5/10/11	9:57:00 AM	12876323.04	311563.11	797.0159	0.0743	0.1513	0.1685	3.2	0.2	0.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.6 FPS
21.55S-C-01	Focus	5/9/2011	2:48:48 PM	12876325.23	311219.56	814.8972	2.0586	4.626	5.0634	2.7	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		1.8 FPS
21.55S-C-02	Focus	5/9/2011	2:55:49 PM	12876393.19	311195.21	797.2414	1.528	2.8381	3.2233	2.5	0.1	0.2	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel		1.1 FPS
21.55S-C-03	Focus	5/9/2011	3:01:44 PM	12876459.20	311208.78	802.7535	1.8315	3.1578	3.6505	4.3	0.2	0.3	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand	SHEEN FLOWING IN	0.4 FPS
21.55S-C-04	Focus	5/9/2011	3:08:04 PM	12876610.04	311235.73	800.8053	2.1086	1.9009	2.839	1.4	1.6	2.0	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		
21.55S-C-05	Focus	5/9/2011	3:11:36 PM	12876512.30	311263.60	799.4678	1.4482	2.7709	3.1265	2.0	1.7	2.3	Heavy	Heavy	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		
21.55S-C-06	Focus	5/9/2011	3:16:52 PM	12876478.82	311240.95	798.3323	4.3249	9.9095	10.8122	3.2	1.0	2.3	Heavy	Heavy	Many	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		
21.55S-C-07	Focus	5/9/2011	3:21:04 PM	12876450.41	311261.69	800.5108	1.4431	2.878	3.2195	3.1	0.3	0.4	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel		0.8 FPS
21.55S-C-08	Focus	5/9/2011	3:24:53 PM	12876503.38	311300.46	793.9105	1.2069	2.2706	2.5715	2.0	0.7	1.3	Moderate	Moderate	Common	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
21.55S-C-09	Focus	5/9/2011	3:32:13 PM	12876508.78	311354.34	792.2848	1.1902	2.428	2.704	1.0	0.3	0.7	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		
21.55S-C-10	Focus	5/9/2011	3:40:33 PM	12876496.92	311399.24	798.6971	1.2765	3.5864	3.8068	2.5	0.3	0.5	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		1.0 FPS
21.55S-C-11	Focus	5/9/2011	3:48:27 PM	12876148.93	311256.68	800.9627	1.1835	2.4988	2.7649	2.8	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		0.9 FPS
21.55S-C-12	Focus	5/9/2011	3:57:00 PM	12876270.68	311264.39	809.1103	2.1769	6.3908	6.7514	3.0	0.1	0.1	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand & Gravel		0.9 FPS
21.66T-C-01	Transect	5/10/11	10:04:43 AM	12875870.56	311489.01	796.8502	0.0584	0.1069	0.1218	3.1	0.4	0.5	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		0.6 FPS
21.66T-C-02	Transect	5/10/11	10:10:41 AM	12875951.99	311496.59	790.2074	1.5817	4.1025	4.3969	2.4	0.4	0.6	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		0.8 FPS
21.66T-C-03	Transect	5/10/11	10:22:28 AM	12875916.53	311477.11	799.3767	1.0057	2.6251	2.8112	7.7	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST	4.4 FPS
MP 21.75-22.00																							
21.76T-C-01	Transect	5/10/11	10:27:40 AM	12875761.72	311301.31	795.5068	2.2673	3.4903	4.162	2.1	0.2	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Silt over Sand		1.5 FPS
21.76T-C-02	Transect	5/10/11	10:31:40 AM	12875722.56	311259.82	796.2143	1.082	2.2764	2.5205	3.5	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST	4.4 FPS
21.76T-C-03	Transect	5/10/11	10:34:02 AM	12875726.01	311206.42	791.9107	1.636	3.4209	3.792	1.6	0.5	0.7	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand		1.1 FPS
21.86T-C-01	Transect	5/10/11	10:46:26 AM	12875422.54	311759.68	801.4852	2.3749	4.4105	5.0093	1.6	0.3	0.5	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.4 FPS
21.86T-C-02	Transect	5/10/11	10:48:55 AM	12875362.39	311740.77	800.2219	0.9094	1.9035	2.1096	3.5	0.1	0.3				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		4.5 FPS
21.86T-C-03	Transect	5/10/11	10:51:22 AM	12875310.34	311694.57	810.8136	3.4605	5.397	6.4111	2.8	0.2	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1.1 FPS
21.92T-A-07	Transect	5/17/2011	2:17:35 PM	12875289.09	311930.09	796.7959	0.0276	0.0828	0.0873	4.2	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
21.92T-C-01	Transect	5/10/11	10:58:12 AM	12875326.93	312078.09	795.6993	3.1005	6.8211	7.4927	3.3	0.5	0.6	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand	PHOTO 326-327	0.4 FPS
21.92T-C-02	Transect	5/10/11	11:05:24 AM	12875317.79	312025.33	808.5776	3.4559	4.7279	5.8563	4.5	0.4	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		1.0 FPS
21.92T-C-03	Transect	5/10/11	11:11:13 AM	12875293.34	312077.43	795.7455	0.0499	0.1035	0.1148	4.0	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None			1.1 FPS
21.92T-C-04	Transect	5/10/11	11:15:30 AM	12875285.74	312119.92	802.2071	1.7024	2.7984	3.2756	4.3	0.2	0.3	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		1.4 FPS
21.92T-C-05	Transect	5/10/11	11:19:15 AM	12875191.72	312021.17	795.7979	0.029	0.0458	0.0543	0.6	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		2.1 FPS
21.92T-C-06	Transect	5/10/11	11:30:59 AM	12875068.83	312013.07	798.1984	2.8276	3.6401	4.6093	2.2	0.3	0.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.9 FPS
21.98T-A-01	Transect	5/17/2011	1:51:48 PM	12875219.96	312314.37	814.23	2.7148	4.5508	5.2991	2.2	0.3	0.6	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Silt		
21.98T-A-02	Transect	5/17/2011	2:07:35 PM	12875136.93	312249.56	799.1079	1.3098	2.3539	2.6938	2.3	0.1	0.2	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Sand & Silt		
21.98T-A-03	Transect	5/17/2011	2:10:07 PM	12875184.94	312274.29	796.7023	0.0269	0.065	0.0704	6.3	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
22.0S-C-01	Focus	5/10/11	3:16:37 PM	12874959.89	312371.00	791.5759	0.9066	1.6949	1.9221	2.9	0.0	0.2	None	None	None	Island	1-3 ft/sec		Downstrm Island	None			2.1 FPS
22.0S-C-02	Focus	5/10/11	3:21:44 PM	12874907.94	312254.69	792.9742	2.031	3.6109	4.1429	2.3	0.6	0.6	Moderate	Moderate	Common	Left	<1ft/sec		Oxbow	None	Silt over Sand		0.5 FPS
22.0S-C-03	Focus	5/10/11	3:27:39 PM	12874935.83	312266.17	795.4798	0.0437	0.0838	0.0945	2.5	0.2	0.4	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand & Gravel		2.0 FPS
22.0S-C-04	Focus	5/10/11	3:29:56 PM	12875012.59	312207.55	795.41	0.0805	0.1688	0.187	1.1	0.1	0.2	None	None	None	Island	<1ft/sec		Oxbow	None	Sand		1.0 FPS
22.0S-C-05	Focus	5/10/11	3:33:00 PM	12874940.61	312176.59	798.7724	1.6978	3.3773	3.78	2.6	0.3	0.4	None	None	None	Left	<1ft/sec		Oxbow	None	Sand		0.6 FPS
22.0S-C-06	Focus	5/10/11	3:38:25 PM	12875017.57	312153.29	795.6736	0.0414	0.1017	0.1097	2.1	0.1	0.3	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand		2.3 FPS
22.0S-C-07	Focus	5/10/11	3:42:04 PM	12874993.61	312104.38	795.5569	0.0571	0.1307	0.1427	2.5	0.1	0.2	None	None	None	Left	<1ft/sec		Oxbow	None	Silt over Sand		0.6 FPS
22.0S-C-08	Focus	5/10/11	3:48:01 PM	12875097.09	311999.23	794.6392	1.5274	2.8913	3.27	1.9	0.2	0.2	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand & Gravel		2.1 FPS
22.0S-C-09	Focus	5/10/11	3:53:14 PM	12875166.47	311904.53	797.504	1.4905	3.5393	3.8403	1.3	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		0.8 FPS
MP 22.00-22.25																							
22.04T-C-01	Transect	5/10/11	12:39:26 PM	12874894.84	312439.91	790.954	2.7444	3.4647	4.4199	3.0	0.3	0.4	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.3 FPS
22.04T-C-01	Transect	5/10/11	11:38:08 AM	12874896.69	312403.36	797.7753	2.0218	2.9904	3.6098	1.9	0.9	1.4	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.4 FPS
22.04T-C-02	Transect	5/10/11	11:43:06 AM	12874965.79	312460.99	795.6732	0.0526	0.1027	0.1154	3.9	0.1	0.2	None	None	None	Center	1-3 ft/sec		Point Bar	None	Sand & Gravel		2.8 FPS
22.04T-C-02	Transect	5/10/11	12:46:27 PM	12874864.58	312520.18	795.1677	1.7291	2.078	2.7033	2.5	0.2	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel	TOO FAST	1.5 FPS
22.04T-C-03	Transect	5/10/11	12:51:36 PM	12874876.04	312471.60	804.5507	1.5681	2.2275	2.724	1.8	0.5	0.6	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.6 FPS
22.04T-C-03	Transect	5/10/11	11:46:31 AM	12875041.40	312498.02	801.0798	2.3362	3.7733	4.438	1.9	0.3	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		1.0 FPS
22.04T-C-04	Transect	5/10/11	1:03:50 PM	12874918.60	312452.24	795.1253	1.3913	2.4198	2.7913	2.6	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1.6 FPS
22.04T-C-05	Transect	5/10/11	1:07:19 PM	12874930.92	312486.08	795.5448	0.0396	0.0631	0.0744	4.4	0.1	0.2				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST	1.6 FPS
22.04T-C-06	Transect	5/10/11	1:11:21 PM	12874974.16	312572.32	795.5975	0.0726	0.147	0.1639	2.5	0.2	0.3	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.7 FPS
22.15S-C-01	Focus	5/10/11	2:38:03 PM	12874377.04	312791.67	795.2552	0.0701	0.0681	0.0977	4.6	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.9 FPS
22.15S-C-02	Focus	5/10/11	2:42:31 PM	12874451.47	312685.55	796.7376	2.0045	1.9792	2.817	1.3	0.6	1.6	Heavy	Heavy	Many	Left			Strt Channel Edg	None	Silt over Sand	PHOTO 328-330	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
22.15S-C-03	Focus	5/10/11	2:48:59 PM	12874419.94	312747.68	795.378	0.0414	0.0759	0.0865	3.2	0.6	0.8	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.7 FPS
22.15S-C-04	Focus	5/10/11	2:51:44 PM	12874425.54	312757.36	795.4017	0.0511	0.0952	0.108	4.8	0.1	0.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		1.6 FPS
22.15S-C-05	Focus	5/10/11	2:56:18 PM	12874480.81	312651.06	795.919	0.7986	1.4555	1.6602	0.9	0.6	1.7	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.1 FPS
22.15S-C-06	Focus	5/10/11	3:01:14 PM	12874561.57	312624.08	795.1108	0.128	0.1054	0.1658	0.7	0.4	1.0	Heavy	Heavy	Many	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
22.15S-C-07	Focus	5/10/11	3:05:27 PM	12874587.95	312675.89	795.3531	0.0369	0.0646	0.0744	1.4	0.4	1.3	Light	Light	None	Center	<1ft/sec		Point Bar	None	Sand		0.5 FPS
22.15S-C-08	Focus	5/10/11	3:08:29 PM	12874646.51	312643.98	795.2177	0.0533	0.0572	0.0782	0.5	0.3	1.1	None	None	None	Left	<1ft/sec		Point Bar	None	Sand		0.4 FPS
22.17T-A-09	Transect	5/17/2011	1:35:05 PM	12874384.49	312954.00	811.8473	2.3145	2.4301	3.3559	2.8	0.3	0.5	Heavy	Heavy	Many	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
22.17T-A-10	Transect	5/17/2011	1:41:08 PM	12874302.82	312991.81	800.6683	1.9788	2.7584	3.3948	6.1	0.5	0.9	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Soft Sediment	D BDY	
22.17T-C-01	Transect	5/10/11	1:20:33 PM	12874454.70	312881.83	795.0362	1.8241	3.2633	3.7385	0.7	0.6	0.8	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand	PHOTO	0.1 FPS
22.17T-C-02	Transect	5/10/11	1:35:17 PM	12874489.68	312865.39	800.0765	3.3134	5.7505	6.6368	0.8	0.5	0.7	Moderate	Moderate	Common	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.2 FPS
22.17T-C-03	Transect	5/10/11	1:43:16 PM	12874393.14	312941.23	802.5854	2.8093	5.2285	5.9354	0.9	1.0	1.0	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
22.17T-C-04	Transect	5/10/11	1:51:35 PM	12874394.32	312854.69	795.3568	0.0244	0.0452	0.0513	5.4	0.1	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		2.1 FPS
22.17T-C-05	Transect	5/10/11	1:55:00 PM	12874355.80	312800.03	795.6826	0.1357	0.2301	0.2672	1.6	0.3	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand	EXISTING SHEEN	0.2 FPS
22.17T-C-06	Transect	5/10/11	1:59:42 PM	12874354.54	312906.37	795.3645	0.04	0.0787	0.0882	5.7	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST	2.5 FPS
22.17T-C-07	Transect	5/10/11	2:06:34 PM	12874415.45	312869.97	795.2442	0.0466	0.0693	0.0835	2.7	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST	2.5 FPS
22.17T-C-08	Transect	5/10/11	2:11:58 PM	12874504.60	312836.59	794.5132	2.3897	3.166	3.9667	1.5	0.2	0.5	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.7 FPS
22.2N-C-01	Focus	5/9/2011	4:14:34 PM	12874356.34	313061.05	795.436	0.0951	0.3192	0.333	0.1	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Silt over Sand		Backwater channel
22.2N-C-02	Focus	5/9/2011	4:19:06 PM	12874405.46	313114.15	792.6183	2.1063	6.5151	6.8471	0.3	0.4	0.6	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Silt over Sand		Backwater channel
22.2N-C-03	Focus	5/9/2011	4:22:40 PM	12874429.61	313200.25	813.6103	2.7714	7.7743	8.2535	0.4	0.2	0.6	None	None	None	Right	<1ft/sec		Other-Comments	None	Silt over Sand		Backwater channel
22.2N-C-04	Focus	5/9/2011	4:24:51 PM	12874457.64	313259.58	797.0048	2.856	7.5971	8.1162	1.4	0.0	0.3	None	None	None	Right	<1ft/sec		Other-Comments	None	Silt over Sand	SOME PRIOR SHEEEN	Backwater channel
22.25N-C-01	Focus	5/8/2011	11:30:40 AM	12874185.38	313248.44	794.0857	3.5385	5.2055	6.2943	0.7	0.6	0.9	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Soft Sediment		0.4 FPS, Backwater
22.25N-C-02	Focus	5/8/2011	11:32:20 AM	12874146.59	313230.81	795.1261	2.1989	3.0774	3.7823	1.3	0.9	1.2	Light	Light	None	Right	<1ft/sec		Other-Comments	None	Silt over Sand		0.4 FPS, Backwater
22.25N-C-03	Focus	5/8/2011	10:47:30 AM	12874106.56	313164.12	792.1813	8.9254	14.5497	17.0692	2.2	1.2	1.3	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Silt over Sand		0.2 FPS, Backwater
22.25T-C-01	Transect	5/10/11	2:18:21 PM	12873991.31	313043.56	797.9265	1.4349	2.1416	2.5779	2.0	0.6	1.5	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.3 FPS
22.25T-C-02	Transect	5/10/11	2:26:30 PM	12874053.58	313086.66	794.7001	1.6213	2.2245	2.7526	8.6	0.1	0.1				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST	3.0 FPS
22.25T-C-03	Transect	5/10/11	2:29:20 PM	12874130.67	313144.35	794.8932	2.5035	4.4303	5.0887	0.4	0.7	1.0	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
MP 22.25-22.50																							
22.33T-C-01	Transect	5/8/2011	11:02:31 AM	12874058.08	313358.81	748.2869	24.8356	68.348	72.7204	1.3	0.6	1.6	None	None	None	Right	<1ft/sec		Point Bar	<5%	Silt over Sand		0.1 FPS
22.33T-C-02	Transect	5/8/2011	11:08:59 AM	12873994.38	313357.84	793.3867	11.8294	24.8049	27.4813	3.6	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		2.1 FPS
22.33T-C-03	Transect	5/8/2011	11:11:29 AM	12873937.14	313366.74	784.998	11.3254	16.6564	20.142	6.9	0.0	0.0	None	None	None	Left	1-3 ft/sec		Cut Bank		Sand & Gravel		1.5 FPS
22.4N-C-01	Focus	5/8/2011	11:48:45 AM	12874376.11	313637.47	795.2149	1.8014	3.484	3.9222	1.5	0.6	0.7	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	None	Soft Sediment		0.1 FPS
22.4N-C-02	Focus	5/8/2011	11:53:55 AM	12874407.11	313613.67	797.6844	2.3698	4.2227	4.8422	1.7	0.3	0.4	None	None	None	Right	<1ft/sec		Cut Bank	<5%	Soft Sediment		
22.4N-C-03	Focus	5/8/2011	11:58:33 AM	12874374.92	313645.59	795.0032	1.6917	3.2778	3.6887	1.6	0.5	0.8	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	None	Silt over Sand		0.5 FPS
22.4N-C-04	Focus	5/8/2011	12:04:52 PM	12874391.74	313735.23	795.304	0.0812	0.1522	0.1725	3.8	0.2	0.3	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		0.7 FPS
22.4N-C-05	Focus	5/8/2011	12:11:07 PM	12874360.30	313706.67	795.3052	0.0593	0.1048	0.1205	4.6	0.1	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel		0.4 FPS
22.4N-C-06	Focus	5/8/2011	12:14:45 PM	12874323.60	313650.08	792.3256	1.9477	2.971	3.5525	2.6	0.5	0.6	Heavy	Heavy	Many	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		0.4 FPS
22.4N-C-07	Focus	5/8/2011	12:19:17 PM	12874299.13	313682.39	795.2741	0.0421	0.0548	0.0691	3.7	0.7	0.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Silt over Sand		2.3 FPS
22.4N-C-08	Focus	5/8/2011	12:23:37 PM	12874311.12	313600.94	794.9444	0.1416	0.2111	0.2542	1.3	1.2	1.3	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel		Silt over Sand		0.8 FPS
22.4N-C-09	Focus	5/8/2011	12:27:16 PM	12874278.04	313574.71	809.7574	2.8693	3.9331	4.8685	1.3	1.0	1.1	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	<5%	Silt over Sand		0.4 FPS
22.4N-C-10	Focus	5/8/2011	1:15:38 PM	12874254.02	313626.68	795.2282	0.0355	0.062	0.0715	4.0	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		2.5 FPS
22.42T-C-01	Transect	5/8/2011	11:42:41 AM	12874413.10	313748.26	807.5651	4.8492	9.1105	10.3207	1.7	0.3	0.4	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		
22.42T-C-02	Transect	5/8/2011	1:18:54 PM	12874304.12	313769.90	795.2017	0.0473	0.0755	0.0891	2.0	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		2.3 FPS
22.42T-C-03	Transect	5/8/2011	1:21:09 PM	12874194.10	313788.51	794.6539	0.1922	0.2808	0.3403	2.2	0.7	0.7	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Silt over Sand		
22.5W-C-01	Focus	5/8/2011	1:32:38 PM	12874232.17	313854.33	797.705	1.7016	3.0478	3.4907	2.1	0.5	0.6	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		0.8 FPS
22.5W-C-02	Focus	5/8/2011	1:38:40 PM	12874257.55	313934.97	795.1957	0.0553	0.1002	0.1144	2.5	0.3	0.4	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		1.3 FPS
22.5W-C-03	Focus	5/8/2011	1:41:59 PM	12874282.88	314039.84	795.1467	0.0586	0.1057	0.1209	2.6	0.4	0.5	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		0.8 FPS
22.5W-C-04	Focus	5/8/2011	1:45:30 PM	12874284.39	314133.36	795.1561	0.0457	0.0895	0.1005	2.1	0.2	0.3	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		1.4 FPS
22.5W-C-05	Focus	5/8/2011	1:48:26 PM	12874239.02	314135.90	791.8538	2.3175	3.8392	4.4844	2.7	0.2	0.3	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		0.6 FPS
22.5W-C-06	Focus	5/8/2011	1:52:31 PM	12874233.02	314254.35	795.1889	0.0715	0.132	0.1502	1.8	0.2	0.2	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		1.5 FPS
22.5W-C-07	Focus	5/8/2011	1:57:27 PM	12874161.25	314373.77	795.0305	0.0361	0.0696	0.0784	2.2	0.2	0.3	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		1.2 FPS
22.5W-C-08	Focus	5/8/2011	2:09:37 PM	12874156.37	314328.33	803.8934	7.4283	6.7944	10.067	0.8	0.2	0.3	None	None	None	Left	<1ft/sec		Point Bar	None	Sand		0.4 FPS
MP 22.50-22.75																							
22.53T-A-01	Transect	5/17/2011	1:17:27 PM	12874220.54	314279.81	795.9468	0.0738	0.0746	0.1049	2.3	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
22.53T-A-02	Transect	5/17/2011	1:24:00 PM	12874338.58	314333.48	796.1538	0.1039	0.1474	0.1803	4.6	0.1	0.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
22.53T-A-03	Transect	5/17/2011	1:27:45 PM	12874281.99	314310.28	795.5537	0.4019	0.353	0.5349	4.0	0.0	0.0	None	None	None	Center	No	No	Mid-Channel	None	Sand & Gravel		
22.56T-C-01	Transect	5/8/2011	2:18:26 PM	12874142.78	314390.05	794.9819	0.0571	0.0919	0.1082	2.2	0.4	0.5	None	None	None	Left	<1ft/sec	Point Bar	None	Sand		0.4 FPS	
22.56T-C-02	Transect	5/8/2011	2:21:27 PM	12874165.56	314425.26	795.7752	2.2981	2.3485	3.2858	5.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	Mid-Channel	None	Sand		2.1 FPS	
22.56T-C-03	Transect	5/8/2011	2:24:36 PM	12874169.74	314490.81	797.4996	3.2886	2.2358	3.9766	8.5	0.8	0.8	None	None	None	Right	<1ft/sec	Cut Bank	None	Silt over Sand		1.3 FPS	
22.64T-C-01	Transect	5/8/2011	2:38:12 PM	12873828.31	314257.95	800.023	2.0164	2.2258	3.0034	2.5	0.2	0.3	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		0.8 FPS
22.64T-C-02	Transect	5/8/2011	2:41:34 PM	12873867.79	314216.52	798.4791	1.6632	3.1067	3.5239	5.4	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	VELOCITY TOO FAST	3.6 FPS
22.64T-C-03	Transect	5/8/2011	2:44:29 PM	12873912.17	314237.73	806.3257	3.3725	3.265	4.694	3.1	0.4	0.7	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		0.8 FPS
22.73T-C-01	Transect	5/8/2011	2:52:12 PM	12873603.12	314073.91	794.4997	0.0817	0.1462	0.1675	0.6	1.1	1.2	Light	Light	Few	Right	<1ft/sec		Point Bar	None	Sand		0.2 FPS
22.73T-C-02	Transect	5/8/2011	2:58:29 PM	12873540.14	314091.34	794.5273	0.0354	0.0598	0.0695	6.3	-99.0	-99.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO DEEP TO POLE	3.7 FPS
22.73T-C-03	Transect	5/8/2011	3:02:24 PM	12873491.49	314066.94	792.1108	3.3745	4.6139	5.7163	3.5	0.1	0.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand		1.4 FPS
22.75N-C-01	Focus	5/9/2011	10:00:07 AM	12873559.44	314437.02	800.9491	10.6514	18.7742	21.5853	1.5	0.3	0.4	None	None	None	Island	<1ft/sec		Oxbow	None	Silt over Sand		0.6 FPS
22.75N-C-02	Focus	5/9/2011	10:03:36 AM	12873596.89	314467.91	802.4533	2.4189	6.2389	6.6914	3.5	0.1	0.2	None	None	None	Island	1-3 ft/sec		Oxbow	None	Silt over Sand		1.2 FPS
22.75N-C-03	Focus	5/9/2011	10:08:06 AM	12873648.18	314500.71	795.4555	2.9397	6.6376	7.2594	2.1	0.2	0.3	None	None	None	Island	<1ft/sec		Oxbow	None	Sand & Gravel		1.0 FPS
22.75N-C-04	Focus	5/9/2011	10:15:52 AM	12873718.37	314540.95	801.5866	1.8708	4.3412	4.7271	1.5	0.3	0.9	Light	Light	Few	Island	<1ft/sec		Oxbow	<5%	Silt over Sand		0.2 FPS
22.75N-C-05	Focus	5/9/2011	10:19:52 AM	12873781.63	314591.72	791.2089	2.7695	5.6288	6.2733	2.1	0.2	0.2	None	None	None	Island	1-3 ft/sec		Oxbow	None	Silt over Sand		0.6 FPS
22.75N-C-06	Focus	5/9/2011	10:24:12 AM	12873840.51	314624.09	804.5198	1.6319	3.2828	3.666	1.2	0.7	1.0	Light	Light	Few	Island	<1ft/sec		Oxbow	None	Soft Sediment		0.1 FPS
22.75N-C-07	Focus	5/9/2011	10:28:02 AM	12873898.72	314647.05	799.6467	2.2528	4.6406	5.1585	2.0	0.2	0.2	None	None	None	Island	1-3 ft/sec		Oxbow	None	Sand & Gravel		0.9 FPS
22.75N-C-08	Focus	5/9/2011	10:34:55 AM	12873962.89	314602.27	796.4942	2.1237	2.9412	3.6278	2.7	0.1	0.2	Moderate	Moderate	Common	Island	<1ft/sec		Oxbow	None	Silt over Sand		0.7 FPS
22.75N-C-09	Focus	5/9/2011	10:40:07 AM	12873966.17	314584.90	797.5685	1.6444	2.4255	2.9303	1.8	0.6	1.1	Light	Light	Few	Island	<1ft/sec		Oxbow	None	Silt over Sand		0.2 FPS
22.75N-C-10	Focus	5/9/2011	10:45:02 AM	12873959.60	314532.59	797.2667	1.4472	2.939	3.276	3.4	0.2	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		0.3 FPS
22.75N-C-11	Focus	5/9/2011	11:03:50 AM	12873951.24	314692.52	808.7196	3.7714	7.1077	8.0463	2.1	0.0	0.0	None	None	None	Right	<1ft/sec		Oxbow	None	Gravel & Larger		1.7 FPS
22.75N-C-12	Focus	5/9/2011	11:08:15 AM	12873945.47	314675.04	799.8842	2.3117	4.063	4.6746	3.0	0.1	0.1	None	None	None	Center	<1ft/sec		Oxbow	None	Gravel & Larger		2.3 FPS
22.75N-C-13	Focus	5/9/2011	11:10:55 AM	12873990.31	314650.22	797.5088	1.4049	1.7839	2.2706	3.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Oxbow	None	Gravel & Larger		1.5 FPS
22.75N-C-14	Focus	5/9/2011	11:13:21 AM	12874004.92	314663.50	794.8252	0.158	0.2552	0.3002	1.0	0.2	0.4	Moderate	Moderate	Common	Right	<1ft/sec		Oxbow	None	Silt over Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
22.75N-C-15	Focus	5/9/2011	11:17:11 AM	12873990.82	314677.09	795.0414	0.1349	0.2715	0.3031	2.0	0.4	0.4	Moderate	Moderate	Few	Right	<1ft/sec		Oxbow	None	Silt over Sand		0.5 FPS
22.75N-C-16	Focus	5/9/2011	11:21:48 AM	12874029.58	314640.35	797.7261	1.2944	2.2431	2.5897	1.9	0.1	0.1	None	None	None	Right	<1ft/sec		Oxbow	None	Silt over Sand		0.2 FPS
22.75N-C-17	Focus	5/9/2011	11:28:02 AM	12874030.35	314582.30	795.0426	0.0486	0.085	0.0979	2.7	0.3	0.3	None	None	None	Center	<1ft/sec		Oxbow	None	Silt over Sand		0.8 FPS
22.75N-C-18	Focus	5/9/2011	11:32:05 AM	12874090.34	314583.51	794.7931	1.9351	3.4187	3.9284	1.9	0.2	0.3	None	None	None	Right	No		Oxbow	None	Silt over Sand		
MP 22.75-23.00																							
22.80T-C-01	Transect	5/9/2011	9:11:27 AM	12873490.19	314402.42	796.7878	1.8715	2.0523	2.7774	2.6	0.9	1.0	Heavy	Heavy	Common	Island	<1ft/sec		Downstrm Island	<5%	Silt over Sand		0.1 FPS
22.80T-C-02	Transect	5/9/2011	9:18:25 AM	12873418.73	314405.81	794.4499	0.0327	0.0383	0.0504	5.9	0.6	0.6				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO DEEP	2.8 FPS
22.80T-C-03	Transect	5/9/2011	9:23:00 AM	12873392.34	314366.62	793.9661	1.8348	2.1546	2.83	3.7	0.1	0.2	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		2.2 FPS
22.80T-C-04	Transect	5/9/2011	9:28:12 AM	12873519.73	314364.10	794.3265	0.1457	0.1558	0.2133	2.3	0.3	1.2	Moderate	Moderate	Common	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
22.80T-C-05	Transect	5/9/2011	9:31:38 AM	12873496.28	314356.17	802.3873	2.4505	3.1066	3.9568	2.9	0.6	1.7	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		1.0 FPS
22.80T-C-06	Transect	5/9/2011	9:36:05 AM	12873517.83	314312.43	796.3679	1.9054	2.3027	2.9889	2.0	0.9	1.0	Light	Light	Few	Island	1-3 ft/sec		Downstrm Island	None	Silt over Sand		2.2 FPS
22.80T-C-07	Transect	5/9/2011	9:42:28 AM	12873455.43	314405.65	794.3434	0.0786	0.1044	0.1307	4.3	0.9	1.1	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		0.9 FPS
22.80T-C-08	Transect	5/9/2011	9:47:18 AM	12873474.28	314447.30	794.5775	0.0432	0.0583	0.0725	4.9	1.4	1.5	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		0.4 FPS
22.88T-C-01	Transect	5/9/2011	11:44:00 AM	12873193.60	314594.59	795.3664	2.1246	3.1356	3.7876	2.4	0.2	0.3	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		0.7 FPS
22.88T-C-02	Transect	5/9/2011	11:47:46 AM	12873158.41	314528.92	793.6018	1.8483	2.9292	3.4636	6.9	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger	TOO FAST TO SEE	2.9 FPS
22.88T-C-03	Transect	5/9/2011	11:50:50 AM	12873166.65	314478.51	794.0599	1.7869	2.7725	3.2984	2.3	0.2	0.4	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		1.5 FPS
22.97T-A-04	Transect	5/17/2011	12:46:10 PM	12872677.30	314317.38	793.706	4.1525	4.0953	5.8322	2.4	0.4	0.6	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Downstrm Island	None	Soft Sediment		
22.97T-A-05	Transect	5/17/2011	12:49:17 PM	12872739.60	314318.64	803.4038	5.9835	5.8022	8.3347	0.9	0.1	0.2	None	None	None	Left	No	No	Backwater	None	Sand & Silt	U BDY	
22.97T-A-06	Transect	5/17/2011	12:56:29 PM	12872602.38	314301.21	783.6361	3.1786	3.9366	5.0597	2.3	0.3	0.5	None	None	None	Left	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand & Silt	D BDY	
22.97T-A-07	Transect	5/17/2011	1:03:28 PM	12872622.13	314356.21	795.0924	0.057	0.0526	0.0776	6.6	0.0	0.0	None	None	None	Left	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
22.97T-A-08	Transect	5/17/2011	1:06:57 PM	12872662.86	314383.81	795.0238	0.0608	0.0522	0.0802	7.1	0.0	0.0	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
22.97T-C-01	Transect	5/9/2011	12:43:01 PM	12872626.09	314435.58	786.4616	8.4687	12.3328	14.9605	2.2	0.3	0.4	None	None	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		0.4 FPS
22.97T-C-02	Transect	5/9/2011	12:46:19 PM	12872617.52	314375.58	789.4199	11.5538	18.2406	21.5919	5.7	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	TOO FAST	3.4 FPS
22.97T-C-03	Transect	5/9/2011	1:13:14 PM	12872629.04	314334.78	794.1331	1.1515	1.9409	2.2568	1.9	0.6	0.7	Heavy	Heavy	Many	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		0.4 FPS
23.0S-C-01	Focus	5/9/2011	1:18:36 PM	12872403.08	314397.66	802.0225	1.9229	3.6929	4.1635	4.0	0.0	0.0	None	None	None	Left	<1ft/sec		Cut Bank	None	Gravel & Larger		2.0 FPS
23.0S-C-02	Focus	5/9/2011	1:25:44 PM	12872491.33	314315.14	785.0759	1.7869	3.3641	3.8092	2.0	0.1	0.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Gravel		0.2 FPS
23.0S-C-03	Focus	5/9/2011	1:30:44 PM	12872552.58	314307.85	795.7481	1.4371	2.8984	3.2351	2.0	0.3	0.4	None	None	None	Left	<1ft/sec		Downstrm Island	None	Silt over Sand		0.1 FPS
23.0S-C-04	Focus	5/9/2011	1:36:09 PM	12872581.30	314263.61	810.2117	3.3068	6.0716	6.9137	1.1	1.5	3.0	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		
23.0S-C-05	Focus	5/9/2011	1:40:50 PM	12872687.87	314232.56	793.8273	2.7408	4.6739	5.4182	0.9	1.1	1.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		
23.0S-C-06	Focus	5/9/2011	1:47:27 PM	12872748.75	314272.03	803.3652	1.6862	3.1064	3.5346	0.1	0.3	0.4	Light	Light	Few	Island	<1ft/sec		Downstrm Island	None	Soft Sediment	SHEEN ON BANKS	
23.0S-C-07	Focus	5/9/2011	1:51:25 PM	12872829.12	314279.41	795.7009	2.6675	5.1868	5.8325	0.3	0.1	0.4	Light	Light	None	Island	<1ft/sec		Downstrm Island	<5%	Soft Sediment	SHEEN ON BANK	
23.0S-C-08	Focus	5/9/2011	2:00:00 PM	12872938.16	314331.68	794.7155	0.3886	0.4398	0.5869	0.2	0.1	0.4	Light	Light	None	Island	<1ft/sec		Downstrm Island	<5%	Silt over Sand	SHEEN ON BANK	
23.0S-C-09	Focus	5/9/2011	2:01:29 PM	12872941.79	314428.35	791.837	1.8581	3.4135	3.8864	1.4	0.5	0.8	None	None	None	Left	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
23.0S-C-10	Focus	5/9/2011	2:07:49 PM	12872827.43	314373.08	798.4915	1.8801	2.3344	2.9974	1.0	0.4	0.5	None	None	None	Left	1-3 ft/sec		Downstrm Island	None	Silt over Sand		
MP 23.00-23.25																							
23.05T-D-01	Transect	5/8/2011	10:39:55 AM	12872386.55	314588.99	799.3897	2.7271	3.2813	4.2667	1.0	0.2	0.5	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Silt		
23.05T-D-02	Transect	5/8/2011	10:43:55 AM	12872338.72	314595.52	794.9948	2.5674	3.0628	3.9965	3.6	0.2	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
23.05T-D-03	Transect	5/8/2011	10:50:09 AM	12872300.52	314517.65	793.7984	4.1754	4.9752	6.4951	2.2	0.4	0.6	None	None	None	Left	>3 ft/sec		Cut Bank	None	Silt over Sand		HEAVY BANK VEG
23.14T-D-01	Transect	5/8/2011	11:43:19 AM	12872191.78	315091.55	797.4985	1.9036	2.7675	3.359	2.1	0.1	0.3	Light	Light	Few	Right	No		Other-Comments	None	Silt over Sand		DEPOSITIONAL BASIN
23.14T-D-02	Transect	5/8/2011	11:48:23 AM	12872157.86	315017.15	793.5936	0.0486	0.0704	0.0855	7.9	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Silt over Sand		DEPOSITIONAL BASIN
23.14T-D-03	Transect	5/8/2011	11:52:29 AM	12872113.02	314966.72	794.0145	0.2927	0.4792	0.5615	2.2	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		
23.15N-D-01	Focus	5/8/2011	11:07:27 AM	12872257.15	315020.53	790.4118	3.215	3.5428	4.7841	1.7	0.8	0.8	Moderate	Moderate	Common	Right	<1ft/sec		Other-Comments	None	Silt over Sand	PHOTO1	DEPOSITIONAL BASIN
23.15N-D-02	Focus	5/8/2011	11:10:48 AM	12872261.86	315009.51	802.5259	2.1821	4.3644	4.8795	1.7	0.2	0.3	Moderate	Moderate	Common	Right	<1ft/sec		Other-Comments	None	Silt over Sand		DEPOSITIONAL BASIN
23.15N-D-03	Focus	5/8/2011	11:14:03 AM	12872246.63	315003.93	799.0397	1.2197	2.1934	2.5097	3.0	0.8	1.2	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Silt over Sand		DEPOSITIONAL BASIN
23.15N-D-04	Focus	5/8/2011	11:19:03 AM	12872280.10	314997.45	799.408	3.1259	4.4021	5.399	0.6	0.4	0.7	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Silt over Sand		DEPOSITIONAL BASIN
23.15N-D-05	Focus	5/8/2011	11:21:23 AM	12872284.81	314965.54	800.4416	4.4999	6.4554	7.869	2.0	0.2	0.3	None	None	None	Right	No		Other-Comments	None	Silt over Sand		DEPOSITIONAL BASIN
23.15N-D-06	Focus	5/8/2011	11:23:02 AM	12872245.67	315058.22	797.9485	2.6797	4.2409	5.0166	1.0	0.5	0.6	Light	Light	Few	Right	No		Other-Comments	None	Silt over Sand		DEPOSITIONAL BASIN
23.15N-D-07	Focus	5/8/2011	11:31:23 AM	12872209.88	315062.38	784.3473	2.9155	4.2475	5.1519	3.0	0.1	0.2	Light	Light	Few	Right	No		Other-Comments	None	Silt over Sand		DEPOSITIONAL BASIN
23.25T-D-01	Transect	5/8/2011	12:40:49 PM	12871465.12	315036.33	794.1097	1.1758	1.7084	2.0739	4.5	0.3	0.4	Light	Light	Few	Right	1-3 ft/sec		Cut Bank	None	Sand over Silt		FALLEN TREES NO ACCS
23.25T-D-02	Transect	5/8/2011	12:51:06 PM	12871470.34	314923.07	793.498	0.045	0.0655	0.0794	2.5	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
23.25T-D-03	Transect	5/8/2011	12:55:11 PM	12871489.65	314821.93	793.7171	0.0577	0.0805	0.099	4.6	0.1	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Silt		
MP 23.25-23.50																							
23.33T-D-01	Transect	5/8/2011	1:04:47 PM	12871239.40	314801.13	793.7104	0.0621	0.1017	0.1191	2.5	0.2	0.6	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		TOO MUCH DEBRIS
23.33T-D-02	Transect	5/8/2011	1:08:57 PM	12871271.63	314766.02	793.4506	0.0367	0.0561	0.0671	5.5	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		TOO MUCH DEBRIS
23.33T-D-03	Transect	5/8/2011	1:13:08 PM	12871353.64	314731.28	793.5452	0.1015	0.1709	0.1987	3.7	0.0	0.2	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		TOO MUCH DEBRIS
23.41T-A-04	Transect	5/17/2011	12:20:40 PM	12871135.20	314246.33	794.5347	0.0399	0.0691	0.0798	3.9	0.4	0.6	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand		
23.41T-A-05	Transect	5/17/2011	12:27:38 PM	12871184.42	314289.13	795.2487	0.0622	0.1	0.1178	7.0	0.0	0.0	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
23.41T-D-02	Transect	5/8/2011	1:27:49 PM	12871266.49	314175.16	793.1338	0.0427	0.0681	0.0804	6.8	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
23.41T-D-03	Transect	5/8/2011	1:31:35 PM	12871249.60	314265.37	797.8326	1.8686	2.9915	3.5271	1.0	0.2	0.3	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Sand & Silt		
MP 23.50-23.75																							
23.54T-D-01	Transect	5/8/2011	1:40:57 PM	12871846.25	314234.66	722.337	5.4558	16.9349	17.792	4.1	0.1	0.4	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
23.54T-D-02	Transect	5/8/2011	1:48:20 PM	12871868.92	314280.16	793.0709	0.0674	0.1026	0.1228	4.7	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
23.54T-D-03	Transect	5/8/2011	1:52:50 PM	12871826.12	314363.19	804.0282	2.7906	5.2773	5.9697	1.3	0.2	0.5	Light	Light	Few	Left	<1ft/sec		Downstrm Island	None	Silt over Sand		
23.65T-D-01	Transect	5/8/2011	2:00:33 PM	12872086.92	314022.40	792.8827	0.1153	0.3303	0.3499	0.3	0.1	0.1	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		
23.65T-D-02	Transect	5/8/2011	2:12:22 PM	12872141.94	314012.99	793.0561	0.0464	0.0781	0.0909	5.3	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
23.65T-D-03	Transect	5/8/2011	2:15:00 PM	12872186.69	314051.69	795.6002	2.4642	3.8467	4.5683	1.8	0.1	0.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Gravel		
23.69T-D-01	Transect	5/8/2011	2:21:19 PM	12872080.21	313841.92	796.7645	2.5298	3.8983	4.6473	1.5	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand & Silt		
23.69T-D-02	Transect	5/8/2011	2:26:00 PM	12872135.99	313794.34	756.4459	7.0887	7.72	10.4808	7.0	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		FAST
23.69T-D-03	Transect	5/8/2011	2:28:50 PM	12872198.09	313853.36	806.7096	2.5732	3.2569	4.1508	3.0	0.5	0.6	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Organic		
MP 23.75-24.00																							
23.83T-A-13	Transect	5/17/2011	12:08:34 PM	12871570.23	313419.36	793.7465	0.037	0.067	0.0765	5.6	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
23.83T-D-01	Transect	5/8/2011	3:10:46 PM	12871542.78	313516.34	801.8092	1.5784	2.8489	3.2569	1.8	0.2	0.3	Moderate	Moderate	Common	Right	No		Strt Channel Edg	None	Organic		
23.83T-D-04	Transect	5/8/2011	3:30:32 PM	12871584.73	313301.90	792.8867	0.0584	0.1773	0.1867	3.8	0.4	0.5	Moderate	Light	Many	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
23.83T-D-05	Transect	5/8/2011	3:40:44 PM	12871608.06	313310.05	792.7682	0.0667	0.1824	0.1942	3.8	0.8	0.8	Heavy	Moderate	Many	Left	<1ft/sec		Cut Bank	None	Organic	DELINEATION	
23.83T-D-06	Transect	5/8/2011	3:44:55 PM	12871606.30	313313.62	793.718	0.0709	0.2095	0.2211	2.9	0.7	0.7	Heavy	Moderate	Many	Left	<1ft/sec		Cut Bank	None	Silt over Sand	DELINEATION	
23.83T-D-07	Transect	5/8/2011	3:51:52 PM	12871662.56	313317.41	799.7207	1.7658	5.1859	5.4783	2.5	0.5	0.5	Heavy	Heavy	Many	Left	No		Cut Bank	None	Organic	DELINEATION	PHOTO4
23.83T-D-08	Transect	5/8/2011	4:06:36 PM	12871719.37	313374.58	779.9472	3.0568	8.3153	8.8593	2.9	0.1	0.1	Light	Light	Few	Left	No		Cut Bank	None	Organic	DELINEATION	PHOTO4
23.83T-D-09	Transect	5/8/2011	4:15:49 PM	12871638.49	313370.32	792.7449	0.0305	0.0823	0.0878	2.7	0.2	0.3	None	None	None	Left	No		Mid-Channel	None	Sand	BNDRY	
23.83T-D-10	Transect	5/8/2011	4:22:40 PM	12871475.76	313344.38	792.6598	0.1022	0.2039	0.2281	3.0	0.2	0.3	None	None	None	Left	1-3 ft/sec		Mid-Channel	None	Sand	BNDRY	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
23.83T-D-11	Transect	5/8/2011	4:28:19 PM	12871300.41	313336.53	792.7758	0.0333	0.0739	0.081	4.3	0.2	0.2	None	None	None	Left	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	BNDRY	
23.83T-D-12	Transect	5/8/2011	4:34:02 PM	12871487.52	313295.92	793.738	1.5873	3.2607	3.6265	2.4	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand	BNDRY	
23.85N-D-01	Focus	5/8/2011	2:46:36 PM	12871652.86	313545.86	814.4848	2.6348	4.9874	5.6406	0.5	0.6	0.7	Light	Light	Few	Right	<1ft/sec		Point Bar	None	Organic		
23.85N-D-02	Focus	5/8/2011	2:50:29 PM	12871684.93	313625.23	829.7052	17.3441	19.5648	26.1457	0.2	0.0	0.1	Light	Light	Few	Right	No		Point Bar	None	Organic	GLOBS IN BACKCHAN	
23.85N-D-03	Focus	5/8/2011	2:54:12 PM	12871603.85	313542.51	798.6263	3.494	5.5247	6.5369	1.1	0.8	0.9	Moderate	Light	Common	Right	No		Point Bar	None	Organic	GLOBS IN BACKCHAN	
23.85N-D-04	Focus	5/8/2011	2:58:00 PM	12871353.32	313465.51	804.6313	4.8082	3.3621	5.8671	1.8	0.1	0.3	Light	Light	Few	Right	No		Point Bar	None	Organic		
23.85N-D-05	Focus	5/8/2011	3:08:44 PM	12871506.91	313513.96	793.4423	1.9365	3.6181	4.1038	1.8	0.1	0.3	Light	Light	Few	Right	No		Point Bar	None	Organic		
23.85N-D-06	Focus	5/8/2011	3:21:24 PM	12871593.27	313521.16	788.1629	1.3593	2.373	2.7347	2.0	0.5	1.1	Light	Light	Few	Right	1-3 ft/sec		Point Bar	None	Organic	BNDRY	
23.90T-D-01	Transect	5/9/2011	9:37:00 AM	12871189.41	313482.33	797.1427	2.0425	3.2795	3.8636	2.9	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand		
23.90T-D-02	Transect	5/9/2011	9:39:57 AM	12871143.50	313413.30	792.4361	0.915	1.2731	1.5678	3.6	0.0	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
23.90T-D-03	Transect	5/9/2011	9:43:07 AM	12871160.06	313316.53	792.5755	0.0752	0.117	0.1391	1.2	0.1	0.2	None	None	None	Left	>3 ft/sec		Cut Bank	None	Silt over Sand		
23.97T-D-01	Transect	5/9/2011	9:57:32 AM	12870892.66	313612.27	796.0659	2.0901	3.6046	4.1667	0.4	0.6	0.9	None	None	None	Right	<1ft/sec		Cut Bank	None	Organic	SHEENFOUNDATARIVL	
23.97T-D-02	Transect	5/9/2011	10:02:02 AM	12870890.72	313625.31	797.6272	2.0043	3.0137	3.6193	0.6	0.9	1.4	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	None	Organic	SHEEN	DELIN
23.97T-D-03	Transect	5/9/2011	10:17:56 AM	12870861.28	313559.64	792.0296	0.045	0.0858	0.0968	5.3	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
23.97T-D-04	Transect	5/9/2011	10:21:35 AM	12870849.45	313495.77	792.3502	0.0824	0.2107	0.2263	2.4	0.1	0.2	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
23.97T-D-05	Transect	5/9/2011	10:28:41 AM	12870780.76	313646.00	792.5128	0.0461	0.0864	0.0979	2.1	0.3	0.7	None	None	None	Right	<1ft/sec		Downstrm Island	None	Organic		BNDRY
23.97T-D-06	Transect	5/9/2011	10:31:30 AM	12870843.17	313606.37	792.0133	0.2788	0.4227	0.5064	6.6	0.1	0.2	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Silt		BNDRY
23.97T-D-07	Transect	5/9/2011	10:41:51 AM	12870850.43	313645.36	790.7375	1.9095	3.497	3.9844	1.1	0.6	0.7	Light	Light	Few	Right	No		Downstrm Island	None	Organic		DELINEATION
23.97T-D-08	Transect	5/9/2011	10:44:21 AM	12870859.46	313650.84	793.5461	1.2391	2.847	3.105	0.9	0.6	0.9	Light	Light	Few	Right	No		Downstrm Island	None	Organic		DELINEATION
23.97T-D-09	Transect	5/9/2011	10:48:49 AM	12870864.80	313639.02	811.1742	2.0964	4.3601	4.8379	1.0	0.8	1.0	Light	Light	Few	Right	No		Downstrm Island	None	Organic		DELINEATION
23.97T-D-10	Transect	5/9/2011	10:52:13 AM	12870884.26	313653.86	789.8902	2.416	3.9011	4.5887	0.4	0.2	0.2	Light	Light	Few	Right	No		Downstrm Island	None	Organic		DELINEATION
23.97T-D-11	Transect	5/9/2011	10:56:14 AM	12870883.26	313641.06	797.0887	1.7082	4.5093	4.822	0.9	1.1	1.6	Light	Light	Few	Right	No		Downstrm Island	None	Organic		DELINEATION
23.97T-D-12	Transect	5/9/2011	11:02:55 AM	12870873.43	313624.95	800.4787	1.2765	2.3784	2.6993	1.0	1.0	1.4	Light	Light	Few	Right	No		Downstrm Island	None	Organic		DELINEATION
MP 24.00-24.25																							
24.04T-E-01	Transect	5/8/2011	10:17:24 AM	12870558.17	313577.23	792.9543	0.0437	0.0886	0.0988	4.0	0.1	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		1-3FTS
24.04T-E-02	Transect	5/8/2011	10:24:10 AM	12870604.63	313543.73	792.6996	0.027	0.0513	0.058	7.2	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
24.04T-E-03	Transect	5/8/2011	10:30:37 AM	12870625.58	313445.77	787.024	3.2111	6.596	7.3361	1.3	0.5	0.6	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		LESS 1FTS
24.14T-E-01	Transect	5/8/2011	10:38:23 AM	12870849.40	313101.26	792.5631	0.0458	0.0888	0.0999	1.1	0.7	1.3	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Soft Sediment		LESS 1FTS
24.14T-E-02	Transect	5/8/2011	10:54:03 AM	12870816.48	312961.05	797.3682	1.831	3.3751	3.8398	4.6	0.3	0.4	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		1-3FTS
24.14T-E-03	Transect	5/8/2011	10:59:38 AM	12870860.04	313010.97	792.5454	0.0434	0.0878	0.098	3.9	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
MP 24.25-24.50																							
24.27T-A-01	Transect	5/17/2011	11:43:49 AM	12871234.99	312569.64	793.5014	0.0814	0.1546	0.1747	2.6	0.2	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Silt		
24.27T-A-02	Transect	5/17/2011	11:50:28 AM	12871109.22	312544.46	793.5138	0.0432	0.0748	0.0864	3.2	0.1	0.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
24.27T-A-03	Transect	5/17/2011	11:56:28 AM	12871138.61	312553.86	793.5296	0.047	0.0825	0.095	5.4	0.0	0.0	None	None	None	Center	1-3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		
24.29T-E-01	Transect	5/8/2011	11:30:19 AM	12871214.21	312476.89	791.6229	3.9945	6.6732	7.7774	2.7	0.6	0.7	None	None	None	Left	<1ft/sec	Cut Bank	None	Sand & Gravel		LESS 1FTS	
24.29T-E-02	Transect	5/8/2011	11:48:41 AM	12871118.27	312404.16	792.3735	0.0588	0.0949	0.1117	3.7	0.1	0.2	None	None	None	Center	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		1-3FTS	
24.29T-E-03	Transect	5/8/2011	12:00:05 PM	12871055.72	312436.66	803.5769	2.622	4.2278	4.9749	0.6	0.5	0.8	Light	Light	Few	Right	No	Point Bar	None	Soft Sediment		0FTS	
24.34T-E-01	Transect	5/8/2011	12:07:35 PM	12871082.38	312065.00	793.8136	0.2618	0.3621	0.4468	4.8	0.2	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		1-3FTS
24.34T-E-02	Transect	5/8/2011	12:12:07 PM	12871167.53	312050.69	792.5341	1.358	1.794	2.25	5.2	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
24.34T-E-03	Transect	5/8/2011	12:17:29 PM	12871264.66	312113.39	807.8472	2.555	3.2152	4.1068	3.7	0.5	0.7	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
24.34T-E-04	Transect	5/8/2011	12:23:46 PM	12871242.34	312132.87	792.276	0.1681	0.2649	0.3137	4.0	0.8	0.9	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		BD LESS 1FTS
24.34T-E-05	Transect	5/8/2011	1:10:03 PM	12871240.31	312043.67	792.7748	0.1191	0.2506	0.2775	4.1	1.0	1.1	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS 1FTS
24.34T-E-06	Transect	5/8/2011	1:16:09 PM	12871196.29	312064.73	792.2989	0.041	0.0677	0.0791	4.6	0.3	0.5	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
24.34T-E-07	Transect	5/8/2011	1:20:43 PM	12871228.42	311996.39	792.4174	0.0585	0.1055	0.1206	3.6	1.4	1.8	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Soft Sediment		LESS 1FTS
24.34T-E-08	Transect	5/8/2011	1:24:57 PM	12871170.56	311972.29	792.2708	0.0574	0.1034	0.1182	6.2	0.6	1.0	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		1-3FTS
24.45T-E-01	Transect	5/8/2011	1:39:42 PM	12870852.16	311763.86	805.3039	2.3809	4.3624	4.9698	3.0	0.4	0.5	None	None	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		LESS 1FTS
24.45T-E-02	Transect	5/8/2011	1:43:59 PM	12870863.29	311712.81	791.8655	0.8039	1.4755	1.6803	6.0	0.4	0.5	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		GRT 3FTS
24.45T-E-03	Transect	5/8/2011	1:55:09 PM	12870901.47	311664.96	792.2153	1.6754	2.4039	2.9301	3.0	0.6	0.9	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Soft Sediment		LESS 1FTS
24.49T-E-01	Transect	5/8/2011	2:02:06 PM	12870644.25	311711.83	803.5257	2.2513	3.8369	4.4486	0.2	0.3	0.5	None	None	None	Right	No		Point Bar	<5%	Silt over Sand		0FTS
24.49T-E-02	Transect	5/8/2011	2:07:40 PM	12870740.21	311610.12	786.7297	2.5554	3.2767	4.1553	6.1	0.5	0.7	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Gravel		LESS 1FTS
24.49T-E-03	Transect	5/8/2011	2:11:01 PM	12870661.53	311659.23	792.6265	1.5185	1.9096	2.4397	4.5	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
MP 24.50-24.75																							
24.57T-E-01	Transect	5/8/2011	2:17:58 PM	12870355.64	311567.23	798.5615	1.894	2.2674	2.9544	2.8	0.3	0.5	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		1-3FTS
24.57T-E-02	Transect	5/8/2011	2:25:09 PM	12870244.15	311648.04	794.4235	1.9825	2.7216	3.3671	2.8	1.1	1.7	Light	Light	None	Right	<1ft/sec		Cut Bank	None	Sand over Silt		LESS 1FTS
24.57T-E-03	Transect	5/8/2011	2:34:06 PM	12870289.49	311588.28	792.858	1.5352	2.1492	2.6412	6.0	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
24.63T-E-01	Transect	5/8/2011	2:39:56 PM	12870176.16	311340.09	791.9057	0.0563	0.0847	0.1017	0.4	0.1	0.2	None	None	None	Left	No		Cut Bank	5%-25%	Silt over Sand		0FTS
24.63T-E-02	Transect	5/8/2011	3:26:33 PM	12870059.11	311346.23	791.0536	1.6341	2.0555	2.6259	5.3	0.9	1.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Silt over Sand		AND BD PT
24.63T-E-03	Transect	5/8/2011	3:42:34 PM	12869989.41	311373.55	802.592	1.9879	3.6082	4.1195	3.9	0.3	0.5	None	None	None	Right	1-3 ft/sec		Point Bar	None	Silt over Sand		1-3FTS
24.65S-E-01	Focus	5/8/2011	2:46:26 PM	12870212.53	311343.30	790.9991	2.927	3.7252	4.7375	0.8	1.2	2.0	Light	Light	Few	Left	No		Cut Bank	25%-50%	Soft Sediment		0FTS
24.65S-E-02	Focus	5/8/2011	2:52:26 PM	12870160.92	311259.03	834.5209	4.9517	4.3846	6.614	0.4	0.5	0.7	None	None	None	Left	No		Cut Bank	5%-25%	Soft Sediment		0FTS
24.65S-E-03	Focus	5/8/2011	2:57:00 PM	12870147.32	311320.07	791.6007	2.1837	1.7256	2.7832	1.8	0.8	1.2	Light	Light	Few	Left	No		Cut Bank	None	Soft Sediment		0FTS
24.65S-E-04	Focus	5/8/2011	3:01:34 PM	12870090.89	311253.59	797.337	2.2853	2.6785	3.5209	1.6	1.2	1.3	Moderate	Moderate	Common	Left	No		Cut Bank	None	Soft Sediment		0FTS
24.65S-E-05	Focus	5/8/2011	3:07:12 PM	12870060.92	311285.57	792.1924	1.9172	2.3431	3.0275	2.1	1.4	1.6	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS 1FTS
24.65S-E-06	Focus	5/8/2011	3:14:41 PM	12869989.22	311277.26	789.8279	2.013	2.5165	3.2225	5.8	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
24.65S-E-07	Focus	5/8/2011	3:21:51 PM	12870080.06	311308.36	791.1592	1.649	2.0751	2.6505	1.8	1.1	1.3	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Soft Sediment		LESS 1FTS
24.65S-E-08	Focus	5/8/2011	3:33:58 PM	12870106.39	311334.70	791.943	0.054	0.1139	0.1261	2.5	0.4	0.5	Light	Light	Few	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		1-3FTS
24.65S-A-09	Focus	5/17/2011	10:24:19 AM	12870061.68	311242.47	797.3005	1.4515	2.0184	2.4861	2.8	0.5	0.7	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
24.65S-A-10	Focus	5/17/2011	10:31:04 AM	12870001.81	311229.86	792.4359	1.7702	2.1144	2.7576	3.5	0.1	0.1	Heavy	Heavy	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
24.65S-A-11	Focus	5/17/2011	10:32:31 AM	12870001.18	311239.93	792.5748	0.1307	0.2174	0.2536	4.0	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	LAT BDY	
24.65S-A-12	Focus	5/17/2011	10:40:45 AM	12869959.98	311215.46	791.1149	2.1635	1.8412	2.8409	2.9	0.1	0.1	None	None	None	Left	>3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	D BDY	
24.72T-E-01	Transect	5/8/2011	3:53:59 PM	12869635.42	311253.57	797.7261	1.4935	3.3613	3.6781	2.3	0.2	0.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS1FTS
24.72T-E-02	Transect	5/8/2011	3:58:10 PM	12869608.89	311377.98	791.7771	0.0491	0.1522	0.1599	1.8	0.8	0.9	Heavy	Heavy	Many	Right	<1ft/sec		Downstrm Island	None	Silt over Sand		LESS 1FTS
24.72T-E-03	Transect	5/8/2011	4:01:52 PM	12869625.62	311358.83	786.1597	1.0045	3.6283	3.7648	2.5	0.8	1.4	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS1FTS BD
24.72T-E-04	Transect	5/8/2011	4:03:58 PM	12869598.35	311313.84	791.3644	0.0444	0.1514	0.1578	6.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
24.72T-E-05	Transect	5/8/2011	4:08:09 PM	12869583.22	311347.24	790.862	1.5519	4.5352	4.7934	5.6	0.6	1.0	None	None	None	Right	1-3 ft/sec		Downstrm Island	None	Sand & Gravel		1-3FTS
24.75N-E-01	Focus	5/9/2011	9:21:09 AM	12869486.02	311422.07	768.6006	4.9856	5.6242	7.5159	2.5	0.4	1.1	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
24.75N-E-02	Focus	5/9/2011	9:31:51 AM	12869756.71	311364.31	808.7493	1.8809	2.9999	3.5408	1.4	1.0	1.1	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
24.75N-E-03	Focus	5/9/2011	9:37:10 AM	12869898.81	311330.14	804.9429	1.9547	3.3989	3.9209	3.1	0.3	0.4	None	None	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		1-3FTS
24.75N-E-04	Focus	5/9/2011	9:47:25 AM	12869317.56	311430.44	796.9724	1.9477	3.1822	3.7309	2.5	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		1-3FTS
24.75N-E-05	Focus	5/9/2011	9:52:40 AM	12869062.60	311555.75	799.4266	3.1578	4.8197	5.7621	1.5	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS 1FTS
24.75N-E-06	Focus	5/9/2011	9:59:30 AM	12868903.28	311572.95	795.3343	2.1355	3.4575	4.0638	3.6	0.8	0.9	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS 1FTS
MP 24.75-25.00																							
24.82T-E-01	Transect	5/8/2011	4:23:53 PM	12869031.30	311387.16	791.8052	0.0518	0.1515	0.1601	1.9	0.9	1.0	Heavy	Heavy	Many	Left	No		Downstrm Island	None	Soft Sediment		0FTS
24.82T-E-02	Transect	5/8/2011	4:27:08 PM	12869046.33	311414.44	791.3729	0.0319	0.0888	0.0943	4.2	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		BD 1-3FTS
24.82T-E-03	Transect	5/8/2011	4:28:49 PM	12869014.03	311422.17	792.8812	0.7842	2.0913	2.2335	5.1	0.1	0.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		1-3FTS
24.82T-E-04	Transect	5/8/2011	4:30:34 PM	12869033.78	311469.41	791.4547	0.0379	0.0971	0.1042	5.2	0.1	0.1	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
24.82T-E-05	Transect	5/8/2011	4:35:01 PM	12869124.97	311502.09	792.5631	2.0923	4.7855	5.2229	2.9	0.3	0.4	None	None	None	Right	No		Strt Channel Edg	None	Sand		0FTS
24.92T-E-01	Transect	5/9/2011	10:07:06 AM	12868615.85	311535.30	791.6001	1.8256	3.5738	4.0131	3.8	0.3	0.4	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand		1-3FTS
24.92T-E-02	Transect	5/9/2011	10:09:37 AM	12868620.91	311466.01	793.0001	0.99	1.9276	2.1669	4.0	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
24.92T-E-03	Transect	5/9/2011	10:22:17 AM	12868686.15	311393.22	800.2227	1.6152	3.4787	3.8354	1.4	0.9	1.0	Heavy	Heavy	Many	Left	<1ft/sec		Point Bar	None	Silt over Sand		LESS 1FTS
24.92T-E-04	Transect	5/9/2011	10:28:56 AM	12868693.30	311413.49	798.8006	1.9363	3.4919	3.9928	2.8	0.3	0.4	None	None	None	Left	<1ft/sec		Point Bar	None	Sand		LESS1FTS
24.92T-E-05	Transect	5/9/2011	10:31:57 AM	12868667.75	311398.10	790.7341	0.1251	0.1318	0.1817	2.7	0.3	0.4	None	None	None	Left	<1ft/sec		Point Bar	None	Sand		LESS1FTS
24.99T-E-01	Transect	5/9/2011	10:40:39 AM	12868173.48	311287.17	821.4651	2.047	3.8795	4.3865	2.1	0.7	0.8	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS1FTS
24.99T-E-02	Transect	5/9/2011	10:51:42 AM	12868187.60	311221.70	793.886	1.793	3.2618	3.7221	7.1	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
24.99T-E-03	Transect	5/9/2011	10:55:55 AM	12868242.47	311169.08	804.5438	2.1418	4.1765	4.6936	3.6	0.2	0.3	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt		LESS 1FTS
MP 25.00-25.25																							
25.05T-E-01	Transect	5/9/2011	11:17:38 AM	12867961.93	311216.09	822.2466	1.6132	2.7786	3.213	2.8	0.4	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS1FTS
25.05T-E-02	Transect	5/9/2011	11:19:16 AM	12867948.54	311171.98	791.2404	0.0739	0.0952	0.1205	6.6	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
25.05T-E-03	Transect	5/9/2011	11:22:15 AM	12867981.89	311114.29	790.4545	1.6771	2.64	3.1277	2.5	0.5	0.7	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS1FTS
25.05T-E-04	Transect	5/9/2011	11:34:02 AM	12867801.72	311274.75	809.8135	2.7272	4.0472	4.8803	0.4	0.2	0.3	None	None	None	Right	No		Other-Comments	<5%	Silt over Sand		CHANL 0FTS
25.18T-E-01	Transect	5/9/2011	11:41:39 AM	12867344.02	310982.73	782.0682	1.974	3.2255	3.7815	2.9	0.3	0.5	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS 1FTS
25.18T-E-02	Transect	5/9/2011	11:49:11 AM	12867482.17	310872.40	791.8662	2.3776	4.5217	5.1087	0.9	0.2	0.3	Light	Light	Few	Left	No		Point Bar	None	Silt over Sand		0FTS
25.18T-E-03	Transect	5/9/2011	11:56:35 AM	12867425.90	310939.34	791.322	0.0441	0.0651	0.0786	2.9	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
25.25T-E-01	Transect	5/9/2011	12:58:52 PM	12867104.56	310738.99	795.9838	1.8684	2.9084	3.4569	1.5	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Point Bar	None	Silt over Sand		LESS1FTS
25.25T-E-02	Transect	5/9/2011	1:00:31 PM	12867128.78	310694.48	795.8455	1.7962	3.2644	3.7259	5.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
25.25T-E-03	Transect	5/9/2011	1:05:34 PM	12867120.48	310626.48	800.0836	2.7606	4.3646	5.1644	1.3	0.2	0.2	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		1-3FTS
MP 25.25-25.50																							
25.31T-E-01	Transect	5/9/2011	1:13:55 PM	12866867.22	310630.49	796.1086	2.1093	4.2235	4.7209	3.4	0.1	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand		1-3FTS
25.31T-E-02	Transect	5/9/2011	1:16:18 PM	12866879.31	310584.53	789.4411	1.7074	3.2343	3.6573	5.1	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
25.31T-E-03	Transect	5/9/2011	1:20:39 PM	12866867.40	310548.96	790.4899	1.4739	2.8954	3.2489	4.4	0.1	0.1	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		1-3FTS
25.36T-E-01	Transect	5/9/2011	1:40:26 PM	12866579.10	310602.03	790.9519	0.0922	0.1353	0.1637	4.6	0.1	0.1	None	None	None	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel		GRT 3FTS
25.36T-E-02	Transect	5/9/2011	1:45:14 PM	12866624.29	310634.00	791.9023	0.7776	1.4122	1.6122	3.3	0.2	0.2	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		GRT 3FTS
25.36T-E-03	Transect	5/9/2011	1:48:27 PM	12866696.47	310646.70	790.7821	0.0878	0.1016	0.1016	1.8	0.8	1.0	None	None	None	Right	1-3 ft/sec		Point Bar	None	Silt over Sand		1-3FTS
25.40T-E-01	Transect	5/9/2011	2:00:27 PM	12866513.19	310885.93	790.9005	0.0448	0.0773	0.0894	8.0	0.1	0.1	None	None	None	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel		GRT 3FTS
25.40T-E-02	Transect	5/9/2011	2:11:16 PM	12866558.77	310864.15	790.7947	0.0938	0.1417	0.17	5.5	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
25.40T-E-03	Transect	5/9/2011	2:14:46 PM	12866585.82	310839.77	790.7571	0.0269	0.0442	0.0518	2.3	0.9	1.1	None	None	None	Right	<1ft/sec		Point Bar	None	Sand & Silt		LESS 1FTS
25.47T-D-01	Transect	5/9/2011	11:20:19 AM	12866837.94	311101.11	797.245	2.2866	2.9759	3.7529	1.9	1.0	1.1	Moderate	Moderate	Common	Right	No		Downstrm Island	None	Soft Sediment		
25.47T-D-02	Transect	5/9/2011	11:25:51 AM	12866795.83	311137.88	788.381	1.7936	2.4505	3.0367	3.6	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
25.47T-D-03	Transect	5/9/2011	11:31:13 AM	12866712.10	311189.67	810.838	4.1836	6.2677	7.5357	1.8	0.1	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		
25.47T-D-04	Transect	5/9/2011	11:40:57 AM	12866890.53	311163.93	791.6981	4.4851	6.2331	7.679	2.9	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Downstrm Island	None	Soft Sediment	DELINEATION	
25.47T-D-05	Transect	5/9/2011	11:48:59 AM	12866863.41	311127.17	790.0684	1.7155	3.2636	3.687	3.0	1.2	1.5	Moderate	Moderate	Common	Right	<1ft/sec		Downstrm Island	None	Soft Sediment	DELINEATION	PHOTO1
25.47T-D-06	Transect	5/9/2011	11:50:38 AM	12866874.18	311137.29	796.5297	2.5742	4.409	5.1055	2.6	1.5	1.6	Moderate	Moderate	Common	Right	<1ft/sec		Downstrm Island	None	Silt over Sand	DELINEATION	
25.47T-D-07	Transect	5/9/2011	12:02:00 PM	12866817.89	311081.06	799.4391	2.9234	4.3478	5.2392	0.8	0.4	0.6	Light	Light	Few	Right	<1ft/sec		Downstrm Island	None	Soft Sediment	DELINEATION	
25.47T-D-08	Transect	5/9/2011	12:50:55 PM	12866851.31	311155.89	795.1981	1.716	2.509	3.0397	3.3	0.1	0.2	None	None	None	Right	<1ft/sec		Downstrm Island	None	Sand	BNDRY	
25.47T-D-09	Transect	5/9/2011	12:52:32 PM	12866829.90	311119.98	797.6001	1.6005	2.8983	3.3108	3.2	0.4	0.4	None	None	None	Right	<1ft/sec		Downstrm Island	None	Sand	BNDRY	
25.47T-E-01	Transect	5/9/2011	2:23:51 PM	12866827.80	311071.25	802.5797	2.8308	3.6052	4.5837	0.3	0.3	0.4	None	None	None	Right	No		Strt Channel Edg	None	Silt over Sand		0FTS
25.47T-E-02	Transect	5/9/2011	2:26:08 PM	12866793.99	311146.50	788.9519	1.3565	2.0725	2.477	3.5	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
25.47T-E-03	Transect	5/9/2011	2:30:07 PM	12866763.93	311244.70	805.2525	2.1422	3.1897	3.8423	2.8	0.3	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		1-3FTS
MP 25.50-25.75																							
25.58T-D-01	Transect	5/9/2011	1:02:22 PM	12867079.68	311633.98	796.7483	3.1003	5.0801	5.9514	5.5	0.0	0.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		
25.58T-D-02	Transect	5/9/2011	1:05:00 PM	12867024.98	311652.02	791.9799	1.9383	3.9447	4.3951	4.8	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
25.58T-D-03	Transect	5/9/2011	1:08:11 PM	12866963.74	311634.67	799.8443	0.2007	0.2631	0.331	2.0	0.5	0.5	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		
25.65N-D-01	Focus	5/9/2011	1:19:51 PM	12866972.90	311914.97	796.433	3.8656	10.2405	10.9458	2.4	0.3	0.4	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Silt		
25.65N-D-02	Focus	5/9/2011	1:23:47 PM	12866965.29	311915.40	873.2663	2.262	6.3023	6.696	2.1	0.5	0.7	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Silt		
25.65N-D-03	Focus	5/9/2011	1:31:19 PM	12866961.35	311919.03	791.5668	0.058	0.1079	0.1225	3.4	0.1	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Silt		
25.69T-D-01	Transect	5/9/2011	1:43:13 PM	12866674.49	312133.67	795.6674	1.2333	2.4119	2.7089	3.1	0.2	0.3	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Sand over Silt		
25.69T-D-02	Transect	5/9/2011	1:47:54 PM	12866626.68	312067.67	790.2282	0.0347	0.0635	0.0724	5.8	0.3	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		
25.69T-D-03	Transect	5/9/2011	1:52:32 PM	12866626.81	312011.65	794.3737	3.7999	6.0344	7.1311	2.5	0.6	0.7	Light	Light	Few	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		
25.75T-D-01	Transect	5/9/2011	2:46:16 PM	12866301.25	312099.50	790.6199	1.0913	1.9634	2.2463	3.9	0.1	0.2	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		
25.75T-D-02	Transect	5/9/2011	2:48:20 PM	12866303.87	312039.18	790.8076	1.0948	2.1655	2.4265	4.3	0.0	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Gravel & Larger		
25.75T-D-03	Transect	5/9/2011	2:53:20 PM	12866326.64	311995.03	793.2721	1.9669	3.2946	3.8371	3.0	0.0	0.0	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand		
25.7N-D-01	Focus	5/9/2011	2:01:37 PM	12866544.86	312175.16	806.9434	1.8611	3.3593	3.8404	1.5	0.5	0.6	Heavy	Moderate	Many	Right	No		Cut Bank	None	Organic		
25.7N-D-02	Focus	5/9/2011	2:10:54 PM	12866575.99	312213.26	825.2232	2.7125	3.9959	4.8296	1.2	0.8	1.1	Light	Light	Few	Right	No		Other-Comments	None	Organic	DELIN	BACKCHAN
25.7N-D-03	Focus	5/9/2011	2:16:18 PM	12866514.68	312157.54	801.6113	1.6756	2.9699	3.41	2.2	0.6	0.8	Moderate	Moderate	Common	Right	No		Other-Comments	None	Organic	DELIN	BACKCHAN
25.7N-D-04	Focus	5/9/2011	2:21:33 PM	12866534.89	312128.12	802.0632	1.8017	2.4477	3.0393	5.8	0.1	0.2	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Sand & Gravel	DELIN	BACKCHAN
25.7N-D-05	Focus	5/9/2011	2:25:48 PM	12866594.54	312131.09	797.7271	2.0318	3.6605	4.1865	3.6	0.4	0.5	Light	Light	Few	Right	1-3 ft/sec		Other-Comments	None	Sand & Gravel		
25.7N-D-06	Focus	5/9/2011	2:30:27 PM	12866612.31	312140.84	792.3091	1.559	2.7759	3.1837	3.9	0.0	0.1	None	None	None	Right	1-3 ft/sec		Other-Comments	None	Sand & Gravel		
25.7N-D-07	Focus	5/9/2011	2:35:30 PM	12866646.45	312141.35	787.0215	1.6893	3.0779	3.511	3.0	0.2	0.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
25.7N-A-08	Focus	5/17/2011	10:01:50 AM	12866515.10	312141.59	790.5773	3.4944	6.2727	7.1804	5.9	0.1	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel	LAT BDY	
25.7N-A-09	Focus	5/17/2011	10:06:29 AM	12866433.91	312126.92	791.9816	2.047	3.9022	4.4065	2.3	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Silt	D BDY	
25.7N-A-10	Focus	5/17/2011	10:08:45 AM	12866364.37	312116.80	799.3112	9.2258	16.0729	18.5325	2.8	0.3	0.5	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Silt		
MP 25.75-26.00																							
25.85N-D-01	Focus	5/9/2011	3:07:01 PM	12866034.66	312317.07	784.7292	2.7677	5.3536	6.0267	0.5	0.1	0.2	Light	Light	Few	Right	No		Other-Comments	5%-25%	Organic		BACKCHAN
25.85N-D-02	Focus	5/9/2011	3:10:15 PM	12866035.37	312350.65	823.9983	3.8277	7.4785	8.4011	1.2	0.6	0.6	Light	Light	Few	Right	No		Other-Comments	<5%	Sand & Silt		BACKCHAN
25.85N-D-03	Focus	5/9/2011	3:20:32 PM	12865969.50	312394.24	791.1886	1.9601	3.5795	4.081	1.7	0.6	0.7	Light	Light	Few	Right	No		Other-Comments	None	Silt over Sand		BACKCHAN

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
25.85N-D-04	Focus	5/9/2011	3:24:33 PM	12865909.20	312423.12	781.3421	1.4754	2.8966	3.2507	3.2	0.5	0.5	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand		BACKCHAN
25.86T-D-01	Transect	5/9/2011	3:31:12 PM	12866004.31	312335.70	794.2358	2.3453	4.9446	5.4726	1.8	0.1	0.2	Light	Light	Few	Right	No		Other-Comments	None	Silt over Sand		BACKCHAN
25.86T-D-02	Transect	5/9/2011	3:36:50 PM	12865944.17	312272.75	790.0875	0.0344	0.0759	0.0834	5.2	0.2	0.3	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
25.86T-D-03	Transect	5/9/2011	3:40:12 PM	12865890.41	312244.99	790.5017	0.0676	0.1982	0.2095	4.5	0.2	0.2	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
25.94T-D-01	Transect	5/9/2011	3:51:26 PM	12865522.63	312278.52	786.9979	1.2963	3.4941	3.7268	2.5	0.0	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
25.94T-D-02	Transect	5/9/2011	3:58:04 PM	12865483.01	312219.22	790.0435	0.0338	0.0872	0.0935	9.8	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger	2DEEP2OBSERVE	
25.94T-D-03	Transect	5/9/2011	4:06:25 PM	12865520.98	312166.10	776.2979	1.5672	4.5244	4.7882	4.4	0.1	0.3	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Gravel		
26.00N-D-01	Focus	5/10/11	9:52:08 AM	12865540.53	312551.50	809.9122	2.0141	4.0007	4.4791	1.1	0.4	0.5	Light	Light	Few	Other-Comments	No		Other-Comments	None	Organic	BNDRY	BACKCHANOFFBAY
26.00N-D-02	Focus	5/10/11	9:57:28 AM	12865533.04	312512.42	800.0158	2.2264	4.1984	4.7522	1.2	0.4	0.4	Light	Light	Few	Other-Comments	No		Other-Comments	None	Silt over Sand		BACKCHANOFFBAY
26.00N-D-03	Focus	5/10/11	10:03:22 AM	12865496.24	312509.75	790.0411	1.4398	3.3178	3.6168	0.6	0.1	0.1	Light	Light	Few	Right	No		Other-Comments	None	Organic		BACKCHANOFFBAY
26.00N-D-04	Focus	5/10/11	10:08:54 AM	12865487.77	312457.23	790.6098	1.6016	3.0225	3.4207	0.7	0.5	0.6	Light	Light	Few	Right	No		Other-Comments	25%-50%	Silt over Sand		BACKCHANOFFBAY
26.00N-D-05	Focus	5/10/11	10:14:43 AM	12865404.82	312445.50	802.7499	2.445	4.986	5.5532	1.0	0.1	0.8	Moderate	Light	Common	Right	No		Other-Comments	5%-25%	Silt over Sand		BACK BAY
26.00N-D-06	Focus	5/10/11	10:17:17 AM	12865358.16	312423.19	789.2007	2.7429	4.1883	5.0065	0.5	0.1	0.1	Light	Light	Few	Right	No		Other-Comments	5%-25%	Sand & Silt		BACK BAY
26.00N-D-07	Focus	5/10/11	10:18:36 AM	12865341.14	312402.14	790.1282	1.5948	3.4286	3.7813	0.3	0.5	0.5	Light	Light	Few	Right	<1ft/sec		Other-Comments	<5%	Sand & Silt		BACK BAY
26.00N-D-08	Focus	5/10/11	10:26:20 AM	12865402.18	312500.12	789.9111	0.0474	0.1138	0.1233	2.0	0.2	0.4	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Soft Sediment		BACK BAY
26.00N-D-09	Focus	5/10/11	10:31:22 AM	12865390.95	312582.98	794.3286	1.2995	3.422	3.6604	1.5	0.4	0.5	Moderate	Light	Common	Right	<1ft/sec		Other-Comments	None	Soft Sediment	SHEENFOUNDATARIVL	BACK BAY
26.00N-D-10	Focus	5/10/11	10:34:01 AM	12865363.82	312618.05	789.8872	1.3772	2.9562	3.2613	1.1	0.2	0.3	Light	Light	Few	Right	No		Other-Comments	None	Soft Sediment	SHEENFOUNDATARIVL	BACK BAY
26.00N-D-11	Focus	5/10/11	10:35:52 AM	12865260.15	312660.47	800.4861	1.7525	2.9773	3.4548	1.4	0.4	0.5	Heavy	Heavy	Many	Right	No		Other-Comments	None	Soft Sediment	SHEENFOUNDATARIVL	BACK BAY
26.00N-D-12	Focus	5/10/11	10:39:49 AM	12865223.23	312660.57	812.8282	2.1153	4.5576	5.0246	0.3	0.1	0.2	Light	Light	Few	Right	No		Other-Comments	None	Soft Sediment		STREAM MOUTH
26.00N-D-13	Focus	5/10/11	10:49:35 AM	12865324.69	312589.76	789.4222	0.0441	0.0853	0.096	1.2	1.3	1.6	Heavy	Heavy	Many	Right	No		Other-Comments	None	Soft Sediment		BACKBAY
26.00N-D-14	Focus	5/10/11	10:54:47 AM	12865234.43	312525.23	789.5205	0.0439	0.0815	0.0926	7.5	0.0	0.3	None	None	None	Center	No		Other-Comments	None	Sand & Silt		BACKBAY
26.00N-D-15	Focus	5/10/11	10:58:38 AM	12865177.42	312607.78	789.604	0.0455	0.0816	0.0935	4.1	0.3	0.6	Light	Light	Few	Right	<1ft/sec		Other-Comments	None	Sand & Silt		BACKBAY
26.00T-D-01	Transect	5/9/2011	4:13:19 PM	12865331.38	312370.99	790.0169	0.0491	0.167	0.174	0.4	0.1	0.1	None	None	None	Right	<1ft/sec		Point Bar	<5%	Sand		
26.00T-D-02	Transect	5/9/2011	4:18:41 PM	12865270.89	312351.41	789.7858	0.0858	0.1015	0.1329	7.1	0.6	0.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
26.00T-D-03	Transect	5/9/2011	4:26:22 PM	12865225.23	312338.85	784.7661	3.0394	4.1791	5.1675	3.3	0.2	0.3	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		
MP 26.00-26.25																							
26.04T-D-01	Transect	5/9/2011	4:32:36 PM	12865170.58	312449.43	789.9332	0.0622	0.1551	0.1671	3.1	0.0	0.0	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Silt		
26.04T-D-02	Transect	5/9/2011	4:36:38 PM	12865210.63	312493.81	789.9416	0.04	0.0726	0.0829	6.6	0.0	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
26.04T-D-03	Transect	5/9/2011	4:39:46 PM	12865274.58	312539.32	789.6328	0.0563	0.0943	0.1098	3.2	0.2	0.5	None	None	None	Right	<1ft/sec		Other-Comments	None	Sand	SHEENFOUNDONARIVL	MOUTHOFOPENING
26.1SE-D-01	Focus	5/10/11	11:26:08 AM	12865045.13	312289.57	789.7646	0.0916	0.1303	0.1592	2.5	0.8	1.0	Heavy	Heavy	Many	Left	<1ft/sec		Cut Bank	None	Soft Sediment		PHOTO3
26.1SE-D-02	Focus	5/10/11	11:30:17 AM	12865055.15	312326.56	789.9161	0.0718	0.1013	0.1242	1.0	0.1	0.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand & Silt	BNDRY	
26.1SE-D-03	Focus	5/10/11	11:33:02 AM	12865047.34	312367.80	789.7331	0.0514	0.0723	0.0887	0.4	0.1	0.1	None	None	None	Left	No		Cut Bank	None	Soft Sediment		
26.1SE-D-04	Focus	5/10/11	11:40:28 AM	12865059.37	312255.37	791.2401	3.8027	6.3001	7.3587	1.1	0.2	0.3	Light	Light	Few	Left	No		Cut Bank	None	Soft Sediment	BNDRY	
26.1SE-D-05	Focus	5/10/11	11:45:44 AM	12865026.45	312280.57	790.8271	1.3403	1.9478	2.3644	3.0	0.5	0.7	Moderate	Moderate	Common	Left	No		Cut Bank	None	Soft Sediment	BNDRY	
26.1SE-D-06	Focus	5/10/11	11:53:22 AM	12865033.99	312200.07	797.8676	2.5536	4.7447	5.3882	2.5	0.7	0.9	Moderate	Moderate	Common	Left	No		Cut Bank	None	Soft Sediment		
26.1SE-D-07	Focus	5/10/11	11:58:32 AM	12865038.69	312142.44	813.3354	3.5107	4.5881	5.7772	1.2	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Sand & Silt		
26.1SE-D-08	Focus	5/10/11	1:02:30 PM	12864988.89	312169.86	790.3573	1.2263	2.0581	2.3958	5.0	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
26.1SE-D-09	Focus	5/10/11	1:04:04 PM	12865003.09	312244.14	789.9362	0.0511	0.0864	0.1004	4.0	0.2	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		
26.13T-D-01	Transect	5/10/11	11:10:52 AM	12864905.32	312257.63	790.4354	1.2166	1.9425	2.292	1.1	0.2	0.4	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		
26.13T-D-02	Transect	5/10/11	11:15:41 AM	12864967.54	312259.39	789.1768	0.0371	0.0609	0.0713	3.5	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
26.13T-D-03	Transect	5/10/11	11:19:03 AM	12865049.29	312292.08	789.6108	0.0732	0.0963	0.121	1.8	0.5	0.5	Moderate	Moderate	Common	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		
26.19T-D-01	Transect	5/10/11	1:09:08 PM	12864785.95	312096.82	789.8671	0.0487	0.0906	0.1028	2.8	0.4	0.6	None	None	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		
26.19T-D-02	Transect	5/10/11	1:12:05 PM	12864807.57	312063.45	789.5717	0.0459	0.0832	0.095	7.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Gravel & Larger		
26.19T-D-03	Transect	5/10/11	1:16:42 PM	12864847.43	312002.76	789.7167	0.0402	0.0699	0.0807	0.7	0.7	0.7	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		
26.2S-D-01	Focus	5/10/11	1:25:51 PM	12864847.67	311991.37	792.1185	1.2307	2.1666	2.4917	4.8	0.2	0.2	Light	Light	Few	Left	<1ft/sec		Other-Comments	None	Silt over Sand		BACKCHANMEETING
26.2S-D-02	Focus	5/10/11	1:30:22 PM	12864867.56	311980.29	768.8102	2.7264	4.0102	4.8492	1.8	0.3	0.3	Light	Light	Few	Left	<1ft/sec		Other-Comments	None	Silt over Sand		BACKCHANMEETING
26.2S-D-03	Focus	5/10/11	1:33:38 PM	12864880.38	311983.70	799.6288	1.1821	2.1597	2.4621	1.5	0.3	0.3	None	None	None	Left	No		Other-Comments	None	Silt over Sand		BACKCHANMEETING
26.2S-D-04	Focus	5/10/11	1:38:07 PM	12865005.79	311893.47	797.8448	6.5839	9.3328	11.4214	0.3	0.2	0.2	None	None	None	Other-Comments	No		Other-Comments	None	Organic		BACKCHANMEETING
26.25-D-01	Focus	5/10/11	1:59:48 PM	12864524.94	312193.77	788.3928	2.6963	3.1062	4.1132	0.5	0.1	0.1	None	None	None	Island	No		Other-Comments	None	Organic		CUTOFF
26.25-D-02	Focus	5/10/11	2:01:32 PM	12864545.01	312264.67	787.1305	1.485	1.6426	2.2144	0.4	0.1	0.1	Light	Light	Few	Island	No		Other-Comments	None	Organic		CUTOFF
26.25-D-03	Focus	5/10/11	2:05:12 PM	12864472.25	312230.96	790.6962	3.176	3.5414	4.7569	0.5	0.1	0.1	Light	Light	Few	Island	No		Other-Comments	None	Organic		CUTOFF
26.25-D-04	Focus	5/10/11	2:07:57 PM	12864416.56	312164.70	787.3171	3.801	4.2982	5.7378	0.5	0.1	0.1	Light	Light	Few	Island	No		Other-Comments	None	Organic	SHEENFOUNDONARRIL	CUTOFF
26.25-D-05	Focus	5/10/11	2:17:25 PM	12864373.88	312135.01	790.333	1.688	2.1365	2.7228	1.5	0.0	0.3	Light	Light	Few	Right	No		Other-Comments	None	Sand & Silt	SHEENFOUNDONARRIL	BAY
26.25-D-06	Focus	5/10/11	2:22:12 PM	12864550.01	312090.55	786.2828	1.6796	2.0552	2.6542	1.0	0.5	0.5	Moderate	Light	Common	Island	<1ft/sec		Other-Comments	None	Silt over Sand		BAY
26.25-D-07	Focus	5/10/11	2:25:46 PM	12864580.28	312071.81	788.1774	2.1976	2.7708	3.5364	1.4	0.3	0.4	Light	Light	Few	Island	<1ft/sec		Cut Bank	None	Soft Sediment		
26.25-D-08	Focus	5/10/11	2:30:30 PM	12864542.28	312068.99	789.4674	0.0537	0.0716	0.0895	2.0	0.0	0.1	Light	Light	Few	Island	1-3 ft/sec		Cut Bank	None	Sand		
26.25-D-09	Focus	5/10/11	2:36:29 PM	12864431.70	312059.08	789.4616	0.04	0.0562	0.069	5.8	1.0	1.1	Light	Light	Few	Center	1-3 ft/sec		Cut Bank	None	Sand	SHEENFOUNDONARVL	
26.25-D-10	Focus	5/10/11	2:42:42 PM	12864334.03	312089.90	795.5867	1.4426	2.2202	2.6477	1.5	0.5	0.8	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Sand		
26.25-A-11	Focus	5/17/2011	8:45:05 AM	12864560.20	312133.02	793.0461	1.0194	1.9868	2.233	2.8	0.9	2.0	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
26.25-A-12	Focus	5/17/2011	8:49:50 AM	12864515.43	312120.15	791.0316	0.0372	0.0696	0.0789	3.0	1.3	1.8	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
26.25-A-13	Focus	5/17/2011	8:56:40 AM	12864439.61	312096.16	790.9379	0.0276	0.0558	0.0622	2.9	1.1	2.6	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
26.25-A-14	Focus	5/17/2011	9:06:15 AM	12864367.08	312168.32	794.3024	1.3143	2.8962	3.1805	2.6	0.3	0.5	Moderate	Moderate	Common	Right	No	No	Backwater	None	Sand & Silt		FARINTOSWAMPASPOS
26.25-A-15	Focus	5/17/2011	9:11:49 AM	12864315.96	312068.53	790.9068	0.0345	0.0898	0.0962	2.9	0.1	0.1	Heavy	Heavy	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
26.25-A-16	Focus	5/17/2011	9:20:27 AM	12864288.72	311951.08	791.0547	1.0226	1.9983	2.2447	4.6	0.0	0.0	None	None	None	Right	>3 ft/sec	>3 ft/sec	Cut Bank	None	Sand & Gravel	D BDY	
26.25-A-17	Focus	5/17/2011	9:27:18 AM	12864377.97	312058.02	790.8785	0.0314	0.0581	0.066	5.2	0.4	1.0	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		EDGEOFCURRENT
26.25-A-18	Focus	5/17/2011	9:30:30 AM	12864382.10	312024.36	790.6881	0.0304	0.0546	0.0625	8.2	0.0	0.0	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	IN CURRENT
26.25-A-19	Focus	5/17/2011	9:34:06 AM	12864529.04	312038.45	790.8992	0.0364	0.0651	0.0746	5.0	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
26.25-A-21	Focus	5/24/2011	9:21:57 AM	12864685.08	312214.72	813.1391	3.4931	4.9181	6.0324	0.5	0.2	0.3	None	None	None	Right	<1ft/sec	No	Cutoff	5%-25%	Silt over Sand		
26.25-A-22	Focus	5/24/2011	9:28:46 AM	12864426.51	312235.61	790.8053	0.0466	0.0652	0.0801	3.0	0.4	1.4	Moderate	Moderate	Common	Right	No	No	Cutoff	None	Sand & Silt		
26.25-A-23	Focus	5/24/2011	9:35:30 AM	12864478.18	312276.12	791.0175	0.0963	0.1818	0.2058	2.5	0.6	1.0	None	None	None	Right	No	No	Cutoff	None	Soft Sediment	PRESHEEN ON ARIVL PHOTO229	
26.25-A-24	Focus	5/24/2011	9:47:53 AM	12864445.58	312354.66	794.0729	2.6872	4.2755	5.0498	1.0	0.2	0.2	None	None	None	Right	No	No	Cutoff	None	Sand & Gravel	LAT BDY	
26.25-A-25	Focus	5/24/2011	10:04:56 AM	12864539.81	312300.04	790.6752	3.4162	2.6128	4.3009	2.2	0.6	0.7	Moderate	Moderate	Common	Right	No	No	Cutoff	25%-50%	Soft Sediment	SHEEN ON ARRL	
26.25-A-26	Focus	5/24/2011	10:11:32 AM	12864572.11	312388.51	799.5092	2.8085	3.2187	4.2717	0.7	0.1	0.2	None	None	None	Right	No	No	Cutoff	<5%	Soft Sediment	LAT BNDY, BIOSHEEN ON ARRL	
26.25-A-27	Focus	5/24/2011	10:25:01 AM	12864610.46	312259.91	788.2124	3.0485	3.5511	4.6802	1.2	0.2	0.7	Heavy	Heavy	Many	Right	No	No	Cutoff	5%-25%	Soft Sediment		
26.25-A-28	Focus	5/24/2011	10:34:35 AM	12864726.58	312247.64	798.6031	2.1214	2.2978	3.1273	2.6	0.3	0.4	Heavy	Heavy	Many	Right	No	No	Cutoff	25%-50%	Soft Sediment		
26.25-A-29	Focus	5/24/2011	10:42:13 AM	12864788.25	312318.78	789.1869	1.6856	3.017	3.456	2.4	0.1	0.2	Light	Light	Few	Right	No	No	Cutoff	<5%	Silt over Sand	UP BNDY	
26.25-A-30	Focus	5/24/2011	10:48:42 AM	12864792.65	312405.17	795.3209	1.7451	2.4636	3.019	2.7	0.7	1.9	Light	Light	Few	Right	No	No	Cutoff	<5%	Soft Sediment	SHEEN ON ARRL	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
26.25-A-31	Focus	5/24/2011	10:59:01 AM	12864752.37	312257.12	813.0862	2.5852	4.2713	4.9927	3.0	0.3	0.5	Moderate	Moderate	Common	Right	No	No	Cutoff	None	Soft Sediment	SHEEN ON ARRL	
26.25-A-32	Focus	5/24/2011	11:05:11 AM	12864794.80	312262.72	796.4224	1.8039	3.0398	3.5348	1.5	0.5	0.9	Moderate	Moderate	Common	Right	No	No	Cutoff	5%-25%	Soft Sediment		EDGE OF BKWATER
26.25-A-33	Focus	5/24/2011	11:18:00 AM	12864728.89	312175.16	786.3781	2.3295	3.6417	4.323	0.5	0.2	0.4	Light	Light	Few	Right	No	No	Cutoff	25%-50%	Sand & Silt		
26.25-A-34	Focus	5/24/2011	11:25:33 AM	12864924.69	312411.21	790.9121	0.0741	0.1505	0.1678	3.4	0.1	0.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Cove	None	Sand & Silt		
26.25-A-35	Focus	5/24/2011	11:30:54 AM	12864919.57	312390.59	792.1697	1.3301	2.376	2.723	5.5	0.5	1.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Cove	None	Sand		
26.25-A-36	Focus	5/17/2011	8:38:20 AM	12864591.30	312109.98	791.0383	0.0382	0.0737	0.083	1.9	0.4	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Backwater	5%-25%	Soft Sediment	LAT BDY	25PERTALLGRASS
MP 26.25-26.50																							
26.26T-D-01	Transect	5/10/11	2:48:08 PM	12864398.48	312080.06	789.1188	0.044	0.0684	0.0813	5.8	0.2	0.2	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Sand		
26.26T-D-02	Transect	5/10/11	2:51:28 PM	12864408.77	312024.31	789.0699	0.044	0.0728	0.0851	7.6	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
26.26T-D-03	Transect	5/10/11	2:56:14 PM	12864420.58	311980.12	789.0175	1.9437	3.0873	3.6483	7.5	0.0	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		
26.34T-D-01	Transect	5/10/11	3:07:37 PM	12864313.62	311634.89	788.5485	1.8455	3.3181	3.7968	0.8	0.5	0.7	Light	Light	Few	Left	No		Strt Channel Edg	None	Soft Sediment		
26.34T-D-02	Transect	5/10/11	3:33:53 PM	12864220.67	311703.21	788.9788	0.052	0.0868	0.1012	9.0	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Gravel & Larger		
26.34T-D-03	Transect	5/10/11	3:42:50 PM	12864167.69	311736.51	791.0416	1.6142	3.1224	3.515	1.8	0.6	0.7	Moderate	Light	Common	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
26.3NW-D-01	Focus	5/10/11	3:48:40 PM	12864185.12	311726.94	790.0086	1.187	2.5181	2.7838	5.8	0.1	0.1	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		
26.3NW-D-02	Focus	5/10/11	3:53:59 PM	12864205.76	311764.37	791.0304	0.8739	2.1481	2.319	3.7	0.2	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
26.3NW-D-03	Focus	5/10/11	3:57:54 PM	12864164.53	311708.28	788.2114	1.7729	4.1734	4.5344	1.2	0.3	0.4	Moderate	Light	Common	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
26.3NW-D-04	Focus	5/10/11	4:00:59 PM	12864179.49	311700.41	787.561	1.6144	4.422	4.7075	4.0	0.1	0.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		
26.3NW-D-05	Focus	5/10/11	4:05:32 PM	12864139.68	311655.41	786.987	1.482	5.2123	5.4189	1.2	0.4	0.5	Heavy	Heavy	Many	Right	No		Strt Channel Edg	None	Soft Sediment		
26.3NW-D-06	Focus	5/10/11	4:08:19 PM	12864150.86	311650.90	793.1173	1.2581	2.6085	2.8961	3.4	0.0	0.1	None	None	None	Right	No		Strt Channel Edg	None	Sand	BNDRY	
26.3NW-D-07	Focus	5/10/11	4:19:45 PM	12864078.05	311597.39	779.7281	3.7851	7.5917	8.4829	4.0	0.5	0.6	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand	BNDRY	
26.4C-D-01	Focus	5/10/11	4:46:55 PM	12864030.53	311314.72	789.2307	0.0508	0.077	0.0922	0.3	0.5	0.7	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
26.4C-D-02	Focus	5/10/11	4:48:32 PM	12864020.90	311310.44	789.1004	0.056	0.0831	0.1003	0.4	0.1	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Sand		
26.4C-D-03	Focus	5/10/11	4:54:17 PM	12864012.31	311298.45	789.149	0.0755	0.1093	0.1329	0.8	0.6	0.7	None	None	None	Island	<1ft/sec		Downstrm Island	None	Silt over Sand		
26.4C-D-04	Focus	5/10/11	5:02:54 PM	12863992.40	311282.02	789.1338	0.0429	0.0614	0.0749	1.6	0.3	0.4	None	None	None	Center	<1ft/sec		Downstrm Island	None	Sand & Silt		
26.4C-D-05	Focus	5/10/11	5:03:53 PM	12863986.31	311246.42	789.2517	0.0557	0.0792	0.0968	2.0	0.3	0.3	Light	Light	Few	Center	<1ft/sec		Downstrm Island	None	Sand & Silt		
26.44T-D-01	Transect	5/10/11	4:30:38 PM	12864092.03	311225.66	778.673	2.2205	5.6827	6.1012	5.0	0.2	0.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
26.44T-D-03	Transect	5/10/11	4:59:55 PM	12863950.45	311323.10	787.1376	3.7981	6.0777	7.1668	3.1	0.3	0.4	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Sand		
MP 26.50-26.75																							
26.55T-E-01	Transect	5/9/2011	2:45:07 PM	12863578.01	310947.75	798.5052	1.6259	3.3526	3.7261	0.6	0.3	0.4	None	None	None	Right	<1ft/sec		Point Bar	5%-25%	Sand		LESS 1FTS
26.55T-E-02	Transect	5/9/2011	2:53:22 PM	12863610.33	310885.30	788.6035	1.6362	3.7182	4.0623	6.0	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
26.55T-E-03	Transect	5/9/2011	2:58:36 PM	12863595.78	310810.17	798.783	2.3753	4.7098	5.2749	1.4	0.4	0.5	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Sand		LESS1FTS
26.62T-E-01	Transect	5/9/2011	3:09:31 PM	12863179.91	310916.07	790.8356	1.8821	4.3105	4.7034	3.4	0.6	0.7	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand		LESS 1FTS
26.62T-E-02	Transect	5/9/2011	3:12:04 PM	12863239.54	310949.29	789.3414	2.0841	4.7709	5.2062	6.0	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
26.62T-E-03	Transect	5/9/2011	3:15:40 PM	12863293.69	310985.37	789.0881	1.8599	4.5919	4.9543	1.1	0.3	0.4	None	None	None	Right	<1ft/sec		Point Bar	None	Silt over Sand		LESS 1FTS
26.65-A-07	Focus	5/18/2011	9:07:00 AM	12863107.30	311228.19	790.2451	0.0464	0.0957	0.1063	2.5	1.0	1.4	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
26.65-A-08	Focus	5/18/2011	9:12:11 AM	12863153.56	311105.88	790.2694	0.0602	0.1726	0.1827	2.9	0.9	1.2	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater				
26.65-A-09	Focus	5/18/2011	9:16:55 AM	12863172.31	311065.88	791.5175	0.9569	1.8587	2.0906	4.0	0.6	1.5	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Backwater	None	Sand & Silt	U BDY	
26.65-A-10	Focus	5/18/2011	9:22:56 AM	12863111.38	311143.19	790.121	0.0334	0.0652	0.0733	5.4	0.2	0.4	Light	Light	Few	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel			LAT BDY	
26.65-E-01	Focus	5/9/2011	3:55:17 PM	12863270.73	311240.65	784.7117	1.8954	3.6322	4.097	1.0	0.6	1.1	Light	Light	Few	Right	No		Other-Comments	None	Soft Sediment		0FTS
26.65-E-02	Focus	5/9/2011	4:06:08 PM	12863241.12	311197.68	786.4467	2.8396	4.2275	5.0927	0.7	0.7	0.9	Light	Light	Few	Right	No		Other-Comments	None	Soft Sediment		0FTS
26.65-E-03	Focus	5/9/2011	4:09:43 PM	12863174.54	311233.97	789.5531	1.9154	2.8868	3.4645	1.1	1.9	2.3	Light	Light	Few	Right	No		Other-Comments	None	Soft Sediment		0FTS
26.65-E-04	Focus	5/9/2011	4:12:58 PM	12863200.41	311266.33	789.1874	0.0779	0.1284	0.1502	1.0	1.6	1.9	Light	Light	Few	Right	No		Other-Comments	5%-25%	Soft Sediment		0FTS
26.65-E-05	Focus	5/9/2011	4:20:34 PM	12863163.56	311260.67	783.8548	6.6638	6.9834	9.6527	1.1	0.9	1.3	Light	Light	Few	Right	No		Other-Comments	5%-25%	Soft Sediment		0FTS
26.65-E-06	Focus	5/9/2011	4:30:01 PM	12863171.46	311185.00	790.181	2.9941	2.9418	4.1975	0.5	0.7	1.4	Light	Light	Few	Right	No		Other-Comments	5%-25%	Soft Sediment		0FTS
26.67T-E-01	Transect	5/9/2011	3:43:40 PM	12863031.38	311084.19	790.8711	2.1204	4.4099	4.8932	1.9	0.6	0.7	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		LESS 1FTS
26.67T-E-02	Transect	5/9/2011	3:48:12 PM	12863079.81	311163.85	779.014	1.5379	4.4437	4.7023	5.2	0.1	0.1	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Gravel		LESS 1FTS
26.67T-E-03	Transect	5/9/2011	4:32:04 PM	12863132.45	311205.67	839.9222	2.5968	3.141	4.0754	1.0	0.9	1.2	Light	Light	Few	Right	No		Cut Bank	None	Soft Sediment		0FTS
MP 26.75-27.00																							
26.76T-E-01	Transect	5/9/2011	4:42:37 PM	12862673.13	310981.31	789.079	0.0836	0.0962	0.1275	2.1	0.0	0.0	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Gravel & Larger		1-3FTS
26.76T-E-02	Transect	5/9/2011	4:46:43 PM	12862705.72	310935.96	788.8762	0.0529	0.0606	0.0805	6.0	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
26.76T-E-03	Transect	5/9/2011	4:50:42 PM	12862747.95	310903.36	789.6469	0.1615	0.2329	0.2834	0.4	1.0	1.6	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		1-3FTS
26.8SE-E-01	Focus	5/10/11	10:31:30 AM	12863111.40	310581.29	795.3188	1.3199	2.7846	3.0815	0.9	0.7	1.0	Light	Light	Few	Left	No		Cut Bank	None	Soft Sediment		0FTS
26.8SE-E-02	Focus	5/10/11	10:37:57 AM	12863030.03	310643.65	788.3806	2.0048	4.5357	4.959	1.5	1.1	1.2	Light	Light	Few	Left	No		Cut Bank	None	Soft Sediment		0FTS
26.8SE-E-03	Focus	5/10/11	10:44:21 AM	12862856.60	310726.65	787.8752	0.073	0.2083	0.2207	0.8	0.6	0.7	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS 1FTS
26.8SE-E-04	Focus	5/10/11	10:48:30 AM	12862867.55	310720.68	797.7894	1.3472	2.7085	3.025	0.6	0.5	0.7	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS 1FTS BD
26.8SE-E-05	Focus	5/10/11	10:54:16 AM	12862832.49	310739.47	789.54	1.3201	2.893	3.1799	1.5	0.9	1.0	Moderate	Moderate	Few	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS BD
26.8SE-E-06	Focus	5/10/11	10:58:17 AM	12862796.58	310756.86	782.0953	1.6085	3.337	3.7045	1.1	0.5	0.6	Light	Light	Few	Left	<1ft/sec		Mid-Channel	None	Silt over Sand		LESS1FTS BD
26.8SE-E-07	Focus	5/10/11	11:03:00 AM	12862869.50	310677.11	788.8074	0.051	0.0992	0.1115	3.5	0.6	0.9	None	None	None	Center	1-3 ft/sec		Cut Bank	None	Sand & Silt		1-3FTS BD
26.8SE-E-08	Focus	5/10/11	11:06:57 AM	12863164.15	310500.36	788.1466	2.2403	4.1133	4.6839	2.0	0.7	1.0	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Soft Sediment		LESS1FTS
26.8SE-E-09	Focus	5/10/11	11:20:05 AM	12863148.01	310504.49	789.734	1.2276	2.0709	2.4074	2.9	0.8	1.1	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Soft Sediment		LESS 1FTS BD
26.8SE-E-10	Focus	5/10/11	11:25:50 AM	12863111.28	310479.16	788.8786	0.0487	0.0735	0.0882	2.3	0.9	0.9	Light	Light	Few	Center	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS BD
26.8SE-E-11	Focus	5/10/11	11:30:06 AM	12863145.29	310447.93	789.0402	0.0918	0.1656	0.1893	2.8	0.4	0.5	None	None	None	Center	1-3 ft/sec		Cut Bank	None	Sand		1-3FTS BD
26.8SE-A-12	Focus	5/18/2011	9:33:34 AM	12862833.79	310700.35	789.9791	0.0469	0.0878	0.0996	5.4	0.4	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand	LAT BDY	
26.8SE-A-13	Focus	5/18/2011	9:41:53 AM	12862873.28	310683.04	789.8847	0.0314	0.0627	0.0701	3.6	0.4	1.0	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt	LAT BDY	
26.80T-E-01	Transect	5/9/2011	4:57:04 PM	12862795.34	310763.59	786.3787	2.2393	2.7279	3.5293	0.4	0.4	0.5	Light	Light	None	Left	<1ft/sec		Point Bar	None	Sand		LESS 1FTS
26.80T-E-02	Transect	5/9/2011	4:59:56 PM	12862760.55	310729.97	787.3346	1.701	1.9335	2.5753	6.2	0.1	0.1	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
26.80T-E-03	Transect	5/9/2011	5:02:31 PM	12862729.46	310714.01	802.8557	1.7977	1.9116	2.6241	2.2	0.1	0.1	None	None	None	Right	<1ft/sec		Cut Bank	None	Sand & Gravel		LESS 1FTS
26.85T-E-01	Transect	5/10/11	9:47:46 AM	12862875.66	310566.23	789.7826	1.9191	3.2869	3.8061	6.5	0.4	0.6	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		1-3FTS
26.85T-E-02	Transect	5/10/11	9:51:12 AM	12862926.45	310601.28	788.8287	0.0557	0.0739	0.0925	3.3	0.6	0.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
26.85T-E-03	Transect	5/10/11	9:56:31 AM	12862934.35	310705.61	785.706	2.0764	3.4391	4.0173	0.7	0.6	1.3	Light	Light	Few	Left	<1ft/sec		Cut Bank	<5%	Soft Sediment		LESS 1FTS
26.95T-E-01	Transect	5/10/11	10:06:09 AM	12863138.69	310094.39	788.8494	1.4364	2.7734	3.1233	3.1	0.3	0.4	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand		LESS 1FTS
26.95T-E-02	Transect	5/10/11	10:11:21 AM	12863072.03	310091.89	788.6651	0.0415	0.0911	0.1001	6.5	0.4	0.6	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
26.95T-E-03	Transect	5/10/11	10:20:22 AM	12863036.22	310175.27	788.7198	0.0732	0.1595	0.1755	0.5	0.2	0.3	Light	Light	Few	Right	<1ft/sec		Point Bar	None	Sand		LESS 1FTS
MP 27.00-27.25																							
27.02T-E-01	Transect	5/10/11	12:50:33 PM	12862694.17	310032.43	791.0138	2.7889	3.8864	4.7835	1.0	0.7	0.8	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.02T-E-02	Transect	5/10/11	12:54:33 PM	12862700.57	310090.85	788.3862	1.0382	1.074	1.4937	6.2	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
27.02T-E-03	Transect	5/10/11	12:58:13 PM	12862777.91	310121.38	788.6829	0.0505	0.0926	0.1055	3.3	0.6	0.7	None	None	None	Right	1-3 ft/sec		Point Bar	None	Silt over Sand		1-3FTS
27.1N-E-01	Focus	5/10/11	1:06:03 PM	12862660.48	310236.71	783.291	2.6576	4.7701	5.4605	1.4	0.6	1.6	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		LESS1FTS
27.1N-E-02	Focus	5/10/11	1:10:15 PM	12862686.54	310207.93	792.1563	2.0079	3.6045	4.126	3.1	0.6	0.7				Right	1-3 ft/sec		Point Bar	None	Silt over Sand		1-3FTS

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
27.1N-E-03	Focus	5/10/11	1:16:01 PM	12862618.04	310305.27	785.1034	3.7029	6.7772	7.7228	0.2	0.6	0.7	Light	Light	Few	Right	<1ft/sec		Point Bar	<5%	Silt over Sand		LESS1FTS
27.1N-A-04	Focus	5/18/2011	9:52:15 AM	12862644.09	310218.07	787.615	1.3171	1.9133	2.3229	6.6	0.3	0.7	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Sand		
27.1N-A-05	Focus	5/18/2011	9:57:16 AM	12862700.39	310173.39	792.6558	4.1222	6.251	7.4878	3.1	0.5	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Sand		
27.1S-E-01	Focus	5/10/11	1:29:27 PM	12862503.11	310265.21	789.7551	2.7723	4.3411	5.1508	1.7	0.8	0.9	Moderate	Moderate	Common	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.1S-E-02	Focus	5/10/11	1:35:42 PM	12862533.52	310222.22	793.4257	2.1123	4.1845	4.6874	3.0	0.3	0.4	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS BD
27.1S-E-03	Focus	5/10/11	1:39:47 PM	12862533.37	310253.87	786.508	1.2966	2.6754	2.973	5.5	0.5	0.7	Light	Light	Few	Left	<1ft/sec		Cut Bank	None	Soft Sediment		LESS1FTS
27.1S-E-04	Focus	5/10/11	1:43:05 PM	12862502.40	310287.00	797.9271	1.729	2.8207	3.3084	3.2	0.7	0.9	None	None	None	Left	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.1S-E-05	Focus	5/10/11	1:56:21 PM	12862618.12	310149.23	788.5622	0.0343	0.0691	0.0771	2.1	1.1	1.6	Moderate	Light	Common	Left	<1ft/sec		Cut Bank	None	Soft Sediment		LESS1FTS
27.1S-E-06	Focus	5/10/11	1:51:11 PM	12862633.45	310121.90	789.2855	1.4278	2.7307	3.0814	4.0	0.5	0.6	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		1-3FTS
27.1S-E-07	Focus	5/10/11	2:11:55 PM	12862484.47	310323.38	810.8454	3.9442	5.2217	6.5439	3.5	0.1	0.2	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand		LESS1FTS
27.1S-A-08	Focus	5/18/2011	10:14:48 AM	12862646.43	310153.98	789.5108	0.0591	0.1018	0.1177	7.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
27.1S-A-09	Focus	5/18/2011	10:18:54 AM	12862593.36	310160.90	789.3987	0.0644	0.1248	0.1404	4.0	0.2	0.5	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
27.1S-A-10	Focus	5/18/2011	10:22:51 AM	12862576.47	310183.47	789.6778	0.0947	0.151	0.1782	5.8	0.2	0.5	Heavy	Heavy	Many	Left	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
27.1S-A-11	Focus	5/18/2011	10:25:39 AM	12862583.66	310188.41	789.4197	0.0476	0.0693	0.084	6.1	0.5	1.2	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Silt	LAT BDY	
27.1S-A-12	Focus	5/18/2011	10:29:28 AM	12862517.61	310259.18	788.0454	4.9628	7.2688	8.8014	5.1	0.7	1.4	Moderate	Moderate	Common	Left	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
27.1S-A-13	Focus	5/18/2011	10:35:39 AM	12862527.82	310272.57	792.7857	2.2261	3.152	3.8588	6.5	0.0	0.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel	LAT BDY	
27.12T-E-01	Transect	5/10/11	2:42:24 PM	12862395.94	310371.56	792.8572	2.9871	3.7126	4.7651	1.5	0.6	0.7	None	None	None	Left	No		Point Bar	None	Silt over Sand		0FTS
27.12T-E-02	Transect	5/10/11	2:48:29 PM	12862550.17	310447.82	786.5035	3.0663	2.9652	4.2655	0.4	0.3	0.4	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.12T-E-03	Transect	5/10/11	2:58:39 PM	12862444.81	310414.24	788.3588	0.0591	0.0656	0.0883	4.5	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
27.15S-E-01	Focus	5/10/11	2:21:09 PM	12862427.32	310354.92	791.9991	1.2603	1.9033	2.2828	1.6	0.4	0.5	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Soft Sediment		LESS1FTS
27.15S-E-02	Focus	5/10/11	2:27:00 PM	12862338.20	310469.71	788.4282	3.4596	3.1975	4.7109	2.1	0.4	0.5	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Silt over Sand		LESS1FTS
27.15S-E-03	Focus	5/10/11	2:33:38 PM	12862309.56	310434.73	793.5005	3.7616	3.0684	4.8543	2.4	0.5	0.6	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		LESS1FTS
27.20T-E-01	Transect	5/10/11	3:05:24 PM	12862102.42	310499.98	795.6034	1.4556	2.3166	2.736	2.3	0.2	0.3	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.20T-E-02	Transect	5/10/11	3:10:15 PM	12862114.59	310445.75	790.7321	1.2733	2.0319	2.3979	6.0	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
27.20T-E-03	Transect	5/10/11	3:15:14 PM	12862119.49	310397.19	794.3313	2.3504	3.2389	4.0019	1.9	1.2	1.3	None	None	None	Left	<1ft/sec		Point Bar	None	Silt over Sand		LESS1FTS
MP 27.25-27.50																							
27.28T-E-01	Transect	5/10/11	3:22:30 PM	12861705.17	310224.00	789.049	1.4704	2.8456	3.2031	3.1	0.3	0.4	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.28T-E-02	Transect	5/10/11	3:25:38 PM	12861783.03	310176.92	788.199	0.0455	0.0841	0.0957	2.6	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		1-3FTS
27.28T-E-03	Transect	5/10/11	3:28:24 PM	12861881.39	310146.63	782.4625	2.1649	4.4316	4.9322	1.9	0.7	1.0	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Sand		LESS1FTS
27.3N-E-01	Focus	5/10/11	3:42:58 PM	12861467.74	309850.15	780.1385	2.9962	6.0293	6.7328	1.0	0.7	1.5	Moderate	Moderate	Common	Right	No		Cut Bank	None	Soft Sediment		0FTS
27.3N-E-02	Focus	5/10/11	4:05:35 PM	12861481.71	309827.88	787.7668	1.1868	3.7164	3.9013	2.0	1.2	1.6	Moderate	Moderate	Common	Right	No		Cut Bank	None	Soft Sediment		0FTS
27.3N-E-03	Focus	5/10/11	4:13:46 PM	12861517.58	309820.38	786.3299	1.5867	4.3064	4.5894	2.1	0.9	1.7	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Soft Sediment		LESS1FTS
27.3N-E-04	Focus	5/10/11	4:21:12 PM	12861530.28	309830.07	788.4246	0.0927	0.195	0.2159	3.8	0.2	0.3	Light	Light	Few	Center	<1ft/sec		Mid-Channel	None	Sand		LESS1FTS
27.3N-E-05	Focus	5/10/11	4:22:12 PM	12861523.62	309832.22	787.9169	0.0835	0.1706	0.1899	2.4	0.7	0.8	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		LESS1FTS
27.3N-E-06	Focus	5/10/11	4:32:24 PM	12861507.52	309779.25	784.9008	1.5613	2.2062	2.7028	2.2	0.9	1.0	Moderate	Moderate	Common	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		
27.3N-E-07	Focus	5/10/11	4:33:20 PM	12861500.15	309788.64	791.1791	2.0519	3.0048	3.6386	3.2	0.3	0.5	Light	Light	Few	Center	<1ft/sec		Mid-Channel	None	Silt over Sand		LESS1FTS
27.3N-E-08	Focus	5/10/11	4:38:55 PM	12861469.28	309753.14	789.4449	1.7783	2.4729	3.046	2.9	0.6	0.8	Heavy	Heavy	Many	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.3N-E-09	Focus	5/10/11	4:42:15 PM	12861499.24	309730.37	787.3667	1.7337	1.9524	2.611	4.0	0.3	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
27.3N-E-10	Focus	5/10/11	4:48:11 PM	12861454.30	309684.02	788.9888	2.7733	3.0258	4.1045	2.6	1.4	1.8	Moderate	Moderate	Common	Right	<1ft/sec		Cut Bank	None	Soft Sediment		LESS1FT
27.3N-E-11	Focus	5/10/11	4:52:06 PM	12861476.05	309672.17	786.3067	1.3598	1.78	2.2399	5.3	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		1-3FTS
27.3N-E-12	Focus	5/10/11	4:57:10 PM	12861429.64	309629.10	775.1676	4.8948	6.0834	7.8081	2.0	0.4	0.5	Light	Light	Few	Right	<1ft/sec		Cut Bank	None	Silt over Sand		LESS1FTS
27.3S-E-01	Focus	5/11/2011	12:14:07 PM	12861584.60	309642.50	794.2713	2.1556	2.5192	3.3156	2.5	0.8	1.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
27.3S-E-02	Focus	5/11/2011	12:22:19 PM	12861639.08	309764.74	802.4184	4.3737	5.2782	6.8548	1.6	0.6	0.8	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand		
27.3S-E-03	Focus	5/11/2011	12:26:48 PM	12861672.33	309853.40	795.0281	5.0687	5.7219	7.6441	2.0	0.4	0.4	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand		
27.37T-E-01	Transect	5/10/11	3:40:42 PM	12861469.77	309857.52	783.7751	0.9653	3.137	3.2821	1.0	0.4	0.6	Moderate	Light	Common	Right	No		Cut Bank	None	Silt over Sand		0FTS
27.37T-E-02	Transect	5/11/2011	12:19:24 PM	12861637.23	309732.22	801.9842	2.9891	3.4133	4.5371	1.4	0.6	0.7	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand		
27.37T-E-03	Transect	5/11/2011	12:31:19 PM	12861565.14	309789.05	786.3118	3.108	3.2197	4.4751	4.7	0.3	0.3	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
27.43T-E-01	Transect	5/11/2011	12:50:15 PM	12861602.57	309426.52	793.8858	2.2144	3.4103	4.0662	1.6	0.9	1.0	Moderate	Light	Common	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand		
27.43T-E-02	Transect	5/11/2011	1:32:53 PM	12861497.10	309433.36	788.1371	0.0444	0.0877	0.0983	3.5	0.2	0.3	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
27.43T-E-03	Transect	5/11/2011	1:38:35 PM	12861393.17	309470.73	790.6853	2.0899	4.1742	4.6682	2.1	1.1	1.2	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
27.50T-E-01	Transect	5/11/2011	2:29:44 PM	12861519.70	309078.23	789.5606	2.0072	2.8204	3.4618	2.1	1.3	1.5	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Point Bar	None			PHT364N365
27.50T-E-02	Transect	5/11/2011	2:36:20 PM	12861543.24	309085.07	789.5319	1.6581	3.3356	3.725	5.1	0.5	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	BD	
27.50T-E-03	Transect	5/11/2011	2:40:19 PM	12861527.62	309007.21	787.81	0.1005	0.2076	0.2306	2.7	0.3	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	BD	
27.50T-E-04	Transect	5/11/2011	2:45:15 PM	12861630.12	309053.89	787.8748	0.028	0.0527	0.0597	6.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
27.50T-E-05	Transect	5/11/2011	2:51:21 PM	12861727.83	309152.78	808.5804	2.1331	3.8172	4.3728	0.8	0.2	0.3	Light	Light	Few	Left	No	No	Cut Bank	None	Sand		
27.5NW-E-01	Focus	5/11/2011	1:47:50 PM	12861487.54	309161.20	790.9783	2.0521	3.876	4.3857	3.7	0.8	0.9	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand		PHT 361N362
27.5NW-E-02	Focus	5/11/2011	1:53:04 PM	12861468.72	309196.20	792.7979	1.7035	3.4005	3.8033	2.2	0.8	1.0	Moderate	Moderate	Common	Right	No	No	Point Bar	None	Silt over Sand		
27.5NW-E-03	Focus	5/11/2011	1:58:16 PM	12861471.60	309208.26	792.7505	1.2203	2.3531	2.6507	5.0	0.7	1.0	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
27.5NW-E-04	Focus	5/11/2011	2:02:23 PM	12861462.22	309223.14	795.9049	2.3029	3.6295	4.2985	4.8	0.4	0.6	Light	Light	Few	Right	<1ft/sec	No	Point Bar	None	Silt over Sand		
27.5NW-E-05	Focus	5/11/2011	2:09:44 PM	12861529.18	309162.10	780.4572	9.4784	16.783	19.2745	8.6	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
27.5NW-E-06	Focus	5/11/2011	2:14:51 PM	12861516.67	309080.79	788.9577	1.8745	3.1831	3.694	1.8	1.0	1.1	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand		
27.5NW-E-07	Focus	5/11/2011	2:20:38 PM	12861551.85	309080.58	787.7922	0.051	0.0926	0.1057	4.6	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
27.5NW-A-08	Focus	5/18/2011	10:53:06 AM	12861445.85	309292.23	784.4322	2.7711	3.683	4.6091	5.7	0.1	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand		
27.5NW-A-09	Focus	5/18/2011	10:59:02 AM	12861441.01	309341.46	789.2091	0.0515	0.0706	0.0874	6.1	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
27.5SEA-E-01	Focus	5/11/2011	12:40:41 PM	12861611.39	309357.66	803.0471	2.5227	3.6792	4.461	2.5	0.4	0.5	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand		
27.5SEA-E-02	Focus	5/11/2011	12:52:54 PM	12861588.15	309432.56	788.7082	1.1884	1.7879	2.1468	1.9	0.5	0.6	Heavy	Moderate	Many	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	BD	
27.5SEA-E-03	Focus	5/11/2011	12:56:40 PM	12861585.59	309482.73	794.6958	1.0971	1.7505	2.0659	1.7	0.9	1.2	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	BD	
27.5SEA-E-04	Focus	5/11/2011	12:59:34 PM	12861557.25	309452.74	788.5818	1.8711	2.9979	3.5339	0.9	0.5	0.6	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Point Bar	None	Sand	BD	
27.5SEA-E-05	Focus	5/11/2011	1:04:41 PM	12861586.95	309573.75	758.1994	2.2389	4.4388	4.9715	1.6	0.8	0.9	Moderate	Light	Common	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	BD	
27.5SEA-E-06	Focus	5/11/2011	1:13:12 PM	12861587.15	309656.36	796.8658	3.479	6.6772	7.5292	2.4	0.4	1.0	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand		BG
27.5SEA-E-07	Focus	5/11/2011	1:19:19 PM	12861540.75	309600.87	787.946	0.0396	0.0769	0.0865	4.6	0.4	1.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand over Silt	BD	
27.5SEA-E-08	Focus	5/11/2011	1:22:42 PM	12861537.45	309510.83	788.136	0.057	0.112	0.1257	3.0	0.4	0.5	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	BD	
27.5SEA-E-09	Focus	5/11/2011	1:26:27 PM	12861559.82	309448.26	788.129	0.0362	0.0679	0.0769	0.5	0.6	0.7	None	None	None	Center	<1ft/sec	<1 ft/sec	Cut off	None	Silt over Sand	BD	
27.5SEA-E-10	Focus	5/11/2011	1:28:31 PM	12861557.22	309379.52	796.1335	2.0482	4.1957	4.6689	1.5	0.6	1.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Point Bar	None	Sand		
27.5SEB-E-01	Focus	5/11/2011	2:58:02 PM	12861730.56	309113.20	788.4138	1.9674	3.0825	3.6568	1.1	0.7	0.9	Moderate	Moderate	Common	Left	No	No	Cut Bank	None	Silt over Sand		
27.5SEB-E-02	Focus	5/11/2011	3:02:18 PM	12861711.25	309076.91	782.645	2.5408	4.1429	4.86	1.6	0.7	0.8	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand	DB	
27.5SEB-E-03	Focus	5/11/2011	3:06:44 PM	12861682.70	309086.82	788.0588	0.0441	0.0708	0.0834	0.2	0.4	0.7	Light	Light	Few	Left	No	No	Cut Bank	<5%	Sand	DB	
27.5SEB-E-04	Focus	5/11/2011	3:16:27 PM	12861711.86	308987.37	787.9129	0.034	0.0554	0.065	5.0	0.5	0.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand	DB	
27.5SEB-E-05	Focus	5/11/2011	3:39:57 PM	12861684.61	309239.85	809.6394	2.3007	4.546	5.0951	0.5	0.8	1.1	Light	Light	Few	Left	No	No	Point Bar	None	Soft Sediment	BD	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
27.5SEB-E-06	Focus	5/11/2011	3:44:05 PM	12861605.15	309214.23	788.0201	0.0624	0.1681	0.1793	0.4	0.6	1.0	Light	Light	Few	Left	No	No	Point Bar	None	Silt over Sand	BD	
27.5SEB-E-07	Focus	5/11/2011	3:53:53 PM	12861649.31	309208.45	795.7259	1.7163	4.3245	4.6526	2.0	1.2	1.6	Light	Light	Few	Left	No	No	Point Bar	None	Silt over Sand	BD	
27.5SEB-A-08	Focus	5/18/2011	11:05:15 AM	12861674.16	309154.00	789.2366	0.0501	0.0664	0.0832	2.6	0.4	0.6	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
27.5SEB-A-09	Focus	5/18/2011	11:12:18 AM	12861653.18	309126.36	789.1763	0.0365	0.05	0.0619	2.7	0.3	0.5	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Backwater	None	Soft Sediment	LAT BDY	
27.5SEB-A-10	Focus	5/18/2011	11:15:32 AM	12861700.41	309149.44	788.9931	0.0441	0.0784	0.09	3.0	0.5	0.7	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
27.5SEB-A-11	Focus	5/18/2011	11:18:46 AM	12861632.59	309175.66	789.2081	0.0405	0.0552	0.0685	3.4	0.5	0.7	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Backwater	None	Sand & Silt	U BDY	
MP 27.50-27.75																							
27.55NW-D-01	Focus	5/11/2011	9:23:53 AM	12861540.33	308922.97	787.6335	0.0349	0.0459	0.0577	2.0	0.2	0.3	None	None	None	Center	1-3 ft/sec	<1 ft/sec			Sand		
27.55NW-D-02	Focus	5/11/2011	9:32:21 AM	12861491.39	308957.06	787.8329	0.1132	0.3129	0.3328	3.6	0.3	0.4	Light	Light	Few	Right	<1ft/sec	No	Cove	<5%	Soft Sediment		
27.55NW-D-03	Focus	5/11/2011	9:35:10 AM	12861464.47	308912.75	788.0077	0.0417	0.0606	0.0736	1.3	0.7	0.8	Light	Light	Few	Right	<1ft/sec	No	Cove	None	Silt over Sand		
27.55NW-D-04	Focus	5/11/2011	9:37:28 AM	12861480.52	308909.73	787.8118	0.0608	0.0974	0.1148	2.9	0.5	0.6	Light	Light	Few	Right	1-3 ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
27.55NW-D-05	Focus	5/11/2011	9:41:20 AM	12861470.11	308848.17	789.4657	3.6228	6.2255	7.2029	1.7	0.6	0.7	None	None	None	Right	<1ft/sec	No	Cove	None	Silt over Sand		
27.55NW-D-06	Focus	5/11/2011	9:48:50 AM	12861513.35	308852.64	786.8773	15.9417	28.4861	32.6434	3.0	0.1	0.1	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Cove	None	Silt over Sand		JUST OFF CLUMP OF TREES DWNSTRM OF CENTER
27.56T-D-01	Transect	5/11/2011	9:56:16 AM	12861489.56	308808.00	799.9523	3.0056	6.8009	7.4355	3.0	0.1	0.2	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand		
27.56T-D-02	Transect	5/11/2011	9:58:48 AM	12861547.91	308772.44	787.7125	0.0609	0.1234	0.1376	3.5	0.0	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
27.56T-D-03	Transect	5/11/2011	10:01:55 AM	12861646.69	308747.25	791.3047	2.7239	4.4802	5.2433	3.7	0.5	0.7	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
27.65N-D-01	Focus	5/11/2011	10:09:05 AM	12861236.48	308720.24	796.7146	2.5671	5.0241	5.6419	1.0	0.4	0.5	Light	Light	None	Right	No	No	Cove	None	Organic		
27.65N-D-02	Focus	5/11/2011	10:13:00 AM	12861269.76	308699.78	786.3518	1.3371	2.9186	3.2103	1.5	0.7	0.0	Light	Light	Few	Right	<1ft/sec	No	Cove	None	Soft Sediment		
27.65N-D-03	Focus	5/11/2011	10:17:33 AM	12861189.13	308646.85	787.4206	0.1954	0.5199	0.5554	1.5	0.6	0.7	None	None	None	Right	<1ft/sec	No	Cove	None	Silt over Sand		
27.65S-D-01	Focus	5/11/2011	10:25:14 AM	12861263.73	308490.23	787.383	1.9779	4.6967	5.0962	1.3	0.4	0.6	Moderate	Moderate	Common	Left	1-3 ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment	PHOTO1, PHOTO2	
27.65S-D-02	Focus	5/11/2011	10:29:39 AM	12861293.09	308515.50	803.2178	2.7579	5.8799	6.4946	0.3	0.4	0.5	Light	Light	Few	Left	1-3 ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
27.65S-D-03	Focus	5/11/2011	10:31:49 AM	12861245.93	308446.60	787.9968	4.4572	9.6111	10.5944	0.7	0.5	0.6	None	None	None	Left	<1ft/sec	No	Point Bar	None	Soft Sediment		
27.65S-D-04	Focus	5/11/2011	10:34:19 AM	12861252.63	308484.38	792.7037	2.1577	5.1522	5.5858	2.4	0.1	0.4	Light	Light	Few	Left	1-3 ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
27.65S-D-05	Focus	5/11/2011	10:45:24 AM	12861218.31	308429.46	803.3593	2.0401	4.4484	4.8939	1.6	0.5	0.9	Light	Light	Few	Left	<1ft/sec	No	Strt Channel Edg	None	Soft Sediment		
27.7N-D-01	Focus	5/11/2011	11:14:24 AM	12860910.63	308555.98	831.8227	2.5402	4.3591	5.0452	1.1	0.4	0.7	Light	Light	Few	Right	No	No	Backwater	None	Silt over Sand	OILFOUNDONARIVAL	
27.7N-D-02	Focus	5/11/2011	11:18:11 AM	12860888.20	308475.29	808.3269	3.7615	5.3438	6.5349	0.9	0.5	0.8	Light	Light	Few	Right	No	No	Backwater	None	Silt over Sand		
27.7N-D-03	Focus	5/11/2011	11:22:14 AM	12860822.13	308422.08	785.5141	2.055	2.9992	3.6357	1.7	0.3	0.4	Light	Light	Few	Right	No	No	Backwater	None	Silt over Sand		
27.7N-D-04	Focus	5/11/2011	11:27:47 AM	12860853.42	308365.25	793.3229	2.757	4.4952	5.2733	1.3	0.2	0.3	Light	Light	Few	Right	No	No	Backwater	<5%	Silt over Sand		
27.7N-D-05	Focus	5/11/2011	11:30:28 AM	12860799.60	308352.26	778.8559	2.8379	4.3947	5.2314	1.7	0.5	0.8	Light	Light	Few	Right	<1ft/sec	No	Backwater	<5%	Silt over Sand		
27.71T-D-01	Transect	5/11/2011	10:53:35 AM	12860940.29	308385.72	787.8894	2.1002	3.9929	4.5115	2.1	0.2	0.4	Light	Light	Few	Right	<1ft/sec	No	Strt Channel Edg	None	Soft Sediment	SHEENFOUNDONARVL	
27.71T-D-02	Transect	5/11/2011	11:01:18 AM	12861009.28	308338.39	787.5885	0.0457	0.077	0.0895	5.2	0.1	0.1	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
27.71T-D-03	Transect	5/11/2011	11:03:50 AM	12861044.90	308293.71	787.3432	0.1509	0.2461	0.2887	3.3	0.2	0.7	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
MP 27.75-28.00																							
27.80T-D-01	Transect	5/11/2011	11:44:49 AM	12860717.27	307952.45	793.3574	1.5193	2.4304	2.8662	4.5	0.1	0.2	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
27.80T-D-02	Transect	5/11/2011	11:48:28 AM	12860761.18	307970.14	787.6791	2.5596	3.9321	4.6918	6.0	0.1	0.1	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
27.80T-D-03	Transect	5/11/2011	11:52:51 AM	12860817.74	307993.51	788.6598	5.7557	6.127	8.4065	1.9	0.2	0.4	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
27.85N-D-01	Focus	5/11/2011	12:47:44 PM	12861072.43	307938.10	787.6365	2.4229	3.8808	4.5751	1.6	0.3	0.4	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
27.85N-D-02	Focus	5/11/2011	12:49:54 PM	12861123.89	307955.45	763.6676	15.2358	25.7217	29.8954	1.6	0.2	0.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
27.85N-D-03	Focus	5/11/2011	12:51:16 PM	12861161.47	307955.26	803.0736	3.1912	5.0226	5.9506	1.0	0.2	0.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
27.9-D-01	Focus	5/11/2011	1:11:43 PM	12861289.82	308092.16	788.305	3.3459	4.9885	6.0067	0.8	0.4	1.2	Light	Light	Few	Left	<1ft/sec	No	Cove	None	Organic		
27.9-D-02	Focus	5/11/2011	1:19:00 PM	12861374.06	308113.88	814.1349	2.6491	5.0679	5.7185	0.8	0.3	0.4	Light	Light	Few	Left	<1ft/sec	No	Cove	None	Organic		
27.9-D-03	Focus	5/11/2011	1:25:02 PM	12861343.80	308083.29	787.3654	0.0334	0.0659	0.0739	1.0	1.1	1.2	Heavy	Heavy	Many	Left	<1ft/sec	No	Cove	None	Organic	PHOTO 3 PHOTO 4	
27.9-D-04	Focus	5/11/2011	1:28:32 PM	12861388.56	308074.83	800.4695	2.8839	5.1415	5.8951	1.3	0.6	0.7	Light	Light	Few	Left	<1ft/sec	No	Cove	None	Soft Sediment	BOUNDRY	
27.9-D-05	Focus	5/11/2011	1:37:02 PM	12861367.17	308034.57	787.3493	0.0274	0.0536	0.0602	4.8	0.2	0.4	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Cove	None	Silt over Sand	BOUNDRY	
27.9-D-06	Focus	5/11/2011	1:39:51 PM	12861246.30	308016.00	794.7634	2.4466	4.823	5.4081	0.8	0.6	0.8	Light	Light	Few	Left	<1ft/sec	No	Cove	None	Soft Sediment	BOUNDRY	
27.9-A-07	Focus	5/18/2011	12:44:21 PM	12861327.02	308073.72	788.8056	0.0457	0.0792	0.0915	2.4	1.2	2.0	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cove	None	Soft Sediment		
27.9-A-08	Focus	5/18/2011	12:49:43 PM	12861280.05	308062.87	788.582	0.073	0.113	0.1345	2.4	0.6	1.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cove	None	Soft Sediment		
27.9-A-09	Focus	5/18/2011	12:52:30 PM	12861306.57	308022.76	788.566	0.1486	0.1769	0.2311	4.2	0.9	1.5	Heavy	Heavy	Many	Left	1-3 ft/sec	<1 ft/sec	Cove	None	Soft Sediment		
27.9-A-10	Focus	5/18/2011	12:58:33 PM	12861312.82	307988.04	789.0054	0.0629	0.0739	0.0971	6.5	0.2	0.3	None	None	None	Left	<1ft/sec	No	Mid-Channel	None	Sand	LAT BDY	
27.9-A-11	Focus	5/18/2011	1:03:18 PM	12861364.48	308052.56	802.4336	11.5003	11.669	16.3836	2.5	0.5	1.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cove	None	Soft Sediment		
27.9-A-12	Focus	5/18/2011	1:09:20 PM	12861442.71	308012.72	788.6281	1.5856	1.5066	2.1872	8.0	0.2	0.5	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cove	None	Soft Sediment	LAT BDY	
27.92T-D-01	Transect	5/11/2011	1:02:00 PM	12861378.57	307895.27	789.0519	1.8666	2.1972	2.883	1.8	0.6	0.7	Light	Light	Few	Right	1-3 ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
27.92T-D-02	Transect	5/11/2011	1:05:27 PM	12861378.74	307967.65	787.2742	0.0432	0.0557	0.0705	5.3	0.1	0.1	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
27.92T-D-03	Transect	5/11/2011	1:08:42 PM	12861293.17	308089.00	793.5547	1.972	2.2022	2.9561	0.9	0.8	1.1	Light	Light	Few	Left	<1ft/sec	No	Cove	None	Organic		
27.99T-A-04	Transect	5/18/2011	1:16:28 PM	12861641.08	307796.58	796.9471	4.7063	4.2779	6.36	6.1	0.2	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
27.99T-D-01	Transect	5/11/2011	2:04:31 PM	12861540.58	307768.20	798.969	2.2969	3.7561	4.4028	1.5	0.6	0.7	Light	Light	Few	Right	<1ft/sec	No	Point Bar	None	Sand & Silt		
27.99T-D-02	Transect	5/11/2011	2:10:08 PM	12861585.47	307756.41	792.1338	3.5823	3.8379	5.25	6.9	0.1	0.2	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
27.99T-D-03	Transect	5/11/2011	2:13:55 PM	12861636.36	307727.71	798.9665	5.7004	7.1231	9.1232	3.5	0.1	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
MP 28.00-28.25																							
28.08T-E-01	Transect	5/5/2011	1:05:17 PM	12861283.43	307365.22	786.0863	2.7124	2.843	3.9294	2.7	0.5	0.6	None	None	None	Island	<1ft/sec		Strt Channel Edg	None	Other-Comments		SILTSAND
28.08T-E-02	Transect	5/5/2011	1:11:40 PM	12861356.86	307379.38	788.6942	0.0512	0.0778	0.0931	5.0	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		GRT 3FTS
28.08T-E-03	Transect	5/5/2011	1:20:34 PM	12861444.21	307312.96	791.7489	1.7592	2.6387	3.1714	2.1	0.8	1.3	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
28.14T-E-01	Transect	5/5/2011	2:25:49 PM	12861310.80	307031.79	787.6773	1.5453	2.6113	3.0343	2.5	0.5	0.7	Light	Light	Few	Left	No		Strt Channel Edg	None	Soft Sediment		
28.14T-E-02	Transect	5/5/2011	2:40:54 PM	12861236.19	307069.55	789.4693	2.2562	3.3171	4.0117	6.5	0.5	0.9	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		3.1FTS
28.14T-E-03	Transect	5/5/2011	2:47:02 PM	12861250.33	307175.60	788.3553	0.0265	0.0363	0.0449	1.2	0.6	1.4	Moderate	Light	Common	Right	No		Strt Channel Edg	25%-50%	Soft Sediment		
28.14T-E-04	Transect	5/5/2011	2:53:30 PM	12861246.43	307167.45	788.8132	1.5306	1.4825	2.1309	2.2	0.3	0.7	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		BD LESS 1FTS
28.14T-E-05	Transect	5/5/2011	3:02:39 PM	12861259.76	307177.51	788.4807	2.3115	2.0622	3.0977	2.7	0.4	0.7	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		BD LESS 1FTS
28.15S-E-01	Focus	5/5/2011	1:35:12 PM	12861436.52	307236.03	792.8451	2.1395	4.0505	4.5809	2.5	2.4	3.0	Heavy	Moderate	Many	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
28.15S-E-02	Focus	5/5/2011	1:39:06 PM	12861437.18	307249.90	801.2843	2.0549	4.0666	4.5563	2.8	1.5	2.3	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		BD LESS 1FTS
28.15S-E-03	Focus	5/5/2011	1:45:59 PM	12861402.79	307235.81	787.4443	1.7785	3.4846	3.9122	6.4	1.1	2.3	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand over Silt		BD LESS 1FTS
28.15S-E-04	Focus	5/5/2011	1:50:27 PM	12861423.46	307192.29	790.1495	1.4083	2.5747	2.9347	3.4	0.6	0.6	Moderate	Moderate	Common	Left	No		Strt Channel Edg	None	Silt over Sand		
28.15S-E-05	Focus	5/5/2011	1:59:25 PM	12861408.31	307163.41	795.634	1.7488	3.0236	3.4929	3.1	0.7	0.7	Moderate	Light	Common	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
28.15S-E-06	Focus	5/5/2011	2:06:27 PM	12861390.39	307163.43	788.5842	0.0502	0.0851	0.0988	7.0	0.0	0.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel		BD 1-3FTS
28.15S-E-07	Focus	5/5/2011	2:12:33 PM	12861361.35	307093.11	788.6292	0.05	0.0847	0.0984	2.1	0.9	1.0	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		BD LESS 1FTS
28.25-E-01	Focus	5/5/2011	9:38:13 AM	12860826.63	306927.47	791.2841	2.1285	2.3763	3.1902	2.5	0.7	1.0	Light	Light	None	Right	<1ft/sec		Oxbow	None	Silt over Sand		LESS 1
28.25-E-02	Focus	5/5/2011	9:44:20 AM	12860774.13	306937.35	785.7346	3.2395	3.8029	4.9957	2.5	0.8	1.0	Moderate	Moderate	Common	Right	No		Oxbow	None	Soft Sediment		
28.25-E-03	Focus	5/5/2011	9:51:35 AM	12860661.58	307125.28	793.8222	3.0809	5.159	6.009	2.8	0.6	0.7	Light	Light	Few	Right	No		Oxbow	None	Silt over Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
28.25-E-04	Focus	5/5/2011	9:56:31 AM	12860664.05	307309.38	802.9725	2.4924	2.9517	3.8632	2.4	0.3	0.3	Light	Light	Few	Right	No		Oxbow	None	Silt over Sand		
28.25-E-05	Focus	5/5/2011	10:06:16 AM	12860753.32	307472.59	805.2274	2.139	4.0173	4.5513	1.2	0.3	0.4	Light	Light	Few	Right	No		Oxbow	None	Sand		WTEMP 55.4
28.25-E-06	Focus	5/5/2011	10:13:44 AM	12860840.28	307442.58	788.6264	0.0544	0.1157	0.1279	0.8	0.4	1.3	Light	Light	Few	Right	<1ft/sec		Oxbow	25%-50%	Soft Sediment		LESS 1FTS
28.25-E-07	Focus	5/5/2011	10:18:07 AM	12860909.89	307535.54	773.7959	15.7796	34.2882	37.7448	1.3	0.2	0.5	None	None	None	Right	No		Oxbow	None	Silt over Sand		
28.25-E-08	Focus	5/5/2011	10:25:33 AM	12861034.74	307413.41	786.9728	2.0228	4.8354	5.2415	2.5	0.4	0.5	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand		1-3FTS
28.25-E-09	Focus	5/5/2011	10:28:22 AM	12861131.40	307464.37	787.8949	2.8373	6.4325	7.0305	1.8	0.8	2.1	Moderate	Light	Common	Right	<1ft/sec		Oxbow	None	Soft Sediment		0.2FTS
28.25-E-10	Focus	5/5/2011	10:33:46 AM	12861130.97	307478.29	797.5841	3.8015	9.2944	10.0418	0.2	0.2	0.3	None	None	None	Right	<1ft/sec		Oxbow	None	Sand		BD
28.25-E-11	Focus	5/5/2011	10:40:43 AM	12861173.97	307433.99	788.4422	0.0602	0.165	0.1756	2.0	0.6	0.7	Light	Light	None	Center	<1ft/sec		Oxbow	None	Sand		BD 1-3FTS
28.25-E-12	Focus	5/5/2011	10:44:27 AM	12861257.45	307379.54	793.8542	2.3708	5.6322	6.1108	3.4	0.2	0.4	None	None	None	Island	1-3 ft/sec		Oxbow	None	Sand		1-3FTS
28.25-E-13	Focus	5/5/2011	10:48:48 AM	12861257.51	307455.24	801.7001	2.0981	5.4624	5.8515	0.5	0.3	0.5	Light	Light	Few	Right	No		Oxbow	5%-25%	Silt over Sand		
28.25-E-14	Focus	5/5/2011	10:54:59 AM	12861140.09	307524.05	876.4469	433.0971	375.9226	573.4901	2.4	1.2	1.3	Light	Light	Few	Right	No		Oxbow	None	Silt over Sand		BD
28.25-E-15	Focus	5/5/2011	11:02:50 AM	12860950.10	307391.21	788.5275	0.1456	0.2972	0.3309	2.4	0.2	0.3	None	None	None	Island	No		Oxbow	None	Sand		LESS 1FTS
28.25-E-16	Focus	5/5/2011	11:10:56 AM	12860729.60	307329.67	788.6226	1.7953	3.7391	4.1477	0.6	0.3	0.3	None	None	None	Island	No		Oxbow	None	Sand		
28.25-E-17	Focus	5/5/2011	11:20:45 AM	12860712.57	307116.48	788.4095	0.3983	0.2847	0.4895	1.1	0.4	0.8	Heavy	Heavy	Many	Island	No		Oxbow	None	Silt over Sand		PHTO352
28.25-E-18	Focus	5/5/2011	11:29:40 AM	12860708.11	307109.24	799.038	2.3493	4.1972	4.81	2.0	1.0	1.9	Light	Light	Few	Island	<1ft/sec		Oxbow	None	Silt over Sand		BD
28.25-E-19	Focus	5/5/2011	11:37:49 AM	12860729.54	307085.79	786.4348	2.4445	3.9295	4.6278	1.0	0.2	0.4	Light	Light	Few	Island	No		Oxbow	None	Silt over Sand		BD
28.25-D-20	Focus	5/12/2011	9:53:48 AM	12860919.05	306929.21	787.1196	1.6071	3.2453	3.6214	1.0	0.8	0.9	Heavy	Heavy	Many	Island	No	No	Oxbow	None	Soft Sediment	EPAPHOTOS	
28.25-D-21	Focus	5/12/2011	10:01:05 AM	12860925.17	306912.29	792.0657	1.895	2.805	3.3851	1.4	1.0	1.1	Moderate	Moderate	Common	Center	No	No	Oxbow	None	Soft Sediment		
28.25-D-22	Focus	5/12/2011	10:06:00 AM	12860927.88	306914.26	790.2609	2.0198	4.8284	5.2338	2.4	0.7	0.7	Light	Light	Few	Center	No	No	Oxbow	None	Soft Sediment	OUTSIDEBOOM	
28.25-D-23	Focus	5/12/2011	10:14:18 AM	12860890.55	306887.10	793.716	1.7413	4.5546	4.8761	1.1	1.0	1.4	Light	Light	Few	Right	No	No	Oxbow	None	Soft Sediment	OUTSIDEBOOM	
28.25-D-24	Focus	5/12/2011	10:24:16 AM	12860834.27	306934.32	786.2475	1.1126	3.2021	3.3899	2.5	0.2	0.3	Moderate	Moderate	Common	Right	<1ft/sec	No	Oxbow	None	Soft Sediment		
28.25-D-25	Focus	5/12/2011	10:33:08 AM	12860839.84	306924.60	790.7783	1.5251	3.8298	4.1222	2.1	0.4	0.5	Light	Light	Few	Right	No	No	Oxbow	None	Soft Sediment		
28.25-D-26	Focus	5/12/2011	10:36:17 AM	12860824.46	306934.97	792.0328	1.561	2.8062	3.2112	2.2	0.4	0.5	Light	Light	Few	Right	No	No	Oxbow	None	Sand & Silt		
28.25-D-27	Focus	5/12/2011	10:49:51 AM	12860858.39	306967.37	792.2168	2.2874	4.2413	4.8188	0.5	1.0	1.5	Heavy	Heavy	Many	Island	No	No	Oxbow	None	Sand & Silt	PHOTO2, EPAPHOTO	
28.25-D-28	Focus	5/12/2011	10:58:23 AM	12860866.09	306941.80	798.8138	3.0782	5.6188	6.4067	2.5	1.7	1.9	Light	Light	Few	Center	No	No	Oxbow	None	Sand & Silt		
28.25-D-29	Focus	5/12/2011	11:08:53 AM	12860760.61	306954.01	795.4935	2.271	4.1097	4.6955	2.5	1.7	1.9	Moderate	Moderate	Common	Right	No	No	Oxbow	None	Soft Sediment	EPAPHOTOS	
28.25-D-30	Focus	5/12/2011	11:12:58 AM	12860767.86	306942.31	787.7461	2.1197	3.0255	3.6942	1.3	0.7	0.8	Light	Light	Few	Right	No	No	Oxbow	None	Soft Sediment	EPAPHOTOS	
28.25-D-31	Focus	5/12/2011	11:16:58 AM	12860724.72	306974.82	798.7884	2.4986	4.3324	5.0013	1.0	0.5	0.5	Light	Light	Few	Right	No	No	Oxbow	None	Soft Sediment		
28.25-D-32	Focus	5/12/2011	11:28:22 AM	12860775.25	306980.00	785.5231	1.6791	2.6288	3.1193	2.0	0.9	1.1	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Oxbow	None	Soft Sediment		
28.25-D-33	Focus	5/12/2011	11:34:29 AM	12860705.69	307019.06	791.3542	5.3545	9.4501	10.8616	1.5	0.3	0.4	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Oxbow	None	Silt over Sand		
28.25-D-34	Focus	5/12/2011	11:45:36 AM	12860699.40	307113.94	801.1181	3.2152	5.0212	5.9624	0.5	1.0	1.4	Moderate	Moderate	Common	Island	No	No	Oxbow	None	Soft Sediment		
28.25-D-35	Focus	5/12/2011	11:57:55 AM	12860693.28	307124.73	799.147	4.0874	4.5976	6.1518	2.3	0.7	1.2	Light	Light	Few	Island	No	No	Oxbow	None	Soft Sediment		
28.25-D-36	Focus	5/12/2011	12:00:22 PM	12860694.78	307109.07	802.673	2.5224	3.2912	4.1466	2.4	1.0	1.1	None	None	None	Island	1-3 ft/sec	<1 ft/sec	Oxbow	None	Soft Sediment		
28.25-D-37	Focus	5/12/2011	12:52:11 PM	12860670.78	307199.01	786.393	1.8696	3.1175	3.6351	2.8	0.7	0.9	Light	Light	Few	Center	<1ft/sec	No	Oxbow	None	Soft Sediment		
28.25-D-38	Focus	5/12/2011	12:56:15 PM	12860653.27	307143.52	786.0011	2.6369	5.5642	6.1574	1.0	0.3	0.4	None	None	None	Right	<1ft/sec	No	Oxbow	None	Sand		
28.25-D-39	Focus	5/12/2011	1:04:54 PM	12860656.18	307299.86	795.3529	3.7744	7.0988	8.0399	0.9	0.1	0.1	None	None	None	Right	No	No	Oxbow	None	Sand		
28.25-D-40	Focus	5/12/2011	1:11:35 PM	12860697.13	307357.64	793.5073	2.1001	3.5809	4.1513	1.7	0.4	0.6	Light	Light	Few	Center	<1ft/sec	No	Oxbow	None	Silt over Sand		
28.25-D-41	Focus	5/12/2011	1:18:25 PM	12860813.06	307387.99	783.5304	1.1965	2.373	2.6576	0.5	0.2	0.2	Light	Light	Few	Island	No	No	Oxbow	None	Silt over Sand		
28.25-D-42	Focus	5/12/2011	1:28:09 PM	12860780.75	307451.93	792.1342	3.4613	7.2981	8.0773	2.0	0.3	0.4	Moderate	Moderate	Common	Right	No	No	Oxbow	None	Silt over Sand		
28.25-D-43	Focus	5/12/2011	1:33:15 PM	12860777.09	307463.33	801.7618	2.9264	5.9128	6.5974	1.9	0.1	0.2	Light	Light	Few	Right	<1ft/sec	No	Oxbow	None	Organic		
28.25-D-44	Focus	5/12/2011	1:37:21 PM	12860744.61	307436.71	794.4309	1.1503	2.4291	2.6877	1.4	0.9	1.0	Light	Light	Few	Right	<1ft/sec	No	Oxbow	None	Sand & Silt		
28.25-D-45	Focus	5/12/2011	1:42:13 PM	12860824.04	307488.42	773.4066	10.8773	23.3884	25.794	1.8	0.4	0.6	Light	Light	Few	Right	<1ft/sec	No	Oxbow	None	Sand & Silt		
28.25-D-46	Focus	5/12/2011	1:56:49 PM	12861113.81	307436.95	804.3116	7.3392	7.3162	10.363	1.9	0.1	0.2	Heavy	Heavy	Many	Island	<1ft/sec	No	Oxbow	None	Soft Sediment	OIL FOUND ON ARRIVAL	PHOTO
28.25-D-47	Focus	5/12/2011	2:16:35 PM	12861096.34	307464.13	808.6016	4.6633	5.749	7.4025	1.0	0.3	0.5	Light	Light	Few	Right	<1ft/sec	No	Oxbow	None	Soft Sediment	OILFOUNDONARRIVAL, BNDRY	
28.25-D-48	Focus	5/12/2011	2:19:54 PM	12861110.69	307444.14	788.216	3.1082	3.3985	4.6055	1.2	0.1	0.2	Light	Light	Few	Island	<1ft/sec	No	Oxbow	None	Soft Sediment	OIL FOUND ON ARRIVAL	BNDRY
MP 28.25-28.50																							
28.28T-E-01	Transect	5/5/2011	3:21:02 PM	12860782.58	306560.41	790.3849	3.6272	2.7898	4.576	2.7	0.8	1.2	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
28.28T-E-02	Transect	5/5/2011	3:26:02 PM	12860756.25	306604.35	784.0217	1.6107	2.3776	2.8718	8.9	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		GRT 3FTS
28.28T-E-03	Transect	5/5/2011	3:35:29 PM	12860710.44	306637.53	803.5266	2.1115	3.8108	4.3566	3.0	0.8	1.5	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		1 FTS
28.34T-E-01	Transect	5/5/2011	3:42:35 PM	12860513.00	306364.12	785.7606	2.7682	3.6913	4.614	4.5	0.1	0.2	None	None	None	Left			Strt Channel Edg	None	Sand		
28.34T-E-02	Transect	5/5/2011	3:46:02 PM	12860445.09	306394.86	789.0819	1.5156	1.8354	2.3803	6.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
28.34T-E-03	Transect	5/5/2011	3:49:22 PM	12860458.79	306481.36	795.7882	1.3241	2.8287	3.1233	4.5	1.2	1.2	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		
28.39T-E-01	Transect	5/5/2011	4:02:46 PM	12860244.99	306394.67	800.2824	1.4541	4.1265	4.3752	3.2	0.9	1.0	Moderate	Moderate	Common	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		LESS 1FTS
28.39T-E-02	Transect	5/5/2011	4:15:43 PM	12860252.63	306390.10	782.3069	2.5066	9.0638	9.404	4.6	0.8	1.1	Light	Light	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		BD
28.39T-E-03	Transect	5/5/2011	4:22:05 PM	12860228.63	306364.93	791.9724	1.4254	3.2642	3.5618	5.5	0.2	0.2	Light	None	Few	Right	<1ft/sec		Strt Channel Edg	None	Sand		BD 1-3FTS
28.39T-E-04	Transect	5/5/2011	4:25:20 PM	12860254.43	306303.45	788.1059	0.0388	0.0751	0.0846	6.5	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		GRT 3
28.39T-E-05	Transect	5/5/2011	4:29:21 PM	12860304.23	306271.45	792.2201	1.5675	3.2132	3.5752	1.6	0.6	1.1	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
28.45S-D-01	Focus	5/11/2011	2:45:01 PM	12860049.34	306090.41	796.3721	2.1986	3.7031	4.3066	0.9	1.2	2.0	Moderate	Moderate	Common	Left	No	No	Backwater	None	Soft Sediment	PHOTOS5AND6	
28.45S-D-02	Focus	5/11/2011	2:49:36 PM	12859998.21	306086.60	788.2776	1.4691	2.3748	2.7925	1.5	0.4	1.2	Light	Light	Few	Left	No	No	Backwater	None	Soft Sediment		
28.45S-D-03	Focus	5/11/2011	2:53:33 PM	12859936.33	306075.56	786.5101	2.4233	2.4172	3.4227	1.7	1.1	1.3	Moderate	Moderate	Common	Left	No	No	Backwater	None	Soft Sediment		REAL SOFT SED
28.45S-D-04	Focus	5/11/2011	2:59:11 PM	12859940.65	306095.66	789.7408	1.4061	2.3494	2.738	0.9	1.4	1.5	Heavy	Heavy	Many	Left	No	No	Backwater	None	Soft Sediment	PHOTOS 7AND8	
28.45S-D-05	Focus	5/11/2011	3:02:26 PM	12859917.92	306098.69	787.2234	0.0831	0.2569	0.27	1.3	0.7	0.8	Moderate	Moderate	Common	Left	No	No	Backwater	None	Soft Sediment		OUTSIDE OF BOOM
28.45S-D-06	Focus	5/11/2011	3:04:49 PM	12859898.46	306087.31	787.1015	0.2298	0.2009	0.3052	1.6	1.0	1.1	Heavy	Heavy	Many	Left	No	No	Backwater	None	Soft Sediment		OUTSIDE OF BOOM
28.45S-D-07	Focus	5/11/2011	3:07:49 PM	12859874.53	306075.75	790.8803	1.3927	2.3129	2.6999	2.0	1.0	1.3	Heavy	Heavy	Many	Left	No	No	Backwater	None	Soft Sediment		OUTSIDE OF BOOM
28.45S-D-08	Focus	5/11/2011	3:27:03 PM	12859889.54	306132.18	786.9169	0.0403	0.0739	0.0842	4.0	0.1	0.1	None	None	None	Center	No	No	Downstrm Island	None	Sand & Gravel	BNDRY	OUTSIDEOFBOOM
28.45S-D-09	Focus	5/11/2011	3:30:08 PM	12859870.92	306110.36	786.9268	0.042	0.0736	0.0847	3.2	0.3	0.6	None	None	None	Center	No	No	Downstrm Island	None	Sand	BNDRY	OUTSIDEOFBOOM
28.45S-D-10	Focus	5/11/2011	3:39:59 PM	12859814.18	306065.58	783.4395	0.9561	2.2772	2.4697	3.3	0.2	0.3	None	None	None	Left	No	No	Downstrm Island	None	Sand	BNDRY	OUTSIDEOFBOOM
28.47T-D-01	Transect	5/11/2011	3:19:51 PM	12859863.43	306062.25	787.2284	0.0484	0.1084	0.1187	2.0	0.5	0.6	Moderate	Moderate	Common	Left	No	No	Backwater	None	Soft Sediment	PHOTOS9AND10	
28.47T-D-02	Transect	5/11/2011	3:44:52 PM	12859791.41	306157.33	786.6612	0.0316	0.0662	0.0733	3.5	0.1	0.2	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
28.47T-D-03	Transect	5/11/2011	3:47:59 PM	12859820.20	306282.90	787.2955	0.0451	0.1263	0.1341	1.4	0.5	0.7	Heavy	Heavy	Many	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.47T-D-04	Transect	5/11/2011	3:54:40 PM	12859863.46	306293.79	785.4757	2.0588	5.3369	5.7203	0.3	0.2	0.3	Light	Light	None	Right	No	No	Strt Channel Edg	None	Organic		
28.47T-D-05	Transect	5/11/2011	4:01:28 PM	12859780.56	306288.37	816.3256	3.3325	10.3389	10.8627	1.5	0.2	0.3	Light	Light	Few	Right	<1ft/sec	No	Strt Channel Edg	None	Organic		
28.47T-D-06	Transect	5/11/2011	4:14:47 PM	12859840.97	306259.22	787.8724	1.1317	2.9512	3.1607	2.5	0.7	1.0	Light	Light	Few	Right	No	No	Strt Channel Edg	None	Soft Sediment	BNDRY	
28.47T-E-01	Transect	5/5/2011	4:40:10 PM	12859854.85	306282.04	788.2939	1.8058	3.2639	3.7301	1.2	0.3	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	5%-25%	Silt over Sand		LESS 1FTS
28.47T-E-02	Transect	5/5/2011	4:42:28 PM	12859856.05	306181.22	788.2306	0.0473	0.0782	0.0914	7.2	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
28.47T-E-03	Transect	5/5/2011	4:55:04 PM	12859881.37	306053.88	786.9512	2.1729	2.6716	3.4437	2.4	0.7	0.7	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		LESS 1FTS
28.5N-A-04	Focus	5/18/2011	1:24:26 PM	12859670.97	306240.23	787.0417	3.2047	2.202	3.8883	4.8	0.7	1.0	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
28.5N-E-01	Focus	5/11/2011	4:17:05 PM	12859721.20	306264.91	788.4597	4.1979	3.6933	5.5914	2.2	0.3	0.4	None	None	None	Right	No	No	Strt Channel Edg	None	Silt over Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
28.5N-E-02	Focus	5/11/2011	4:27:12 PM	12859596.06	306213.74	788.0613	2.7746	2.6159	3.8133	3.7	0.3	0.8	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.5N-E-03	Focus	5/11/2011	4:32:06 PM	12859834.45	306284.65	786.5082	1.762	1.603	2.382	1.0	0.6	0.7	None	None	None	Right	No	No	Strt Channel Edg	None	Silt over Sand		
28.5S-D-01	Focus	5/12/2011	3:10:07 PM	12859644.71	306052.10	787.3574	2.4874	3.3123	4.1423	1.9	0.5	0.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Cutoff	None	Soft Sediment	OILFOUNDONARRIVAL	
28.5S-D-02	Focus	5/12/2011	3:17:59 PM	12859630.41	306014.41	794.8205	4.1645	5.413	6.8296	4.3	0.2	0.3	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Cutoff	None	Sand & Gravel		
28.5S-D-03	Focus	5/12/2011	3:28:08 PM	12859674.81	305993.17	785.9109	1.8413	3.6718	4.1077	4.0	0.3	0.3	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Cutoff	None	Sand	SHEEN IN CURRENT, EPAPHOTO, SHEEN PHOTO ON BANK	
28.5S-D-04	Focus	5/12/2011	3:32:31 PM	12859706.38	306047.54	793.6763	1.4373	2.6415	3.0073	2.5	0.1	0.2	None	None	None	Island	1-3 ft/sec	<1 ft/sec	Cutoff	None	Sand & Gravel		
28.5S-A-05	Focus	5/18/2011	1:41:57 PM	12859742.57	306045.33	788.0468	1.8806	2.748	3.3299	4.3	0.2	0.3	None	None	None	Left	<1ft/sec	<1 ft/sec	Backwater	None	Sand & Silt		
28.5S-A-06	Focus	5/18/2011	1:53:14 PM	12859554.02	306029.53	785.9453	0.8719	1.4181	1.6647	5.2	0.2	0.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
MP 28.50-28.75																							
28.54T-A-02	Transect	5/18/2011	1:59:32 PM	12859472.31	306083.80	789.5884	1.1429	1.9923	2.2969	6.4	0.1	0.4	None	None	None	Center	<1ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
28.54T-D-01	Transect	5/12/2011	3:41:42 PM	12859447.58	306145.04	783.4023	3.6399	5.3416	6.4638	4.2	0.1	0.2	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Point Bar	None	Sand		DEBRIS BLOCKING OUR WAY
28.54T-D-03	Transect	5/12/2011	3:48:53 PM	12859489.04	306005.94	787.4411	0.1422	0.5032	0.523	2.5	0.0	0.1	None	None	None	Left	<1ft/sec	No	Cut Bank	None	Sand		
28.6N-D-01	Focus	5/13/2011	8:37:50 AM	12859052.66	306390.31	797.2575	3.6845	6.9501	7.8664	2.1	1.3	1.4	Heavy	Heavy	Many	Right	<1ft/sec	No	Cut Bank	None	Silt over Sand		
28.6N-D-02	Focus	5/13/2011	8:48:26 AM	12859157.96	306346.81	784.3638	2.5654	4.854	5.4902	2.0	0.5	0.6	Light	Light	Few	Right	<1ft/sec	No	Cut Bank	None	Organic	BNDRY	
28.6N-D-03	Focus	5/13/2011	8:54:55 AM	12859048.30	306345.14	787.0119	0.0476	0.0877	0.0998	3.8	0.4	0.6	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt	BNDRY	
28.6N-D-04	Focus	5/13/2011	9:03:16 AM	12858962.61	306408.68	789.8155	1.4309	2.9651	3.2923	2.0	1.0	1.4	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Soft Sediment		
28.6N-D-05	Focus	5/13/2011	9:09:48 AM	12858954.42	306397.46	786.724	0.0564	0.1226	0.135	2.8	0.2	0.6	Light	Light	Few	Right	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand	BNDRY	
28.6N-D-06	Focus	5/13/2011	9:15:46 AM	12858880.24	306408.27	793.7953	1.7777	4.7482	5.0701	4.0	0.3	0.4	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand	HVYSHEENFOUNDON ARRIVAL BNDRY	
28.6N-A-07	Focus	5/18/2011	2:06:04 PM	12859168.46	306290.37	788.0733	0.0471	0.1148	0.1241	5.6	0.8	1.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt		
28.6N-A-08	Focus	5/18/2011	2:10:16 PM	12859212.41	306275.04	787.9102	0.0725	0.1985	0.2114	2.1	1.1	1.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt		
28.65T-D-01	Transect	5/13/2011	8:20:35 AM	12858966.84	306256.39	786.6976	0.1278	0.2073	0.2435	3.3	0.1	0.2	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Point Bar	None	Sand		
28.65T-D-02	Transect	5/13/2011	8:27:48 AM	12858991.45	306325.07	787.0014	0.0578	0.0917	0.1084	5.5	0.2	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
28.65T-D-03	Transect	5/13/2011	8:33:13 AM	12859043.74	306406.19	790.4034	2.2555	4.0887	4.6695	2.0	0.1	0.3	Heavy	Heavy	Many	Right	<1ft/sec	No	Cut Bank	None	Organic	PHOTOS1AND2	
28.75N-D-01	Focus	5/13/2011	9:27:30 AM	12858582.08	306160.47	798.4552	1.594	4.2011	4.4933	1.1	0.4	0.7	Heavy	Heavy	Common	Right	<1ft/sec	No	Backwater	None	Organic	PHOTO3AND4	
28.75N-D-02	Focus	5/13/2011	9:39:32 AM	12858530.92	306151.98	787.5338	1.4855	3.2038	3.5314	1.0	0.6	0.9	Heavy	Heavy	Common	Right	<1ft/sec	No	Backwater	None	Organic	EPAPHOTO	
28.75N-D-03	Focus	5/13/2011	9:46:47 AM	12858620.47	306176.91	789.1612	3.7611	9.3555	10.0832	2.7	0.1	0.2	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Backwater	None	Organic		
28.75N-D-04	Focus	5/13/2011	9:55:44 AM	12858633.76	306143.39	782.6224	2.3266	2.968	3.7712	2.5	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Backwater	None	Sand & Gravel		
28.75S-D-01	Focus	5/13/2011	10:12:47 AM	12858785.24	306026.58	781.2366	1.1118	1.9333	2.2301	0.9	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.75S-D-02	Focus	5/13/2011	10:14:22 AM	12858793.23	306019.33	786.9787	0.0712	0.1221	0.1413	1.3	0.6	0.8	Light	Light	Few	Left	<1ft/sec	No	Strt Channel Edg	None	Silt over Sand		
28.75S-D-03	Focus	5/13/2011	10:30:23 AM	12858823.33	305984.06	788.0908	4.6545	7.6902	8.9891	4.6	0.1	0.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Downstrm Island	None	Silt over Sand	HVYSHEENONARRIVAL	
28.75S-A-04	Focus	5/18/2011	2:17:10 PM	12858877.13	305858.12	787.4939	0.2448	0.2621	0.3586	1.9	0.5	0.7	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	<5%	Sand & Silt		
28.75S-A-05	Focus	5/18/2011	2:22:01 PM	12858898.34	305806.20	787.6586	0.0382	0.1617	0.1661	2.2	0.3	0.8	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
28.75S-A-06	Focus	5/18/2011	2:25:49 PM	12858919.90	305783.08	769.7785	14.2504	70.2076	71.6393	2.4	0.4	0.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
MP 28.75-29.00																							
28.76T-D-01	Transect	5/13/2011	10:01:16 AM	12858654.96	306059.79	786.9184	0.0742	0.0954	0.1209	2.8	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
28.76T-D-02	Transect	5/13/2011	10:05:30 AM	12858689.10	306065.82	786.9809	0.0554	0.1051	0.1188	6.3	0.1	0.2	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
28.76T-D-03	Transect	5/13/2011	10:08:19 AM	12858763.85	306077.17	796.0912	2.9911	5.0766	5.8923	6.3	0.1	0.2	None	None	None	Left	>3 ft/sec	1-3 ft/sec	Point Bar	None	Gravel & Larger		
28.8N-C-01	Focus	5/12/2011	11:14:55 AM	12858616.86	305355.32	813.3755	21.4313	31.7394	38.2975	1.3	0.5	2.1	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		EDGE OF CUT AREA
28.8N-C-02	Focus	5/12/2011	11:19:04 AM	12858584.49	305399.74	770.7269	11.1826	15.6005	19.1944	1.1	0.4	2.0	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand	OIL ON SURFACE ON ARRIVAL, LIGHT GLOBS	
28.8N-C-03	Focus	5/12/2011	11:22:16 AM	12858582.89	305388.52	778.9132	14.265	19.0292	23.7824	1.2	0.7	1.0	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		PHOTOS 342-347
28.8N-C-04	Focus	5/12/2011	11:30:46 AM	12858555.53	305385.84	798.6317	25.6554	33.2708	42.0137	1.1	1.1	2.9	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand	OIL ON BANK AT LOCATION	
28.8N-C-05	Focus	5/12/2011	11:34:02 AM	12858588.35	305294.38	795.1788	31.1469	38.8187	49.7697	4.0	0.5	0.9	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Silt over Sand		
28.8N-C-06	Focus	5/12/2011	11:36:16 AM	12858492.13	305330.74	774.9477	15.5633	20.7905	25.9704	1.7	0.9	1.7	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.8N-C-07	Focus	5/12/2011	11:42:49 AM	12858438.42	305310.23	778.9066	14.3117	16.1456	21.5756	2.0	0.3	0.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None		SHEEN FLOWING DOWN FROM LAST POINT	
28.8N-C-08	Focus	5/12/2011	11:53:00 AM	12858279.27	305234.40	782.9382	11.5797	14.2512	18.3626	3.5	0.0	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
28.8N-C-09	Focus	5/12/2011	11:56:31 AM	12858362.25	305281.23	775.5524	12.3795	15.7013	19.9946	3.6	0.1	0.2	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand	SHEEN FROM UPSTREAM	
28.8N-C-10	Focus	5/12/2011	12:49:53 PM	12858468.10	305267.54	786.4929	0.0406	0.0663	0.0777	5.6	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	FAST CURRENT	
28.8N-C-11	Focus	5/12/2011	12:52:07 PM	12858570.79	305304.94	785.523	1.1423	1.9121	2.2273	5.2	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand	FAST DEEP	
28.8N-C-12	Focus	5/12/2011	12:55:52 PM	12858689.11	305370.73	786.2725	0.9704	1.6365	1.9026	2.3	0.4	1.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
28.8N-A-13	Focus	5/18/2011	3:01:36 PM	12858585.20	305346.85	782.939	1.904	4.765	5.1313	3.0	1.0	1.8	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	LAT BDY	
28.8N-A-14	Focus	5/18/2011	3:05:19 PM	12858508.78	305301.81	787.2014	0.7695	1.5887	1.7652	6.0	0.4	0.5	None	None	None	Right	No	No	Strt Channel Edg	None	Sand	LAT BDY	
28.8N-A-15	Focus	5/18/2011	3:13:04 PM	12858576.01	305370.52	790.8111	1.8478	3.2446	3.7338	2.3	0.6	0.7	Heavy	Heavy	Common	Right	No	No	Strt Channel Edg	None	Soft Sediment		
28.80T-A-01	Transect	5/18/2011	2:47:24 PM	12858766.89	305775.53	795.7351	2.2905	5.4321	5.8952	4.5	0.0	0.0	None	None	None	Right	>3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Gravel & Larger		
28.80T-A-02	Transect	5/18/2011	2:50:14 PM	12858902.39	305804.68	787.8	0.0866	0.1774	0.1973	2.3	0.3	0.5	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	<5%	Sand & Silt		
28.80T-A-03	Transect	5/18/2011	2:51:48 PM	12858846.91	305786.59	787.7604	0.0287	0.0731	0.0785	5.9	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
28.88T-C-01	Transect	5/12/2011	10:46:37 AM	12858901.33	305352.76	799.2721	8.8501	12.8868	15.6331	2.3	0.5	0.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand	SOME SHEEN FLOATING BY	BAD GPS LOC
28.88T-C-02	Transect	5/12/2011	10:52:23 AM	12858824.02	305481.71	782.8134	15.5796	20.7102	25.916	1.6	0.4	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		BAD GPS LOC
28.88T-C-03	Transect	5/12/2011	10:56:15 AM	12858854.24	305408.94	787.5811	7.7478	10.7478	13.2493	5.6	0.1	0.2				Center	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel	TOO FAST, TOO DEEP	BAD GPS LOC
28.90S-A-01	Focus	5/18/2011	3:30:57 PM	12858262.11	305166.01	787.5278	0.0432	0.0607	0.0746	7.0	0.1	0.1	None	None	None	Center	<1ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
28.90S-A-02	Focus	5/18/2011	3:37:17 PM	12858226.89	305099.82	787.2686	0.0606	0.0687	0.0916	4.7	0.1	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
28.90S-A-03	Focus	5/18/2011	3:43:27 PM	12858205.12	305064.49	787.6366	2.4229	2.0271	3.1591	3.5	0.5	0.7	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	D BDY	
28.97T-C-01	Transect	5/12/2011	12:34:05 PM	12858370.10	305286.74	788.1013	1.7073	2.6147	3.1227	3.6	0.1	0.2	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.97T-C-02	Transect	5/12/2011	12:41:02 PM	12858412.50	305139.97	790.8611	2.7273	3.9168	4.7728	1.5	0.4	0.7	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.97T-C-03	Transect	5/12/2011	12:47:53 PM	12858376.50	305204.51	781.6061	1.879	2.8549	3.4177	6.7	0.0	0.0				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	TOO DEEP, TOO FAST	
28.97T-C-04	Transect	5/12/2011	1:04:40 PM	12858472.33	305159.12	787.2264	1.3272	2.265	2.6252	1.2	0.6	1.7	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cove	None	Soft Sediment		PHOTOS 348-351
28.97T-C-05	Transect	5/12/2011	1:11:39 PM	12858531.87	305188.86	800.33	2.8925	4.9707	5.751	0.8	0.2	0.6	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.97T-C-06	Transect	5/12/2011	1:14:54 PM	12858598.65	305220.48	791.388	1.7317	3.4146	3.8286	0.8	0.2	0.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.97T-C-07	Transect	5/12/2011	1:20:08 PM	12858525.08	305147.09	795.7846	2.0772	3.7349	4.2736	0.6	0.3	0.9	Heavy	Heavy	Many	Other-Comments	No	No	Cove	5%-25%	Soft Sediment		SMALL EMBAYMENT
28.97T-C-08	Transect	5/12/2011	1:37:23 PM	12858459.95	305203.50	786.3727	0.0381	0.0703	0.0799	4.4	0.1	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cove	None	Sand & Gravel		
28.97T-C-09	Transect	5/12/2011	2:48:20 PM	12858536.96	305225.74	774.3232	7.0351	12.0562	13.9586	4.7	0.3	0.4	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		BAD GPS LOC
28.97T-C-10	Transect	5/12/2011	2:53:27 PM	12858479.67	305235.56	773.9717	7.0512	11.7253	13.6821	5.0	0.1	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	TOO FAST, DEEP	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
28.97T-C-11	Transect	5/12/2011	2:56:41 PM	12858412.18	305199.98	773.6605	7.9042	12.0279	14.3926	5.1	0.1	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger	TOO DEEP, FAST	
28.97T-C-12	Transect	5/12/2011	2:58:25 PM	12858378.26	305147.14	765.6857	7.2508	12.1781	14.1732	1.4	1.0	2.2	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
28.97T-C-13	Transect	5/12/2011	3:03:00 PM	12858371.61	305178.44	774.4583	6.8303	11.0905	13.0251	5.7	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	TOO DEEP, FAST	
28.97T-C-14	Transect	5/12/2011	3:05:53 PM	12858299.72	305107.74	774.2862	9.3305	12.343	15.4728	3.2	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
28.97T-C-15	Transect	5/12/2011	3:09:20 PM	12858286.82	305088.46	765.5254	8.1213	14.9972	17.055	1.8	0.5	0.6	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Oxbow	None	Silt over Sand		
MA29BR-D-01	Bridge	5/13/2011	10:27:03 AM	12858840.50	305945.05	792.5476	3.1977	2.4515	4.0293	1.5	0.2	0.2	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand	UNABLETOPASSUNDER	
MA29BR-D-02	Bridge	5/13/2011	10:36:02 AM	12858686.79	305970.32	789.5622	3.2054	4.9965	5.9362	1.0	0.8	0.8	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Gravel & Larger	HVYSHEENONARRIVAL	
RR29BR-C-01	Bridge	5/12/2011	11:04:02 AM	12858846.27	305538.57	786.9277	10.3944	13.2659	16.8531	0.8	0.3	0.5	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand		PUBLIC ACCESS AREA, RR BRIDGE
RR29BR-C-02	Bridge	5/12/2011	11:07:29 AM	12858997.90	305587.72	786.1859	11.326	15.6785	19.3415	2.7	0.0	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		PUBLIC ACCESS, RR BRIDGE
MP 29.00-29.25																							
29.04T-C-01	Transect	5/12/2011	3:18:40 PM	12858062.24	304971.00	782.3778	10.2264	19.0532	21.6242	1.7	0.6	0.6	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.04T-C-02	Transect	5/12/2011	3:27:00 PM	12858078.75	305175.12	779.2306	10.3401	17.7825	20.5702	1.9	0.6	0.9	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.04T-C-03	Transect	5/12/2011	3:40:59 PM	12858059.73	305076.80	772.657	11.7985	19.8656	23.1051	3.8	0.0	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
29.05S-C-01	Focus	5/12/2011	3:43:03 PM	12858152.68	305109.94	775.6526	9.7996	16.727	19.3861	3.8	0.0	0.0	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
29.05S-C-02	Focus	5/12/2011	3:45:10 PM	12858058.03	305005.99	775.357	16.1815	24.5497	29.4029	3.5	0.3	0.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
29.05S-C-03	Focus	5/12/2011	3:47:47 PM	12858161.44	305045.25	808.5543	13.9569	25.5999	29.1573	2.3	0.5	1.0	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.05S-C-04	Focus	5/12/2011	3:53:53 PM	12858129.13	304992.79	850.8083	16.2352	58.906	61.1024	1.7	0.6	1.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
29.05S-C-05	Focus	5/13/2011	8:30:29 AM	12857939.52	304972.63	791.3616	2.5193	3.9378	4.6747	3.5	0.1	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
29.05S-A-06	Focus	5/19/2011	8:38:01 AM	12858093.68	304991.72	787.47	0.078	0.146	0.166	3.0	0.9	1.3	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
29.05S-A-07	Focus	5/19/2011	8:44:39 AM	12858102.11	305044.95	787.58	0.036	0.070	0.079	3.2	0.7	1.4	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
29.05S-A-08	Focus	5/19/2011	8:49:32 AM	12858096.11	305065.11	787.62	0.040	0.079	0.089	5.6	0.1	0.2	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
29.1N-B-01	Focus	5/16/2011	12:21:13 PM	12857921.04	305167.39	785.5323	0.9734	2.0554	2.2742	3.4	0.4	0.4	Light	Light	None	Center	<1ft/sec		Oxbow	None	Sand & Silt		
29.1N-B-02	Focus	5/16/2011	12:30:22 PM	12857870.91	305238.21	791.3517	1.4198	2.3521	2.7475	1.8	0.2	0.5	Light	Light	None	Center	<1ft/sec		Oxbow	None	Sand & Silt		
29.1N-B-03	Focus	5/16/2011	12:37:08 PM	12857866.81	305281.47	790.8821	2.3959	2.9576	3.8063	1.9	0.2	0.4	Light	Light	None	Center	No		Oxbow	5%-25%	Sand & Silt		
29.1N-B-04	Focus	5/16/2011	12:41:53 PM	12857830.67	305315.66	792.7937	2.23	2.3749	3.2578	3.1	0.5	1.6	Moderate	Moderate	Few	Center	No		Oxbow	None	Sand & Silt		
29.1N-B-05	Focus	5/16/2011	12:45:05 PM	12857799.00	305301.80	789.5463	1.2159	2.0454	2.3795	3.1	0.4	0.7	Light	Light	None	Center	No		Oxbow	None	Silt over Sand		
29.1N-B-06	Focus	5/16/2011	12:50:04 PM	12857792.18	305330.48	791.309	1.51	2.5701	2.9808	3.0	0.5	0.8	Light	Light	None	Center	No		Oxbow	<5%	Sand & Silt		
29.1N-B-07	Focus	5/16/2011	12:55:01 PM	12857717.61	305290.07	800.3434	3.1758	3.9512	5.0693	1.4	0.3	0.5	None	None	None	Island	No		Oxbow	None	Soft Sediment		BAD POS
29.1N-B-08	Focus	5/16/2011	1:01:04 PM	12857661.29	305352.19	787.6466	0.0912	0.0801	0.1214	2.4	0.1	0.2	Light	Light	None	Right	No		Oxbow	None	Other-Comments		SOFT OVR GRVL
29.1N-B-09	Focus	5/16/2011	1:04:27 PM	12857567.56	305322.57	787.7949	0.114	0.099	0.151	2.3	0.2	0.2	Light	Light	None	Right	No		Oxbow	None	Other-Comments		SOFT OVR GRVL
29.1N-B-10	Focus	5/16/2011	1:08:00 PM	12857473.00	305278.15	787.9093	0.0947	0.0917	0.1319	3.1	0.2	0.3	Light	Light	None	Center	No		Oxbow	None	Silt over Sand		
29.1N-B-11	Focus	5/16/2011	1:11:49 PM	12857454.25	305188.51	791.0088	13.6004	6.4909	15.0699	2.6	0.4	0.5	None	None	None	Center	No		Oxbow	None	Silt over Sand		BAD POS
29.1N-B-12	Focus	5/16/2011	1:18:33 PM	12857383.73	305178.95	791.9481	3.0973	3.8697	4.9566	2.3	0.3	0.4	None	None	None	Center	1-3 ft/sec		Oxbow	None	Sand & Gravel		TRIB ENTRANCE USE POS FROM B-13
29.1N-B-14	Focus	5/16/2011	1:23:13 PM	12857311.56	305069.22	797.3812	3.8131	3.4288	5.128	0.7	0.3	0.3	None	None	None	Center	No		Oxbow	5%-25%	Sand		NO FURTHER ACCESS DUE TO DEBRIS AND FALLEN TREES
29.1N-A-15	Focus	5/19/2011	9:37:17 AM	12857248.59	305019.75	793.25	1.847	2.958	3.488	1.4	0.2	0.4	None	None	None	Right	1-3 ft/sec	No	Downstrm Island	None	Sand & Silt	LAT BDY	
29.1N-A-16	Focus	5/19/2011	9:40:59 AM	12857207.51	304984.41	801.09	2.611	4.167	4.917	1.7	0.5	0.7	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand & Silt	D BDY	
29.1N-A-17	Focus	5/19/2011	9:45:22 AM	12857299.28	304995.01	788.97	3.731	5.820	6.913	2.0	0.2	0.4	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand & Silt	U BDY	
29.1N-A-18	Focus	5/19/2011	9:53:04 AM	12857248.77	304952.95	788.19	1.843	2.958	3.486	6.0	0.2	0.5	None	None	None	Right	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand & Silt	LAT BDY	
29.12T-C-01	Transect	5/13/2011	8:38:03 AM	12857681.15	304910.68	785.7528	0.1066	0.1773	0.2069	2.0	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
29.12T-C-02	Transect	5/13/2011	8:42:02 AM	12857653.02	305014.96	787.7061	1.5714	2.9924	3.3799	3.2	0.1	0.1				Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		TOO FAST
29.12T-C-03	Transect	5/13/2011	8:44:56 AM	12857657.34	304956.74	785.8118	0.0414	0.0764	0.0869	3.7	0.0	0.0				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		TOO MUCH CURRENT
29.15N-C-01	Focus	5/13/2011	9:41:55 AM	12857243.23	304984.37	785.8929	0.1808	0.3382	0.3835	1.9	0.9	1.0	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.15N-C-02	Focus	5/13/2011	9:49:52 AM	12857337.57	304984.03	785.4802	0.1038	0.2482	0.269	1.4	0.5	1.1	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.15N-C-03	Focus	5/13/2011	9:53:19 AM	12857422.62	304979.08	780.4156	3.5399	6.6416	7.5261	2.6	0.5	1.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.15N-C-04	Focus	5/13/2011	9:57:02 AM	12857516.83	305000.60	776.1325	14.9303	29.3069	32.8909	3.4	0.2	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.18T-C-01	Transect	5/13/2011	8:49:01 AM	12857348.21	304979.24	785.839	0.0582	0.1429	0.1543	2.6	0.4	1.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.18T-C-02	Transect	5/13/2011	8:53:11 AM	12857405.92	304842.69	782.2961	1.4904	3.2763	3.5993	2.2	0.3	0.6	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.18T-C-03	Transect	5/13/2011	8:57:43 AM	12857412.24	304877.64	785.6726	0.0705	0.1265	0.1448	4.4	0.0	0.0				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO FAST HARD BOTTOM
29.18T-C-04	Transect	5/13/2011	8:59:48 AM	12857404.93	304900.77	785.6833	0.0361	0.0712	0.0798	4.4	0.0	0.0				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		DEEP AND HARD FAST CURRENT
29.18T-C-05	Transect	5/13/2011	9:01:34 AM	12857490.32	304880.17	785.7274	0.0607	0.1258	0.1397	1.9	1.0	1.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
29.18T-C-06	Transect	5/13/2011	9:05:31 AM	12857562.05	304905.16	787.0049	1.0864	2.0486	2.3188	3.1	1.7	1.7	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		PHOTO 352-357
29.18T-A-07	Transect	5/19/2011	8:58:52 AM	12857356.46	304836.06	787.01	0.140	0.167	0.218	3.9	0.2	0.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	D BDY	
29.18T-A-08	Transect	5/19/2011	9:06:17 AM	12857500.63	304905.50	787.01	0.047	0.095	0.106	6.0	0.1	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
29.18T-A-09	Transect	5/19/2011	9:09:56 AM	12857575.34	304929.50	787.16	0.047	0.094	0.105	7.5	0.0	0.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
29.18T-A-10	Focus	5/19/2011	9:26:10 AM	12857629.43	304900.62	787.49	3.528	3.880	5.244	3.2	0.3	0.4	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand	U BDY	
29.23T-C-01	Transect	5/13/2011	9:20:11 AM	12857124.83	304799.25	786.4027	2.6877	4.9908	5.6685	4.9	0.1	0.2	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	OIL COMING FROM UPSTREAM	
29.23T-C-02	Transect	5/13/2011	9:27:00 AM	12857024.47	304938.38	797.4564	1.4481	2.6652	3.0332	1.7	0.5	0.6	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
29.23T-C-03	Transect	5/13/2011	9:31:13 AM	12857045.12	304857.57	787.3836	1.6874	2.6597	3.1498	4.2	0.1	0.2				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO FAST DEEP HARD
29.23T-C-04	Transect	5/13/2011	9:34:04 AM	12856873.67	304861.87	786.5695	1.2943	2.761	3.0493	2.1	0.4	0.5	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
29.23T-A-05	Transect	5/19/2011	10:02:59 AM	12857065.29	304944.57	799.84	3.449	5.270	6.298	2.4	0.7	1.0	Moderate	Moderate	Common	Right	<1ft/sec	No	Strt Channel Edg	None	Soft Sediment		
29.23T-A-06	Transect	5/19/2011	10:07:50 AM	12857039.35	304904.53	788.37	1.559	2.497	2.944	4.5	1.1	1.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	LAT BDY	
29.23T-A-07	Transect	5/19/2011	10:12:22 AM	12857124.16	304953.62	790.49	2.039	3.144	3.747	2.4	0.3	1.8	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	U BDY	
29.23T-A-08	Transect	5/19/2011	10:17:40 AM	12857013.22	304926.01	782.75	3.188	2.825	4.259	3.5	0.7	1.0	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
29.23T-A-09	Transect	5/19/2011	10:24:09 AM	12856934.03	304906.13	788.49	4.224	4.905	6.473	3.1	0.6	0.8	Light	Light	Few	Right	<1ft/sec	No	Strt Channel Edg	None	Soft Sediment	D BDY	
MP 29.25-29.50																							
29.32T-B-01	Transect	5/16/2011	1:34:16 PM	12856733.75	304582.69	783.9484	3.4408	2.8649	4.4774	3.4	0.2	0.4	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
29.32T-B-02	Transect	5/16/2011	1:37:16 PM	12856673.78	304607.62	787.1982	0.0714	0.0814	0.1082	7.5	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand		
29.32T-B-03	Transect	5/16/2011	1:39:51 PM	12856645.60	304652.61	786.7388	1.1984	1.6628	2.0496	5.4	0.2	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
29.49T-B-01	Transect	5/16/2011	1:46:36 PM	12856205.52	303838.22	787.9769	2.5481	2.2861	3.4233	4.0	0.5	0.6	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Silt over Sand		SEE MIKE POS ERR
29.49T-B-02	Transect	5/16/2011	1:49:51 PM	12856117.77	303875.47	787.0834	0.0323	0.0535	0.0625	5.4	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
29.49T-B-03	Transect	5/16/2011	1:55:53 PM	12856031.54	303922.79	785.2653	1.3368	2.3007	2.6609	3.9	0.0	0.0	Moderate	Moderate	Few	Right	<1ft/sec		Strt Channel Edg		Soft Sediment		
29.5N-B-01	Focus	5/12/2011	2:04:27 PM	12856039.49	303933.28	787.7589	1.4485	2.3437	2.7552	2.3	1.0	1.0	Moderate	Heavy	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	HVY SURFACE SHN	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
29.5N-B-02	Focus	5/12/2011	2:11:33 PM	12856007.12	303861.88	786.8855	1.7801	2.8719	3.3788	3.6	0.4	0.4	Moderate	Heavy	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		BEHIND DWN TREE
29.5N-B-03	Focus	5/12/2011	2:16:45 PM	12856015.73	303849.57	785.6219	0.1009	0.1444	0.1762	3.9	0.2	0.3	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
29.5N-B-04	Focus	5/12/2011	2:25:35 PM	12855985.36	303802.45	784.9937	1.3733	2.5813	2.9239	3.9	0.4	0.5	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT DEL	
29.5N-B-05	Focus	5/12/2011	2:28:51 PM	12855948.66	303761.92	785.5444	0.0864	0.1649	0.1861	3.0	0.3	0.8	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	DWNSTRM DEL	
29.5N-B-06	Focus	5/12/2011	2:33:43 PM	12856094.44	303976.96	785.6332	0.0366	0.0703	0.0792	3.8	0.1	0.2	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	UPSTRM DEL	
29.5N-B-07	Focus	5/12/2011	2:42:37 PM	12856127.17	304035.25	785.5877	0.057	0.1319	0.1437	3.9	0.2	0.2	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
29.5N-B-08	Focus	5/12/2011	2:51:52 PM	12856049.92	303905.02	785.5445	0.0578	0.0872	0.1046	3.7	0.1	0.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
29.5S-B-01	Focus	5/12/2011	3:07:51 PM	12856200.78	303842.98	750.4576	4.6933	7.8911	9.1813	1.6	0.2	0.5	Light	Light	None	Left	No	No	Strt Channel Edg	<5%	Soft Sediment		BAD POS
29.5S-B-02	Focus	5/12/2011	3:12:25 PM	12856119.91	303691.64	791.6937	3.0499	5.5937	6.3711	0.2	0.1	0.1	None	None	None	Left	No	No	Strt Channel Edg	50%-75%	Soft Sediment		BAD POS
29.5S-B-03	Focus	5/12/2011	3:17:38 PM	12856136.01	303796.96	780.6742	2.1367	4.3147	4.8148	4.6	0.7	0.8	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand		DNWSTRM OF TREE
29.5S-A-04	Focus	5/19/2011	10:34:15 AM	12856208.77	303886.15	785.75	2.341	2.714	3.584	4.5	0.8	1.0	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
29.5S-A-05	Focus	5/19/2011	10:38:54 AM	12856158.27	303811.35	796.97	2.194	2.992	3.710	5.9	0.4	1.0	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
MP 29.50-29.75																							
29.57T-B-01	Transect	5/12/2011	3:38:24 PM	12855874.33	303604.62	785.4677	2.3982	3.1185	3.934	3.8	0.0	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
29.57T-B-02	Transect	5/12/2011	3:41:04 PM	12855924.98	303582.42	783.8044	1.455	2.8198	3.1731	4.4	0.1	0.3	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
29.57T-B-03	Transect	5/12/2011	3:45:05 PM	12855986.24	303541.18	785.6211	0.1119	0.3091	0.3288	3.0	1.5	2.1	Light	Moderate	None	Left	<1ft/sec	1-3 ft/sec	Strt Channel Edg	None	Soft Sediment		
29.63T-B-01	Transect	5/13/2011	8:28:57 AM	12855638.77	303292.79	786.4635	0.2248	0.5408	0.5857	4.1	0.4	0.5	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
29.63T-B-01	Transect	5/12/2011	3:50:55 PM	12855741.98	303256.59	783.7013	1.4706	3.6042	3.8927	4.8	0.0	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		BEHIND DWND TREE
29.63T-B-02	Transect	5/13/2011	8:32:37 AM	12855681.97	303269.68	786.047	0.9531	1.6873	1.9379	6.8	0.7	0.8				Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
29.70T-B-01	Transect	5/13/2011	8:41:03 AM	12855411.23	303063.62	783.2024	1.2496	2.4637	2.7625	5.1	0.8	0.9	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand		MOVED DWNED STRM DUE TO DWNED TRE
29.70T-B-02	Transect	5/13/2011	8:44:42 AM	12855424.32	303025.70	785.5032	0.0283	0.0572	0.0638	6.8	0.0	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
29.70T-B-03	Transect	5/13/2011	8:48:10 AM	12855465.08	302979.63	792.7754	1.465	2.2418	2.678	3.1	0.4	0.7	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
29.75N-B-01	Focus	5/13/2011	8:57:06 AM	12855209.77	302998.25	790.7715	2.0277	4.3246	4.7764	2.9	0.5	1.3	Moderate	Moderate	Few	Right	No	No	Cove	<5%	Soft Sediment	LIGHT SURF SHN	
29.75N-B-02	Focus	5/13/2011	9:01:53 AM	12855261.04	302989.46	789.7561	1.9005	4.193	4.6037	2.4	1.5	1.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	UPSTREAM DEL	
29.75N-B-03	Focus	5/13/2011	9:10:17 AM	12855227.77	302949.44	785.3651	0.0541	0.1177	0.1295	3.6	0.9	1.0	Light	Light	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt	LAT BDY	
29.75N-B-04	Focus	5/13/2011	9:16:04 AM	12855165.25	302972.63	785.3862	0.0537	0.117	0.1288	2.8	1.4	2.0	Moderate	Moderate	Few	Right	No	No	Strt Channel Edg	None	Soft Sediment		
29.75N-B-05	Focus	5/13/2011	9:20:55 AM	12855122.31	302909.51	785.3884	0.0547	0.116	0.1283	-99.0	-99.0	-99.0	Moderate	Moderate	Few	Right			Strt Channel Edg				UPSTRM OF DWND TREE
29.75N-B-06	Focus	5/13/2011	9:27:10 AM	12855138.56	302849.97	785.4084	0.0506	0.1046	0.1162	5.2	0.2	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
29.75N-B-07	Focus	5/13/2011	9:32:18 AM	12855076.09	302860.52	785.3636	0.063	0.1243	0.1393	-99.0	-99.0	-99.0	Moderate	Moderate	Few	Right			Strt Channel Edg		Soft Sediment		BEHIND DWND TREE
29.75N-B-08	Focus	5/13/2011	9:39:16 AM	12855009.52	302790.36	785.1988	0.1002	0.188	0.213	5.6	0.3	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	LGHT SURF SHN DWNSTRM BDY	BEHND DWND TREE
MP 29.75-30.00																							
29.79T-B-01	Transect	5/13/2011	9:47:06 AM	12855121.12	302724.81	782.982	1.6611	3.4074	3.7907	3.7	0.5	0.8	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
29.79T-B-02	Transect	5/13/2011	9:51:01 AM	12855069.87	302736.26	785.2511	0.0551	0.0602	0.0816	4.6	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
29.85T-B-01	Transect	5/13/2011	9:59:28 AM	12854944.74	302424.94	785.4516	0.0333	0.0575	0.0665	7.4	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Gravel & Larger		BESIDE DWND TREE
29.85T-B-02	Transect	5/13/2011	10:02:37 AM	12854974.38	302429.22	785.6988	0.0608	0.1199	0.1344	6.8	0.1	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
29.85T-B-03	Transect	5/13/2011	10:06:37 AM	12855023.78	302434.85	801.0326	3.0117	4.8099	5.675	1.0	0.5	0.5	None	None	None	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		BAD POS
29.90T-B-01	Transect	5/13/2011	10:14:45 AM	12855089.73	302264.19	780.4185	1.5148	2.6109	3.0185	2.6	0.8	0.9	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
29.90T-B-02	Transect	5/13/2011	10:17:06 AM	12855061.20	302222.76	786.0832	2.6566	3.9728	4.7792	4.4	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
29.90T-B-03	Transect	5/13/2011	10:20:20 AM	12855018.83	302192.50	787.5549	2.7793	4.0991	4.9525	5.0	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
29.93T-B-01	Transect	5/16/2011	11:47:47 AM	12855218.52	302225.73	782.5987	1.5661	3.9299	4.2304	3.1	1.1	2.1	None	None	None	Left	No		Cove	None	Soft Sediment		
29.93T-B-02	Transect	5/16/2011	12:06:49 PM	12855133.69	302139.71	786.7505	0.0375	0.0672	0.077	6.8	0.1	0.4				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
29.93T-B-03	Transect	5/16/2011	12:10:18 PM	12855081.47	302099.85	788.9002	1.2289	2.3523	2.6539	5.0	0.3	0.6	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		
29.97T-B-01	Transect	5/16/2011	11:33:55 AM	12855231.92	301915.03	789.7771	1.6742	2.7589	3.2271	3.5	0.0	0.0	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
29.97T-B-02	Transect	5/16/2011	11:39:10 AM	12855188.79	301914.23	786.6449	0.0651	0.1093	0.1272	6.5	0.0	0.0				Center	1-3 ft/sec	No	Mid-Channel	None	Sand & Gravel		
29.97T-B-03	Transect	5/16/2011	11:41:17 AM	12855144.74	301924.54	787.7424	1.2588	2.1271	2.4717	5.5	0.0	0.0				Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
30.0-B-01	Focus	5/16/2011	11:54:07 AM	12855197.30	302211.21	783.1761	1.4788	2.9451	3.2955	3.0	0.9	1.0	Light	Light	None	Left	No		Cove	None	Soft Sediment		
30.0-B-02	Focus	5/16/2011	11:56:51 AM	12855211.82	302275.83	787.5203	1.1455	2.4902	2.741	3.0	1.5	1.8	None	None	None	Left	No		Cove	None	Soft Sediment		
30.0-B-03	Focus	5/16/2011	11:59:17 AM	12855185.40	302239.42	786.5367	1.7306	3.164	3.6064	2.8	1.2	1.6	None	None	None	Left	No		Cove	None	Soft Sediment		
30.0-B-04	Focus	5/16/2011	12:02:36 PM	12855207.77	302166.67	787.1043	0.8179	1.5441	1.7473	3.0	1.5	2.2	Light	Light	None	Left	No		Cove	None	Soft Sediment		
MP 30.00-30.25																							
30.05N-B-01	Focus	5/16/2011	9:19:24 AM	12854967.97	301807.03	786.4351	0.0578	0.0901	0.1071	4.8	0.5	0.6	Light	Light	None	Center	<1ft/sec	No	Backwater	None	Soft Sediment		
30.05N-B-02	Focus	5/16/2011	9:24:55 AM	12854944.91	301820.71	786.3752	0.0471	0.1103	0.1199	5.1	0.4	0.9	Moderate	Heavy	None	Center	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
30.05N-B-03	Focus	5/16/2011	9:33:23 AM	12854952.08	301819.23	786.4483	0.0376	0.0791	0.0876	5.1	1.8	1.9	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
30.05N-B-04	Focus	5/16/2011	9:37:23 AM	12854975.54	301867.77	795.4261	1.7182	3.9357	4.2944	3.1	0.4	0.5	Light	Moderate	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
30.05N-B-05	Focus	5/16/2011	9:44:15 AM	12855023.31	301847.97	786.4924	0.0723	0.157	0.1728	2.5	0.5	0.7	Moderate	Heavy	Few	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
30.05N-B-06	Focus	5/16/2011	9:48:12 AM	12855014.08	301841.95	786.2343	0.0552	0.113	0.1258	2.6	0.2	0.4	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
30.05N-B-07	Focus	5/16/2011	9:52:58 AM	12855038.26	301816.71	784.8615	1.547	2.611	3.0349	3.3	0.5	0.9	None	None	None	Right	<1ft/sec		Backwater	None	Sand & Silt		
30.05N-B-08	Focus	5/16/2011	10:01:35 AM	12854901.55	301792.00	785.9507	1.0032	1.5426	1.8401	-99.0	-99.0	-99.0	Moderate	Moderate	Few	Right			Backwater		Soft Sediment		
30.05N-B-09	Focus	5/16/2011	10:06:10 AM	12854894.65	301739.54	786.5031	0.0579	0.0696	0.0905	5.5	0.3	0.5	Light	Light	None	Center	<1ft/sec	No	Backwater	None	Sand		
30.05N-B-10	Focus	5/16/2011	10:12:06 AM	12854852.24	301745.15	786.4411	1.5097	1.9536	2.4689	5.5	0.5	0.6	Light	Light	Few	Right	No		Backwater	None	Silt over Sand		DWNSTRM OF DWND TREE
30.05N-B-11	Focus	5/16/2011	10:17:40 AM	12854817.94	301685.63	786.5604	0.0552	0.0929	0.1081	5.9	0.2	0.4	Moderate	Moderate	Few	Center	<1ft/sec		Backwater	None	Silt over Sand		30.05T RIGHT BANK
30.05N-B-12	Focus	5/16/2011	10:21:58 AM	12854828.99	301667.28	786.4091	0.0452	0.0634	0.0779	5.2	0.2	0.6	None	None	None	Center	<1ft/sec		Backwater	None	Sand & Silt		
30.05N-B-13	Focus	5/16/2011	10:26:15 AM	12854776.96	301640.15	786.5273	0.0311	0.0491	0.0581	5.5	0.8	1.0	None	None	None	Center	<1ft/sec		Backwater	None	Sand & Silt		
30.05T-B-01	Transect	5/16/2011	10:30:54 AM	12854975.82	301645.07	786.6037	0.1232	0.189	0.2256	5.1	0.0	0.0	None	None	None	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel		
30.05T-B-02	Transect	5/16/2011	10:32:36 AM	12854937.10	301677.67	786.3184	0.0739	0.1255	0.1457	6.5	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
30.12T-B-01	Transect	5/16/2011	9:04:11 AM	12854637.20	301356.79	793.67	1.4997	3.5641	3.8667	1.8	0.1	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
30.12T-B-02	Transect	5/16/2011	9:07:39 AM	12854596.58	301412.11	786.5687	0.0332	0.0707	0.0781	6.1	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
30.12T-B-03	Transect	5/16/2011	9:10:47 AM	12854565.44	301467.86	786.2477	0.0759	0.1305	0.151	5.0	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
30.22T-B-01	Transect	5/16/2011	8:50:39 AM	12854152.93	301223.06	786.7216	1.1463	2.2147	2.4938	4.2	0.0	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt		
30.22T-B-02	Transect	5/16/2011	8:54:09 AM	12854172.52	301277.48	786.0913	0.0289	0.0544	0.0616	7.5	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
30.22T-B-03	Transect	5/16/2011	8:57:17 AM	12854166.77	301330.36	791.6737	1.0952	1.7309	2.0483	5.0	0.2	0.3	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Silt		
MP 30.25-30.50																							
30.3N-B-01	Focus	5/16/2011	2:07:43 PM	12853759.51	301599.44	785.7159	0.0214	0.0573	0.0612	1.9	1.0	1.7	Light	Light	None	Right	<1ft/sec		Cove	None	Soft Sediment		
30.3N-B-02	Focus	5/16/2011	2:11:23 PM	12853735.29	301666.99	788.8082	1.6131	3.9798	4.2942	3.0	0.5	0.7	Light	Moderate	None	Right	No		Cove	None	Soft Sediment		
30.3N-B-03	Focus	5/16/2011	2:17:55 PM	12853660.45	301607.83	785.6621	0.0443	0.1606	0.1665	6.3	0.4	0.7	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand		
30.3N-A-04	Focus	5/19/2011	11:08:44 AM	12853740.17	301626.05	791.82	2.376	3.629	4.337	3.9	0.3	0.6	Moderate	Moderate	Common	Right	No	No	Cove	None	Soft Sediment		
30.3N-A-05	Focus	5/19/2011	11:10:52 AM	12853688.27	301578.12	785.57	0.050	0.071	0.087	3.8	0.4	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Silt	LAT BDY	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
30.31T-B-01	Transect	5/16/2011	8:25:38 AM	12853806.23	301522.26	787.229	1.7822	3.4697	3.9006	2.9	0.2	0.8	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand		MVD DWNSTRM DUE TO FALLEN TREES
30.31T-B-02	Transect	5/16/2011	8:35:02 AM	12853749.76	301488.70	785.7744	0.0281	0.0567	0.0632	7.2	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
30.31T-B-03	Transect	5/16/2011	8:38:18 AM	12853739.52	301432.43	785.7903	0.0556	0.1374	0.1482	5.0	0.1	0.4	None	None	None	Left	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
30.38T-C-01	Transect	5/16/2011	8:42:55 AM	12853345.88	301546.55	781.5641	1.9456	3.4961	4.001	3.5	0.1	0.3	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
30.38T-C-02	Transect	5/16/2011	8:53:14 AM	12853308.33	301631.66	796.0574	2.1152	4.4934	4.9664	5.5	0.0	0.1	None	None	None	Right	>3 ft/sec	>3 ft/sec	Cut Bank	None	Sand		
30.38T-C-03	Transect	5/16/2011	8:58:37 AM	12853319.26	301577.80	785.7071	0.0324	0.0702	0.0773	8.1	0.0	0.2				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO DEEP TOO FAST
30.46T-C-01	Transect	5/16/2011	9:02:56 AM	12853286.76	301239.54	785.6802	1.9949	4.1724	4.6248	2.4	0.5	1.5	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
30.46T-C-02	Transect	5/16/2011	9:12:48 AM	12853167.18	301220.90	796.1554	1.5408	3.0604	3.4264	3.0	0.2	0.7	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
30.46T-C-03	Transect	5/16/2011	9:18:46 AM	12853231.47	301230.82	784.8185	1.1156	2.7702	2.9864	7.1	0.1	0.2				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO FAST
30.50T-C-01	Transect	5/16/2011	9:22:59 AM	12853376.23	301102.62	785.4757	0.0378	0.0799	0.0884	2.9	0.4	0.9	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	<5%	Silt over Sand		
30.50T-C-02	Transect	5/16/2011	9:32:23 AM	12853295.55	301069.84	785.4027	0.1247	0.1704	0.2111	9.4	0.0	0.1				Right	>3 ft/sec	>3 ft/sec	Cut Bank	None	Sand & Gravel		TOO DEEP TOO FAST
30.50T-C-03	Transect	5/16/2011	9:36:11 AM	12853320.72	301092.61	785.6846	1.4246	1.8837	2.3617	11.0	0.1	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		TOO FAST AND DEEP
MP 30.50-30.75																							
30.59T-C-01	Transect	5/16/2011	9:40:58 AM	12853798.67	300968.60	784.5278	0.0924	0.2108	0.2301	5.0	0.3	1.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
30.59T-C-02	Transect	5/16/2011	9:45:14 AM	12853710.25	300865.24	785.2777	0.1687	0.216	0.274	3.4	0.2	0.3				Right	>3 ft/sec	>3 ft/sec	Point Bar	None	Sand & Gravel		TOO SWIFT
30.59T-C-03	Transect	5/16/2011	9:51:18 AM	12853752.22	300894.18	786.6422	1.0069	1.5347	1.8355	6.0	0.0	0.0				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		CURRENT TOO SWIFT
30.65N-C-01	Focus	5/16/2011	9:57:00 AM	12853742.44	300623.21	782.8242	2.1674	3.1183	3.7975	2.9	0.3	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
30.65N-C-02	Focus	5/16/2011	10:04:44 AM	12853707.26	300560.49	760.8513	29.8685	54.9488	62.542	2.4	0.4	1.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
30.65N-C-03	Focus	5/16/2011	10:09:52 AM	12853764.51	300654.33	791.7463	1.0645	2.1157	2.3685	2.6	0.8	0.9				Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		CURRENT TOO FAST
30.70N-C-01	Focus	5/16/2011	10:32:54 AM	12853609.66	300629.03	783.6588	4.0138	7.4555	8.4673	2.2	1.2	2.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		PHOTOS 27-33
30.70N-C-02	Focus	5/16/2011	10:40:45 AM	12853613.14	300598.98	787.0192	1.5762	1.9775	2.5288	1.0	0.4	0.5	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Backwater	5%-25%	Organic		
30.70N-C-03	Focus	5/16/2011	10:46:06 AM	12853567.36	300593.29	784.1193	5.0324	7.6189	9.1309	2.4	0.9	2.7	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
30.70N-C-04	Focus	5/16/2011	10:51:26 AM	12853542.06	300534.33	785.9681	2.6023	3.5098	4.4338	2.3	0.3	1.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
30.70N-C-05	Focus	5/16/2011	10:56:46 AM	12853508.61	300559.45	783.7647	3.43	4.4919	5.6517	2.9	0.9	1.3	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
30.70N-C-06	Focus	5/16/2011	11:01:35 AM	12853498.16	300513.98	788.7944	3.1124	3.7808	4.8971	3.0	0.7	0.8	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
30.70N-C-07	Focus	5/16/2011	11:53:16 AM	12853535.09	300493.81	787.9607	1.6363	3.1846	3.5804	2.8	0.7	0.9	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	5%-25%	Silt over Sand		
30.70N-C-08	Focus	5/16/2011	11:58:37 AM	12853488.92	300452.94	784.8613	1.7372	3.3885	3.8079	3.1	0.8	2.1	Heavy	Heavy	Many	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
30.70N-C-09	Focus	5/16/2011	12:02:33 PM	12853545.16	300469.01	786.0503	1.9871	3.7853	4.2752	3.3	0.6	1.5	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
30.70N-C-10	Focus	5/16/2011	12:08:47 PM	12853477.58	300408.23	781.6707	1.397	2.8101	3.1382	6.4	0.6	0.7	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
30.70N-C-11	Focus	5/16/2011	12:10:48 PM	12853510.30	300423.67	785.2398	1.3123	2.6108	2.9221	6.3	0.5	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Soft Sediment		
30.70T-C-01	Transect	5/16/2011	10:17:49 AM	12853479.09	300404.86	779.5289	2.3965	4.689	5.2659	7.2	0.3	0.4				Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		CURRENT TOO FAST AND DEEP
30.70T-C-02	Transect	5/16/2011	10:24:25 AM	12853579.79	300351.18	778.8552	4.5888	8.6433	9.7859	5.0	0.3	0.6				Left	>3 ft/sec	>3 ft/sec	Point Bar	None	Sand & Gravel		CURRENT TOO SWIFT
30.70T-C-03	Transect	5/16/2011	10:28:01 AM	12853542.41	300403.46	784.8343	2.2615	3.8929	4.5021	5.9	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		CURRENT TOO SWIFT
MP 30.75-31.00																							
30.77T-C-01	Transect	5/16/2011	12:15:41 PM	12853563.92	300152.99	784.771	0.0408	0.0762	0.0864	2.8	0.1	0.5	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
30.77T-C-02	Transect	5/16/2011	12:19:09 PM	12853470.35	300126.39	787.0728	1.1856	2.3359	2.6195	3.4	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
30.77T-C-03	Transect	5/16/2011	12:21:59 PM	12853512.26	300130.08	786.0299	0.9508	1.8786	2.1056	7.3	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		SWIFT CURRENT DEEP WATER
30.80S-C-01	Focus	5/16/2011	12:34:13 PM	12854144.89	300281.47	785.2402	2.3532	4.3158	4.9157	3.1	0.1	0.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-02	Focus	5/16/2011	12:34:02 PM	12854158.61	300276.10	823.9487	10.9643	21.7146	24.3257	2.3	1.1	1.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-03	Focus	5/16/2011	12:38:55 PM	12854066.98	300281.56	796.8181	2.5714	3.4435	4.2976	2.7	1.3	1.4	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-04	Focus	5/16/2011	12:42:47 PM	12854060.01	300235.97	789.0715	3.3194	4.0418	5.2302	2.1	0.5	1.4	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		PHOTOS 34-41
30.80S-C-05	Focus	5/16/2011	12:51:39 PM	12853999.32	300212.07	784.3125	1.17	1.572	1.9596	2.6	0.8	0.8	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-06	Focus	5/16/2011	12:56:08 PM	12853944.47	300194.01	787.0511	1.416	2.0019	2.4521	2.9	1.2	1.2	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-07	Focus	5/16/2011	12:58:41 PM	12853932.53	300125.68	789.8806	1.4119	1.8474	2.3251	2.6	0.3	0.4	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-08	Focus	5/16/2011	1:02:25 PM	12853875.22	300120.66	788.4881	3.5592	2.5103	4.3554	3.5	1.1	1.2	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-09	Focus	5/16/2011	1:06:30 PM	12853843.20	300095.83	793.8431	7.8956	7.2626	10.7277	3.2	0.3	0.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-10	Focus	5/16/2011	1:12:03 PM	12853792.58	300119.68	785.6621	1.3661	1.6506	2.1426	3.4	2.6	3.0	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Silt over Sand		
30.80S-C-11	Focus	5/16/2011	1:18:15 PM	12853780.87	300236.58	786.1614	1.6593	1.5984	2.3039	2.5	1.3	3.8	Moderate	Moderate	Few	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-12	Focus	5/16/2011	1:27:31 PM	12853653.22	300176.87	787.1046	3.5325	3.4887	4.9649	2.0	1.4	2.2	None	None	None	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-13	Focus	5/16/2011	1:33:17 PM	12853727.37	299995.48	784.5092	0.0416	0.0584	0.0717	3.2	1.5	3.1	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-14	Focus	5/16/2011	1:37:00 PM	12853768.86	299966.09	784.2299	0.2484	0.2849	0.3779	3.0	2.1	3.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.80S-C-15	Focus	5/16/2011	2:06:21 PM	12853740.63	299886.62	784.5681	0.0479	0.0975	0.1087	2.4	0.2	0.4	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand		
30.80S-A-16	Focus	5/19/2011	1:04:41 PM	12853819.73	300242.80	793.65	6.384	8.650	10.750	2.3	0.4	0.7	Moderate	Moderate	Common	Left	No	No	Backwater	None	Soft Sediment		SWAMPY BACKWATER
30.80S-A-17	Focus	5/19/2011	1:13:06 PM	12853855.55	300265.36	792.58	3.838	3.622	5.277	2.0	0.4	0.7	Light	Light	Few	Left	No	No	Backwater	None	Soft Sediment	LAT BDY	BACK END OF BACKWATER
30.80S-A-18	Focus	5/19/2011	1:18:50 PM	12853744.91	300221.01	806.75	4.829	5.998	7.700	2.2	0.3	0.4	Moderate	Light	Common	Left	No	No	Backwater	None	Soft Sediment	LAT BDY	NOACCESSBEYOND
30.80S-A-19	Focus	5/19/2011	1:23:46 PM	12853775.45	300165.98	797.10	2.514	3.236	4.098	3.3	0.8	1.7	Light	Light	None	Left	No	No	Backwater	None	Soft Sediment	D BDY	ENTRANCE2BACKH20
30.82T-C-01	Transect	5/16/2011	1:43:55 PM	12853770.45	299960.50	784.264	0.2209	0.2745	0.3523	3.0	2.1	3.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cove	None	Silt over Sand		
30.82T-C-02	Transect	5/16/2011	1:50:04 PM	12853604.50	299868.86	783.8928	2.4081	3.9312	4.6101	5.4	0.2	0.2				Right	>3 ft/sec	>3 ft/sec	Point Bar	None	Sand & Gravel		SWIFT CURRENT DEEP WATER
30.82T-C-03	Transect	5/16/2011	2:03:15 PM	12853667.75	299877.69	783.6718	0.8058	1.5129	1.7141	8.5	0.0	0.0				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		CURRENT TOO SWIFT TOO DEEP
30.89T-C-01	Transect	5/16/2011	2:15:46 PM	12853504.46	299559.54	789.0666	9.1524	17.6735	19.9028	3.9	0.5	0.5				Left	>3 ft/sec	>3 ft/sec	Strt Channel Edg	None	Gravel & Larger		CURRENT TO SWIFT
30.89T-C-02	Transect	5/16/2011	2:21:44 PM	12853444.68	299634.77	778.4981	1.2811	5.6222	5.7663	2.5	0.1	0.4	Moderate	Moderate	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.89T-C-03	Transect	5/16/2011	2:24:55 PM	12853478.53	299579.45	784.3246	1.1347	3.4248	3.6078	8.6	0.0	0.0				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO SWIFT
30.89T-C-04	Transect	5/16/2011	2:26:47 PM	12853502.01	299675.60	783.113	1.775	6.3077	6.5526	2.4	0.7	0.9	Moderate	Moderate	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.89T-C-05	Transect	5/16/2011	2:32:09 PM	12853500.97	299637.37	784.1884	1.6141	4.7766	5.0419	8.0	0.3	0.3				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Silt over Sand		CURRENT IS TOO SWIFT
30.89T-C-06	Transect	5/16/2011	2:36:35 PM	12853520.61	299691.70	783.4188	0.994	3.4132	3.555	2.4	0.6	0.7	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.89T-C-07	Transect	5/16/2011	2:41:50 PM	12853390.41	299591.14	792.9065	11.6631	22.0467	24.9416	3.3	0.9	2.3	Moderate	Moderate	Common	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.89T-C-08	Transect	5/16/2011	2:45:34 PM	12853384.81	299579.38	811.2523	12.0054	30.0382	32.3484	7.9	0.0	0.0				Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Gravel & Larger		TOO DEEP CURRENT TOO SWIFT
30.89T-C-09	Transect	5/16/2011	2:53:36 PM	12853102.91	299498.49	1314.1186	2.0083	8.8587	9.0835	3.5	2.4	2.6	Heavy	Heavy	Common	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.89T-C-10	Transect	5/16/2011	3:12:49 PM	12853179.43	299416.37	795.633	3.2493	7.2846	7.9765	3.0	2.7	2.9	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.89T-C-11	Transect	5/16/2011	3:21:15 PM	12853184.50	299398.98	784.8062	0.909	1.6475	1.8817	7.2	0.4	1.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
30.89T-C-12	Transect	5/18/2011	9:11:25 AM	12853266.31	299498.06	826.6441	2.498	6.6816	7.1333	2.8	0.6	2.7	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.89T-C-13	Transect	5/18/2011	9:15:44 AM	12853289.44	299480.98	783.4038	0.9197	1.429	1.6994	6.9	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO DEEP
30.89T-C-14	Transect	5/18/2011	9:18:00 AM	12853339.77	299529.19	786.7212	1.4694	3.2455	3.5627	5.8	0.1	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
30.89T-C-15	Transect	5/18/2011	9:22:28 AM	12853319.65	299551.31	783.5205	2.8607	5.8315	6.4954	2.5	0.3	0.8	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	5%-25%	Silt over Sand		
30.98T-C-01	Transect	5/16/2011	3:26:02 PM	12853193.71	299248.11	790.7459	3.8119	5.2927	6.5225	3.5	0.2	0.7	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.98T-C-02	Transect	5/16/2011	3:32:20 PM	12853095.04	299316.32	785.8424	1.0574	1.5866	1.9066	5.5	1.1	1.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
30.98T-C-03	Transect	5/16/2011	3:40:19 PM	12853120.20	299245.74	784.1245	0.0682	0.0825	0.1071	8.2	0.0	0.0				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		CURRENT AND DEPTH TOO MUCH
31.0-B-01	Focus	5/17/2011	8:55:49 AM	12853092.56	299325.75	785.2803	1.1663	1.8903	2.2211	3.6	0.5	1.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
31.0-B-02	Focus	5/17/2011	9:03:47 AM	12853013.12	299229.85	784.6288	0.0365	0.0775	0.0856	6.0	0.5	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
31.0-B-03	Focus	5/17/2011	9:09:22 AM	12852900.73	299062.64	784.4647	0.0513	0.1012	0.1134	5.0	0.2	0.6	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		MVD DWNSTRM DUE TO FALLEN TREES
31.0-A-04	Focus	5/19/2011	1:38:02 PM	12852990.10	299198.52	782.60	2.332	3.800	4.459	6.3	0.1	0.1	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
31.0-A-05	Focus	5/19/2011	1:42:16 PM	12853013.55	299240.74	792.93	3.260	5.618	6.495	3.8	0.7	1.0	Heavy	Heavy	Many	Right	<1ft/sec	No	Strt Channel Edg	None	Soft Sediment		
31.0-A-06	Focus	5/19/2011	1:44:29 PM	12853025.71	299228.88	784.28	0.945	1.634	1.888	7.0	0.1	0.1	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
31.0-A-07	Focus	5/19/2011	1:49:46 PM	12853052.46	299279.74	783.36	0.928	1.757	1.987	4.0	0.5	1.0	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	U BDY	
MP 31.00-31.25																							
31.08T-B-01	Transect	5/16/2011	2:41:09 PM	12852822.72	298962.50	783.701	1.3026	4.9857	5.153	5.6	0.3	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
31.08T-B-02	Transect	5/16/2011	2:45:51 PM	12852849.19	298906.14	786.6445	0.7335	2.8663	2.9586	5.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand		
31.08T-B-03	Transect	5/16/2011	2:50:25 PM	12852912.89	298837.36	724.4273	19.7954	128.3743	129.8916	0.5	0.0	0.1	None	None	None	Left	<1ft/sec		Strt Channel Edg	25%-50%	Soft Sediment		MVD DWNSTRM OF FALLEN TREE BAD POS
31.17T-B-01	Transect	5/16/2011	2:57:53 PM	12852583.84	298460.56	784.4152	0.0502	0.2072	0.2132	5.8	0.2	0.7	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
31.17T-B-02	Transect	5/16/2011	3:00:11 PM	12852539.22	298496.70	784.0094	0.0505	0.1466	0.155	3.9	0.5	0.6	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.17T-B-03	Transect	5/16/2011	3:03:23 PM	12852478.53	298578.16	782.1049	1.5691	3.8573	4.1643	4.0	0.3	0.4	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Silt over Sand		BEHIND DWND TREE
31.24T-B-01	Transect	5/16/2011	3:09:58 PM	12852286.63	298237.53	784.2483	0.0741	0.1038	0.1275	6.2	0.7	0.8	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand		
31.24T-B-02	Transect	5/16/2011	3:13:14 PM	12852238.28	298285.53	784.2999	0.0606	0.1319	0.1452	6.3	0.0	0.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.24T-B-03	Transect	5/16/2011	3:17:18 PM	12852212.96	298383.63	785.2765	1.9831	3.7783	4.2671	3.1	0.5	1.0	Light	Light	None	Right	No		Backwater	None	Soft Sediment		
31.25N-B-01	Focus	5/16/2011	3:23:11 PM	12852248.83	298381.35	783.4638	1.3547	1.7426	2.2072	4.0	0.6	0.9	Light	Light	None	Right	<1ft/sec		Backwater	None	Soft Sediment		
31.25N-B-02	Focus	5/16/2011	3:27:15 PM	12852193.42	298314.35	784.1114	0.102	0.1775	0.2048	4.8	0.7	1.4	Light	Light	None	Right	<1ft/sec		Backwater	None	Silt over Sand		
31.25N-B-03	Focus	5/16/2011	3:31:26 PM	12852145.85	298263.56	783.7951	1.166	1.5747	1.9594	6.4	0.0	0.0	None	None	None	Right	1-3 ft/sec		Backwater	None	Silt over Sand		
31.25N-A-04	Focus	5/19/2011	1:57:58 PM	12852276.43	298363.04	784.42	0.067	0.193	0.204	3.8	0.4	0.6	None	None	None	Right	No	No	Cut Bank	None	Sand & Silt		
31.25N-A-05	Focus	5/19/2011	2:04:07 PM	12852093.21	298227.47	787.03	2.537	4.739	5.375	5.7	0.2	0.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
MP 31.25-31.50																							
31.29T-B-01	Transect	5/17/2011	9:44:11 AM	12852001.76	298117.45	782.2747	1.0254	1.5929	1.8944	5.2	0.3	0.4	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Silt over Sand		
31.29T-B-02	Transect	5/17/2011	9:47:42 AM	12852040.35	298089.84	784.1112	0.0387	0.0609	0.0722	7.2	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.3SE-B-01	Focus	5/17/2011	9:20:38 AM	12852071.05	297994.51	788.432	1.5423	2.6679	3.0817	3.4	0.2	0.2	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		
31.3SE-B-02	Focus	5/17/2011	9:25:52 AM	12852100.18	298071.10	783.4804	2.1717	3.7441	4.3284	3.8	0.1	0.2	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand		ALSO USE AS32.29T TOO MANY DWND TRE
31.3SE-B-03	Focus	5/17/2011	9:32:39 AM	12852039.00	297849.81	796.1905	1.9772	3.7748	4.2613	3.1	0.6	0.9	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		BEHIND DWND TREES BAD POS
31.3SE-A-04	Focus	5/19/2011	2:38:55 PM	12852015.16	297943.80	783.37	1.085	6.482	6.572	5.5	0.3	0.4	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
31.35T-B-01	Transect	5/17/2011	9:57:40 AM	12852072.68	297721.05	792.2257	1.2482	1.8995	2.2729	2.6	0.5	0.5	None	None	None	Left	1-3 ft/sec		Point Bar	None	Silt over Sand		
31.35T-B-02	Transect	5/17/2011	9:59:56 AM	12852029.48	297692.98	783.8614	0.0823	0.1224	0.1475	8.7	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.35T-B-03	Transect	5/17/2011	10:05:12 AM	12852012.44	297637.14	784.136	1.8979	3.5688	4.042	5.6	0.4	0.6	None	None	None	Right	>3 ft/sec		Cut Bank	None	Sand		
31.35T-A-04	Transect	5/20/11	12:11:41 PM	12851962.12	297766.34	784.1374	1.2664	2.6243	2.9139	7.5	0.1	0.1	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt		
31.35T-A-05	Transect	5/20/11	12:15:35 PM	12852033.06	297804.86	779.779	1.1736	2.1199	2.423	3.4	0.1	0.2	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Point Bar	None	Sand		
31.35T-A-06	Transect	5/20/11	12:18:43 PM	12851993.32	297808.26	785.7162	0.7142	1.4066	1.5775	6.9	0.0	0.0	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
31.43T-B-01	Transect	5/17/2011	10:21:49 AM	12852303.68	297485.23	834.7367	8.7088	15.228	17.5424	3.4	1.4	1.8	Light	Light	Few	Left	No		Cut Bank	None	Soft Sediment		BAD POS
31.43T-A-02	Transect	5/20/11	12:05:36 PM	12852210.27	297462.50	783.8154	1.0417	1.9909	2.247	6.8	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
31.43T-A-03	Transect	5/20/11	11:59:33 AM	12852162.45	297429.31	783.0336	1.3224	2.4063	2.7457	2.9	0.2	0.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
31.48T-B-01	Transect	5/17/2011	10:50:29 AM	12852281.83	297118.10	779.9286	2.0873	3.3601	3.9557	5.4	0.0	0.0	None	None	None	Left	>3 ft/sec		Cut Bank	None	Sand & Gravel		MVD DWNSTRM DUE TO FALLEN TREE
31.48T-B-02	Transect	5/17/2011	10:52:57 AM	12852225.59	297102.64	783.9897	1.0035	1.34	1.6741	6.2	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.48T-B-03	Transect	5/17/2011	10:56:37 AM	12852189.22	297120.95	794.4006	2.3425	3.2252	3.9861	2.5	0.0	0.1	None	None	None	Right	1-3 ft/sec		Point Bar	<5%	Sand		
31.48T-A-04	Transect	5/20/11	10:34:11 AM	12852343.22	297188.93	792.8188	4.4313	4.919	6.6207	3.0	0.1	0.1	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Silt		
31.48T-A-05	Transect	5/20/11	10:43:49 AM	12852237.40	297201.94	800.4637	1.6373	2.1662	2.7153	2.7	0.2	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Silt		
31.48T-A-06	Transect	5/20/11	10:47:38 AM	12852270.92	297194.36	785.9472	2.4799	3.7584	4.5028	6.8	0.0	0.0	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
MP 31.50-31.75																							
31.53T-A-01	Transect	5/19/2011	3:08:06 PM	12852126.70	296940.18	784.83	1.897	3.049	3.591	3.3	0.2	0.3	Light	Light	Few	Left	1-3 ft/sec	<1 ft/sec	Cut Bank	None	Sand & Silt		
31.53T-A-02	Transect	5/19/2011	3:15:20 PM	12852053.60	297034.30	786.86	2.517	3.956	4.689	3.1	0.4	0.6	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Point Bar	None	Sand & Silt		
31.53T-A-03	Transect	5/19/2011	3:17:01 PM	12852081.06	296980.71	783.32	0.080	0.118	0.143	6.0	0.0	0.0	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
31.56T-B-01	Transect	5/17/2011	12:37:49 PM	12852056.59	296856.23	788.2713	4.2828	2.4882	4.9531	1.4	1.6	2.2	None	None	None	Left	No		Strt Channel Edg	<5%	Soft Sediment		BAD POS
31.56T-B-02	Transect	5/17/2011	12:42:18 PM	12851963.02	296902.91	783.5811	0.0678	0.107	0.1267	5.6	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.56T-B-03	Transect	5/17/2011	12:46:50 PM	12851933.23	296991.44	790.1821	2.795	7.4222	7.931	1.6	0.4	0.5	Light	Light	None	Right	No		Strt Channel Edg	25%-50%	Silt over Sand		BAD POS
31.58T-B-01	Transect	5/17/2011	1:13:12 PM	12851881.28	296862.16	783.4725	0.0724	0.0896	0.1152	5.0	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.58T-B-02	Transect	5/17/2011	1:17:42 PM	12851994.04	296810.47	780.546	4.1777	2.0927	4.6725	3.1	0.3	0.8	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	5%-25%	Silt over Sand		MVD UPSTRM DWND TREE IN TRNSCT
31.6N-B-01	Focus	5/17/2011	12:55:07 PM	12851895.78	296904.56	792.0917	5.6068	6.0222	8.2282	4.4	0.3	0.4	None	None	None	Right	1-3 ft/sec		Mid-Channel	None	Sand		BAD POS RGHT BANK FOR TRNSCT 31.58T
31.6N-B-02	Focus	5/17/2011	1:00:17 PM	12851830.01	296870.01	784.0853	0.1641	0.1922	0.2527	4.8	0.8	0.9	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		BEHIND DWND TREE
31.6N-B-03	Focus	5/17/2011	1:04:35 PM	12851752.97	296851.01	790.6518	3.4299	5.1257	6.1674	2.5	0.2	0.2	Light	Light	None	Right	No		Strt Channel Edg	None	Soft Sediment	LGHT RESID SHN	BAD POS
31.6N-B-04	Focus	5/17/2011	1:09:57 PM	12851747.23	296806.29	786.2445	1.7147	1.78	2.4716	5.2	0.3	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
31.6SE-B-01	Focus	5/17/2011	1:41:32 PM	12851717.23	296417.71	784.9116	1.5257	1.6205	2.2257	2.4	0.3	0.4	Light	Light	None	Center		1-3 ft/sec	Other-Comments	None	Silt over Sand		BEHIND DWND TREE SECONDARY CHNL
31.6SE-B-02	Focus	5/17/2011	1:50:24 PM	12851772.01	296270.60	786.2709	4.3534	8.5542	9.5983	0.7	0.2	0.2	None	None	None	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		BAD POS
31.6SE-B-03	Focus	5/17/2011	1:52:35 PM	12851696.96	296268.81	787.3318	3.8672	6.4708	7.5384	2.2	0.1	0.3	None	None	None	Island	<1ft/sec		Downstrm Island	None	Soft Sediment		
31.6SE-B-04	Focus	5/17/2011	1:56:22 PM	12851726.75	296173.75	791.6986	2.5134	3.0017	3.9151	1.0	0.3	0.4	None	None	None	Island	No		Downstrm Island	<5%	Soft Sediment		
31.6SE-B-05	Focus	5/17/2011	2:04:21 PM	12851737.93	296119.33	782.8571	0.0636	0.1352	0.1495	3.7	0.1	0.2	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.6SE-B-06	Focus	5/17/2011	2:13:07 PM	12851783.43	296231.51	790.572	3.0064	10.7538	11.1662	3.8	0.2	0.3	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		BAD POS
31.63T-B-01	Transect	5/17/2011	1:26:19 PM	12851753.87	296586.52	783.5834	0.1114	0.1198	0.1636	3.0	0.3	0.4	Light	Light	Few	Left	<1ft/sec		Point Bar	None	Silt over Sand		B/N DWND TREES
31.63T-B-02	Transect	5/17/2011	1:28:28 PM	12851688.35	296607.74	783.6608	1.2521	1.729	2.1347	6.0	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.63T-B-03	Transect	5/17/2011	1:32:33 PM	12851643.76	296604.00	788.7459	2.3984	3.2102	4.0072	5.5	0.0	0.1	None	None	None	Right	>3 ft/sec		Cut Bank	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
31.73T-B-01	Transect	5/17/2011	2:10:23 PM	12851783.04	296132.94	797.2015	2.7279	8.6435	9.0638	0.3	0.2	0.2	Light	Light	None	Left	No		Strt Channel Edg	50%-75%	Soft Sediment		BAD POS
31.73T-B-02	Transect	5/17/2011	2:20:24 PM	12851574.90	296008.06	772.9234	2.7454	8.8219	9.2392	3.5	0.1	0.2	Light	Light	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		BAD POS
31.73T-B-03	Transect	5/17/2011	2:26:54 PM	12851632.37	296012.64	784.25	1.0159	4.4755	4.5893	5.0	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.73T-A-04	Transect	5/19/2011	2:57:34 PM	12851542.26	296117.28	783.37	1.048	2.313	2.540	2.7	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Silt		
31.73T-A-05	Transect	5/19/2011	3:00:46 PM	12851641.74	296136.59	783.13	0.039	0.076	0.085	4.0	0.0	0.0	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
MP 31.75-32.00																							
31.80T-B-01	Transect	5/17/2011	2:31:24 PM	12851690.96	295759.70	791.2421	1.3379	7.3255	7.4466	4.5	0.3	0.4	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Silt over Sand		BAD POS
31.80T-B-02	Transect	5/17/2011	2:33:44 PM	12851619.68	295789.69	776.0525	1.953	12.8188	12.9668	6.0	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.80T-B-03	Transect	5/17/2011	2:37:52 PM	12851579.74	295856.74	828.2932	12.089	30.5694	32.873	3.8	0.0	0.1	Light	Light	None	Right	1-3 ft/sec		Point Bar	None	Soft Sediment		BAD POS
31.8S-B-01	Focus	5/18/2011	9:11:18 AM	12849745.91	294133.43	781.6023	1.3096	1.8103	2.2343	4.7	0.1	0.4	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		BEHIND DWND TREE
31.8S-B-02	Focus	5/18/2011	9:18:35 AM	12849664.13	294229.87	781.7919	0.0459	0.0836	0.0954	4.7	0.3	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		BEHIND DWND TREE
31.8S-B-03	Focus	5/18/2011	12:22:55 PM	12851218.02	295436.60	781.6419	1.0071	2.0303	2.2663	5.1	0.3	0.3	None	None	None	Right	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.8S-B-04	Focus	5/18/2011	12:29:21 PM	12851065.12	295169.42	782.4653	1.8122	2.2193	2.8652	3.4	0.6	0.7	Heavy	Heavy	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		BEHIND DWND TREE
31.8S-B-05	Focus	5/18/2011	12:32:22 PM	12851050.05	295178.72	782.7985	0.0385	0.0643	0.075	4.7	0.1	0.2	None	None	None	Left	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
31.8S-B-06	Focus	5/18/2011	12:42:42 PM	12850740.83	295123.59	784.2218	1.165	1.7752	2.1234	5.6	0.6	0.8	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
31.8S-B-07	Focus	5/18/2011	12:48:17 PM	12850714.70	294975.40	783.9712	2.3589	2.2651	3.2704	3.1	1.0	1.1	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
31.8S-B-08	Focus	5/18/2011	12:56:58 PM	12850385.42	294897.92	781.114	2.4332	3.6268	4.3674	5.3	0.4	0.5	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
31.8S-B-09	Focus	5/18/2011	1:03:32 PM	12850411.83	294774.86	782.6353	0.1499	0.1171	0.1902	3.0	0.0	0.0	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
31.8S-B-10	Focus	5/18/2011	1:08:53 PM	12850123.25	294529.09	782.4088	4.1408	3.3223	5.3088	2.6	0.4	0.4	Light	Light	Few	Left	No		Strt Channel Edg	<5%	Soft Sediment		BAD POS
31.8S-B-11	Focus	5/18/2011	1:16:08 PM	12849785.28	294415.81	772.2725	7.4325	9.7303	12.2442	4.5	0.1	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		BAD POS
31.8S-B-12	Focus	5/18/2011	1:21:19 PM	12849856.71	294262.32	786.5314	2.7243	2.7846	3.8956	3.3	0.6	0.7	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		BEHIND DWND TREE
31.8S-B-13	Focus	5/18/2011	1:27:12 PM	12849966.30	294409.57	786.9666	3.1869	3.9787	5.0977	2.8	1.1	1.1	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		
31.80S-A-014	Focus	5/20/11	9:57:22 AM	12849900.35	294378.99	782.0235	2.1465	3.5279	4.1296	4.7	0.2	0.3	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
31.80S-A-015	Focus	5/20/11	10:03:17 AM	12849671.61	294069.29	784.3881	1.4449	2.2505	2.6744	5.9	0.1	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt	LAT BDY	
31.80S-A-016	Focus	5/20/11	10:06:52 AM	12849745.09	294102.75	784.7677	2.2453	3.9125	4.511	3.1	0.5	0.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	U BDY	
31.80S-A-017	Focus	5/20/11	10:12:28 AM	12849800.93	294211.59	783.9585	2.6347	4.2554	5.005	4.0	0.6	0.8	Moderate	Moderate	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
31.80S-A-018	Focus	5/20/11	10:16:23 AM	12849783.33	294223.73	782.79	0.1039	0.194	0.2201	5.3	0.2	0.3	None	None	None	Center	No	No	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
31.80S-A-019	Focus	5/20/11	10:21:08 AM	12849602.31	294145.38	783.4165	1.0003	1.4012	1.7216	4.8	0.3	0.5	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
31.80S-A-020	Focus	5/20/11	10:25:20 AM	12849718.23	294288.24	784.3361	1.4544	1.845	2.3494	5.7	0.1	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
31.85T-B-01	Transect	5/17/2011	2:56:25 PM	12851558.86	295532.58	766.59	12.4709	43.9512	45.6862	2.7	0.2	0.2	None	None	None	Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		BAD POS
31.85T-B-02	Transect	5/17/2011	2:58:50 PM	12851523.03	295598.60	784.4103	0.9657	3.1302	3.2758	6.0	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.85T-B-03	Transect	5/17/2011	3:03:08 PM	12851511.95	295671.73	793.01	2.157	5.1331	5.5679	4.5	0.2	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
31.85T-A-04	Transect	5/19/2011	2:49:30 PM	12851428.24	295615.91	783.96	1.419	4.962	5.161	3.7	0.3	0.4	None	None	None	Right	No	No	Point Bar	None	Sand		
31.90T-B-01	Transect	5/18/2011	11:56:41 AM	12851274.71	295307.70	783.3041	1.64	2.9842	3.4052	2.4	0.0	0.0	Moderate	Moderate	Few	Left	No		Backwater		Soft Sediment		
31.90T-B-01	Transect	5/17/2011	3:08:59 PM	12851281.09	295309.62	786.6692	2.8053	6.1514	6.7609	2.5	0.7	0.7	Moderate	Moderate	Common	Left	No		Strt Channel Edg	<5%	Soft Sediment		BAD POS
31.90T-B-02	Transect	5/18/2011	12:01:44 PM	12851186.38	295263.36	782.8401	1.2077	2.2806	2.5807	2.9	0.3	0.4	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment	DWNSTRM DEL	BEHIND DWND TREE
31.90T-B-02	Transect	5/17/2011	3:10:18 PM	12851218.74	295374.94	787.4721	1.0066	2.1146	2.342	5.0	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.90T-B-03	Transect	5/18/2011	12:05:41 PM	12851187.05	295293.68	781.8961	0.0491	0.0934	0.1055	4.1	0.1	0.1	None	None	None	Right	1-3 ft/sec		Mid-Channel	None	Sand & Gravel	LAT BDY	
31.90T-B-03	Transect	5/17/2011	3:18:11 PM	12851215.45	295450.50	783.0405	0.0776	0.0881	0.1174	5.4	0.0	0.0	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
31.90T-B-04	Transect	5/18/2011	12:10:50 PM	12851444.04	295442.37	783.9288	1.1791	2.1612	2.462	2.0	0.4	0.5	None	None	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Gravel	UPSTRM DEL	
31.98T-B-01	Transect	5/18/2011	10:47:40 AM	12851005.64	295103.41	781.0609	1.8737	2.2356	2.917	2.8	0.7	0.9	Light	Light	Few	Left	No		Backwater	None	Soft Sediment	RESID SURF SHN	BEHIND DWND TREES
31.98T-B-02	Transect	5/18/2011	11:41:09 AM	12850913.53	295153.98	782.1448	0.0366	0.0607	0.0708	4.9	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
31.98T-B-03	Transect	5/18/2011	11:45:34 AM	12850886.00	295231.65	781.9768	0.0455	0.1244	0.1324	5.1	0.2	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
MP 32.00-32.25																							
32.04T-B-01	Transect	5/18/2011	10:30:27 AM	12850674.23	294910.10	775.3089	4.4568	7.3616	8.6056	2.7	0.6	0.6	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		BAD POS
32.04T-B-02	Transect	5/18/2011	10:37:24 AM	12850573.29	295002.42	781.9086	0.1603	0.2573	0.3031	6.8	0.0	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		BEHIND DWND TREE
32.04T-B-03	Transect	5/18/2011	10:41:15 AM	12850616.38	294972.41	782.1326	0.0424	0.0565	0.0706	6.4	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
32.08T-B-01	Transect	5/18/2011	10:14:48 AM	12850547.00	294846.30	781.8795	0.0906	0.1538	0.1785	2.9	0.2	0.2	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
32.08T-B-02	Transect	5/18/2011	10:17:45 AM	12850502.89	294894.42	781.8404	0.0863	0.1685	0.1893	6.0	0.0	0.0				Center	>3 ft/sec		Mid-Channel	None	Sand & Gravel		
32.08T-B-03	Transect	5/18/2011	10:23:38 AM	12850498.13	294953.45	782.2402	1.7806	2.3416	2.9417	7.0	0.1	0.2	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		BEHIND DWND TREE
32.16T-B-01	Transect	5/18/2011	9:45:44 AM	12850184.43	294612.14	805.7282	5.3131	6.8311	8.6541	4.1	0.4	0.4	None	None	None	Left	No		Strt Channel Edg	<5%	Soft Sediment		BAD POS
32.16T-B-02	Transect	5/18/2011	9:59:14 AM	12850117.11	294663.95	781.2568	1.9305	2.9869	3.5564	5.2	0.3	0.4				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
32.16T-B-03	Transect	5/18/2011	10:05:16 AM	12850099.73	294747.98	785.1975	1.8591	3.0248	3.5504	4.7	0.4	0.5	None	None	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
32.23T-B-01	Transect	5/18/2011	9:27:57 AM	12849921.73	294349.85	779.3915	3.0489	3.7223	4.8116	3.2	0.7	0.7	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	None	Soft Sediment		BAD POS
32.23T-B-02	Transect	5/18/2011	9:30:34 AM	12849884.02	294406.10	782.419	1.1184	1.9432	2.242	4.3	0.1	0.1				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
32.23T-B-03	Transect	5/18/2011	9:35:22 AM	12849830.34	294465.07	781.7777	0.1565	0.2591	0.3026	5.3	0.3	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
MP 32.25-32.50																							
32.30T-C-01	Transect	5/17/2011	8:33:05 AM	12849679.60	294038.05	789.1367	1.6008	2.7481	3.1803	3.8	0.3	0.6	Moderate	Light	Common	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
32.30T-C-02	Transect	5/17/2011	8:42:36 AM	12849581.40	294171.11	792.5655	2.3114	4.298	4.8801	3.8	0.4	0.6	Moderate	Moderate	Common	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None		SHEEN FLOATING BY FROM UPSTREAM PHOTOS 43-45	
32.30T-C-03	Transect	5/17/2011	8:49:57 AM	12849636.10	294100.82	782.6931	0.0266	0.0578	0.0637	6.1	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		CURRENT TOO SWIFT
32.30T-C-04	Transect	5/17/2011	8:52:18 AM	12849822.05	294188.41	781.6853	1.0168	2.0672	2.3037	3.2	0.6	0.7	Moderate	Moderate	Common	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand	PHOTO 487	
32.30T-C-05	Transect	5/17/2011	9:01:08 AM	12849702.01	294301.10	783.0254	2.4567	4.1242	4.8004	3.5	0.5	0.7	Moderate	Moderate	Common	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.30T-C-06	Transect	5/17/2011	9:09:10 AM	12849560.91	293965.63	782.386	0.066	0.091	0.1124	4.6	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
32.30T-C-07	Transect	5/17/2011	9:15:10 AM	12849515.30	294086.37	785.151	1.4474	4.1823	4.4256	5.0	0.4	0.4	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.30T-C-08	Transect	5/17/2011	9:23:10 AM	12849535.86	294001.18	783.7988	0.8339	1.6	1.8043	7.2	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		HIGH WATER FLOW
32.38T-C-01	Transect	5/17/2011	9:28:01 AM	12849318.56	293825.96	782.5775	0.1227	0.1384	0.1849	4.1	0.3	0.6				Left	>3 ft/sec	>3 ft/sec	Cut Bank	None	Silt over Sand		CURRENT IS TOO FAST
32.38T-C-02	Transect	5/17/2011	9:36:33 AM	12849272.92	293953.93	782.6781	3.144	3.7764	4.9138	4.1	0.7	0.8	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.38T-C-03	Transect	5/17/2011	9:41:21 AM	12849297.19	293878.83	782.6971	0.034	0.0554	0.065	7.3	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		TOO FAST TOO DEEP
32.46T-C-01	Transect	5/17/2011	9:45:46 AM	12848836.89	293842.97	781.6901	1.9627	2.5598	3.2257	2.8	0.5	0.7	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
32.46T-C-02	Transect	5/17/2011	9:53:41 AM	12848921.22	293968.91	781.1692	1.7793	2.9214	3.4206	2.2	0.6	0.6	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.46T-C-03	Transect	5/17/2011	10:00:42 AM	12848878.13	293902.73	780.3913	1.9512	2.5093	3.1786	7.3	0.1	0.2				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand		CURRENT IS TOO SWIFT
32.50N-C-01	Focus	5/17/2011	9:57:04 AM	12848922.74	293971.79	775.0816	23.7047	18.5229	30.0834	2.2	0.6	0.6	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.50N-C-02	Focus	5/17/2011	10:03:35 AM	12848882.41	293987.01	786.6725	2.5063	3.3177	4.1579	2.6	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
32.50N-C-03	Focus	5/17/2011	10:09:58 AM	12848817.14	294212.08	777.3317	14.0148	17.4485	22.38	2.7	1.2	1.6	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
32.50N-C-04	Focus	5/17/2011	10:14:16 AM	12848863.61	294182.16	779.2107	2.8042	5.349	6.0395	2.9	0.7	0.9	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Organic		
32.50N-C-05	Focus	5/17/2011	10:20:02 AM	12848937.34	294025.17	816.3263	1.7857	3.3355	3.7834	1.4	0.0	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Backwater	<5%	Sand		
32.50N-C-06	Focus	5/17/2011	10:24:32 AM	12848838.07	294057.10	784.4345	1.9973	3.4338	3.9724	3.3	0.1	0.2	None	None	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Sand & Gravel		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
32.50N-C-07	Focus	5/17/2011	10:28:35 AM	12848749.53	294094.49	787.8245	1.7114	2.45	2.9885	3.1	0.7	0.8	Heavy	Heavy	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
32.50N-C-08	Focus	5/17/2011	10:38:28 AM	12848735.38	294083.65	781.9173	1.4861	1.9512	2.4527	3.6	1.1	1.8	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
32.50N-C-09	Focus	5/17/2011	10:44:57 AM	12848771.57	294074.46	781.8945	4.1746	5.1398	6.6215	3.5	0.4	1.1	Moderate	Moderate	Common	Right	1-3 ft/sec	1-3 ft/sec	Backwater	None	Silt over Sand		
32.50N-C-10	Focus	5/17/2011	10:48:47 AM	12848790.34	294050.13	784.4346	2.2286	2.915	3.6694	3.4	0.7	0.8	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Backwater	None	Silt over Sand		
32.50N-C-11	Focus	5/17/2011	10:53:16 AM	12848689.75	294124.15	788.3965	2.2019	2.9092	3.6486	1.9	0.6	2.0	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
MP 32.50-32.75																							
32.59T-C-01	Transect	5/17/2011	11:45:21 AM	12848258.68	293993.39	779.9305	1.2547	2.2437	2.5707	2.4	0.2	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.59T-C-02	Transect	5/17/2011	11:56:31 AM	12848253.51	294121.25	791.3763	1.6865	3.5606	3.9398	4.9	0.3	1.0				Right	>3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand		TOO FAST CURRENT
32.59T-C-03	Transect	5/17/2011	11:59:54 AM	12848257.65	294069.23	782.7016	0.0421	0.0896	0.099	7.6	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT IS TOO FAST
32.65SE-C-01	Focus	5/17/2011	12:05:59 PM	12848009.78	293759.51	784.3179	1.0228	1.9205	2.1759	2.5	0.6	0.9	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Point Bar	None	Silt over Sand	PHOTOS 52-56	
32.65SE-C-02	Focus	5/17/2011	12:13:16 PM	12848006.37	293785.67	786.1993	2.0754	4.4857	4.9426	3.7	0.0	0.3				Left	>3 ft/sec	>3 ft/sec	Point Bar	None	Sand & Gravel		CURRENT IS TOO FAST
32.65SE-C-03	Focus	5/17/2011	12:20:02 PM	12847965.74	293701.85	783.6119	1.073	1.785	2.0827	4.0	0.1	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.68T-C-01	Transect	5/17/2011	12:25:49 PM	12847938.23	293671.21	792.794	2.3748	2.2354	3.2614	4.1	0.5	0.7	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.68T-C-02	Transect	5/17/2011	12:31:53 PM	12847821.68	293815.13	783.3959	1.161	2.1613	2.4534	2.4	0.8	1.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand	PHOTOS 58-62	
32.68T-C-03	Transect	5/17/2011	12:39:10 PM	12847814.09	293782.82	783.3828	8.977	15.414	17.8375	3.4	0.4	0.4	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
32.68T-C-04	Transect	5/17/2011	12:48:21 PM	12847817.89	293769.27	787.5422	1.6528	2.2146	2.7633	3.7	0.2	0.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand		
32.68T-C-05	Transect	5/17/2011	12:51:24 PM	12847882.56	293715.16	782.1841	0.0458	0.0612	0.0764	4.7	0.1	0.2				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		VELOCITY TOO HIGH
32.68T-C-06	Transect	5/17/2011	12:53:42 PM	12847880.56	293866.49	783.7032	1.3591	2.2425	2.6222	3.0	0.4	0.5	Heavy	Moderate	Many	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
32.68T-C-07	Transect	5/17/2011	1:01:50 PM	12847946.73	293918.47	786.814	2.4919	3.6978	4.4591	4.5	0.0	0.2				Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		CURRENT IS TOO SWIFT
32.68T-C-08	Transect	5/17/2011	1:10:54 PM	12847987.57	293970.54	781.6978	7.3309	8.0388	10.8796	4.0	0.3	0.7	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
32.68T-C-09	Transect	5/17/2011	1:20:30 PM	12847765.54	293693.72	783.8864	1.2502	1.8098	2.1997	3.4	0.5	0.8	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
32.68T-C-10	Transect	5/17/2011	1:27:59 PM	12847749.74	293710.65	780.3527	1.7689	2.4463	3.0188	2.4	0.4	0.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		PHOTOS 63-67 CANNOT BE MAPPED VIA AIRBOAT
32.75NW-C-01	Focus	5/17/2011	1:41:56 PM	12847708.40	293573.90	777.656	5.4834	7.7563	9.4988	3.3	1.5	1.6	Heavy	Heavy	Many	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
32.75NW-C-02	Focus	5/17/2011	1:50:10 PM	12847685.21	293483.90	781.9633	0.0548	0.0945	0.1092	4.9	0.9	1.0	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
32.75NW-C-03	Focus	5/17/2011	1:55:52 PM	12847732.18	293554.63	781.2412	0.7252	1.3182	1.5045	5.1	0.0	0.2				Center	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		CURRENT TOO FAST
32.75NW-C-04	Focus	5/17/2011	1:58:35 PM	12847646.37	293394.38	780.8253	1.2554	2.2178	2.5484	4.5	0.3	0.4	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
32.75NW-C-05	Focus	5/17/2011	2:10:31 PM	12847648.03	293311.62	778.4543	1.7713	3.7599	4.1563	4.0	0.3	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
32.75NW-C-06	Focus	5/17/2011	2:18:21 PM	12847680.65	293379.66	779.9379	0.8711	1.8935	2.0842	7.0	0.2	0.2				Center	>3 ft/sec	>3 ft/sec	Cut Bank	None	Sand & Gravel		VELOCITY IS TOO HIGH
32.75SE-C-01	Focus	5/17/2011	2:24:11 PM	12847816.55	293316.13	771.3818	1.7212	6.1715	6.407	1.8	0.0	0.3	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
32.75SE-C-02	Focus	5/17/2011	2:28:02 PM	12847821.82	293357.91	738.3644	2.1288	8.6899	8.9469	1.9	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
32.75SE-C-03	Focus	5/17/2011	2:31:01 PM	12847821.05	293256.46	777.2341	1.2881	6.9198	7.0387	2.9	0.2	0.4	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
32.75SE-C-04	Focus	5/17/2011	2:34:05 PM	12847864.23	293200.30	755.7168	11.4528	22.0134	24.8144	2.3	0.2	0.4	Moderate	Moderate	Common	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
32.75SE-C-05	Focus	5/17/2011	2:37:09 PM	12847858.91	293184.20	785.9118	2.3874	6.0796	6.5316	4.6	0.3	0.7	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
32.75SE-C-06	Focus	5/17/2011	2:49:17 PM	12847895.19	293195.97	811.1048	5.7072	15.0647	16.1095	2.0	0.5	0.7	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
32.75SE-A-07	Focus	5/20/11	12:32:16 PM	12847797.97	293414.71	784.6375	2.8564	2.9694	4.1202	1.8	0.5	0.8	None	None	None	Left			Point Bar				
MP 32.75-33.00																							
32.78T-C-01	Transect	5/17/2011	2:58:29 PM	12847813.51	293311.81	782.6069	0.7475	2.4609	2.572	1.5	0.3	0.6	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
32.78T-C-02	Transect	5/17/2011	3:03:01 PM	12847675.81	293237.00	787.5691	0.966	2.9191	3.0748	6.5	0.4	0.5	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
32.78T-C-03	Transect	5/17/2011	3:07:38 PM	12847745.34	293289.39	782.0713	0.0358	0.075	0.0831	4.4	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		HARD BOTTOM
32.85T-C-01	Transect	5/17/2011	3:12:00 PM	12848071.47	293063.40	787.0739	1.9687	3.9228	4.3891	6.4	1.3	1.7	None	None	None	Left	>3 ft/sec	>3 ft/sec	Cut Bank	None	Silt over Sand		FAST WATER DEEP CHANNEL
32.85T-C-02	Transect	5/17/2011	3:20:57 PM	12847982.89	293030.35	780.5574	1.8226	2.6608	3.2252	4.9	0.1	0.1	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
32.85T-C-03	Transect	5/17/2011	3:23:21 PM	12848028.30	293049.73	779.4637	1.4391	1.486	2.0686	7.4	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT IS TOO SWIFT
32.9NW-B-01	Focus	5/18/2011	1:59:32 PM	12847905.52	292754.77	781.3743	1.7585	3.4675	3.8879	3.7	0.1	0.2	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
32.9NW-B-02	Focus	5/18/2011	2:06:12 PM	12847959.68	292837.82	781.6264	1.5916	3.8983	4.2107	3.0	0.3	0.4	None	None	None	Right	1-3 ft/sec		Point Bar	5%-25%	Silt over Sand		
32.9NW-B-03	Focus	5/18/2011	2:10:00 PM	12847994.05	292893.57	809.8269	2.4553	5.399	5.9311	0.3	0.3	0.3	None	None	None	Right	<1ft/sec		Point Bar	>75%	Silt over Sand		
32.9NW-B-04	Focus	5/18/2011	2:26:32 PM	12847957.57	292790.28	772.5968	2.2758	11.9451	12.1599	1.7	0.3	0.7	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand		BEHIND DWND TREE BAD POS
32.93T-B-01	Transect	5/18/2011	2:14:23 PM	12847863.67	292740.60	785.8806	1.4006	3.793	4.0434	3.0	0.5	0.9	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand & Gravel		
32.93T-B-02	Transect	5/18/2011	2:18:44 PM	12847877.92	292721.16	781.5371	0.0423	0.1218	0.129	-99.0	-99.0	-99.0				Center			Mid-Channel	None	Sand & Gravel		
32.93T-B-03	Transect	5/18/2011	2:22:26 PM	12847892.67	292682.82	781.9862	0.069	0.2977	0.3056	8.8	0.0	0.0				Left	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
32.99T-B-01	Transect	5/18/2011	3:12:05 PM	12847509.33	292705.29	781.3028	0.0352	0.0625	0.0718	-99.0	-99.0	-99.0				Center			Mid-Channel		Sand & Gravel		
32.99T-B-02	Transect	5/18/2011	3:15:10 PM	12847520.09	292640.29	776.6894	2.0832	3.1145	3.747	7.3	0.0	0.0				Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
33.0A-B-01	Focus	5/18/2011	2:33:56 PM	12847459.01	292809.73	779.3759	11.8418	25.2011	27.8447	2.6	0.5	1.0	Heavy	Heavy	Common	Right	No		Backwater	None	Soft Sediment		BAD POS
33.0A-B-02	Focus	5/18/2011	2:40:37 PM	12847526.34	292850.65	796.4575	10.2462	21.3572	23.6878	2.4	0.1	0.2	Light	Light	None	Right	No		Backwater	<5%	Soft Sediment	BACKWATER DELINIATION	
33.0A-B-03	Focus	5/18/2011	2:44:49 PM	12847594.47	292893.35	777.9246	2.2928	13.6212	13.8128	1.7	0.6	1.1	None	None	None	Right	No		Backwater	None	Soft Sediment		BAD POS
33.0A-B-04	Focus	5/18/2011	2:49:42 PM	12847417.35	292759.92	783.6695	1.4391	4.7033	4.9185	2.9	0.3	0.5	None	None	None	Right	1-3 ft/sec		Backwater	None	Silt over Sand	RESID SURF SHN	
33.0A-B-05	Focus	5/18/2011	2:53:55 PM	12847474.75	292739.98	781.4709	0.0265	0.0895	0.0933	5.0	0.5	1.0	Light	Light	None	Right	1-3 ft/sec		Backwater	None	Soft Sediment		
33.0A-B-06	Focus	5/18/2011	2:58:13 PM	12847588.83	292791.08	781.8804	1.129	3.1656	3.3609	1.9	0.9	1.6	Heavy	Heavy	Many	Right	No		Backwater	None	Soft Sediment		
33.0A-B-07	Focus	5/18/2011	3:00:47 PM	12847607.67	292777.41	788.6527	2.8516	5.0482	5.7979	2.0	0.0	0.0	Heavy	Heavy	Many	Right			Backwater		Soft Sediment		
33.0A-B-08	Focus	5/18/2011	3:07:54 PM	12847685.26	292764.93	804.0297	3.6618	6.8914	7.8039	1.2	0.5	0.8	Light	Moderate	None	Right	<1ft/sec		Backwater	<5%	Silt over Sand		
33.0A-B-09	Focus	5/18/2011	3:11:00 PM	12847526.78	292736.03	781.2465	0.0376	0.0679	0.0776	5.0	0.6	0.8	None	None	None	Center	1-3 ft/sec		Backwater	None	Sand & Gravel	LAT BDY	
33.0A-B-10	Focus	5/18/2011	3:18:29 PM	12847357.10	292739.41	781.3336	0.0457	0.0708	0.0842	2.4	0.0	0.1	None	None	None	Right	<1ft/sec		Backwater	None	Sand & Gravel		
33.0B-B-06	Focus	5/19/2011	9:22:59 AM	12847332.36	292161.84	776.98	1.883	3.518	3.991	2.3	0.8	1.9	Heavy	Heavy	Common	Left	<1ft/sec		Backwater	None	Soft Sediment		
33.0B-B-07	Focus	5/19/2011	9:28:15 AM	12847317.24	292165.40	780.42	1.208	2.305	2.602	3.5	0.2	0.4	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BDY	
33.0B-B-08	Focus	5/19/2011	9:35:55 AM	12847325.06	292222.64	787.46	2.522	4.133	4.841	3.1	0.0	0.8	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	None	Sand & Silt	UPSTREAM BDY	
33.0B-B-09	Focus	5/19/2011	9:41:12 AM	12847379.21	292123.95	777.75	4.420	7.345	8.572	1.8	1.0	1.3	Light	Light	None	Left	No		Backwater	5%-25%	Soft Sediment	RESID SURF SHN	
33.0B-B-10	Focus	5/19/2011	9:47:57 AM	12847374.11	292078.14	784.22	2.116	3.693	4.256	2.3	0.7	1.5	Light	Light	None	Left	No		Backwater	None	Soft Sediment	RESID SURG SHN	
33.0B-B-11	Focus	5/19/2011	10:08:42 AM	12847332.98	292043.08	781.62	1.212	1.576	1.988	2.7	0.9	0.9	Heavy	Heavy	Many	Center	1-3 ft/sec		Backwater	None	Soft Sediment	HVY SHN KICKED UP BY ANCHOR	
33.0B-B-12	Focus	5/19/2011	10:12:11 AM	12847316.49	292037.21	782.72	1.371	1.921	2.360	3.0	2.0	2.2	Light	Light	Few	Center	1-3 ft/sec		Mid-Channel	None	Soft Sediment	LAT DEL	
33.0B-B-13	Focus	5/19/2011	10:19:49 AM	12847358.16	291986.54	776.45	2.101	2.319	3.129	2.1	0.7	0.7	Light	Light	None	Left	No		Backwater	None	Soft Sediment	RESID SURF SHN	
33.0B-B-14	Focus	5/19/2011	10:23:52 AM	12847336.94	291963.13	785.71	1.937	2.794	3.400	3.0	1.0	1.5	Moderate	Heavy	Few	Left	<1ft/sec		Backwater	None	Soft Sediment	RESID SURF SHN	
33.0B-B-15	Focus	5/19/2011	10:35:43 AM	12847303.52	291923.97	781.31	0.272	0.421	0.501	5.8	1.9	2.0	Light	Light	None	Left	1-3 ft/sec		Mid-Channel	None	Soft Sediment	LAT BDY, ANCHOR KICKED UP HVY SHN RESID SURF SHN	
33.0B-B-16	Focus	5/19/2011	10:52:39 AM	12847323.05	292105.94	781.46	0.079	0.136	0.158	2.5	1.6	2.2	Moderate	Heavy	None	Center	1-3 ft/sec		Mid-Channel	None	Sand & Silt		
33.0B-B-17	Focus	5/19/2011	10:54:59 AM	12847314.41	292102.55	781.42	0.038	0.047	0.060	3.0	1.1	1.6	Light	Light	None	Center	1-3 ft/sec		Mid-Channel	<5%	Sand & Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
33.0B-A-18	Focus	5/25/2011	8:51:37 AM	12847516.95	292371.75	790.2552	4.3444	7.2585	8.4593	1.0	0.2	2.0	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Backwater	None	Soft Sediment		
33.0B-A-19	Focus	5/25/2011	9:01:38 AM	12847450.95	292296.74	788.6424	1.4402	2.4781	2.8662	2.0	0.6	1.2	Moderate	Moderate	Common	Left	No	No	Backwater	None	Soft Sediment		VERY DARK SED HARD 2 SEE
33.0B-A-20	Focus	5/25/2011	9:06:31 AM	12847427.24	292228.23	787.0118	2.0221	3.9573	4.444	2.3	0.1	0.8	Light	Light	Few	Left	No	No	Backwater	None	Soft Sediment		
33.0B-A-21	Focus	5/25/2011	9:11:11 AM	12847418.59	292161.79	798.6723	2.363	3.7352	4.4199	1.9	0.3	0.5	Moderate	Moderate	Few	Left	No	No	Backwater	None	Soft Sediment		
33.0B-A-22	Focus	5/25/2011	9:15:36 AM	12847440.81	292113.16	803.4655	2.7847	5.4244	6.0975	0.9	0.6	0.9	Light	Light	Few	Left	No	No	Backwater	None	Soft Sediment		
33.0B-A-23	Focus	5/20/11	12:49:51 PM	12847426.51	292238.72	772.662	4.9422	3.4508	6.0277	2.6	0.2	0.3	Heavy	Heavy	Many	Left	No	No	Backwater	None	Soft Sediment		
33.0B-C-01	Focus	5/18/2011	11:34:23 AM	12847334.01	291907.54	783.7106	1.0627	1.9839	2.2505	1.7	0.7	1.3	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
33.0B-C-02	Focus	5/18/2011	11:44:34 AM	12847364.65	292014.14	782.7564	1.9512	4.1401	4.5769	2.4	0.8	1.0	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		PHOTOS 71-74
33.0B-C-03	Focus	5/18/2011	11:50:08 AM	12847377.44	292099.30	784.7587	1.2241	2.317	2.6205	2.4	1.1	2.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
33.0B-C-04	Focus	5/18/2011	11:53:14 AM	12847337.79	292100.04	784.6294	0.9346	1.8923	2.1105	2.6	1.4	2.9	Light	Light	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
33.0B-C-05	Focus	5/18/2011	11:57:51 AM	12847303.38	291966.48	781.282	0.0346	0.0664	0.0749	6.5	0.0	0.2				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	HEAVY SHEEN FLOATING DOWN	TOO DEEP
MP 33.00-33.25																							
33.03T-B-01	Transect	5/18/2011	3:24:39 PM	12847304.08	292720.41	781.353	0.0382	0.0526	0.065	2.3	0.6	0.7	None	None	None	Right	<1ft/sec		Cut Bank	None	Silt over Sand	RESID SURF SHN	
33.03T-B-02	Transect	5/18/2011	3:26:16 PM	12847329.31	292624.37	781.3409	0.04	0.0583	0.0707	7.9	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
33.03T-B-03	Transect	5/18/2011	3:30:26 PM	12847380.66	292556.71	781.336	0.1025	0.1362	0.1704	1.1	0.0	0.3	Light	Light	None	Left	<1ft/sec		Point Bar	>75%	Silt over Sand	RESID SURF SHN	
33.10T-B-01	Transect	5/19/2011	9:05:33 AM	12847321.43	292274.58	781.79	0.115	0.293	0.315	2.7	0.6	0.7	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	<5%	Soft Sediment		
33.10T-B-02	Transect	5/19/2011	9:10:40 AM	12847272.82	292282.08	781.33	0.037	0.087	0.094	7.8	0.2	0.4				Center	>3 ft/sec	No	Mid-Channel	None	Sand & Gravel		
33.10T-B-03	Transect	5/19/2011	9:15:51 AM	12847224.58	292281.00	780.29	1.695	2.919	3.376	5.6	0.0	0.1	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
33.15T-B-01	Transect	5/19/2011	10:41:50 AM	12847270.18	291973.20	781.33	0.052	0.068	0.086	7.2	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
33.15T-B-02	Transect	5/19/2011	10:45:35 AM	12847189.28	291997.25	783.39	2.661	2.968	3.986	2.0	0.5	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
33.2S-C-01	Focus	5/18/2011	10:23:37 AM	12847184.14	291636.00	788.3446	1.4759	2.6087	2.9973	2.3	0.8	1.3	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
33.2S-C-02	Focus	5/18/2011	10:33:41 AM	12847077.48	291501.64	796.7478	6.529	8.333	10.5861	2.5	0.8	0.8	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		PHOTOS 68-70
33.2S-C-03	Focus	5/18/2011	10:49:10 AM	12847054.40	291555.10	782.2819	1.4861	1.7835	2.3215	7.0	0.0	0.2				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO FAST
33.2S-C-04	Focus	5/18/2011	10:50:59 AM	12847156.21	291654.17	779.9106	4.5504	5.428	7.0831	7.2	0.0	0.0				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO FAST
33.2S-C-05	Focus	5/18/2011	10:52:55 AM	12847282.49	291806.75	784.7272	2.8219	4.7388	5.5153	3.5	0.3	0.4	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
33.21T-C-01	Transect	5/18/2011	9:57:52 AM	12847221.74	291732.59	784.5085	2.7218	4.0228	4.857	6.0	0.0	0.1				Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Gravel & Larger	SHEEN COMING DOWN RIVER	CURRENT IS TOO SWIFT
33.21T-C-02	Transect	5/18/2011	10:14:22 AM	12847091.99	291802.71	780.3861	2.2875	3.8575	4.4848	2.8	0.8	1.7	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand	OIL IS COMING FROM UPSTREAM	
33.21T-C-03	Transect	5/18/2011	10:20:01 AM	12847163.28	291757.39	781.223	0.0862	0.1326	0.1582	6.2	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT IS TOO SWIFT
33.25-C-01	Focus	5/18/2011	12:01:35 PM	12847170.50	291905.00	781.7958	1.1608	2.3243	2.598	3.3	1.4	1.6	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
33.25-C-02	Focus	5/18/2011	12:08:32 PM	12847113.39	291833.63	794.6129	1.9258	3.9725	4.4147	2.0	1.0	1.1	Heavy	Heavy	Many	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
33.25-C-03	Focus	5/18/2011	12:13:41 PM	12847039.46	291711.12	779.7788	1.6362	3.2487	3.6374	1.8	1.2	1.8	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
33.25-C-04	Focus	5/18/2011	12:17:57 PM	12846985.96	291656.58	775.4428	1.583	3.2534	3.6181	2.4	0.4	0.5	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
33.25-C-05	Focus	5/18/2011	12:21:49 PM	12846880.64	291595.46	780.9013	0.0631	0.128	0.1427	1.7	0.6	0.9	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
33.25-C-06	Focus	5/18/2011	12:27:27 PM	12846912.89	291558.27	781.1094	0.0329	0.0545	0.0637	4.6	0.3	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Backwater	None	Silt over Sand		
33.25-C-07	Focus	5/18/2011	12:30:04 PM	12846857.72	291513.04	781.1476	0.0515	0.0878	0.1017	3.7	0.0	0.2	Light	Light	Few	Center	1-3 ft/sec	1-3 ft/sec	Backwater	None	Sand & Gravel		
33.25-C-08	Focus	5/18/2011	12:32:26 PM	12846785.97	291459.54	787.6887	1.1667	2.0035	2.3185	2.2	0.3	0.7	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Backwater	None	Silt over Sand		
33.25-C-09	Focus	5/18/2011	12:36:39 PM	12846829.07	291594.57	780.9102	0.1658	0.2871	0.3315	1.9	0.6	0.8	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
33.25-C-10	Focus	5/18/2011	12:40:25 PM	12846760.00	291506.16	782.1219	4.6482	3.9214	6.0814	1.5	0.5	0.6	Light	Light	Few	Island	1-3 ft/sec	1-3 ft/sec	Cut off	None	Silt over Sand		
33.25-C-11	Focus	5/18/2011	12:45:49 PM	12846703.66	291486.85	786.5818	1.5939	2.2355	2.7456	1.9	1.0	1.6	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Cut off	None	Silt over Sand		
33.25-C-12	Focus	5/18/2011	12:50:13 PM	12846655.87	291433.88	784.316	2.0921	1.9602	2.8669	3.5	0.3	0.6	Light	Light	None	Island	1-3 ft/sec	1-3 ft/sec	Cut off	None	Silt over Sand		
33.25-C-13	Focus	5/18/2011	12:54:50 PM	12846574.91	291368.85	782.5869	1.8867	2.3884	3.0437	4.3	0.3	0.3	Heavy	Heavy	Common	Right	1-3 ft/sec	1-3 ft/sec	Cut off	None	Silt over Sand		
33.25-C-14	Focus	5/18/2011	12:58:17 PM	12846609.09	291333.60	783.0312	1.7446	2.502	3.0502	2.0	0.5	0.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Silt over Sand		
33.25-C-15	Focus	5/18/2011	1:03:48 PM	12846566.71	291317.77	780.9319	0.0777	0.075	0.108	2.4	0.6	1.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Cut off	None	Silt over Sand		
33.25-C-16	Focus	5/18/2011	1:09:37 PM	12846525.64	291299.17	780.8462	5.0483	4.9647	7.0805	4.0	0.7	0.9	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.25-C-17	Focus	5/18/2011	1:15:40 PM	12846689.88	291372.82	780.4543	1.4922	1.4681	2.0933	1.8	2.2	2.3	Heavy	Heavy	Many	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Silt over Sand		
33.25-C-18	Focus	5/18/2011	1:18:46 PM	12846697.73	291344.67	783.0447	2.0704	2.3068	3.0997	6.7	0.0	0.1				Island	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TO SWIFT
33.25-C-19	Focus	5/18/2011	1:20:54 PM	12846739.44	291387.85	781.6855	1.9568	1.9468	2.7603	5.3	0.2	0.2	Light	Light	None	Island	>3 ft/sec	>3 ft/sec	Downstrm Island	None	Sand & Gravel		
33.25-A-20	Focus	5/26/2011	3:40:22 PM	12846846.57	291530.36	782.1526	0.0339	0.0595	0.0685	3.7	0.1	0.3	Light	Light	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	D BDY	
33.25-A-20	Focus	5/25/2011	9:35:03 AM	12847150.26	291822.54	781.1688	0.0659	0.0975	0.1177	3.8	0.5	0.6	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand	LAT BDY	
33.25-A-21	Focus	5/26/2011	3:43:30 PM	12846848.82	291558.96	782.3111	0.0544	0.0923	0.1072	3.1	0.1	0.1	Moderate	Light	Common	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand	LAT BDY	
33.25-A-22	Focus	5/26/2011	3:48:25 PM	12846821.54	291552.88	782.295	0.061	0.0945	0.1125	1.6	0.6	1.4	Light	Light	Few	Center	1-3 ft/sec	No	Backwater	None	Soft Sediment	D BDY	
MP 33.25-33.50																							
33.27T-C-01	Transect	5/18/2011	10:41:05 AM	12846976.92	291441.09	778.855	2.9472	2.8843	4.1237	3.5	1.9	2.2	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
33.27T-C-02	Transect	5/18/2011	10:44:51 AM	12846964.28	291468.81	781.5739	1.1405	1.4089	1.8127	5.0	1.5	1.7	Moderate	Moderate	Common	Left	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
33.27T-C-03	Transect	5/18/2011	10:47:17 AM	12846938.12	291487.28	781.0631	0.357	0.4913	0.6073	6.7	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		CURRENT TOO SWIFT
33.27T-C-04	Transect	5/19/2011	9:09:42 AM	12846982.57	291456.83	779.98	4.221	8.561	9.545	3.8	1.5	1.8	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Silt over Sand		
33.27T-C-05	Transect	5/19/2011	9:19:58 AM	12846805.69	291631.08	781.86	1.362	2.700	3.025	1.8	0.9	1.6	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
33.27T-C-06	Transect	5/19/2011	9:24:42 AM	12846917.56	291515.98	781.61	0.899	1.591	1.827	5.6	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO SWIFT
33.27T-A-07	Transect	5/26/2011	3:29:13 PM	12846938.80	291422.01	781.2085	1.0712	2.1219	2.377	5.5	0.8	1.8	Moderate	Moderate	Common	Left	No	No	Strt Channel Edg	None	Soft Sediment		
33.27T-A-08	Transect	5/26/2011	3:34:49 PM	12846884.65	291389.36	781.9072	1.2281	2.2529	2.5659	6.2	0.3	0.6	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Soft Sediment	D BDY	
33.37T-C-01	Transect	5/18/2011	1:28:48 PM	12846545.99	291134.86	783.3909	3.0589	4.0477	5.0735	3.5	0.3	1.7	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.37T-C-02	Transect	5/18/2011	1:35:30 PM	12846470.73	291237.25	784.2621	1.5375	2.4146	2.8625	5.8	0.0	0.2				Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		CURRENT TO SWIFT
33.37T-C-03	Transect	5/18/2011	1:41:54 PM	12846514.25	291192.72	780.838	0.091	0.1171	0.1483	6.3	0.4	0.6				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TO SWIFT
33.37T-A-04	Transect	5/26/2011	3:20:11 PM	12846600.24	291201.02	786.6956	1.0731	3.272	3.4435	6.9	0.1	0.1	None	None	None	Left	>3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.44T-C-01	Transect	5/18/2011	1:47:44 PM	12846329.84	290826.42	778.3034	2.7203	4.3992	5.1723	1.9	0.3	0.8	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.44T-C-02	Transect	5/18/2011	1:54:20 PM	12846199.98	290987.24	778.4375	1.4327	3.3784	3.6696	3.7	0.3	0.3	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.44T-C-03	Transect	5/18/2011	2:00:16 PM	12846262.42	290917.34	780.8714	0.0265	0.0494	0.056	5.3	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT IS TOO SWIFT
33.5N-C-01	Focus	5/18/2011	2:27:37 PM	12846231.33	291020.84	793.0204	1.4888	5.9858	6.1682	3.3	0.1	0.5	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.5N-C-02	Focus	5/18/2011	2:43:34 PM	12846127.29	290932.65	788.942	1.5513	8.9554	9.0887	3.5	0.5	0.7	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.5N-C-03	Focus	5/18/2011	2:53:41 PM	12846045.23	290855.11	780.6285	0.0445	0.1517	0.1581	3.2	1.2	1.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
33.5N-C-04	Focus	5/18/2011	2:57:01 PM	12845914.95	290774.10	780.7222	0.9351	2.1728	2.3654	3.4	0.6	0.7	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.5S-C-01	Focus	5/18/2011	2:04:08 PM	12846398.64	290936.22	789.4616	2.6633	6.1939	6.7422	2.4	1.3	2.6	Moderate	Heavy	Few	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.5S-C-02	Focus	5/18/2011	2:11:06 PM	12846464.95	291013.13	785.6432	1.4289	3.5172	3.7964	2.0	2.2	3.3	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.5S-C-03	Focus	5/18/2011	2:18:19 PM	12846439.84	291030.48	781.1709	0.0489	0.1772	0.1838	4.4	0.6	0.7	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
33.5S-C-04	Focus	5/18/2011	2:23:00 PM	12846471.70	291096.61	781.273	0.0448	0.1981	0.2031	5.1	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO FAST

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
33.5S-A-05	Focus	5/26/2011	2:22:58 PM	12846330.80	290853.27	782.0065	0.0383	0.0649	0.0754	4.5	0.3	1.0	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.5S-A-06	Focus	5/26/2011	2:26:36 PM	12846303.29	290886.24	782.0163	0.023	0.0415	0.0475	5.8	0.7	0.7	Light	Light	Few	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand	LAT BDY	
33.5S-A-07	Focus	5/26/2011	2:30:44 PM	12846229.31	290743.65	785.3125	1.1972	2.4754	2.7497	3.0	0.3	1.5	Heavy	Heavy	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		LARGETREESINRIVER
33.5S-A-08	Focus	5/26/2011	2:36:04 PM	12846150.72	290683.46	785.3943	0.9672	2.1476	2.3554	4.1	0.2	0.4	Heavy	Heavy	Common	Left	No	No	Strt Channel Edg	None	Sand & Silt		
33.5S-A-09	Focus	5/26/2011	2:39:55 PM	12846030.28	290626.48	791.3293	0.874	2.0018	2.1843	4.7	0.0	0.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	D BDY	
33.5S-A-10	Focus	5/26/2011	2:48:06 PM	12846168.51	290738.78	782.0729	0.025	0.0979	0.101	5.5	0.1	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
MP 33.50-33.75																							
33.55T-C-01	Transect	5/19/2011	9:30:49 AM	12845930.42	290536.55	780.96	0.116	0.150	0.190	2.3	0.1	0.3	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		PHOTOS 75-79
33.55T-C-02	Transect	5/19/2011	9:41:41 AM	12845781.01	290723.72	795.61	2.482	4.301	4.966	2.5	0.5	1.2	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.55T-C-03	Transect	5/19/2011	9:45:24 AM	12845838.22	290612.27	781.17	1.089	1.607	1.941	4.0	0.0	0.2				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT IS TOO SWIFT
33.55T-C-04	Transect	5/19/2011	9:49:29 AM	12845840.26	290743.66	795.68	4.457	5.588	7.148	1.8	0.8	1.2	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.55T-C-05	Transect	5/19/2011	10:01:31 AM	12846019.30	290599.24	782.67	2.588	4.249	4.975	2.5	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
33.55T-C-06	Transect	5/19/2011	10:11:26 AM	12845787.40	290448.50	780.18	2.455	4.226	4.887	3.0	0.1	0.1	Moderate	Moderate	Common	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.55T-C-07	Transect	5/19/2011	10:17:26 AM	12845799.68	290503.63	784.93	1.660	2.847	3.296	3.9	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		CURRENT TOO FAST
33.55T-C-08	Transect	5/19/2011	10:21:22 AM	12845733.50	290418.79	786.14	6.956	3.240	7.674	2.8	0.0	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
33.55T-C-09	Transect	5/19/2011	10:30:58 AM	12845683.28	290639.37	780.91	0.097	0.144	0.173	3.5	0.4	0.7	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.55T-C-10	Transect	5/19/2011	10:36:03 AM	12845735.68	290613.99	780.77	0.056	0.072	0.091	4.5	0.1	0.3				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO SWIFT
33.55T-C-11	Transect	5/19/2011	10:40:39 AM	12845905.69	290738.14	780.78	0.048	0.063	0.079	4.0	0.3	0.5	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
33.55T-C-12	Transect	5/19/2011	10:46:52 AM	12845983.24	290805.65	780.95	0.063	0.079	0.101	3.5	0.5	0.7	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
33.55T-A-13	Transect	5/26/2011	1:49:25 PM	12845891.95	290714.17	781.952	0.0376	0.0478	0.0608	4.7	0.3	0.3	Light	Light	Few	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand	LAT BDY	
33.55T-A-14	Transect	5/26/2011	1:54:21 PM	12845840.30	290687.93	782.0396	0.1266	0.2056	0.2414	4.8	0.2	0.4	None	None	None	Center	No	No	Mid-Channel	None	Sand	LAT BDY	
33.55T-A-15	Transect	5/26/2011	1:58:46 PM	12845913.10	290565.31	782.1089	0.0473	0.0484	0.0677	5.8	0.0	0.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
33.55T-A-16	Transect	5/26/2011	2:02:53 PM	12845839.77	290498.44	789.0342	2.5952	2.5577	3.6437	3.7	0.1	0.1	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	D BDY	
33.63T-C-01	Transect	5/19/2011	11:41:47 AM	12845505.18	290276.94	779.74	0.854	1.512	1.736	2.2	0.4	0.6	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.63T-C-02	Transect	5/19/2011	11:47:15 AM	12845408.60	290510.60	779.15	1.869	5.395	5.710	4.4	0.1	0.3	Moderate	Moderate	Common	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.63T-C-03	Transect	5/19/2011	11:52:15 AM	12845467.47	290388.00	780.89	0.044	0.080	0.092	3.7	0.0	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
33.63T-C-04	Transect	5/19/2011	11:56:09 AM	12845610.09	290335.69	782.84	0.750	1.371	1.563	2.5	0.1	0.2	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
33.63T-C-05	Transect	5/19/2011	12:09:36 PM	12845589.59	290361.19	780.89	0.058	0.078	0.097	4.7	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO SWIFT
33.63T-C-06	Transect	5/19/2011	12:11:57 PM	12845503.30	290514.47	781.06	0.063	0.111	0.128	3.8	0.4	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
33.63T-C-07	Transect	5/19/2011	12:15:27 PM	12845501.83	290550.74	777.34	1.298	2.695	2.992	4.7	0.0	0.2	Light	Light	Few	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.63T-A-08	Transect	5/26/2011	1:32:29 PM	12845423.33	290471.99	781.7966	0.0836	0.1003	0.1306	4.6	0.2	0.4	None	None	None	Right	No	No	Strt Channel Edg	None	Sand	LAT BDY	
33.63T-A-09	Transect	5/26/2011	1:38:16 PM	12845519.48	290334.51	781.7697	0.066	0.0633	0.0915	4.8	0.3	0.4	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
33.63T-A-10	Transect	5/26/2011	1:41:47 PM	12845458.14	290261.52	783.275	2.4694	1.8386	3.0787	5.1	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel	D BDY	
33.65N-C-01	Focus	5/19/2011	12:27:36 PM	12845144.99	290308.08	786.70	1.715	2.766	3.255	3.0	0.3	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.65N-C-02	Focus	5/19/2011	12:32:32 PM	12845204.25	290388.97	786.93	2.260	4.109	4.690	3.0	0.1	0.8	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.65N-C-03	Focus	5/19/2011	12:42:01 PM	12845307.27	290436.58	786.12	2.012	3.426	3.973	4.5	1.2	1.9	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand	SHEEN FLOATING BY	
33.65N-C-04	Focus	5/19/2011	12:47:39 PM	12845231.35	290352.31	781.18	1.068	1.730	2.033	5.5	0.1	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		VELOCITY TOO HIGH
33.65N-C-05	Focus	5/19/2011	12:54:23 PM	12845117.69	290237.33	780.99	0.128	0.149	0.196	3.5	0.4	0.5	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Cove	None	Sand & Gravel		
33.65N-C-06	Focus	5/19/2011	12:58:12 PM	12845036.50	290428.91	783.07	2.247	2.322	3.232	2.3	0.2	0.3	None	None	None	Right	No	No	Cove	None	Sand & Silt		
33.65N-C-07	Focus	5/19/2011	1:01:52 PM	12845064.72	290311.85	767.40	45.212	27.168	52.747	2.1	0.6	0.6	None	None	None	Right	No	No	Cove	None	Silt over Sand		
33.65N-C-08	Focus	5/19/2011	1:05:43 PM	12844965.37	290219.04	776.34	33.418	32.290	46.470	2.3	0.0	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Backwater	None	Sand		SIDE CHANNEL
33.72T-C-01	Transect	5/19/2011	1:11:10 PM	12845121.32	290055.66	783.40	2.516	1.873	3.136	3.2	0.0	0.1	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.72T-C-02	Transect	5/19/2011	1:20:48 PM	12845025.78	290144.80	789.84	1.586	1.867	2.449	3.6	0.0	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
33.72T-C-03	Transect	5/19/2011	1:24:58 PM	12845063.12	290098.56	779.97	1.239	1.339	1.824	7.8	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		TOO FAST AND TOO DEEP
33.72T-C-04	Transect	5/19/2011	1:43:17 PM	12845212.74	290120.36	789.43	3.207	3.181	4.517	2.3	0.0	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.72T-C-05	Transect	5/19/2011	1:47:22 PM	12845040.11	290032.62	780.94	0.137	0.146	0.200	5.0	1.3	1.3				Left	>3 ft/sec	>3 ft/sec	Strt Channel Edg	None	Sand		CURRENT IS TOO FAST
33.72T-C-06	Transect	5/19/2011	1:51:15 PM	12845017.58	289984.55	780.71	0.260	0.427	0.500	4.0	0.9	1.0	Moderate	Moderate	Common	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.72T-C-07	Transect	5/19/2011	1:54:14 PM	12844868.24	289889.90	781.54	2.144	2.963	3.657	4.4	1.6	1.7	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.72T-A-08	Transect	5/26/2011	11:27:51 AM	12844861.99	289902.17	783.326	1.243	1.2866	1.789	6.6	0.4	0.4	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.72T-A-09	Transect	5/26/2011	11:33:42 AM	12844841.72	289921.21	780.2273	0.9935	1.4127	1.727	7.3	0.2	0.4	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Soft Sediment	LAT BDY	
33.72T-A-10	Transect	5/26/2011	11:38:50 AM	12844916.28	289930.21	782.7886	2.6789	2.1578	3.4398	6.5	0.3	0.5	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
33.72T-A-11	Transect	5/26/2011	11:46:04 AM	12845031.02	290066.62	781.751	0.0582	0.0927	0.1094	9.2	0.1	0.1	None	None	None	Center	>3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
33.72T-A-12	Transect	5/26/2011	11:49:48 AM	12845108.70	290087.39	783.409	2.0375	3.1628	3.7623	5.4	0.2	0.7	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Silt	LAT BDY	
33.75N-C-01	Focus	5/19/2011	2:25:56 PM	12844610.97	289893.23	781.11	0.756	2.766	2.868	4.7	0.2	0.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand	SHEEN FLOATING BY	
33.75N-C-02	Focus	5/19/2011	2:14:27 PM	12844813.24	290043.62	771.86	1.497	4.681	4.914	2.7	0.7	0.8	Heavy	Heavy	Many	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.75N-C-03	Focus	5/19/2011	2:20:08 PM	12844823.52	290019.95	781.07	0.047	0.322	0.325	5.6	0.7	0.8	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand		
33.75N-A-04	Focus	5/26/2011	11:22:15 AM	12844854.04	290058.63	781.5924	0.0873	0.148	0.1718	5.3	0.5	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand	U BDY	
MP 33.75-34.00																							
33.78T-A-04	Transect	5/26/2011	11:12:28 AM	12844722.45	289968.71	781.8335	0.0823	0.1085	0.1362	6.3	0.0	0.0	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	LAT BDY	
33.78T-A-05	Transect	5/26/2011	11:16:45 AM	12844668.77	289956.59	781.7519	0.1217	0.1997	0.2338	4.5	0.3	0.3	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.78T-C-01	Transect	5/19/2011	2:00:27 PM	12844805.06	289843.75	783.72	0.907	2.101	2.288	2.8	1.3	1.6	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.78T-C-02	Transect	5/19/2011	2:06:19 PM	12844695.47	289977.28	778.78	2.224	4.975	5.449	2.7	0.9	1.3	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.78T-C-03	Transect	5/19/2011	2:11:25 PM	12844756.77	289916.29	779.78	0.917	2.169	2.355	6.4	0.0	0.1				Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT IS TOO SWIFT
33.84T-C-01	Transect	5/19/2011	2:39:41 PM	12844443.95	289774.81	746.28	1.889	11.620	11.772	2.9	0.4	1.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.84T-C-02	Transect	5/19/2011	2:45:13 PM	12844560.50	289628.25	777.43	1.593	5.610	5.832	3.4	0.5	0.6	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.84T-C-03	Transect	5/19/2011	2:49:38 PM	12844502.78	289695.07	780.51	0.032	0.108	0.112	5.7	0.3	0.5				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		CURRENT IS TOO SWIFT
33.89T-A-04	Transect	5/26/2011	10:02:05 AM	12844276.84	289662.88	773.905	2.8114	4.7312	5.5035	5.1	0.4	0.4	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	D BDY	
33.89T-A-05	Transect	5/26/2011	10:06:10 AM	12844332.37	289662.44	781.5386	0.0527	0.0852	0.1002	4.9	0.3	0.5	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.89T-A-06	Transect	5/26/2011	10:10:37 AM	12844332.31	289627.42	781.5129	0.0466	0.0725	0.0862	5.7	0.1	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
33.89T-A-07	Transect	5/26/2011	10:14:38 AM	12844378.46	289697.08	782.3153	1.206	1.8191	2.1826	5.6	0.2	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	U BDY	
33.89T-A-08	Transect	5/26/2011	10:21:42 AM	12844419.46	289455.53	782.2275	3.1442	3.8143	4.9432	3.5	0.4	0.6	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.89T-A-09	Transect	5/26/2011	10:27:44 AM	12844352.83	289432.98	782.5489	1.3449	2.0272	2.4327	3.6	0.7	1.0	Heavy	Heavy	Common	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.89T-A-10	Transect	5/26/2011	10:33:15 AM	12844267.65	289371.77	780.6835	1.7768	2.5674	3.1222	3.1	0.8	0.9	Heavy	Heavy	Many	Left	No	No	Strt Channel Edg	None	Soft Sediment		
33.89T-A-11	Transect	5/26/2011	10:37:55 AM	12844169.51	289320.12	786.985	2.1986	3.6881	4.2937	4.8	0.8	1.2	Moderate	Moderate	Common	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.89T-A-12	Transect	5/26/2011	10:42:27 AM	12843976.71	289277.04	787.4033	2.6181	4.5984	5.2915	5.4	0.0	0.0	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Gravel & Larger	D BDY	
33.89T-A-13	Transect	5/26/2011	10:56:14 AM	12844049.31	289325.81	781.5906	1.7105	2.3467	2.904	6.3	0.2	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
33.89T-A-14	Transect	5/26/2011	10:59:32 AM	12844323.70	289454.19	781.3019	0.1715	0.2941	0.3405	4.5	0.3	0.3	None	None	None	Left	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand	LAT BDY	
33.89T-A-15	Transect	5/26/2011	11:03:12 AM	12844508.29	289551.36	795.986	4.5921	5.8467	7.4345	3.3	1.1	1.7	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
33.89T-A-16	Transect	5/26/2011	11:06:25 AM	12844558.53	289636.93	786.7123	3.1708	4.0284	5.1266	4.0	0.4	0.4	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	U BDT	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
33.89T-C-01	Transect	5/19/2011	2:54:59 PM	12844312.87	289686.41	779.94	0.843	1.993	2.164	3.8	0.5	0.9	Heavy	Heavy	Many	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.89T-C-02	Transect	5/19/2011	3:02:14 PM	12844467.97	289484.59	782.19	1.281	2.513	2.821	2.2	0.7	1.5	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
33.89T-C-03	Transect	5/19/2011	3:08:14 PM	12844385.78	289581.83	780.62	0.042	0.069	0.081	4.6	0.3	0.5				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT IS TOO SWIFT
33.93T-B-01	Transect	5/19/2011	2:48:51 PM	12844095.94	289560.20	783.03	1.287	3.649	3.869	3.4	0.5	0.6	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		BAD POS
33.93T-B-02	Transect	5/19/2011	2:54:53 PM	12844275.22	289371.27	776.02	2.255	3.803	4.422	2.1	0.3	0.3	Light	Moderate	None	Left	No		Strt Channel Edg	None	Silt over Sand		
33.93T-B-03	Transect	5/19/2011	2:59:32 PM	12844172.48	289434.35	780.84	0.040	0.092	0.101	-99.0	-99.0	-99.0				Center	/sec		Mid-Channel				
33.95S-B-01	Focus	5/19/2011	3:10:21 PM	12844164.97	289295.43	781.12	3.895	3.951	5.548	2.0	0.1	0.2	Light	Light	Few	Left	No		Strt Channel Edg	25%-50%	Silt over Sand		
33.95S-B-02	Focus	5/19/2011	3:13:08 PM	12844205.16	289364.09	780.91	0.051	0.074	0.090	4.1	0.9	1.2	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
33.95S-B-03	Focus	5/19/2011	3:16:49 PM	12844280.02	289430.49	780.86	0.046	0.068	0.082	3.8	0.4	0.5	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
34.0-B-01	Focus	5/19/2011	2:03:20 PM	12844102.66	289541.96	780.94	0.056	0.121	0.134	3.5	1.1	1.1	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
34.0-B-02	Focus	5/19/2011	2:07:06 PM	12844038.42	289495.86	784.14	1.034	2.248	2.475	4.4	0.3	0.3	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
34.0-B-03	Focus	5/19/2011	2:10:47 PM	12844038.23	289455.62	783.87	1.059	4.616	4.736	3.9	0.1	0.4	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand		
34.0-B-04	Focus	5/19/2011	2:14:05 PM	12843962.37	289410.67	780.64	1.101	2.646	2.866	4.7	0.2	0.3	None	None	None	Right	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
34.0-B-05	Focus	5/19/2011	2:22:57 PM	12843860.83	289410.79	781.21	0.106	0.569	0.579	2.5	0.9	1.0	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
34.0-B-06	Focus	5/19/2011	2:26:48 PM	12843791.68	289440.86	783.16	0.774	2.863	2.965	3.1	0.4	1.9	Moderate	Heavy	Few	Right	<1ft/sec		Backwater	None	Soft Sediment		
34.0-B-07	Focus	5/19/2011	2:37:15 PM	12843777.11	289389.40	781.77	1.310	8.187	8.291	3.4	0.8	1.0	None	None	None	Center	1-3 ft/sec		Mid-Channel	None	Sand	LAT BDY	BAD POS
34.0-B-08	Focus	5/19/2011	2:42:23 PM	12843755.23	289456.34	787.96	0.849	4.200	4.285	2.8	2.0	2.3	Light	Moderate	None	Right	No		Backwater	None	Soft Sediment		
MP 34.00-34.25																							
34.03T-B-01	Transect	5/19/2011	1:28:15 PM	12843741.98	289254.93	780.69	0.064	0.067	0.093	5.9	0.0	0.1	Light	Light	None	Left	1-3 ft/sec		Point Bar	5%-25%	Sand		BEHIND DWND TREE RIP RAP SHORELINE
34.03T-B-02	Transect	5/19/2011	1:34:58 PM	12843714.92	289344.91	780.82	0.054	0.087	0.102	-99.0	-99.0	-99.0				Center	>3 ft/sec		Mid-Channel	None			
34.03T-B-03	Transect	5/19/2011	1:39:44 PM	12843704.45	289463.87	781.26	1.044	1.687	1.984	2.6	1.2	1.8	Moderate	Moderate	Few	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		B/N DWND TREES
34.03T-B-04	Transect	5/19/2011	1:42:48 PM	12843714.66	289435.65	780.62	0.052	0.096	0.110	3.1	0.0	0.0	Moderate	Moderate	Common	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
34.03T-B-05	Transect	5/19/2011	1:48:52 PM	12843712.03	289416.48	780.93	0.048	0.088	0.100	2.9	0.3	0.9	None	None	None	Center	<1ft/sec		Mid-Channel	None	Sand & Silt		
34.03T-B-06	Transect	5/19/2011	1:54:20 PM	12843649.92	289426.02	781.88	0.960	1.790	2.031	3.8	0.4	0.5	Light	Light	None	Right	<1ft/sec		Strt Channel Edg	None	Soft Sediment		
34.08T-B-01	Transect	5/19/2011	1:12:52 PM	12843454.06	289147.91	782.90	1.956	1.940	2.755	1.3	0.3	0.5	Light	Light	None	Left	1-3 ft/sec		Point Bar	None	Soft Sediment		
34.08T-B-02	Transect	5/19/2011	1:15:19 PM	12843427.08	289209.47	780.64	0.062	0.065	0.090	-99.0	-99.0	-99.0				Center	1-3 ft/sec		Mid-Channel	None			
34.08T-B-03	Transect	5/19/2011	1:19:22 PM	12843413.36	289315.71	777.82	4.236	5.005	6.557	2.9	0.2	0.4	Light	Light	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
34.12T-B-01	Transect	5/20/11	10:02:46 AM	12843206.03	289080.58	779.8101	2.9783	4.5415	5.431	2.3	0.2	0.3	None	None	None	Right		<1 ft/sec	Cut Bank	<5%	Sand & Gravel		PUBLIC ACCESS/Rope Swing
34.12T-B-02	Transect	5/20/11	10:08:14 AM	12843268.51	289016.83	782.5688	2.6971	4.6489	5.3746	5.2	0.0	0.0				Center	1-3 ft/sec		Mid-Channel	None	Sand & Gravel		
34.12T-B-03	Transect	5/20/11	10:17:20 AM	12843338.05	288975.44	790.1475	4.4883	5.5598	7.1454	1.5	0.1	0.2	None	None	None	Left	<1ft/sec		Point Bar	None	Soft Sediment		BAD POS/Dense Canopy
34.15T-B-01	Transect	5/20/11	10:25:14 AM	12843337.44	288911.32	778.819	1.7627	2.3554	2.9419	0.5	0.2	0.3	None	None	None	Left	<1ft/sec		Point Bar	<5%	Soft Sediment		BAD POS/Dense Canopy
34.15T-B-02	Transect	5/20/11	10:28:11 AM	12843279.09	288854.85	780.1639	2.2037	2.351	3.2224		0.0	0.0				Center			Mid-Channel				
34.15T-B-03	Transect	5/20/11	10:33:31 AM	12843222.79	288837.36	779.2565	2.6076	3.4938	4.3596	6.5	0.1	0.2	None	None	None	Right	1-3 ft/sec		Cut Bank	None	Sand & Gravel		
34.20S-B-01	Focus	5/20/11	10:43:16 AM	12843434.05	288719.55	779.8008	1.3074	1.6014	2.0673	3.8	0.8	1.1	Light	Light	None	Center	1-3 ft/sec		Backwater	None	Soft Sediment		
34.20S-B-02	Focus	5/20/11	10:51:29 AM	12843365.61	288800.00	780.761	1.5041	1.9891	2.4937	2.8	0.8	1.1	None	None	None	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		BEHIND DWND TREE
34.20S-B-03	Focus	5/20/11	11:00:27 AM	12843475.69	288713.93	781.5269	1.137	1.5852	1.9508	2.0	1.8	2.5	Moderate	Heavy	None	Left	<1ft/sec		Backwater	None	Soft Sediment	RESID SURF SHN	
34.20S-B-04	Focus	5/20/11	11:09:51 AM	12843436.12	288724.13	783.5136	1.0725	1.5462	1.8818	2.9	0.4	0.6	Light	Light	None	Center	1-3 ft/sec		Backwater	None	Soft Sediment		
34.20S-B-05	Focus	5/20/11	11:20:44 AM	12843479.85	288759.51	795.2147	2.3435	3.9195	4.5666	1.4	1.2	2.5	Light	Light	None	Left	<1ft/sec		Backwater	<5%	Soft Sediment		
34.20S-B-06	Focus	5/20/11	11:25:52 AM	12843480.75	288686.66	780.1672	0.1152	0.2489	0.2742	1.9	0.0	0.0	Moderate	Heavy	Few	Left	<1ft/sec		Backwater	<5%	Soft Sediment		
34.20S-B-08	Focus	5/20/11	11:37:18 AM	12843493.32	288612.03	786.2674	1.9723	3.7138	4.2051	5.7	0.5	0.6	None	None	None	Left	1-3 ft/sec		Backwater	None	Sand & Gravel		
34.22T-B-01	Focus	5/20/11	11:31:26 AM	12843497.73	288645.75	781.6179	2.1479	4.1208	4.647	1.7	0.0	0.0	Moderate	Heavy	Few	Left					Soft Sediment		LocComments 2=USE AS 34.22T-B-1
34.22T-B-02	Transect	5/20/11	11:48:40 AM	12843367.14	288586.64	787.7276	2.2314	4.093	4.6617	4.1	0.3	0.5	None	None	None	Right	1-3 ft/sec		Point Bar	None	Sand		MVD UPSTRM DUE TO/Multi Down Trees
34.22T-B-03	Transect	5/20/11	11:52:17 AM	12843439.19	288635.79	780.5526	0.0372	0.0799	0.0881	-99.0	0.0	0.0				Center			Mid-Channel				
MA34BR-A-03	Other	5/26/2011	9:37:54 AM	12843443.75	289135.69	771.3771	2.0179	3.3533	3.9136	1.9	0.2	0.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Point Bar	<5%	Sand & Silt		FLOODED BANK
MA34BR-A-04	Other	5/26/2011	9:47:22 AM	12843251.33	289202.33	779.4225	1.8634	5.108	5.4373	1.8	0.0	0.0	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		LARGE ROCKS
MA34BR-B-01	Focus	5/20/11	9:57:27 AM	12843195.41	289132.20	780.6003	0.0995	0.1481	0.1784	0.5	0.0	0.0	Light	Light	Few	Right	No		Other-Comments	None	Other-Comments		BRIDGE/SOFT AND RIP RAP
MA34BR-B-02	Focus	5/20/11	10:14:45 AM	12843361.25	289018.88	779.6123	3.2401	3.2364	4.5796	1.1	0.1	0.2	Light	Light	None	Left	<1ft/sec		Point Bar	<5%	Soft Sediment		
MP 34.25-34.50																							
34.32T-B-01	Transect	5/20/11	12:00:30 PM	12843245.47	288166.24	781.0973	2.2258	4.0762	4.6444	0.6	0.2	0.3	None	None	None	Left	No		Cut Bank	<5%	Sand		MOVED UPSTRM DUE/To Rip Rap Wall
34.32T-B-02	Transect	5/20/11	12:04:46 PM	12843156.73	288363.93	794.121	2.6849	5.7024	6.3029	3.0	0.7	0.8	None	None	None	Right	<1ft/sec		Point Bar	None	Soft Sediment		
34.32T-B-03	Transect	5/20/11	12:09:42 PM	12843171.99	288279.36	779.9856	0.0489	0.0866	0.0995	-99.0	-99.0	-99.0				Center			Mid-Channel				
34.40T-B-01	Transect	5/20/11	12:15:05 PM	12842669.22	288348.12	785.8606	1.7921	3.1892	3.6582	4.8	0.3	0.4	None	None	None	Left	<1ft/sec		Cut Bank	None	Sand		
34.40T-B-02	Transect	5/20/11	12:17:15 PM	12842687.78	288403.07	780.8398	1.0213	1.8001	2.0696	-99.0	-99.0	-99.0				Center	1-3 ft/sec		Mid-Channel				
34.40T-B-03	Transect	5/20/11	12:20:15 PM	12842746.46	288445.07	780.0188	1.0801	1.7738	2.0767	0.8	0.3	0.4	None	None	None	Right	<1ft/sec		Point Bar	None	Sand		MVD DWNSTRM DUE/TO DWND TREES
34.48T-B-01	Transect	5/20/11	12:26:20 PM	12842492.93	288780.08	782.7378	1.8004	2.7445	3.2824	4.3	0.3	0.3	None	None	None	Left	>3 ft/sec		Point Bar	None	Sand & Gravel		MVD DWNSTRM DUE/TO DWND TREES/LOG JAM
34.48T-B-02	Transect	5/20/11	12:28:41 PM	12842546.74	288817.34	779.5697	0.7944	1.2314	1.4654	-99.0	-99.0	-99.0				Center			Mid-Channel				
34.48T-B-03	Transect	5/20/11	12:33:12 PM	12842665.35	288815.30	782.069	1.4382	1.9044	2.3865	1.1	1.0	1.9	Light	Light	None	Right	No		Other-Comments	5%-25%	Soft Sediment	RESID SURF SHN	GRASS FLAT/MARSH
34.48T-A-04	Transect	5/27/2011	9:04:47 AM	12842742.63	288712.69	783.6127	1.636	4.3669	4.6633	2.7	0.3	1.1	Moderate	Moderate	Few	Right	No/sec	No/sec	Backwater	None	Soft Sediment		SED WIRH ORGANIC
34.48T-A-05	Transect	5/27/2011	9:09:09 AM	12842745.50	288657.11	781.0528	1.3105	2.6658	2.9705	2.1	0.3	0.8	Light	Light	Few	Right	No/sec	No/sec	Backwater	None	Soft Sediment	U BDY, SHEENONARRIVAL	HVY ORGANICMATTER
34.48T-A-06	Transect	5/27/2011	9:15:23 AM	12842754.14	288603.86	780.4587	1.9528	4.1976	4.6296	1.7	0.2	0.3	None	None	None	Right	No/sec	No/sec	Backwater	None	Organic		FLOODED BANK MOSTLY GRASS
34.48T-A-07	Transect	5/27/2011	9:23:51 AM	12842696.09	288790.64	785.9371	1.7722	4.5757	4.9069	3.6	0.3	0.9	Light	Light	Few	Right	No/sec	No/sec	Backwater	None	Soft Sediment	D BDY	
34.48T-A-08	Transect	5/27/2011	9:28:44 AM	12842705.08	288900.14	770.8251	3.4227	4.202	5.4196	2.2	0.1	0.1	Light	Light	None	Right	No/sec	No/sec	Backwater	None	Organic		VEGITATIVEBOTTOM
34.48T-A-09	Transect	5/27/2011	9:32:08 AM	12842675.28	288816.67	775.3599	2.0691	4.2136	4.6942	2.4	0.3	0.8	Light	Light	Few	Right	No/sec	No/sec	Backwater	None	Other-Comments		SILTANDORGANIC
MP 34.50-34.75																							
34.57T-B-01	Transect	5/20/11	12:39:01 PM	12842216.51	288950.53	781.2615	1.1126	1.5132	1.8782	1.7	0.2	0.3	None	None	None	Left	1-3 ft/sec		Point Bar	None	Sand & Gravel		
34.57T-B-02	Transect	5/20/11	12:40:22 PM	12842201.96	289021.30	779.3	0.9439	1.2456	1.5628	-99.0	-99.0	-99.0				Center			Mid-Channel				
34.57T-C-01	Transect	5/23/11	1:30:03 PM	12842323.39	289125.31	781.3379	1.4753	2.418	2.8326	2.6	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
34.65T-C-01	Transect	5/23/11	1:36:07 PM	12841999.44	288830.82	782.8549	3.7221	3.143	4.8716	1.1	0.3	0.5	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	<5%	Silt over Sand		
34.65T-C-02	Transect	5/23/11	1:41:58 PM	12841860.96	288922.01	781.294	2.2645	2.3529	3.2655	2.1	0.6	0.8	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Cut Bank	None	Soft Sediment		
34.65T-C-03	Transect	5/23/11	1:46:15 PM	12841928.27	288835.87	779.432	2.0497	1.6091	2.6058	3.7	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		
34.71T-C-01	Transect	5/23/11	1:56:31 PM	12841828.70	288523.36	784.6606	2.7185	3.0545	4.089	1.1	0.8	1.2	Light	Light	Few	Left	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
34.71T-C-02	Transect	5/23/11	2:00:55 PM	12841625.33	288577.56	777.8542	1.4989	2	2.4993	1.4	0.4	0.5	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Strt Channel Edg	<5%	Soft Sediment		
34.71T-C-03	Transect	5/23/11	2:02:47 PM	12841728.34	288549.98	779.1313	0.0759	0.0881	0.1163	3.4	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
MP 34.75-35.00																							
34.79T-C-01	Transect	5/23/11	2:08:39 PM	12841468.95	288232.73	779.0765	0.0802	0.1138	0.1392	2.8	0.2	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand		
34.79T-C-02	Transect	5/23/11	2:13:32 PM	12841580.58	288136.80	786.0756	2.0544	2.6598	3.3609	5.0	0.1	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
34.79T-C-03	Transect	5/23/11	2:14:45 PM	12841522.96	288154.97	778.5593	1.3116	1.4707	1.9706	-99.0	-99.0	-99.0				Center			Mid-Channel				
34.87T-A-04	Transect	5/27/2011	9:41:53 AM	12841489.07	287862.20	780.0736	0.0537	0.1495	0.1588	3.2	0.3	0.4	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Cove	None	Soft Sediment		
34.87T-A-05	Transect	5/27/2011	9:46:04 AM	12841459.53	287853.33	779.9433	0.0502	0.11	0.1209	6.3	0.1	0.1	None	None	None	Left	No/sec	No/sec	Cove	None	Sand & Gravel	LAT BDY	
34.87T-A-06	Transect	5/27/2011	9:49:57 AM	12841555.36	287864.00	777.9993	1.2808	2.6635	2.9554	2.4	1.1	1.3	Moderate	Moderate	Common	Left	No/sec	No/sec	Backwater	None	Soft Sediment		SEDANDORGANIC
34.87T-A-07	Transect	5/27/2011	9:54:47 AM	12841602.65	287915.40	776.1462	2.5774	3.0149	3.9665	2.2	0.1	0.6	Light	Light	Few	Left	No/sec	No/sec	Backwater	5%-25%	Soft Sediment		
34.87T-C-01	Transect	5/23/11	2:19:01 PM	12841292.62	287845.74	779.3572	1.671	2.1919	2.7562	3.9	0.2	1.0	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Sand & Silt		
34.87T-C-02	Transect	5/23/11	2:23:05 PM	12841437.35	287774.58	777.8099	2.0913	3.1901	3.8145	2.8	0.4	1.2	None	None	None	Left	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Sand		
34.87T-C-03	Transect	5/23/11	2:25:38 PM	12841339.42	287756.92	778.4401	0.1127	0.1086	0.1565	5.6	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
34.93T-A-01	Transect	6/5/11	12:17:46 PM	12841127.48	287646.74	782.3115	1.3188	2.5114	2.8366	3.4	0.1	0.2	None	None	None	Right	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand	U BDY	
34.93T-C-01	Transect	5/23/11	2:30:14 PM	12841250.67	287517.04	784.7554	4.4058	5.3613	6.9394	0.6	0.7	0.8	None	None	None	Left	<1ft/sec	<1ft/sec	Cut Bank	25%-50%	Silt over Sand		
34.93T-C-02	Transect	5/23/11	2:37:20 PM	12841080.08	287620.71	780.1258	3.3482	4.1651	5.344	2.4	0.3	0.5	Moderate	Moderate	Common	Right	<1ft/sec	<1ft/sec	Point Bar	None	Soft Sediment		
34.93T-C-04	Transect	5/23/11	2:40:22 PM	12841088.13	287616.98	777.0384	3.6348	3.992	5.3989	-99.0	-99.0	-99.0				Right			Point Bar				
34.93T-C-05	Transect	5/23/11	2:44:31 PM	12841065.86	287557.36	778.9349	0.0705	0.1072	0.1283	5.2	0.2	0.2	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel		
34.93T-C-06	Transect	5/23/11	2:45:37 PM	12841137.20	287534.33	774.8378	1.1169	2.5958	2.8259	7.1	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
MP 35.00-35.25																							
35.03T-C-01	Transect	5/23/11	2:53:38 PM	12840748.12	287522.39	773.7477	1.6218	3.5934	3.9424	1.7	0.3	0.4	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Point Bar	None	Silt over Sand		
35.03T-C-02	Transect	5/23/11	2:59:55 PM	12840707.31	287439.58	779.999	0.8058	1.9099	2.0729	5.8	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
35.03T-C-03	Transect	5/23/11	4:00:03 PM	12840793.87	287332.82	775.4932	2.5919	3.3494	4.2351	1.8	0.1	0.2	Light	Light	Few	Left	<1ft/sec	<1ft/sec	Cut Bank	None	Silt over Sand		
35.1N-C-01	Focus	5/23/11	3:03:44 PM	12840552.20	287540.48	776.7506	0.8579	2.7406	2.8717	2.1	0.8	1.0	Moderate	Moderate	Common	Right	<1ft/sec	<1ft/sec	Point Bar	5%-25%	Soft Sediment		
35.1N-C-02	Focus	5/23/11	3:10:51 PM	12840594.51	287545.48	782.1313	1.4275	4.8156	5.0228	1.8	1.3	1.7	Heavy	Heavy	Many	Right	<1ft/sec	<1ft/sec	Point Bar	5%-25%	Soft Sediment		
35.1N-C-03	Focus	5/23/11	3:16:09 PM	12840646.04	287508.15	787.1376	0.9466	4.4259	4.526	2.1	0.5	0.8	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Point Bar	None	Soft Sediment		
35.1N-C-04	Focus	5/23/11	3:23:18 PM	12840558.35	287493.47	773.9395	1.2823	5.1576	5.3147	4.4	0.2	0.5	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
35.1N-C-05	Focus	5/23/11	3:29:48 PM	12840462.39	287599.03	805.6548	2.5751	5.0313	5.652	1.2	0.5	1.0	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Point Bar	<5%	Soft Sediment		
35.1N-C-06	Focus	5/23/11	3:33:21 PM	12840371.66	287639.34	778.7135	0.7546	2.4241	2.5389	2.1	0.2	0.3	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Sand		
35.1N-C-07	Focus	5/23/11	3:36:33 PM	12840323.98	287667.86	779.1285	0.0517	0.2125	0.2187	2.0	0.3	0.4	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Strt Channel Edg	<5%	Silt over Sand		
35.1N-C-08	Focus	5/23/11	3:49:43 PM	12840260.04	287692.21	778.644	0.1222	0.3629	0.383	1.1	1.1	1.8	Light	Light	Few	Right	No	No	Strt Channel Edg	25%-50%	Soft Sediment		
35.1N-C-09	Focus	5/23/11	3:52:45 PM	12840146.18	287755.63	776.4406	1.1326	2.1677	2.4458	1.2	0.8	0.9	Light	Light	Few	Right	No	No	Strt Channel Edg	<5%	Soft Sediment		
35.11T-C-01	Transect	5/23/11	3:43:27 PM	12840323.48	287710.16	778.5706	0.1145	0.4119	0.4275	1.2	0.9	1.1	None	None	None	Right	No	No	Strt Channel Edg	25%-50%	Soft Sediment		
35.11T-C-02	Transect	5/23/11	4:04:56 PM	12840264.88	287439.33	778.5475	0.0514	0.0658	0.0835	2.5	0.2	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.11T-C-03	Transect	5/23/11	4:07:32 PM	12840218.42	287571.33	778.7206	0.0534	0.1061	0.1188	3.8	0.2	0.3	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
35.18T-C-01	Transect	5/23/11	4:13:23 PM	12839933.48	287570.15	783.3745	2.0633	2.6251	3.3389	1.3	0.2	0.3	None	None	None	Left	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.18T-C-02	Transect	5/23/11	4:22:50 PM	12839945.05	287464.70	778.7066	3.4031	4.0616	5.2988	0.7	0.8	1.2	Light	Light	Few	Left	No	No	Backwater	None	Soft Sediment		
35.18T-C-03	Transect	5/23/11	4:28:43 PM	12839961.77	287462.01	779.8418	2.8501	2.833	4.0186	0.9	0.8	1.2	Light	Light	Few	Left	No	No	Backwater	None	Soft Sediment		
35.18T-C-04	Transect	5/23/11	4:41:33 PM	12839981.80	287792.56	779.5738	1.8204	2.0147	2.7153	1.8	0.1	0.7	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Soft Sediment		
35.18T-C-05	Transect	5/23/11	4:47:28 PM	12839848.88	287699.60	778.4343	0.0585	0.0705	0.0916	5.2	0.3	0.3	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
MP 35.25-35.50																							
35.26T-C-01	Transect	5/23/11	4:51:41 PM	12839512.52	287766.58	772.9238	2.3024	3.0322	3.8073	2.4	0.1	0.2	Light	Light	Few	Left	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.26T-C-02	Transect	5/23/11	4:55:46 PM	12839665.16	287966.03	770.0898	3.6583	4.3141	5.6564	1.5	0.4	0.5	Light	Light	Few	Right	<1ft/sec	<1ft/sec	Strt Channel Edg	None	Silt over Sand		
35.26T-C-03	Transect	5/23/11	4:57:55 PM	12839548.27	287920.08	777.2726	1.135	1.3162	1.738	3.6	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
35.3N-A-01	Focus	6/6/2011	10:44:34 AM	12839075.96	288255.45	777.7098	1.1629	1.7113	2.069	1.8	0.1	0.1	None	None	None	Right	>3 ft/sec	>3 ft/sec	Cut Bank	None	Gravel & Larger		
35.3N-A-02	Focus	6/6/2011	10:52:01 AM	12839242.90	288298.72	778.2491	0.0636	0.0971	0.1161	1.6	0.6	1.4	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand over Silt	SHNONARIVAL	
35.3N-A-03	Focus	6/6/2011	11:02:46 AM	12839213.24	288276.31	778.2204	0.0446	0.0713	0.0841	3.6	0.2	0.2	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Gravel & Larger		
35.3N-A-04	Focus	6/6/2011	11:10:04 AM	12839289.25	288283.98	787.3403	2.023	3.214	3.7977	1.8	0.7	1.8	Heavy	Heavy	Many	Right	No	No	Cut Bank	None	Silt over Sand	SHNONSURFCE	
35.3N-A-05	Focus	6/6/2011	11:16:02 AM	12839285.59	288255.54	778.3618	0.033	0.0501	0.06	4.8	0.1	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
35.3N-A-06	Focus	6/6/2011	11:20:12 AM	12839300.72	288266.81	778.3148	0.0515	0.0856	0.0999	2.9	0.6	1.8	Moderate	Light	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
35.3N-A-07	Focus	6/6/2011	11:26:55 AM	12839337.95	288261.08	778.3092	0.0752	0.1584	0.1754	2.5	1.1	2.1	None	None	None	Right	No	No	Cut Bank	None	Silt over Sand		
35.3N-A-08	Focus	6/6/2011	11:36:06 AM	12839450.17	288172.07	778.1906	0.031	0.0531	0.0615	2.3	0.6	0.9	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
35.3N-A-09	Focus	6/6/2011	11:42:32 AM	12839409.53	288212.95	778.0462	0.0656	0.123	0.1394	2.4	1.1	1.2	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
35.3N-A-10	Focus	6/8/2011	1:54:26 PM	12839295.59	288279.69	777.769	0.0527	0.1952	0.2021	1.5	0.6	2.4	Heavy	Heavy	Many	Right	No	No	Cut Bank	None	Soft Sediment		
35.3N-A-11	Focus	6/8/2011	1:58:42 PM	12839273.36	288292.10	778.0578	0.0292	0.1919	0.1941	1.6	0.3	1.4	Heavy	Heavy	Many	Right	No	No	Cut Bank	None	Sand over Silt		
35.3N-A-12	Focus	6/8/2011	2:07:41 PM	12839249.24	288293.47	778.6114	0.7722	3.022	3.1191	1.3	0.5	1.5	Heavy	Heavy	Many	Right	No	No	Cut Bank	None	Soft Sediment		
35.3N-A-13	Focus	6/8/2011	2:11:20 PM	12839220.67	288304.48	749.3525	9.1495	17.0676	19.3653	0.9	0.4	1.0	Heavy	Heavy	Many	Right	No	No	Cut Bank	None	Silt over Sand		
35.3N-A-14	Focus	6/8/2011	2:21:04 PM	12839166.58	288286.25	786.2291	2.2899	10.2854	10.5372	1.3	0.1	0.2	Heavy	Heavy	Many	Right	No	No	Cut Bank	None	Sand		
35.3N-A-15	Focus	6/8/2011	2:32:26 PM	12839129.49	288266.81	779.4138	0.8902	2.633	2.7795	1.0	0.1	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
35.3N-A-16	Focus	6/8/2011	2:49:46 PM	12839458.69	288176.05	777.8239	0.0542	0.089	0.1042	2.0	0.3	0.3	Heavy	Heavy	Many	Right	No	No	Cut Bank	None	Sand		
35.3N-A-17	Focus	6/8/2011	2:55:30 PM	12839463.53	288138.61	777.7306	0.0386	0.06	0.0713	0.9	0.1	0.1	Moderate	Light	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand		ONSAND BAR
35.3N-A-18	Focus	6/8/2011	2:58:59 PM	12839437.48	288121.00	777.7589	0.0289	0.0436	0.0523	3.2	0.2	0.3	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
35.3N-A-19	Focus	6/8/2011	3:08:03 PM	12839488.62	288141.39	777.6425	0.0525	0.0626	0.0817	1.5	0.2	0.3	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
35.3N-A-20	Focus	6/8/2011	3:14:35 PM	12839460.04	288111.40	777.8151	0.0577	0.0796	0.0983	2.9	0.3	0.5	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		SAND BAR
35.3N-A-21	Focus	6/8/2011	3:18:56 PM	12839530.03	288091.59	777.5289	0.1091	0.1308	0.1703	1.3	0.4	0.7	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand		
35.3N-A-22	Focus	6/8/2011	3:25:15 PM	12839581.51	288033.77	777.8715	0.0605	0.0794	0.0998	2.0	0.0	0.0	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None			
35.3N-A-23	Focus	6/9/2011	4:51:05 PM	12839397.29	288163.09	777.4926	0.0381	0.1183	0.1243	3.1	0.2	0.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
35.3N-A-24	Focus	6/9/2011	5:03:47 PM	12839394.49	288227.90	777.4801	0.0813	0.1599	0.1794	1.6	0.7	1.5	Moderate	Moderate	Few	Right	No	No	Cut Bank	None	Silt over Sand	SHNONARRIVAL	
35.34T-A-02	Transect	6/8/2011	1:48:28 PM	12839305.35	288163.01	776.8819	0.7324	1.9303	2.0646	4.0	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
35.34T-A-03	Transect	6/8/2011	1:46:37 PM	12839244.31	288105.32	776.2612	1.6331	5.1048	5.3597	2.0	0.0	0.3	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
35.42T-A-01	Transect	6/6/2011	10:26:00 AM	12838885.62	288177.21	777.3757	1.4925	1.9479	2.454	2.1	0.3	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		LRGRCKNSAND
35.42T-A-02	Transect	6/6/2011	10:30:55 AM	12838937.32	288012.70	781.9221	1.2219	1.4698	1.9113	1.5	0.6	0.8	Light	Light	Few	Left	No	No	Point Bar	None	Sand		
35.42T-A-03	Transect	6/6/2011	10:36:48 AM	12838896.60	288091.22	777.8182	0.0527	0.0706	0.0881	3.8	0.1	0.1	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		
35.48T-A-01	Transect	6/6/2011	9:56:15 AM	12838544.03	287893.44	788.7838	3.3872	3.7723	5.0698	2.1	0.1	0.1	None	None	None	Right	>3 ft/sec	>3 ft/sec	Strt Channel Edg	None	Gravel & Larger		
35.48T-A-02	Transect	6/6/2011	10:02:00 AM	12838636.61	287772.52	777.7227	0.1082	0.2092	0.2355	2.9	0.2	0.3	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.48T-A-03	Transect	6/6/2011	10:09:30 AM	12838630.51	287842.22	777.6383	0.0481	0.0646	0.0805	4.7	0.1	0.1	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		
MP 35.50-35.75																							
35.55T-A-01	Transect	6/8/2011	12:04:46 PM	12838340.88	287675.83	777.0456	1.3131	2.3618	2.7023	1.7	0.3	0.4	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand		
35.55T-A-02	Transect	6/8/2011	12:09:13 PM	12838379.39	287588.76	776.954	0.0416	0.0657	0.0777	3.4	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
35.55T-A-03	Transect	6/8/2011	12:12:53 PM	12838482.70	287512.71	777.0452	0.6565	0.7819	1.0209	1.5	0.1	0.1	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Gravel & Larger		
35.6NW-A-01	Focus	6/9/2011	10:38:15 AM	12838144.98	287388.11	777.1131	0.0685	0.0873	0.111	1.6	0.1	0.2	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	<5%	Sand & Gravel		
35.6NW-A-02	Focus	6/9/2011	10:43:55 AM	12838166.55	287378.06	776.9134	0.0466	0.0689	0.0831	1.9	0.1	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel	SHNONARRIVAL	
35.6NW-A-03	Focus	6/9/2011	10:48:11 AM	12838144.13	287440.42	780.3737	1.6939	2.5414	3.0541	1.0	0.3	0.4	Light	Light	Few	Right	No	No	Cut Bank	<5%	Silt over Sand		ROOTY
35.6NW-A-04	Focus	6/9/2011	11:01:42 AM	12838211.84	287523.03	776.1557	1.3529	2.1998	2.5825	1.2	0.2	0.2	Light	Light	Few	Right	No	No	Cut Bank	None	Sand & Gravel		
35.6NW-A-05	Focus	6/9/2011	11:07:54 AM	12838248.20	287575.28	776.6646	0.1037	0.2044	0.2292	1.1	0.5	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Silt over Sand		
35.6NW-A-06	Focus	6/9/2011	11:15:35 AM	12838264.69	287616.23	777.3077	0.0636	0.1085	0.1258	1.1	0.4	0.5	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand		
35.6NW-A-07	Focus	6/9/2011	11:22:31 AM	12838310.38	287667.35	777.7389	1.3934	2.5147	2.8749	0.7	0.7	0.8	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	5%-25%	Silt over Sand		
35.6NW-A-08	Focus	6/9/2011	1:39:52 PM	12838363.55	287681.82	777.0033	0.0458	0.0937	0.1043	1.6	0.3	0.5	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand	SHNONARRIVAL	IN DEBRISCHOKE
35.6NW-A-09	Focus	6/9/2011	1:45:32 PM	12838382.92	287750.77	776.9291	0.8064	1.9691	2.1279	1.3	0.2	0.2	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel	SHNONARRIVAL	
35.6NW-A-10	Focus	6/9/2011	1:48:28 PM	12838401.89	287717.38	777.3685	0.0416	0.0992	0.1076	2.1	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Gravel & Larger		
35.6NW-A-11	Focus	6/9/2011	1:51:31 PM	12838405.17	287780.77	776.8481	0.1286	0.3021	0.3284	1.6	0.1	0.2	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel		
35.6NW-A-12	Focus	6/9/2011	1:57:00 PM	12838437.63	287810.52	777.3719	2.0457	5.5362	5.9021	1.4	0.1	0.2	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	5%-25%	Sand		ROOTY
35.6NW-A-13	Focus	6/9/2011	2:00:40 PM	12838478.58	287831.48	777.0882	1.635	4.4143	4.7074	1.6	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Gravel & Larger		
35.6NW-A-14	Focus	6/9/2011	2:03:34 PM	12838428.24	287771.27	779.9608	0.99	3.1146	3.2682	1.8	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Gravel & Larger		
35.6SEA-A-01	Focus	6/9/2011	9:49:14 AM	12838334.15	286801.39	776.3297	0.055	0.0831	0.0997	2.0	0.5	0.6	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Backwater	None	Sand		
35.6SEA-A-02	Focus	6/9/2011	9:54:44 AM	12838350.60	286885.32	782.0385	4.7184	5.0484	6.9102	0.8	0.6	0.7	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	None	Sand & Silt		
35.6SEA-A-03	Focus	6/9/2011	10:06:04 AM	12838327.03	286973.70	777.3686	2.379	2.6723	3.5778	0.7	0.6	0.7	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
35.6SEA-A-04	Focus	6/9/2011	10:08:45 AM	12838262.62	286942.52	776.8027	0.0328	0.0441	0.055	1.8	0.4	0.6	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
35.6SEA-A-05	Focus	6/9/2011	10:14:08 AM	12838294.46	287027.69	782.3387	1.9709	2.2729	3.0084	1.4	0.2	0.3	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
35.6SEA-A-06	Focus	6/9/2011	10:20:22 AM	12838281.62	287077.45	769.538	5.1883	8.5494	10.0005	1.5	0.3	0.5	None	None	None	Left	<1ft/sec	<1 ft/sec	Backwater	None	Sand		
35.6SEA-A-07	Focus	6/9/2011	10:23:30 AM	12838268.96	287037.53	776.628	0.0497	0.0586	0.0769	2.1	0.5	0.7	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Backwater	None	Sand		
35.6SEA-A-08	Focus	6/9/2011	10:30:20 AM	12838317.87	286852.75	777.1687	0.9535	1.1151	1.4672	0.9	0.5	0.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Backwater	None	Sand		
35.62T-A-01	Transect	6/8/2011	11:36:09 AM	12838144.60	287345.14	777.256	0.0333	0.0718	0.0791	1.8	0.1	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut Bank	None	Sand & Gravel	CHOKEPOINT AREA SHNONARRIVAL	
35.62T-A-02	Transect	6/8/2011	11:40:11 AM	12838259.62	287313.49	776.9227	0.0345	0.0625	0.0714	2.8	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
35.62T-A-03	Transect	6/8/2011	11:45:50 AM	12838348.86	287259.04	777.4643	0.8831	1.5546	1.7879	1.4	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Gravel	SPOTTYSHNINMUD SHN NOTCNSTNT	
35.68T-A-01	Transect	6/8/2011	11:17:59 AM	12838071.29	287024.79	773.69	2.3452	4.1341	4.7529	1.7	0.2	0.3	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.68T-A-02	Transect	6/8/2011	11:22:48 AM	12838178.62	287063.12	776.9404	0.052	0.0937	0.1072	3.8	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
35.68T-A-03	Transect	6/8/2011	11:26:11 AM	12838271.46	287063.89	779.0478	1.3362	2.8219	3.1223	2.5	0.2	0.4	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		
35.68T-A-04	Transect	6/8/2011	10:54:08 AM	12838070.63	286989.67	774.0346	2.5042	3.9937	4.7139	1.8	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Gravel & Larger		
35.68T-A-05	Transect	6/8/2011	10:57:03 AM	12838215.51	286954.64	776.6629	0.0345	0.0525	0.0629	3.0	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
35.68T-A-06	Transect	6/8/2011	11:02:18 AM	12838332.83	286938.57	778.6264	1.6062	2.6758	3.1209	1.1	0.3	0.4	Moderate	Moderate	Common	Left	1-3 ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
35.6SEB-A-01	Focus	6/7/2011	3:57:04 PM	12838449.00	286304.50	775.0781	11.3942	13.7952	17.8923	1.5	0.2	0.3	Heavy	Heavy	Many	Left	No	No	Backwater	None	Silt over Sand		AT ENTRANCE
35.6SEB-A-02	Focus	6/7/2011	4:05:47 PM	12838404.23	286246.45	784.8934	11.8993	14.1962	18.5236	2.5	0.5	1.3	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand over Silt		
35.6SEB-A-03	Focus	6/8/2011	4:01:04 PM	12838471.25	286403.69	777.6667	1.7729	2.456	3.0291	2.5	1.0	1.5	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
35.6SEB-A-04	Focus	6/8/2011	4:04:27 PM	12838460.91	286464.70	774.8561	1.3547	1.8389	2.284	1.5	0.4	0.5	Moderate	Moderate	Common	Left	No	No	Backwater	None	Silt over Sand		
35.6SEB-A-05	Focus	6/8/2011	4:09:50 PM	12838407.85	286504.03	776.6919	0.0722	0.1056	0.1279	1.9	0.4	0.5	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	<5%	Silt over Sand		
35.6SEB-A-06	Focus	6/8/2011	4:18:28 PM	12838360.99	286594.63	776.4266	0.097	0.5346	0.5434	1.7	0.4	0.9	Heavy	Heavy	Many	Left	No	No	Backwater	<5%	Silt over Sand		
35.6SEB-A-07	Focus	6/8/2011	4:24:52 PM	12838328.25	286609.94	776.3567	1.1172	1.5864	1.9403	3.0	0.1	0.2	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Backwater	None	Gravel & Larger		
35.6SEB-A-08	Focus	6/8/2011	4:29:51 PM	12838366.51	286491.36	776.602	0.0259	0.0483	0.0548	1.8	0.4	0.9	Moderate	Moderate	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
35.6SEB-A-09	Focus	6/8/2011	4:33:04 PM	12838339.70	286462.98	776.4679	0.0234	0.0499	0.0551	2.0	0.4	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
35.6SEB-A-10	Focus	6/8/2011	4:35:44 PM	12838357.02	286363.91	776.5292	0.024	0.0484	0.0541	2.5	0.2	0.5	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
35.6SEB-A-11	Focus	6/8/2011	4:40:33 PM	12838355.24	286279.47	776.4794	0.0329	0.0706	0.0779	2.8	0.2	0.3	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
35.6SEB-A-12	Focus	6/8/2011	3:38:26 PM	12838464.35	286349.89	775.6928	1.6943	2.0038	2.6241	1.7	0.5	0.9	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
35.6SEB-A-13	Focus	6/8/2011	3:43:52 PM	12838400.95	286389.81	776.6366	0.0495	0.0667	0.0831	1.0	0.1	0.2	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		DWNSTRM SNDBAR
35.73T-A-01	Transect	6/9/2011	9:37:11 AM	12838036.73	286641.96	776.9388	0.1813	0.1412	0.2298	1.7	0.1	0.2	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.73T-A-02	Transect	6/9/2011	9:40:58 AM	12838166.12	286633.54	776.4291	0.0334	0.0477	0.0582	2.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
35.73T-A-03	Transect	6/9/2011	9:44:35 AM	12838328.81	286656.94	778.5509	1.9972	2.7719	3.4165	1.8	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Gravel		
MP 35.75-36.00																							
35.77T-A-01	Transect	6/8/2011	10:25:58 AM	12838070.07	286478.34	774.8602	1.0998	1.4451	1.8159	2.3	0.1	0.2	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand		
35.77T-A-02	Transect	6/8/2011	10:29:27 AM	12838272.54	286510.53	776.7349	0.0306	0.0373	0.0483	2.9	0.1	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
35.77T-A-03	Transect	6/8/2011	10:33:27 AM	12838426.19	286523.43	777.6884	0.2768	0.3776	0.4681	0.8	0.5	0.9	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
35.8NW-A-01	Focus	6/7/2011	11:25:27 AM	12838154.09	286096.02	781.1405	2.2336	4.1987	4.7558	2.7	0.2	0.2	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Sand & Gravel	ONISLANDBNK	
35.8NW-A-02	Focus	6/7/2011	11:30:45 AM	12838078.08	286102.12	776.8425	0.2484	0.3308	0.4137	3.1	0.4	0.4	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut off	None	Sand		ROOTSNDETRITS
35.8NW-A-03	Focus	6/7/2011	11:36:48 AM	12838066.23	286152.77	778.6954	1.1576	2.3619	2.6303	2.2	0.5	0.6	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut off	None	Silt over Sand	SHNONARRIVAL	
35.8NW-A-04	Focus	6/7/2011	11:40:28 AM	12838085.51	286141.89	784.3787	1.6954	3.5879	3.9683	3.4	0.2	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Cut off	None	Sand & Gravel		
35.8NW-A-05	Focus	6/7/2011	11:44:00 AM	12838071.46	286198.55	778.7249	1.1162	2.4421	2.6851	2.7	0.1	0.1	Heavy	Heavy	Common	Right	<1ft/sec	<1 ft/sec	Cut off	None	Silt over Sand		
35.8NW-A-06	Focus	6/7/2011	11:49:36 AM	12838076.70	286214.66	789.787	1.4032	2.8095	3.1404	3.4	0.1	0.1	None	None	None	Right	<1ft/sec	<1 ft/sec	Cut off	None	Sand & Gravel		
35.8NW-A-07	Focus	6/7/2011	11:54:00 AM	12838137.61	286237.92	775.8704	1.4593	2.8381	3.1913	3.0	0.1	0.2	None	None	None	Island	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	SHNONARRIVAL	BNKISLAND
35.8NW-A-08	Focus	6/7/2011	12:17:43 PM	12838077.62	286285.83	778.9429	2.1811	3.7409	4.3304	2.1	1.0	1.0	Moderate	Moderate	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		GRAVELREFUSL
35.8NW-A-09	Focus	6/7/2011	12:22:35 PM	12838077.36	286321.44	778.0371	1.1745	1.9241	2.2542	1.5	1.3	1.8	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut off	None	Soft Sediment		
35.8NW-A-10	Focus	6/7/2011	12:28:13 PM	12838079.37	286352.58	776.733	1.0651	1.6723	1.9827	2.3	0.4	0.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut off	None	Gravel & Larger		
35.8NW-A-11	Focus	6/7/2011	12:32:18 PM	12838079.28	286412.87	783.1838	3.7774	4.4449	5.8332	2.8	0.1	0.2	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.8NW-A-12	Focus	6/7/2011	2:22:22 PM	12838155.19	286339.74	789.5244	12.1614	29.9113	32.2891	2.6	0.1	0.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel	SHNONARRIVAL	
35.8NW-A-13	Focus	6/7/2011	2:28:29 PM	12838187.02	286370.99	759.7164	13.651	30.983	33.857	2.0	0.2	0.3	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Other-Comments	None	Other-Comments		ISLNDHEAD SEDANDORGANICS
35.8NW-A-14	Focus	6/7/2011	2:44:15 PM	12838133.63	286044.29	780.6714	9.47	15.9538	18.5528	3.3	0.2	0.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Sand & Gravel		
35.8NW-A-15	Focus	6/7/2011	2:48:28 PM	12838104.14	286028.74	780.8175	8.077	13.7334	15.9325	2.8	0.0	0.0	None	None	None	Right	>3 ft/sec	>3 ft/sec	Cut off	None	Gravel & Larger		BLWLOGJAMBANK
35.8NW-A-16	Focus	6/9/2011	4:19:43 PM	12838265.78	286287.79	776.4828	0.0253	0.0485	0.0547	3.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
35.8NW-A-17	Focus	6/9/2011	4:23:29 PM	12838239.76	286167.60	776.6444	0.0803	0.1599	0.1789	3.7	0.1	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
35.8NW-A-18	Focus	6/9/2011	4:29:12 PM	12838108.33	286329.60	779.4944	1.1302	3.3595	3.5445	2.6	0.1	0.1	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
35.8NW-A-19	Focus	6/9/2011	4:33:01 PM	12838102.36	286148.34	737.4316	31.4054	242.3299	244.3564	3.4	0.2	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
35.84T-A-01	Transect	6/7/2011	10:39:21 AM	12838335.61	286153.16	774.9946	3.319	5.1871	6.1581	2.7	0.0	0.0	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Gravel & Larger	SHNONARRIVAL	
35.84T-A-02	Transect	6/7/2011	10:45:56 AM	12838222.26	286195.71	781.5247	2.3307	3.2472	3.997	2.6	0.4	0.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Silt over Sand	ISLANDBANK	
35.84T-A-03	Transect	6/7/2011	11:04:39 AM	12838147.81	286218.33	780.3545	2.8062	4.4585	5.2681	2.4	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand		LFTBNKISLAND
35.84T-A-04	Transect	6/7/2011	11:17:52 AM	12838074.46	286232.56	788.2646	1.9414	3.7206	4.1967	2.8	0.1	0.1	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut off	None	Sand & Silt		ANDGRVLMIX
35.84T-A-05	Transect	6/7/2011	3:16:02 PM	12838204.90	286174.45	765.1768	12.1051	19.8273	23.2305	1.8	0.2	0.3	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand	SHNONARRIVAL	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
35.84T-A-06	Transect	6/7/2011	3:24:42 PM	12838185.32	286092.80	769.5517	10.6103	16.1149	19.2942	2.3	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand		
35.84T-A-07	Transect	6/7/2011	3:29:58 PM	12838213.94	286276.27	766.7984	13.2852	18.3965	22.6921	2.0	0.4	0.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Silt over Sand		
35.84T-A-08	Transect	6/7/2011	3:40:53 PM	12838223.80	286320.34	768.4815	12.6737	15.9118	20.3423	2.0	0.2	0.3	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand		
35.84T-A-09	Transect	6/7/2011	3:43:50 PM	12838211.04	286351.20	763.5708	12.5111	15.6612	20.0449	2.2	0.2	0.6	None	None	None	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Silt over Sand		
35.91T-A-01	Transect	6/7/2011	10:11:38 AM	12838086.60	285888.90	775.7232	1.5218	1.9781	2.4958	2.5	0.4	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand		CORRECTRNSCT ROOTSINSAND
35.91T-A-02	Transect	6/7/2011	10:26:10 AM	12838213.93	285807.54	780.7617	2.8611	3.7195	4.6926	3.0	0.1	0.4	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Gravel		
35.91T-A-03	Transect	6/7/2011	10:31:49 AM	12838150.79	285831.46	777.5661	0.7784	0.9712	1.2446	5.9	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		
MP 36.00-36.25																							
36.01T-A-01	Transect	6/5/11	4:49:59 PM	12837807.06	285433.71	781.8879	1.1635	2.8688	3.0957	2.1	0.4	1.0	None	None	None	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
36.01T-A-02	Transect	6/5/11	4:54:57 PM	12837902.19	285337.29	780.2964	1.0265	2.3675	2.5805	5.0	0.0	0.0	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Gravel & Larger		
36.01T-A-03	Transect	6/5/11	5:01:45 PM	12837850.50	285386.99	776.8576	0.0393	0.1056	0.1126	6.1	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
36.08T-A-01	Transect	6/5/11	3:53:36 PM	12837530.29	285289.83	779.755	1.1847	1.4416	1.866	3.9	0.3	0.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
36.08T-A02	Transect	6/5/11	4:00:09 PM	12837644.61	285149.37	772.5015	1.9437	2.5565	3.2115	3.8	0.2	1.6	None	None	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
36.08T-A03	Transect	6/5/11	4:04:24 PM	12837571.11	285199.33	777.069	0.0683	0.107	0.1269	5.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
36.10NW-A-01	Focus	6/5/11	4:11:33 PM	12837630.93	285377.01	776.8281	0.0739	0.1296	0.1492	3.5	0.1	0.5	Moderate	Light	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
36.10NW-A-02	Focus	6/5/11	4:20:23 PM	12837707.26	285419.73	776.8334	0.0613	0.1296	0.1434	2.1	0.2	1.0	None	None	None	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand & Silt	SIDECHANNEL	
36.10NW-A-03	Focus	6/5/11	4:30:24 PM	12837770.74	285557.65	786.9866	3.7447	6.7904	7.7545	3.2	0.3	0.8	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Backwater	None	Sand & Silt		TREEDWNUPSTRM
36.10NW-A-04	Focus	6/5/11	4:36:46 PM	12837821.56	285656.27	818.1686	1.9164	4.6842	5.0611	0.6	0.1	0.1	None	None	None	Right	No	No	Backwater	None	Soft Sediment		
36.10NW-A-05	Focus	6/5/11	5:06:08 PM	12838011.20	285762.59	776.8609	0.0665	0.2039	0.2145	2.4	1.4	1.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand & Silt		
36.10NW-A-06	Focus	6/6/2011	3:11:26 PM	12837639.99	285372.39	776.7091	0.0555	0.0794	0.0969	3.3	0.4	0.9	None	None	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Sand & Silt		
36.10NW-A-07	Focus	6/6/2011	3:21:13 PM	12837716.44	285391.96	776.7405	0.0404	0.0558	0.0689	1.0	0.8	1.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Soft Sediment		
36.10NW-A-08	Focus	6/6/2011	3:28:02 PM	12837730.82	285371.10	776.6247	0.0388	0.0521	0.0649	2.7	0.3	0.3	None	None	None	Island	>3 ft/sec	>3 ft/sec	Downstrm Island	None	Silt over Sand		
36.10NW-A-09	Focus	6/6/2011	3:32:28 PM	12837715.92	285416.41	776.6777	0.0646	0.0781	0.1014	1.9	0.6	1.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand & Silt		
36.10NW-A-10	Focus	6/6/2011	3:39:20 PM	12837772.60	285613.71	780.9703	2.5649	2.0337	3.2733	1.0	0.5	1.0	Heavy	Heavy	Many	Right	No	No	Backwater	None	Soft Sediment	SHNONARRIVAL	
36.10NW-A-11	Focus	6/6/2011	3:42:56 PM	12837820.51	285657.97	784.5951	2.3478	2.9044	3.7347	0.8	0.6	0.6	None	None	None	Right	No	No	Backwater	None	Soft Sediment		
36.10NW-A-12	Focus	6/6/2011	3:59:37 PM	12837992.46	285704.63	786.8579	2.9112	4.4319	5.3025	1.1	0.7	1.6	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
36.10NW-A-13	Focus	6/6/2011	4:07:45 PM	12837891.34	285672.17	772.2819	2.0233	3.4844	4.0292	1.5	0.8	1.5	Heavy	Heavy	Many	Island	No	No	Backwater	None	Silt over Sand		
36.10NW-A-14	Focus	6/6/2011	4:11:07 PM	12837881.43	285682.13	773.7811	1.4314	2.8742	3.2109	3.1	0.4	0.7	None	None	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
36.10NW-A-15	Focus	6/6/2011	4:14:19 PM	12837864.03	285695.91	772.2601	2.9719	5.7957	6.5133	2.5	0.2	0.4	None	None	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
36.10NW-A-16	Focus	6/6/2011	4:18:06 PM	12837917.21	285765.07	770.2813	1.5632	5.2283	5.457	2.6	0.4	0.8	Light	Light	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
36.10NW-A-17	Focus	6/6/2011	4:23:20 PM	12837932.03	285778.83	791.8894	1.6553	4.558	4.8493	2.3	0.4	0.8	None	None	None	Center	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
36.10NW-A-18	Focus	6/6/2011	4:30:52 PM	12837952.41	285737.14	781.6306	2.6801	6.1105	6.6724	3.5	0.8	2.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
36.10NW-A-19	Focus	6/6/2011	4:35:43 PM	12838030.62	285713.01	776.654	0.0263	0.0527	0.0589	5.0	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
36.10NW-A-20	Focus	6/6/2011	4:39:48 PM	12838052.07	285776.42	776.6595	0.0507	0.1482	0.1566	4.0	0.8	0.9	None	None	None	Center	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
36.10NW-A-21	Focus	6/7/2011	9:56:34 AM	12837960.07	285658.89	782.7981	4.0842	6.7057	7.8516	3.0	0.1	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand		
36.10NW-A-22	Focus	6/9/2011	3:51:12 PM	12837695.12	285386.27	776.3243	0.0656	0.1011	0.1206	0.9	1.2	2.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Downstrm Island	<5%	Soft Sediment		
36.10NW-A-23	Focus	6/9/2011	3:54:39 PM	12837671.63	285356.99	776.1555	0.0625	0.1052	0.1224	1.8	1.2	1.9	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	<5%	Soft Sediment		
36.10NW-A-24	Focus	6/9/2011	4:00:06 PM	12837634.14	285332.63	776.3252	0.0357	0.0697	0.0783	3.7	0.2	0.3	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
36.10NW-A-25	Focus	6/9/2011	4:05:46 PM	12837618.63	285377.03	776.3062	0.1018	0.1974	0.2221	3.0	0.3	0.4	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Sand		
36.10NW-A-22	Focus	6/10/2011	11:32:24 AM	12837903.40	285706.66	795.872	3.2813	7.182	7.8961	1.3	0.4	0.4	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
36.10NW-A-23	Focus	6/10/2011	11:39:07 AM	12837858.65	285616.33	783.8239	4.7284	7.9138	9.2187	1.1	0.5	1.2	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Backwater	None	Sand & Silt		BADSATELLITES MAP POINT
36.10NW-A-24	Focus	6/10/2011	11:56:49 AM	12837772.00	285593.27	787.5726	2.396	3.8342	4.5212	1.1	0.9	1.4	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	None	Silt over Sand		
36.10NW-A-25	Focus	6/10/2011	12:00:33 PM	12837803.28	285551.93	791.2052	2.815	3.947	4.848	1.9	0.3	0.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment	SHNONARRIVAL	
36.10NW-A-26	Focus	6/10/2011	12:07:14 PM	12837674.32	285454.05	779.1414	1.9557	3.2829	3.8213	1.8	0.3	0.6	None	None	None	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment		
36.10NW-A-27	Focus	6/10/2011	12:16:13 PM	12837706.64	285348.57	776.5403	0.0601	0.0994	0.1162	3.8	0.3	0.4	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Sand & Gravel		DWNSTRMISLND
36.16T-A-01	Transect	6/5/11	3:14:56 PM	12837159.89	285145.85	776.1487	2.7951	3.884	4.7852	4.2	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand & Silt		
36.16T-A-02	Transect	6/5/11	3:20:46 PM	12837144.61	285034.43	771.0234	3.0962	3.558	4.7166	2.8	0.1	0.2	None	None	None	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Sand & Silt		
36.16T-A-03	Transect	6/5/11	3:29:10 PM	12837156.39	285088.53	777.4809	1.0266	1.2633	1.6278	6.3	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger		
36.24T-A-01	Transect	6/5/11	3:01:37 PM	12836794.76	285221.18	780.2178	1.9805	3.307	3.8547	3.9	0.5	1.3	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment		
36.24T-A-02	Transect	6/5/11	3:39:37 PM	12836751.64	285210.90	781.8606	1.4049	1.7905	2.2759	5.5	0.7	0.7	Light	Light	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Soft Sediment	D BDY	
36.24T-A-03	Transect	6/5/11	3:42:28 PM	12836809.99	285189.37	775.8144	1.1802	1.5008	1.9093	6.8	0.0	0.0	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
36.24T-A-04	Transect	6/5/11	3:44:33 PM	12836845.83	285241.44	775.9594	0.2202	0.321	0.3893	1.6	0.8	0.8	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Sand	U BDY	
36.24T-A-05	Transect	6/6/2011	1:57:58 PM	12836522.99	285161.74	776.5512	0.0464	0.1151	0.124	8.6	0.4	0.4				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger	SHNONARRIVAL	
36.24T-A-06	Transect	6/6/2011	2:03:36 PM	12836725.04	285116.78	776.5117	0.0422	0.2072	0.2114	1.8	1.1	1.2	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Downstrm Island	None	Soft Sediment	SHNONARRIVAL	
36.24T-A-07	Transect	6/6/2011	2:06:48 PM	12836784.53	285133.56	776.1967	0.0423	0.1896	0.1943	3.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Gravel & Larger		
36.24T-A-08	Transect	6/6/2011	2:09:52 PM	12836800.99	285114.01	775.9561	0.0745	0.3845	0.3916	2.2	0.3	1.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Soft Sediment		
36.25-A-01	Focus	5/27/2011	10:33:10 AM	12836659.52	285040.87	777.0143	0.0585	0.0993	0.1152	4.7	0.3	0.4	Heavy	Heavy	Many	Left	1-3 ft/sec	1-3 ft/sec	Cut off	None	Soft Sediment		
36.25-A-02	Focus	5/27/2011	10:37:15 AM	12836614.36	285067.12	777.2142	0.0814	0.1256	0.1497	4.3	0.9	0.9	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Cut off	None	Silt over Sand	D BDY	
36.25-A-03	Focus	5/27/2011	10:41:24 AM	12836652.32	285097.04	776.8425	0.0754	0.1208	0.1424	6.3	0.0	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Cut off	None	Sand & Gravel	LAT BDY	
36.25-A-04	Focus	5/27/2011	10:44:33 AM	12836743.99	285046.06	776.8933	0.0728	0.1252	0.1448	3.0	0.6	2.5	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Downstrm Island	5%-25%	Soft Sediment		
36.25-A-05	Focus	5/27/2011	10:48:09 AM	12836698.26	285013.18	776.9195	0.0914	0.1547	0.1797	5.0	0.1	0.1	Light	Light	Few	Left	1-3 ft/sec	1-3 ft/sec	Cut off	None	Sand & Gravel	U BDY	
36.25-A-06	Focus	5/27/2011	10:50:52 AM	12836786.35	284974.73	777.0693	0.1344	0.2426	0.2774	3.9	1.1	1.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Soft Sediment		
36.25-A-07	Focus	5/27/2011	10:54:30 AM	12836812.52	284888.33	778.4174	1.9531	2.4717	3.1503	4.7	0.2	0.3	None	None	None	Left	No/sec	No/sec	Cut off	None	Sand & Gravel		
36.25-A-08	Focus	5/27/2011	10:57:58 AM	12836838.67	284939.76	777.9854	1.1573	1.3832	1.8035	2.9	1.5	2.3	Heavy	Heavy	Many	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	5%-25%	Soft Sediment		
36.25-A-09	Focus	5/27/2011	11:00:40 AM	12836827.05	284920.76	777.9389	0.0647	0.0807	0.1034	5.1	0.3	0.3	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Cut off	None	Sand & Gravel	LAT BDY BDYSEDANDGRAVEL	
36.25-A-10	Focus	5/27/2011	11:05:20 AM	12836902.56	284885.77	781.2467	2.3467	2.3383	3.3128	4.9	0.1	0.2	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Sand & Gravel	U BDY	
36.25-A-11	Focus	5/27/2011	11:09:13 AM	12836921.14	284839.34	775.7376	1.4962	1.7398	2.2947	3.6	1.1	1.4	Moderate	Moderate	Common	Left	1-3 ft/sec	<1 ft/sec	Cut off	None	Soft Sediment		
36.25-A-12	Focus	5/27/2011	11:13:40 AM	12837000.32	284823.71	774.1976	2.4989	2.3326	3.4184	3.4	0.9	1.6	Light	Light	Few	Left	<1ft/sec	1-3 ft/sec	Cut off	None	Silt over Sand	U BDY	
36.25-A-13	Focus	5/27/2011	11:17:20 AM	12837020.67	284862.42	780.1248	1.4961	2.1481	2.6178	4.1	0.3	0.4	Light	Light	None	Island	>3 ft/sec	1-3 ft/sec	Downstrm Island	None	Soft Sediment		TREEBLOCKRIVER
36.25-A-14	Focus	5/27/2011	11:26:53 AM	12837133.03	284883.21	776.9962	0.183	0.2416	0.303	4.3	0.3	0.4	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Silt over Sand		
36.25-A-15	Focus	5/27/2011	11:29:32 AM	12837143.35	284834.28	777.0538	0.1303	0.1822	0.224	3.0	2.7	2.8	Light	Light	None	Center	No/sec	No/sec	Cut off	None	Sand over Silt	U BDY	
36.25-A-16	Focus	5/27/2011	11:32:30 AM	12837301.30	284915.75	777.6624	0.9292	1.2655	1.57	3.6	1.1	1.2	Moderate	Moderate	Few	Center	<1ft/sec	<1 ft/sec	Cut off	None	Soft Sediment		
36.25-A-17	Focus	5/27/2011	11:34:39 AM	12837266.67	284989.69	777.3553	0.0419	0.0597	0.0729	4.0	0.1	0.1	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Cut off	None	Sand & Gravel		
36.25-A-18	Focus	5/27/2011	11:36:18 AM	12837342.23	284977.24	777.4028	0.0333	0.0454	0.0563	4.4	0.1	0.1	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Cut off	None	Sand & Gravel		
36.25-A-19	Focus	5/27/2011	11:38:50 AM	12837436.84	284970.60	777.4289	0.0894	0.1399	0.166	4.3	0.2	0.2	Heavy	Heavy	Common	Left	<1ft/sec	<1 ft/sec	Cut off	None	Soft Sediment		
36.25-A-20	Focus	5/27/2011	11:40:48 AM	12837458.47	285016.16	777.4558	0.051	0.0721	0.0883	4.1	0.2	0.3	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Cut off	None	Sand	U BDY	
36.25-A-21	Focus	6/5/11	11:39:57 AM	12837249.64	284879.80	776.852	0.0862	0.1633	0.1847	2.0	0.8	1.0	Moderate	Moderate	Common	Center	<1ft/sec	<1 ft/sec	Cut off	None	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
36.25-A-22	Focus	6/5/11	11:44:37 AM	12837261.41	284934.96	776.8109	0.0737	0.1499	0.167	2.8	0.7	1.0	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Cut off	None	Soft Sediment	LAT BDY	
36.25-A-23	Focus	6/5/11	11:49:19 AM	12837387.00	284955.03	776.836	0.0618	0.1184	0.1336	3.5	0.3	0.4	Moderate	Moderate	Common	Center	No	No	Cut off	None	Sand & Silt		
36.25-A-24	Focus	6/5/11	11:54:58 AM	12837396.98	284996.76	776.9191	0.0397	0.0749	0.0848	3.6	0.1	0.1	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Cut off	None	Sand & Silt	LAT BDY	
36.25-A-25	Focus	6/5/11	10:25:41 AM	12836675.55	285080.81	776.5716	0.0532	0.0639	0.0831	4.8	0.7	1.1	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel		
36.25-A-26	Focus	6/5/11	10:35:27 AM	12836727.06	285079.63	776.427	0.1333	0.1447	0.1967	2.8	2.8	3.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Downstrm Island	None	Soft Sediment		
36.25-A-27	Focus	6/5/11	10:52:46 AM	12836673.55	285122.94	776.676	0.0422	0.0565	0.0705	3.8	2.0	2.0	Heavy	Heavy	Common	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Gravel & Larger		
36.25-A-28	Focus	6/5/11	11:01:07 AM	12836686.08	285153.40	776.3333	0.0679	0.0973	0.1187	7.5	-99.0	-99.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger	LAT BDY	
36.25-A-29	Focus	6/5/11	10:44:10 AM	12836767.72	285071.92	776.1843	0.1144	0.152	0.1902	1.2	0.3	0.4	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Downstrm Island	25%-50%	Soft Sediment		
36.25-A-30	Focus	6/5/11	11:06:35 AM	12836741.33	284977.36	776.143	0.3567	0.3929	0.5307	4.9	0.0	0.1	None	None	None	Center	<1ft/sec	<1 ft/sec	Cut off	None	Gravel & Larger	LAT BDY	
36.25-A-31	Focus	6/5/11	11:09:18 AM	12836789.42	284931.77	775.9607	0.1286	0.1491	0.1969	4.5	0.0	0.0	None	None	None	Center	<1ft/sec	<1 ft/sec	Cut off	None	Gravel & Larger	LAT BDY	
36.25-A-32	Focus	6/5/11	11:13:58 AM	12836871.61	284866.42	776.9124	1.1344	1.6263	1.9829	4.5	0.6	0.6	Moderate	Moderate	Common	Center	No	No	Cut off	None	Soft Sediment		
36.25-A-33	Focus	6/5/11	11:18:14 AM	12836938.02	284862.57	779.2588	0.9099	1.3761	1.6498	4.8	0.1	0.1	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Cut off	None	Sand & Gravel		
36.25-A-34	Focus	6/5/11	11:21:38 AM	12836967.44	284833.19	775.6022	1.1307	1.8841	2.1973	3.8	0.2	0.7	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Cut off	None	Sand & Silt		USTREAM LRG TREE
36.25-A-35	Focus	6/9/2011	3:32:35 PM	12836654.00	285178.50	776.7911	1.3725	1.5092	2.0399	6.8	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		
36.25-A-36	Focus	6/9/2011	3:35:54 PM	12836573.26	285216.91	775.6022	1.9075	2.4326	3.0913	2.5	0.2	0.3	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
36.25-A-37	Focus	6/9/2011	3:40:09 PM	12836734.36	285157.93	776.0497	0.0422	0.0547	0.0691	4.5	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		
36.25-A-38	Focus	6/10/2011	12:22:06 PM	12837168.75	284838.00	776.2402	0.2578	0.3892	0.4668	2.0	1.3	1.9	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Cut off	None	Silt over Sand		
36.25-A-39	Focus	6/10/2011	12:31:44 PM	12836646.77	285120.90	775.981	0.064	0.0935	0.1133	5.5	0.1	0.1	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Downstrm Island	None	Silt over Sand	SHNONARRIVAL	
36.25-A-40	Focus	6/10/2011	12:41:01 PM	12836613.34	285132.54	776.8035	1.9062	2.4695	3.1196	8.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Downstrm Island	None	Gravel & Larger		
MP 36.25-36.50																							
36.31T-A-02	Transect	5/27/2011	10:13:47 AM	12836385.79	285257.80	776.9141	0.068	0.1227	0.1403	11.0	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Sand & Gravel		
36.31T-A-03	Transect	5/27/2011	10:11:14 AM	12836369.10	285215.32	776.9162	0.0493	0.0685	0.0844	4.1	0.1	0.2	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Sand & Silt		
36.31T-A-04	Transect	6/5/11	2:40:59 PM	12836414.37	285302.73	775.8927	0.9072	2.3662	2.5342	3.2	0.6	1.0	None	None	None	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment	D-BDY	
36.31T-A-05	Transect	6/5/11	2:46:45 PM	12836429.33	285251.54	776.3077	0.0496	0.118	0.128	8.5	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Gravel & Larger	LAT BDY	
36.31T-A-06	Transect	6/5/11	2:50:46 PM	12836490.37	285249.74	776.1877	0.071	0.151	0.1669	2.0	0.5	1.1	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Point Bar	None	Soft Sediment	U BDY	
36.31T-C-01	Transect	5/20/11	12:39:32 PM	12836474.91	285286.58	777.2541	1.6275	2.3102	2.8259	1.1	0.7	1.2	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Point Bar	25%-50%	Silt over Sand		PHOTOS 90-92
36.39T-A-07	Transect	6/6/2011	1:40:26 PM	12836364.62	285607.31	776.4652	0.0557	0.0975	0.1123	1.7	0.4	1.3	Moderate	Light	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment		
36.39T-A-08	Transect	6/6/2011	1:44:22 PM	12836333.55	285610.44	776.0231	0.9266	1.6409	1.8844	1.5	0.5	0.9	Heavy	Heavy	Many	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
36.39T-A-09	Transect	6/6/2011	1:46:57 PM	12836320.12	285614.57	776.2239	0.0361	0.0721	0.0807	4.5	0.4	1.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Silt over Sand		
36.39T-C-01	Transect	5/20/11	12:17:31 PM	12836399.68	285612.12	778.2051	5.4688	5.7415	7.9293	1.0	1.4	1.5	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Point Bar	25%-50%	Silt over Sand		
36.39T-C-02	Transect	5/20/11	12:22:11 PM	12836211.46	285628.70	777.6252	0.9999	1.4613	1.7706	2.8	0.1	0.3	Light	Light	None	Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	25%-50%	Sand		
36.39T-C-03	Transect	5/20/11	12:25:35 PM	12836289.74	285624.77	779.7668	1.2159	1.9324	2.2831	6.2	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO FAST
36.39T-C-04	Transect	5/20/11	12:28:04 PM	12836383.23	285550.79	770.3702	2.8495	3.0834	4.1985	1.5	0.4	1.8	Heavy	Heavy	Many	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Silt over Sand		
36.39T-C-05	Transect	5/20/11	12:31:18 PM	12836338.53	285474.62	777.0048	0.8414	1.2361	1.4953	0.9	0.7	1.5	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
36.39T-C-06	Transect	5/20/11	12:34:42 PM	12836387.04	285441.28	775.7924	0.067	0.0949	0.1161	0.5	0.3	0.5	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand		
36.44T-A-01	Transect	6/5/11	2:30:54 PM	12836318.34	285843.64	777.0886	1.0794	4.0059	4.1488	6.0	0.1	0.1	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Gravel	LAT BDY	
36.44T-C-01	Transect	5/20/11	11:51:38 AM	12836365.88	285836.10	776.3664	0.9602	1.8739	2.1056	1.7	0.8	1.9	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Silt over Sand		
36.44T-C-02	Transect	5/20/11	11:57:10 AM	12836222.23	285851.86	776.6576	0.8376	1.5513	1.763	5.0	0.2	0.3				Left	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		CURRENT TOO SWIFT
36.44T-C-03	Transect	5/20/11	12:01:07 PM	12836273.98	285849.88	776.0783	0.1927	0.1952	0.2743	6.9	0.0	0.1				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO SWIFT
36.44T-C-04	Transect	5/20/11	12:03:09 PM	12836385.16	285731.27	774.8924	0.8996	1.739	1.9579	1.6	2.3	2.7	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	5%-25%	Silt over Sand		
36.44T-C-05	Transect	5/20/11	12:08:47 PM	12836341.26	285736.99	775.7797	0.0771	0.1448	0.1641	0.4	1.1	3.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand	LIGHT SHEEN/FLOATING BY	
36.44T-C-06	Transect	5/20/11	12:13:05 PM	12836371.52	285639.89	776.3847	0.883	1.5431	1.7779	1.7	1.2	2.7	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Point Bar	None	Sand over Silt		
36.45N-A-01	Focus	6/5/11	2:05:28 PM	12836350.65	285950.72	776.6324	0.0421	0.1127	0.1203	3.4	0.8	1.6	Heavy	Heavy	Common	Right	<1ft/sec	<1 ft/sec	Strt Channel Edg	None	Soft Sediment	SHN-ARRIVAL	
36.45N-A-02	Focus	6/5/11	2:10:33 PM	12836299.04	285955.36	776.4904	0.0515	0.1613	0.1693	5.5	0.0	0.1	None	None	None	Center	1-3 ft/sec	<1 ft/sec	Mid-Channel	None	Gravel & Larger	LAT BDY	
36.45N-A-03	Focus	6/5/11	2:19:27 PM	12836349.50	286019.89	777.3997	0.9335	2.8845	3.0318	2.9	0.6	0.8	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	None	Soft Sediment	D BDY	
36.45N-C-01	Focus	5/20/11	9:56:54 AM	12837010.34	285798.28	779.6442	1.8154	2.8815	3.4057	2.0	1.0	1.9	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Silt over Sand		PHOTOS 83-90
36.45N-C-02	Focus	5/20/11	10:05:22 AM	12836944.41	285843.62	779.5311	2.6457	3.0223	4.0167	2.1	1.3	1.8	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Silt over Sand		PHOTOS
36.45N-C-03	Focus	5/20/11	10:13:53 AM	12836938.21	285789.73	775.9466	1.4224	2.2691	2.678	1.9	0.4	1.2	Moderate	Moderate	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-04	Focus	5/20/11	10:20:20 AM	12836876.34	285854.70	775.5305	1.3081	1.8765	2.2875	2.5	0.6	0.7	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-05	Focus	5/20/11	10:24:37 AM	12836734.12	285929.92	775.2292	1.771	2.3995	2.9823	2.4	1.1	1.4	Heavy	Heavy	Common	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-06	Focus	5/20/11	10:29:31 AM	12836700.71	285948.21	775.8695	0.1605	0.1596	0.2264	2.9	0.8	1.2	Moderate	Moderate	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Silt over Sand		
36.45N-C-07	Focus	5/20/11	10:39:12 AM	12836624.23	285837.31	775.3428	1.0021	1.1245	1.5063	1.4	2.0	3.1	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-08	Focus	5/20/11	10:46:59 AM	12836580.52	285900.48	775.8402	0.0549	0.067	0.0866	1.9	1.2	1.8	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-09	Focus	5/20/11	10:51:33 AM	12836621.04	285921.63	775.3216	0.3084	0.447	0.543	0.7	1.4	1.6	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-10	Focus	5/20/11	11:27:36 AM	12836546.26	285955.66	775.9895	0.0503	0.0786	0.0934	2.2	0.7	1.3	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-11	Focus	5/20/11	11:31:23 AM	12836553.82	286021.61	775.3979	0.8331	1.3332	1.5721	2.0	1.3	1.5	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-12	Focus	5/20/11	11:34:07 AM	12836486.45	286044.20	776.1465	0.0657	0.1095	0.1277	3.2	0.3	0.7	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-13	Focus	5/20/11	11:36:52 AM	12836468.61	286105.15	776.0356	0.0665	0.1165	0.1341	1.7	1.5	2.3	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-14	Focus	5/20/11	11:39:33 AM	12836436.23	285981.36	776.0133	0.073	0.1298	0.1489	1.6	0.4	1.3	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-15	Focus	5/20/11	11:42:59 AM	12836369.71	286119.02	775.9854	0.0488	0.0812	0.0948	2.3	1.9	2.9	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-C-16	Focus	5/20/11	11:47:17 AM	12836346.68	286032.00	775.9249	0.047	0.0899	0.1014	3.2	0.7	1.0	Light	Light	Few	Right	<1ft/sec	<1 ft/sec	Backwater	>75%	Organic		
36.45N-A-20	Focus	6/9/2011	2:30:13 PM	12836205.71	286201.75	771.8363	1.1594	2.774	3.0066	0.7	0.8	4.0	Heavy	Heavy	Many	Right	No	No	Backwater	25%-50%	Soft Sediment		
36.45N-A-21	Focus	6/9/2011	2:42:13 PM	12836239.02	286197.64	774.3634	1.9482	3.4162	3.9327	0.6	1.4	2.0	Heavy	Heavy	Many	Right	No	No	Backwater	<5%	Soft Sediment		
36.45N-A-22	Focus	6/9/2011	2:51:36 PM	12836341.41	286170.60	774.2325	1.3407	1.9359	2.3548	1.4	1.2	4.0	Heavy	Heavy	Many	Right	No	No	Backwater	25%-50%	Soft Sediment		
36.45N-A-23	Focus	6/9/2011	2:58:50 PM	12836394.67	286130.78	775.9091	0.0496	0.0702	0.086	0.8	1.9	3.2	Moderate	Moderate	Common	Right	No	No	Backwater	50%-75%	Soft Sediment		
36.45N-A-24	Focus	6/9/2011	3:05:33 PM	12836437.23	286104.74	775.8863	0.0411	0.0581	0.0712	1.5	1.5	2.0	Light	Light	Few	Right	No	No	Backwater	25%-50%	Soft Sediment		HHARD PUSH
36.45N-A-25	Focus	6/9/2011	3:20:30 PM	12836390.69	286066.15	775.9888	0.035	0.0463	0.0581	1.5	0.5	0.6	Moderate	Moderate	Common	Right	No	No	Backwater	<5%	Silt over Sand		
36.45N-A-25B	Focus	6/10/2011	3:21:53 PM	12837143.84	285746.27	776.721	4.2037	2.196	4.7427	1.5	0.9	1.0	Light	Light	Few	Right	No	No	Backwater	50%-75%	Soft Sediment		BEYOND P9
36.45N-A-26	Focus	6/10/2011	3:44:29 PM	12837157.88	285713.23	784.6906	2.4965	3.3621	4.1876	0.4	0.8	1.8	Light	Light	Few	Right	No	No	Backwater	50%-75%	Soft Sediment		
36.45N-A-27	Focus	6/10/2011	4:01:41 PM	12837073.57	285760.65	775.9089	0.063	0.1023	0.1201	1.7	0.8	1.2	Light	Light	Few	Right	No	No	Backwater	50%-75%	Soft Sediment		
36.45N-A-28	Focus	6/10/2011	4:02:19 PM	12837072.98	285760.50	776.0571	0.0489	0.0779	0.092	1.5	0.9	1.0	Light	Light	Few	Right	No	No	Backwater	50%-75%	Soft Sediment		BEYONDP9
36.45N-A-29	Focus	6/10/2011	4:39:17 PM	12836615.60	285650.51	775.8786	0.0307	0.0803	0.0859	0.5	1.5	2.0	Moderate	Moderate	Common	Right	No	No	Backwater	50%-75%	Soft Sediment	SHNONARRIVAL	
36.45N-A-30	Focus	6/10/2011	4:34:32 PM	12836636.23	285745.74	775.9446	0.0373	0.0824	0.0905	0.5	1.5	2.1	Heavy	Heavy	Many	Right	No	No	Backwater	>75%	Soft Sediment	SHNONARRIVAL	
36.45N-A-31	Focus	6/10/2011	4:25:53 PM	12836574.15	285792.68	775.9549	0.0294	0.0576	0.0647	0.7	0.8	1.5	Moderate	Moderate	Common	Right	No	No	Backwater	50%-75%	Soft Sediment	SHNONARRIVAL	
36.45N-A-32	Focus	6/10/2011	4:11:34 PM	12836808.81	285886.77	775.8374	0.056	0.0925	0.1081	1.9	1.1	1.6	Light	Light	Few	Right	No	No	Backwater	50%-75%	Soft Sediment	SHNONARRIVAL	
36.45N-A-33	Focus	6/10/2011	4:16:49 PM	12836641.81	285969.15	776.0794	0.0404	0.071	0.0817	1.9	1.4	1.9	Moderate	Moderate	Common	Right	No	No	Backwater	50%-75%	Soft Sediment		
36.45N-A-34	Focus	6/10/2011	4:21:46 PM	12836601.84	285953.86	775.9604	0.0264	0.0494	0.056	1.5	1.4	2.2	Heavy	Moderate	Many	Right	No	No	Backwater	50%-75%	Soft Sediment	SHNONARRIVAL	
36.45N-A-35	Focus	6/10/2011	5:16:54 PM	12836442.49	286036.61	775.8265	0.0358	0.0981	0.1045	2.0	1.0	1.6	Moderate	Moderate	Common	Right	No	No	Backwater	<5%	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
36.5-E-01	Focus	5/1/2011	10:16:52 AM	12835862.58	286220.77	776.6293	0.0418	0.085	0.0947	2.2	0.0	0.0	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Sand & Gravel		
36.5-E-02	Focus	5/1/2011	10:27:40 AM	12835761.93	286202.22	776.4035	1.3033	2.8646	3.1472	2.1	0.3	0.4	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
36.5-E-03	Focus	5/1/2011	10:33:18 AM	12835666.76	286200.72	775.9665	0.075	0.1403	0.1591	1.7	0.4	1.1	Light	Light	None	Right	>3 ft/sec		Strt Channel Edg	None	Soft Sediment		
36.5-E-04	Focus	5/1/2011	10:41:23 AM	12835705.58	286268.23	787.0199	2.5596	4.6454	5.3039	0.4	0.5	0.7	None	None	None	Right	No		Strt Channel Edg	<5%	Soft Sediment		OFFCHANNEL INLET
36.50T-A-01	Transect	6/6/2011	2:29:59 PM	12836136.59	286217.03	777.3313	3.3024	2.6297	4.2215	1.4	0.3	1.3	Moderate	Moderate	Common	Right	<1ft/sec	<1 ft/sec	Cut Bank	<5%	Soft Sediment	SHNONARRIVAL	
36.50T-A-02	Transect	6/6/2011	2:33:48 PM	12836169.93	286198.65	776.1285	0.1726	0.4491	0.4811	1.9	0.4	2.6	Heavy	Heavy	Many	Right	<1ft/sec	<1 ft/sec	Cut Bank	5%-25%	Soft Sediment		
36.50T-A-03	Transect	6/6/2011	2:39:06 PM	12836190.94	286163.80	773.031	1.484	4.6292	4.8613	4.4	0.5	0.7	Light	Light	None	Right	No	No	Cut Bank	None	Silt over Sand	SHNONARRIVAL	
36.50T-A-04	Transect	6/6/2011	2:40:48 PM	12836199.35	286171.47	773.4268	1.2956	3.5924	3.8189	2.7	0.3	0.8	None	None	None	Right	No	No	Cut Bank	None	Soft Sediment		
36.50T-A-05	Transect	6/6/2011	2:47:42 PM	12836091.71	286216.31	776.2802	1.7649	2.7176	3.2404	3.5	0.1	0.4	None	None	None	Right	1-3 ft/sec	1-3 ft/sec	Cut Bank	None	Sand & Gravel		
36.50T-A-06	Transect	6/6/2011	2:54:07 PM	12836120.46	286184.13	776.2457	0.0488	0.0915	0.1037	3.0	0.5	1.5	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Silt over Sand		
36.50T-A-07	Transect	6/6/2011	2:57:26 PM	12836091.86	286149.24	776.1248	0.0332	0.0544	0.0638	8.5	0.0	0.0	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Gravel & Larger		
36.50T-A-08	Transect	6/8/2011	10:02:53 AM	12836055.18	286076.93	777.9322	1.3455	1.6676	2.1427	3.1	0.2	0.5	None	None	None	Left	1-3 ft/sec	1-3 ft/sec	Strt Channel Edg	None	Silt over Sand		ROOTSONBTM
MP 36.50-36.75																							
35SBR-A-01	Bridge	6/6/2011	1:12:17 PM	12835990.54	286216.14	776.0646	0.0923	0.0759	0.1196	3.7	0.0	0.0	None	None	None	Right	>3 ft/sec	>3 ft/sec	Cut Bank	None	Gravel & Larger		
35SBR-A-02	Bridge	6/6/2011	1:18:35 PM	12836009.13	286079.78	776.1174	0.0565	0.0803	0.0982	3.1	0.8	1.2	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Backwater	5%-25%	Soft Sediment		
35SBR-A-03	Bridge	6/6/2011	1:21:47 PM	12836010.02	286081.05	776.105	0.0407	0.0596	0.0722	3.7	0.7	1.3	Moderate	Moderate	Common	Left	1-3 ft/sec	1-3 ft/sec	Backwater	<5%	Soft Sediment		
35SBR-A-04	Bridge	6/6/2011	1:25:45 PM	12835990.51	286071.71	776.24	0.0287	0.0403	0.0495	3.1	0.4	0.8	Heavy	Heavy	Many	Left	<1ft/sec	<1 ft/sec	Backwater	5%-25%	Silt over Sand		
35SBR-A-05	Bridge	6/6/2011	1:30:28 PM	12835997.58	286095.95	776.1374	0.0371	0.0588	0.0695	4.0	0.8	1.8	None	None	None	Center	>3 ft/sec	>3 ft/sec	Mid-Channel	None	Silt over Sand		
35SBR-A-06	Focus	6/10/2011	11:10:26 AM	12835877.73	286065.48	775.7371	0.0303	0.0514	0.0597	1.2	0.2	0.2	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Strt Channel Edg	25%-50%	Sand		
36.6S-E-01	Focus	5/1/2011	10:50:24 AM	12835714.66	286010.79	776.0984	0.0454	0.0841	0.0956	1.2	0.4	0.4	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		
36.6S-E-02	Focus	5/1/2011	10:58:50 AM	12835589.97	285949.42	756.7876	9.2234	13.6213	16.4502	1.4	0.7	0.8	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	<5%	Soft Sediment		
36.6S-E-03	Focus	5/1/2011	11:06:40 AM	12835543.15	285886.84	776.1595	0.0527	0.0992	0.1124	1.3	0.3	1.6	Moderate	Moderate	Common	Left	<1ft/sec		Strt Channel Edg	<5%	Soft Sediment		OFFCHANNEL LFT
36.6S-E-04	Focus	5/1/2011	11:14:32 AM	12835570.45	285861.10	778.354	1.1917	2.1839	2.4879	2.2	0.5	0.7	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
36.6S-E-05	Focus	5/1/2011	11:19:12 AM	12835491.88	285959.79	776.209	0.0281	0.0503	0.0576	1.2	1.0	1.0	Moderate	Moderate	Common	Left	1-3 ft/sec		Strt Channel Edg	None	Soft Sediment		
36.6S-E-06	Focus	5/1/2011	11:28:01 AM	12835497.47	285996.97	776.1602	0.0575	0.097	0.1127	4.5	0.0	0.0	None	None	None	Center	>3 ft/sec		Strt Channel Edg	None	Sand & Gravel		CENTER OFCHANNEL
36.6S-E-07	Focus	5/1/2011	12:47:05 PM	12835014.66	285645.66	776.0996	0.0505	0.0628	0.0805	1.4	0.5	0.7	Light	Light	None	Left	>3 ft/sec		Strt Channel Edg	None	Soft Sediment		
36.6S-E-08	Focus	5/1/2011	12:55:06 PM	12835337.65	285708.04	775.9327	0.0593	0.073	0.0941	1.0	1.6	2.0	Light	Light	Few	Left	1-3 ft/sec		Other-Comments	5%-25%	Soft Sediment		SIDE CHANNEL
36.6S-E-09	Focus	5/1/2011	1:03:52 PM	12835355.07	285607.78	775.9824	0.0459	0.0581	0.074	1.3	1.2	1.8	Light	Light	Few	Left	1-3 ft/sec		Other-Comments	25%-50%	Soft Sediment		SIDE CHANNEL
36.6S-E-10	Focus	5/1/2011	1:18:23 PM	12835287.08	285431.32	775.9125	0.0382	0.0525	0.0649	0.7	2.3	3.6	Heavy	Heavy	Many	Left	1-3 ft/sec		Other-Comments	>75%	Soft Sediment		SIDE CHANNEL
36.6S-E-11	Focus	5/1/2011	1:24:37 PM	12835225.63	285461.46	775.9476	0.0709	0.1038	0.1257	0.9	1.5	2.6	Light	Light	Few	Left	1-3 ft/sec		Other-Comments	5%-25%	Soft Sediment		IN DELTA
36.6S-E-12	Focus	5/1/2011	1:30:26 PM	12835263.84	285525.22	775.9858	0.0333	0.0489	0.0592	0.9	0.9	1.8	Light	Light	Few	Left	1-3 ft/sec		Other-Comments	5%-25%	Soft Sediment		IN DELTA
36.6S-E-13	Focus	5/1/2011	1:36:23 PM	12835264.27	285343.14	776.0898	0.0651	0.0992	0.1186	1.1	0.7	1.5	Moderate	Moderate	Common	Left	1-3 ft/sec		Other-Comments	50%-75%	Soft Sediment		IN DELTA
36.6S-E-14	Focus	5/1/2011	1:43:03 PM	12835253.04	285282.06	775.8403	0.0541	0.0883	0.1036	1.2	1.3	1.9	Moderate	Moderate	Common	Left	1-3 ft/sec		Other-Comments	25%-50%	Soft Sediment		IN DELTA
36.6S-E-15	Focus	5/1/2011	1:49:02 PM	12835302.41	285213.30	775.9439	0.0451	0.0743	0.0869	1.1	1.8	2.3	Light	Light	Few	Left	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		IN DELTA
36.6S-E-16	Focus	5/1/2011	1:55:31 PM	12835213.83	285179.24	776.2097	0.0437	0.0807	0.0918	1.9	0.9	1.7	Light	Light	Few	Left	>3 ft/sec		Other-Comments	5%-25%	Soft Sediment		IN DELTA
36.6S-E-17	Focus	5/1/2011	2:04:05 PM	12835182.95	285267.67	776.385	0.0475	0.0842	0.0967	0.7	1.8	2.5	None	None	None	Left	1-3 ft/sec		Other-Comments	>75%	Soft Sediment		IN DELTA
36.6S-E-18	Focus	5/1/2011	3:32:49 PM	12835329.22	285871.42	776.2364	0.0297	0.0496	0.0578	1.4	0.7	0.7	Moderate	None	Common	Left	>3 ft/sec		Other-Comments	5%-25%	Soft Sediment		
36.6S-E-19	Focus	5/1/2011	3:43:08 PM	12835304.49	285914.80	776.2996	0.0398	0.0673	0.0782	3.8	0.3	0.3	None	None	None	Center	>3 ft/sec		Mid-Channel	None	Sand		CURRENT TOO FAST
36.6S-E-20	Focus	5/1/2011	3:49:22 PM	12835133.51	285718.56	776.1883	0.0413	0.0679	0.0794	1.1	0.7	1.7	Light	Light	None	Left	>3 ft/sec		Strt Channel Edg	None	Soft Sediment		
36.6S-E-21	Focus	5/1/2011	3:56:58 PM	12834970.73	285625.18	776.1124	0.0272	0.047	0.0543	1.4	0.6	0.7	Light	Light	Few	Left	>3 ft/sec		Strt Channel Edg	None	Silt over Sand		
36.6S-E-22	Focus	5/1/2011	4:01:55 PM	12834984.69	285680.56	775.9272	0.0325	0.0583	0.0668	0.2	0.0	0.0	None	None	None	Center	>3 ft/sec		Mid-Channel	<5%	Sand		
36.6S-E-23	Focus	5/12/2011	10:08:25 AM	12835622.72	285999.72	775.8916	0.0365	0.0684	0.0775	1.0	0.3	0.4	Moderate	Moderate	Common	Left	No	No	Delta	5%-25%	Silt over Sand		
36.6S-E-24	Focus	5/12/2011	10:13:48 AM	12835643.71	286009.14	775.9272	0.0389	0.0706	0.0806	1.0	0.3	0.4	Moderate	Moderate	Common	Left	No	No	Delta	5%-25%	Silt over Sand		
36.6S-E-25	Focus	5/12/2011	10:18:12 AM	12835674.46	286013.89	775.9469	0.0399	0.0725	0.0827	0.9	0.6	0.8	Light	Light	Few	Left	No	No	Delta	5%-25%	Silt over Sand		
36.6S-E-26	Focus	5/12/2011	10:25:29 AM	12835617.61	286052.74	775.8077	0.0319	0.0591	0.0671	5.0	0.1	0.2	None	None	None	Left	<1ft/sec	<1 ft/sec	Delta	None	Sand & Gravel		
36.6S-E-27	Focus	5/12/2011	10:31:24 AM	12835574.58	286032.65	775.7843	0.0356	0.0617	0.0712	4.4	0.1	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Delta	None	Sand & Gravel		
36.6S-E-28	Focus	5/12/2011	10:36:02 AM	12835593.72	285976.86	775.8783	0.0428	0.0804	0.0911	1.1	0.2	0.3	Light	Light	Few	Left	No	No	Delta	5%-25%	Silt over Sand		
36.6S-E-29	Focus	5/12/2011	10:39:59 AM	12835534.00	285968.97	775.8297	0.0305	0.0529	0.0611	0.9	0.7	1.0	Heavy	Heavy	Many	Left	No	No	Delta	<5%	Soft Sediment		PHT366N367
36.6S-E-30	Focus	5/12/2011	10:45:03 AM	12835545.70	285969.20	775.8255	0.0305	0.0536	0.0617	1.1	0.3	0.4	None	None	None	Left	No	No	Delta	None	Silt over Sand		
36.6S-E-31	Focus	5/12/2011	10:50:01 AM	12835476.22	285958.11	775.8054	0.0409	0.0691	0.0803	0.8	0.6	0.7	Heavy	Heavy	Many	Left	No	No	Delta	<5%	Silt over Sand		
36.6S-E-32	Focus	5/12/2011	11:01:02 AM	12835440.64	285949.19	775.7275	0.0389	0.0591	0.0708	1.1	0.5	0.7	Moderate	Moderate	Common	Left	No	No	Delta	None	Silt over Sand		
36.6S-E-33	Focus	5/12/2011	11:07:32 AM	12835383.88	285915.16	775.7717	0.0518	0.0795	0.0949	1.0	0.6	0.8	Heavy	Heavy	Many	Left	No	No	Delta	None	Silt over Sand		
36.6S-E-34	Focus	5/12/2011	11:11:34 AM	12835327.52	285873.96	775.9287	0.0413	0.0571	0.0705	1.1	0.4	0.6	Moderate	Moderate	Common	Left	No	No	Delta	None	Silt over Sand		
36.6S-E-35	Focus	5/12/2011	11:16:31 AM	12835301.00	285814.53	775.7726	0.035	0.0489	0.0601	0.9	0.4	0.5	Moderate	Moderate	Common	Left	<1ft/sec	No	Delta	<5%	Silt over Sand		
36.6S-E-36	Focus	5/12/2011	11:25:05 AM	12835307.59	285775.92	775.7748	0.0474	0.0689	0.0837	0.8	1.0	2.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand	SHEEN PRSENT B4	
36.6S-E-37	Focus	5/12/2011	11:31:59 AM	12835385.55	285818.66	775.7924	0.0438	0.0637	0.0773	1.6	1.4	1.9	Moderate	Light	Common	Left	No	No	Delta	<5%	Silt over Sand	SHEEN PRSNT B4	
36.6S-E-38	Focus	5/12/2011	11:53:45 AM	12835414.41	285844.50	775.6612	0.0553	0.0671	0.087	1.1	1.1	1.3	Moderate	Moderate	Common	Left	No	No	Delta	5%-25%	Silt over Sand	SHEEN PRSNT B4	
36.6S-E-39	Focus	5/12/2011	11:59:52 AM	12835485.43	285852.16	775.6598	0.0422	0.0551	0.0695	0.8	0.7	0.8	Heavy	Heavy	Many	Left	No	No	Delta	5%-25%	Silt over Sand		
36.6S-E-40	Focus	5/12/2011	1:18:26 PM	12835363.04	285963.45	775.7297	0.0313	0.0534	0.0619	3.8	0.1	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Delta	None	Sand & Gravel		
36.6S-E-41	Focus	5/12/2011	1:27:21 PM	12835291.28	285860.86	775.7756	0.0346	0.0631	0.072	1.4	1.0	1.1	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
36.6S-E-42	Focus	5/12/2011	1:30:19 PM	12835293.86	285786.02	775.7667	0.0408	0.0739	0.0844	1.4	0.5	0.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
36.6S-E-43	Focus	5/12/2011	1:33:11 PM	12835288.88	285754.93	775.8143	0.0407	0.073	0.0836	1.3	0.6	0.7	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
36.6S-E-44	Focus	5/12/2011	1:37:29 PM	12835337.60	285767.06	775.7514	0.0354	0.0653	0.0742	1.9	0.6	0.8	None	None	None	Left	No	No	Delta	None	Sand		
36.6S-E-45	Focus	5/12/2011	1:42:19 PM	12835409.51	285814.59	775.7565	0.0391	0.0701	0.0803	2.0	0.7	0.9	None	None	None	Left	No	No	Delta	None	Sand		
36.6S-E-46	Focus	5/12/2011	1:47:04 PM	12835538.15	285859.19	775.5155	0.2101	0.239	0.3182	1.6	0.5	0.6	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Delta	<5%	Sand		
36.6S-E-47	Focus	5/12/2011	1:49:57 PM	12835547.35	285832.28	777.2343	1.5801	1.8784	2.4546	1.3	0.5	0.8	Light	Light	Few	Left	No	No	Delta	<5%	Silt over Sand		
36.6S-E-48	Focus	5/12/2011	1:52:58 PM	12835438.44	285801.55	775.3605	0.6528	1.0236	1.214	0.9	1.2	2.3	Moderate	Moderate	Common	Left	No	No	Delta	5%-25%	Soft Sediment		
36.6S-E-49	Focus	5/12/2011	1:56:08 PM	12835398.71	285776.35	776.0138	0.0536	0.0839	0.0996	0.9	1.5	2.0	Heavy	Heavy	Many	Left	No	No	Delta	<5%	Soft Sediment		
36.6S-E-50	Focus	5/12/2011	1:58:16 PM	12835353.00	285746.75	775.9672	0.0487	0.0755	0.0898	0.9	0.6	0.7	Heavy	Heavy	Many	Left	No	No	Delta	5%-25%	Silt over Sand		PHT371N372
36.6S-E-51	Focus	5/12/2011	2:04:18 PM	12835320.84	285694.52	775.9604	0.0516	0.0805	0.0956	0.8	1.8	2.0	Moderate	Moderate	Common	Left	No	No	Delta	5%-25%	Silt over Sand		
36.6S-E-52	Focus	5/12/2011	2:09:28 PM	12835343.86	285627.34	775.8848	0.0479	0.0739	0.0881	1.0	1.1	1.4	Moderate	Moderate	Common	Left	No	<1 ft/sec	Delta	5%-25%	Silt over Sand	SHEEN PRE AGG, PHT373N374	
36.6S-E-53	Focus	5/12/2011	2:21:17 PM	12835357.45	285549.11	775.9039	0.0392	0.0617	0.0731	1.4	1.2	1.6	Moderate	Moderate	Common	Left	No	No	Delta	<5%	Soft Sediment	SHEEN PRE AGG	
36.6S-E-54	Focus	5/12/2011	2:29:04 PM	12835371.76	285479.99	775.7754	0.0349	0.056	0.066	0.9	1.4	1.9	Moderate	Moderate	Common	Left	No	No	Delta	25%-50%	Soft Sediment		
36.63LG-B-01	Other	6/11/11	11:02:36 AM	12835438.95	286047.48	775.8085	0.036	0.058	0.0683	4.5	0.5	0.5	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		CURRENT TOO FAST, TOO DEEP
36.67LG-B-01	Other	6/11/11	11:12:22 AM	12835196.74	286049.83	775.9362	0.0652	0.1142	0.1315	4.8	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		HARD BOTTOM, HIGH F
36.72LG-B-01	Other	6/11/11	11:46:01 AM	12835003.01	285896.52	775.7115	0.0365	0.059	0.0694	3.8	0.0	0.1	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		HIGH VELOCITY
MLDE-E-04	Focus	5/1/2011	2:48:23 PM	12835120.34	285277.27	776.0233	0.03	0.0454	0.0544	1.1	0.5	1.8	Light	Light	Few	Left	<1ft/sec		Other-Comments	5%-25%	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-E-461	Focus	5/24/2011	9:33:37 AM	12835299.04	285684.33	775.7941	0.0405	0.0755	0.0856	2.2	0.3	0.7	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-462	Focus	5/24/2011	9:38:35 AM	12835315.16	285647.92	775.873	0.053	0.1038	0.1166	1.8	0.6	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-463	Focus	5/24/2011	9:47:35 AM	12835267.13	285656.21	775.9392	0.0375	0.0706	0.0799	1.0	1.4	1.8	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-464	Focus	5/24/2011	9:50:09 AM	12835231.43	285652.67	775.8001	0.0426	0.0847	0.0948	0.7	1.7	1.9	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-465	Focus	5/24/2011	9:52:11 AM	12835246.06	285620.89	775.8952	0.0573	0.0745	0.094	0.8	1.5	2.1	Moderate	Moderate	Common	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-E-466	Focus	5/24/2011	9:54:32 AM	12835278.71	285599.39	775.9184	0.0522	0.0662	0.0843	0.8	1.9	2.7	Moderate	Moderate	Common	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-467	Focus	5/24/2011	9:57:12 AM	12835312.86	285549.15	775.8707	0.063	0.0836	0.1047	1.6	1.5	1.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-468	Focus	5/24/2011	10:04:30 AM	12835357.97	285510.29	775.9489	0.0534	0.0882	0.1031	1.7	0.6	0.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-469	Focus	5/24/2011	10:08:25 AM	12835281.68	285458.34	775.9361	0.0991	0.1018	0.142	0.4	2.0	2.2	Moderate	Moderate	Common	Island	No	No	Delta	5%-25%	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-470	Focus	5/24/2011	10:13:55 AM	12835364.81	285424.74	776.064	0.7447	1.1285	1.3521	0.9	1.0	1.3	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-471	Focus	5/24/2011	10:23:24 AM	12835390.32	285363.75	775.839	0.048	0.067	0.0824	0.5	1.1	2.1	Light	Light	Few	Island	No	No	Delta	5%-25%	Soft Sediment	MANY SHN PRIOR TO AGG	
MLDE-E-472	Focus	5/24/2011	10:33:46 AM	12835448.08	285280.75	775.8461	0.052	0.0745	0.0908	1.4	1.3	1.7	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-473	Focus	5/24/2011	10:38:04 AM	12835275.20	285391.11	775.8061	0.0504	0.0713	0.0873	1.6	0.2	0.4	Light	Light	Few	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-E-474	Focus	5/24/2011	10:45:03 AM	12835277.56	285319.03	775.6957	0.0515	0.0728	0.0892	2.0	0.1	0.1	Moderate	Moderate	Common	Island	No	No	Delta	<5%	Silt over Sand	HVY SHN PRR TO AG	
MLDE-E-475	Focus	5/24/2011	10:49:08 AM	12835306.74	285264.68	775.7548	0.0863	0.1328	0.1584	1.1	1.3	1.5	Moderate	Light	Common	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-E-476	Focus	5/24/2011	10:53:32 AM	12835404.50	285236.22	776.6404	0.7263	1.014	1.2473	1.2	0.9	1.1	None	None	None	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-477	Focus	5/24/2011	11:10:18 AM	12835357.46	285158.93	775.6224	0.0936	0.121	0.153	1.2	0.6	2.9	Light	Light	None	Left	No	No	Delta	<5%	Soft Sediment		
MLDE-E-478	Focus	5/24/2011	11:16:11 AM	12835236.23	285248.92	775.5611	0.2321	0.3611	0.4293	0.8	1.6	1.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-483	Focus	5/24/2011	11:39:51 AM	12835096.92	285520.17	775.7685	0.0625	0.0807	0.1021	1.0	1.5	2.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-484	Focus	5/24/2011	11:42:12 AM	12835134.78	285550.00	775.8951	0.0886	0.1329	0.1597	0.4	1.2	1.7	Light	Light	Few	Island	No	No	Delta	25%-50%	Soft Sediment		
MLDE-D-737	Focus	6/6/2011	10:21:53 AM	12835289.36	285706.40	776.3354	0.0414	0.0534	0.0675	1.5	0.3	0.4	None	None	None	Left	<1ft/sec		Delta	None	Sand & Silt		
MLDE-D-738	Focus	6/6/2011	10:35:20 AM	12835320.64	285454.74	776.162	0.0426	0.0534	0.0683	1.8	0.2	0.5	Heavy	Heavy	Many	Left	<1ft/sec		Delta	None	Silt over Sand		
MLDE-D-739	Focus	6/6/2011	10:41:12 AM	12835298.90	285376.29	776.0589	0.0422	0.0526	0.0674	3.0	0.4	0.8	Moderate	Moderate	Common	Left	<1ft/sec		Delta	None	Silt over Sand		
MLDE-D-740	Focus	6/6/2011	10:50:04 AM	12835255.46	285216.72	776.284	0.0541	0.0712	0.0894	3.0	0.5	1.0	Light	Light	Few	Left	<1ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL	
MLDE-D-741	Focus	6/6/2011	10:57:51 AM	12835137.17	285163.72	776.16	0.046	0.0637	0.0785	3.1	0.4	1.1	Light	Light	Few	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL	
MLDE-D-742	Focus	6/6/2011	11:06:21 AM	12835133.52	285193.30	775.8212	0.0341	0.0506	0.061	1.1	1.3	1.7	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Organic	SHEEN ON ARRIVAL PHOTO 1 AND 2	
MLDE-D-743	Focus	6/6/2011	11:13:12 AM	12835161.35	285197.11	775.951	0.0332	0.0527	0.0623	1.0	1.4	1.5	Heavy	Heavy	Many	Island	<1ft/sec		Delta	5%-25%	Organic	SHEEN ON ARRIVAL PHOTO 3 AND 4	
MP 36.75-37.00																							
36.8N-E-01	Focus	5/2/2011	9:34:24 AM	12834241.54	285602.09	775.6586	1.43	1.8621	2.3478	1.1	0.6	0.9	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	<5%	Soft Sediment		
36.8N-E-02	Focus	5/2/2011	9:44:19 AM	12834088.38	285540.89	776.1678	0.0569	0.0912	0.1075	1.9	0.6	0.6	Light	Light	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
36.8N-E-03	Focus	5/2/2011	9:49:59 AM	12833941.07	285489.48	776.1955	0.1177	0.2146	0.2447	2.2	0.6	0.9	None	None	None	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
36.8N-E-04	Focus	5/2/2011	9:54:59 AM	12833749.82	285442.68	775.8957	0.0387	0.0541	0.0665	1.4	0.4	0.6	Light	Light	Few	Right	1-3 ft/sec		Strt Channel Edg	None	Silt over Sand		
36.80LG-B-01	Other	6/11/11	1:13:02 PM	12834692.02	285623.66	775.2027	2.3837	2.4267	3.4016	2.8	0.1	1.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
36.82LG-B-01	Other	6/11/11	1:25:03 PM	12834501.46	285675.54	775.6477	0.0192	0.0344	0.0394	5.0	0.3	0.4	None	None	None	Center	>3 ft	>3 ft/sec	Mid-Channel	None	Sand & Gravel		TOO DEEP, TOO FAST
36.91LG-B-01	Other	6/11/11	1:34:01 PM	12834106.85	285450.28	775.5598	0.0307	0.065	0.0719	6.1	0.2	0.2				Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		TOO DEEP, TOO FAST
36.98LG-B-01	Other	6/11/11	1:42:49 PM	12833727.62	285363.55	775.7047	0.0251	0.062	0.0669	2.8	0.0	0.0	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Soft Sediment		CLAY SEDIMENT
MLDE-E-01	Focus	5/1/2011	2:12:07 PM	12834914.15	285239.27	775.9091	0.035	0.0668	0.0754	0.9	1.1	2.4	Heavy	Heavy	Many	Left	1-3 ft/sec		Other-Comments	<5%	Soft Sediment		PHOTO 348-350
MLDE-E-02	Focus	5/1/2011	2:30:04 PM	12835036.23	285198.91	776.0527	0.0311	0.0547	0.0629	1.1	1.0	1.8	Heavy	Heavy	Many	Left	1-3 ft/sec		Other-Comments	<5%	Soft Sediment		PHOTO 351
MLDE-E-03	Focus	5/1/2011	2:41:42 PM	12835066.80	285155.64	776.9711	0.9484	1.4623	1.7429	1.9	0.2	0.2	Light	Light	Few	Left	1-3 ft/sec		Other-Comments	5%-25%	Soft Sediment		
MLDE-E-05	Focus	5/1/2011	2:56:10 PM	12834948.41	285154.84	776.6491	0.9996	1.3654	1.6922	1.5	0.5	0.5	Moderate	Moderate	Common	Left	<1ft/sec		Other-Comments	<5%	Silt over Sand		
MLDE-E-06	Focus	5/1/2011	3:04:46 PM	12834771.72	285259.95	776.0999	0.095	0.0878	0.1294	3.5	0.6	1.3	Moderate	Moderate	Common	Left	1-3 ft/sec		Other-Comments	<5%	Soft Sediment		
MLDE-E-07	Focus	5/1/2011	3:13:32 PM	12834720.13	285440.47	776.102	0.0343	0.0551	0.0649	1.1	0.9	1.3	Light	Light	Few	Left	>3 ft/sec		Other-Comments	5%-25%	Soft Sediment		
MLDE-E-08	Focus	5/1/2011	3:19:54 PM	12834599.16	285275.58	776.1484	0.0441	0.0726	0.0849	1.9	0.9	0.9	Light	Light	Few	Left	>3 ft/sec		Other-Comments	<5%	Silt over Sand		
MLDE-E-09	Focus	5/1/2011	3:23:47 PM	12834513.86	285371.76	776.0837	0.0345	0.0564	0.0661	0.8	1.1	1.1	Light	Light	Few	Left	1-3 ft/sec		Other-Comments	5%-25%	Soft Sediment		
MLDE-E-10	Focus	5/1/2011	4:12:35 PM	12834474.65	284868.47	775.9762	0.0294	0.0581	0.0651	1.3	1.3	1.5	None	None	None	Left	1-3 ft/sec		Other-Comments	5%-25%	Soft Sediment		DELTA
MLDE-E-11	Focus	5/2/2011	10:11:31 AM	12834567.06	285146.27	775.9238	0.0427	0.0656	0.0783	1.3	1.0	1.2	Light	Light	None	Left	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment		DELTA BANK
MLDE-E-12	Focus	5/2/2011	10:18:34 AM	12834209.78	285300.03	775.9835	0.0297	0.05	0.0581	1.3	0.2	0.2	None	None	None	Island	>3 ft/sec		Mid-Channel	5%-25%	Sand		
MLDE-E-13	Focus	5/2/2011	10:22:15 AM	12834053.71	285210.07	775.9053	0.0286	0.05	0.0576	0.2	0.0	0.0	None	None	None	Island	1-3 ft/sec		Mid-Channel	50%-75%	Sand		
MLDE-E-14	Focus	5/2/2011	10:26:38 AM	12834084.21	285108.43	778.2583	1.4205	2.6902	3.0422	1.1	0.8	1.3	Light	Light	Few	Island	>3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-15	Focus	5/2/2011	10:32:28 AM	12834190.62	285159.86	775.9537	0.0412	0.0753	0.0859	0.5	0.4	1.5	Light	Light	None	Island	>3 ft/sec		Mid-Channel	5%-25%	Sand over Silt		
MLDE-E-16	Focus	5/2/2011	10:41:29 AM	12834319.75	285020.27	775.972	0.028	0.0528	0.0597	1.5	1.5	1.8	None	None	None	Island	<1ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-17	Focus	5/2/2011	10:51:16 AM	12834318.44	284855.07	775.8485	0.0437	0.0836	0.0943	1.0	1.4	1.7	None	None	None	Island	<1ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-19	Focus	5/2/2011	10:56:56 AM	12834202.05	284689.20	775.9728	0.0294	0.056	0.0632	0.8	1.2	1.4	None	None	None	Island	<1ft/sec		Mid-Channel	25%-50%	Sand & Silt		
MLDE-E-20	Focus	5/2/2011	11:01:58 AM	12834395.51	284454.44	775.9547	0.0638	0.1235	0.139	0.9	1.6	1.9	None	None	None	Left	<1ft/sec		Strt Channel Edg	25%-50%	Sand & Silt		
MLDE-E-21	Focus	5/2/2011	11:15:50 AM	12834234.07	284430.13	775.7584	0.3043	0.3179	0.44	1.3	1.5	2.2	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	5%-25%	Soft Sediment		
MLDE-E-22	Focus	5/2/2011	11:22:42 AM	12834097.66	284488.20	775.7528	0.0353	0.0628	0.0721	0.6	1.8	3.4	Moderate	Moderate	Common	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-23	Focus	5/2/2011	11:29:09 AM	12834070.66	284530.53	775.6647	0.0347	0.059	0.0684	0.6	2.2	2.8	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	25%-50%	Soft Sediment		
MLDE-E-24	Focus	5/2/2011	11:34:18 AM	12834124.67	284545.66	775.8025	0.0398	0.0646	0.0759	1.5	0.9	1.5	Heavy	Heavy	Many	Island	1-3 ft/sec		Mid-Channel	<5%	Soft Sediment		
MLDE-E-25	Focus	5/2/2011	11:39:13 AM	12834197.21	284576.74	775.8302	0.0421	0.0646	0.0771	1.4	0.3	0.4	Light	Light	Few	Island	<1ft/sec		Mid-Channel	<5%	Silt over Sand		
MLDE-E-26	Focus	5/2/2011	11:44:17 AM	12834075.41	284630.13	775.7293	0.0411	0.0605	0.0731	1.0	0.3	1.0	Moderate	Light	Common	Island	1-3 ft/sec		Mid-Channel	5%-25%	Silt over Sand		
MLDE-E-27	Focus	5/2/2011	11:51:39 AM	12834070.22	284847.43	775.896	0.0395	0.0543	0.0671	0.9	1.1	1.9	Light	Light	Few	Island	>3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-28	Focus	5/2/2011	1:17:54 PM	12833941.79	284655.24	775.8324	0.0349	0.0476	0.059	0.7	1.5	2.5	Moderate	Moderate	Common	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-29	Focus	5/2/2011	1:25:39 PM	12833893.75	284600.15	775.6945	0.0327	0.0466	0.0569	0.9	1.0	1.7	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-30	Focus	5/2/2011	1:30:10 PM	12833929.31	284540.76	775.7379	0.0242	0.0355	0.043	1.0	1.3	1.3	Light	Light	None	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-31	Focus	5/2/2011	1:33:48 PM	12833971.38	284539.16	775.5945	0.0283	0.0425	0.0511	0.6	0.8	3.0	Moderate	Moderate	Common	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-32	Focus	5/2/2011	1:41:15 PM	12834068.86	284507.80	775.7368	0.0286	0.0449	0.0532	1.0	1.5	2.5	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-34	Focus	5/2/2011	1:52:15 PM	12833935.00	284429.56	775.6733	0.0363	0.0647	0.0742	0.9	1.5	2.4	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	<5%	Soft Sediment		
MLDE-E-35	Focus	5/2/2011	1:56:21 PM	12833899.82	284474.87	775.6528	0.0388	0.07	0.08	1.0	1.7	2.3	None	None	None	Island	1-3 ft/sec		Mid-Channel	<5%	Soft Sediment		
MLDE-E-36	Focus	5/2/2011	2:02:13 PM	12833814.45	284516.86	761.0042	6.3044	9.9907	11.8135	1.1	1.0	1.8	Light	Light	None	Island	1-3 ft/sec		Mid-Channel	<5%	Soft Sediment		
MLDE-E-37	Focus	5/2/2011	2:07:06 PM	12833914.24	284301.00	764.0599	8.5512	14.7905	17.0845	0.2	1.4	1.4	Light	Light	Few	Left	1-3 ft/sec		Strt Channel Edg	None	Sand		
MLDE-E-43	Focus	5/2/2011	3:24:54 PM	12833732.00	284961.96	775.9676	0.0252	0.0417	0.0488	1.0	0.3	0.8	Moderate	Moderate	Common	Island	<1ft/sec		Mid-Channel	5%-25%	Silt over Sand		
MLDE-E-44	Focus	5/2/2011	3:29:17 PM	12833741.98	284894.79	775.9074	0.0268	0.0448	0.0522	1.2	0.7	0.8	Light	Light	None	Island	1-3 ft/sec		Mid-Channel	<5%	Silt over Sand		
MLDE-E-45	Focus	5/2/2011	3:38:37 PM	12833815.39	285057.41	775.7728	0.0379	0.064	0.0744	0.5	0.5	1.3	None	None	None	Island	1-3 ft/sec		Mid-Channel	<5%	Silt over Sand		
MLDE-D-247	Focus	5/18/2011	2:08:03 PM	12833916.22	285206.12	775.7004	0.0279	0.054	0.0608	0.5	0.8	0.9	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Soft Sediment	PHOTOS7AND8 VERYHEAVYOILPRES	
MLDE-D-248	Focus	5/18/2011	2:18:40 PM	12834045.95	285261.54	776.074	0.0332	0.0801	0.0867	0.7	0.2	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-D-249	Focus	5/18/2011	2:22:19 PM	12834038.26	285252.77	775.7414	0.0335	0.0863	0.0926	0.6	0.3	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-250	Focus	5/18/2011	2:25:56 PM	12834037.86	285268.27	775.7213	0.0326	0.1059	0.1109	0.6	0.1	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-251	Focus	5/18/2011	2:29:53 PM	12834088.86	285282.80	775.5385	0.0396	0.1161	0.1227	1.5	0.2	0.2	None	None	None	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-252	Focus	5/18/2011	2:33:00 PM	12834173.88	285334.44	775.7237	0.0391	0.1186	0.1249	1.5	0.1	0.2	None	None	None	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-253	Focus	5/18/2011	2:46:03 PM	12834097.21	285322.06	775.6645	0.0401	0.1382	0.1439	1.0	0.3	0.5	None	None	None	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-254	Focus	5/18/2011	2:50:38 PM	12833994.56	285288.17	775.4522	0.0395	0.1052	0.1124	0.4	0.2	0.2	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-255	Focus	5/18/2011	2:58:43 PM	12833904.74	285240.97	775.6142	0.032	0.0701	0.077	0.5	0.2	0.2	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-256	Focus	5/18/2011	3:20:25 PM	12834008.52	285047.20	775.6978	0.0376	0.0562	0.0677	1.1	0.8	0.9	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-257	Focus	5/18/2011	3:25:29 PM	12834004.31	285044.78	775.4664	0.0317	0.0452	0.0552	0.7	0.8	0.8	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-258	Focus	5/18/2011	3:31:46 PM	12834080.30	285131.58	777.359	1.1715	1.6096	1.9908	1.0	1.0	1.1	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-259	Focus	5/18/2011	3:32:55 PM	12834086.92	285118.70	777.3093	1.8042	2.1169	2.7814	1.0	0.5	0.5	Light	Light	Few	Island	<1ft/sec	No	Delta	25%-50%	Other-Comments		
MLDE-D-260	Focus	5/18/2011	3:38:23 PM	12834185.70	285105.04	775.5389	0.0482	0.0603	0.0772	0.7	1.1	1.8	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	5%-25%	Soft Sediment	VRYHVYSHEENFOUND ONARVL	
MLDE-D-261	Focus	5/18/2011	3:42:41 PM	12834187.68	285108.36	775.7159	0.0434	0.0557	0.0706	0.5	0.5	0.8	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	5%-25%	Soft Sediment	VRYHVYSHEENFOUND ONARVL	
MLDE-D-262	Focus	5/18/2011	3:49:56 PM	12834229.43	285095.17	775.5047	0.0394	0.0496	0.0634	2.1	0.6	0.7	Heavy	Heavy	Many	Island	1-3 ft/sec	No	Delta	None	Soft Sediment	VRYHVYSHEENFOUND ONARVL	
MLDE-D-263	Focus	5/18/2011	3:54:40 PM	12834230.09	285111.19	775.5514	0.0464	0.0577	0.0741	1.0	1.4	1.5	Heavy	Heavy	Many	Island	1-3 ft/sec	No	Delta	None	Organic	VRYHVYSHEENFOUND ONARVL	PHOTOS11AND12
MLDE-D-310	Focus	5/19/2011	2:50:00 PM	12834684.46	285362.68	775.66	0.050	0.109	0.120	0.5	1.4	1.5	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	50%-75%	Soft Sediment		
MLDE-D-311	Focus	5/19/2011	2:52:00 PM	12834691.43	285379.08	775.56	0.033	0.076	0.083	1.6	1.3	1.4	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	50%-75%	Soft Sediment		
MLDE-D-312	Focus	5/19/2011	3:04:00 PM	12834537.38	285315.43	775.68	0.043	0.076	0.088	2.5	1.4	1.5	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand	DEGRADEDGREYSHEEN	
MLDE-D-313	Focus	5/19/2011	3:06:00 PM	12834558.40	285326.30	776.04	0.048	0.084	0.097	2.5	1.0	1.1	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand	DEGRADEDGREYSHEEN	
MLDE-D-314	Focus	5/19/2011	3:15:00 PM	12834478.81	285211.80	775.67	0.042	0.065	0.077	1.6	1.2	1.3	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-315	Focus	5/19/2011	3:19:00 PM	12834457.77	285221.79	776.22	0.039	0.058	0.070	3.0	0.8	0.9	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-316	Focus	5/19/2011	3:28:00 PM	12834318.45	285237.82	775.85	0.041	0.058	0.071	1.0	0.1	0.2	None	None	None	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-D-317	Focus	5/19/2011	3:29:00 PM	12834327.61	285258.43	775.27	0.038	0.053	0.065	0.5	0.2	0.2	None	None	None	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-D-318	Focus	5/19/2011	3:38:00 PM	12834235.70	285184.62	775.45	0.056	0.076	0.094	0.2	0.1	0.2	None	None	None	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-319	Focus	5/19/2011	3:40:00 PM	12834239.19	285204.30	775.55	0.036	0.048	0.060	0.2	0.1	0.1	Light	Light	Few	Island	<1ft/sec	No	Delta	5%-25%	Sand		
MLDE-D-320	Focus	5/19/2011	3:45:00 PM	12834262.98	285046.21	775.84	0.033	0.043	0.054	1.8	0.4	0.5	Light	Light	Few	Island	<1ft/sec	No	Delta	50%-75%	Silt over Sand		
MLDE-D-321	Focus	5/19/2011	3:48:00 PM	12834273.05	285037.31	775.70	0.033	0.044	0.055	1.1	0.9	1.2	Light	Light	Few	Island	<1ft/sec	No	Delta	50%-75%	Silt over Sand		
MLDE-D-322	Focus	5/19/2011	3:54:00 PM	12834411.82	285108.03	775.64	0.071	0.093	0.117	1.6	0.3	0.4	Moderate	Moderate	Common	Island	No	No	Delta	>75%	Organic		
MLDE-D-323	Focus	5/19/2011	3:57:00 PM	12834413.54	285124.51	776.26	0.041	0.054	0.068	1.6	0.5	0.5	Light	Light	Few	Island	<1ft/sec	No	Delta	<5%	Silt over Sand		
MLDE-E-324	Focus	5/19/2011	8:35:16 AM	12833941.19	284431.63	775.48	0.044	0.094	0.104	0.6	1.6	1.8	Heavy	Heavy	Many	Island	No	No	Delta	<5%	Soft Sediment	MANY OIL PHT388-390	
MLDE-E-325	Focus	5/19/2011	8:47:08 AM	12833966.50	284458.77	775.60	0.052	0.101	0.114	0.8	1.1	1.5	Heavy	Heavy	Many	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-E-326	Focus	5/19/2011	8:56:26 AM	12833979.91	284498.22	775.59	0.060	0.112	0.127	0.5	0.6	1.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-327	Focus	5/19/2011	9:15:08 AM	12833990.40	284545.48	775.62	0.047	0.084	0.096	0.6	1.4	1.7	Heavy	Heavy	Many	Island	No	No	Delta	5%-25%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-328	Focus	5/19/2011	9:20:12 AM	12833991.97	284598.44	775.54	0.034	0.059	0.068	0.6	1.2	1.8	Heavy	Heavy	Many	Island	No	No	Delta	5%-25%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-329	Focus	5/19/2011	9:26:27 AM	12833975.50	284643.03	775.58	0.063	0.109	0.126	0.3	1.3	1.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-33	Focus	5/2/2011	1:46:50 PM	12834039.87	284502.20	775.6133	0.027	0.0438	0.0515	0.9	1.5	2.0	Light	Light	None	Island	1-3 ft/sec		Mid-Channel	<5%	Soft Sediment		
MLDE-E-330	Focus	5/19/2011	9:30:08 AM	12833951.83	284675.12	775.65	0.040	0.063	0.075	0.6	1.2	1.4	Heavy	Heavy	Many	Island	No	No	Delta	<5%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-331	Focus	5/19/2011	9:36:26 AM	12833920.64	284695.07	775.71	0.045	0.066	0.080	0.7	0.9	1.4	Heavy	Heavy	Many	Island	No	No	Delta	<5%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-332	Focus	5/19/2011	9:39:19 AM	12833879.34	284720.87	775.66	0.049	0.070	0.085	0.6	0.8	1.0	Heavy	Heavy	Many	Island	No	No	Delta	<5%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-333	Focus	5/19/2011	9:43:32 AM	12833828.77	284762.69	775.62	0.049	0.068	0.083	0.5	1.2	1.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-334	Focus	5/19/2011	9:51:52 AM	12833953.96	284412.70	775.77	0.103	0.153	0.184	2.5	0.5	0.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-335	Focus	5/19/2011	9:52:56 AM	12833963.31	284406.65	775.80	0.180	0.254	0.311	2.4	0.0	0.0	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Gravel & Larger	SHN PRIOR 2 AGG	
MLDE-E-336	Focus	5/19/2011	10:01:05 AM	12833985.09	284447.16	775.49	0.103	0.169	0.198	2.0	1.1	1.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt	MANY SHN PRIOR	
MLDE-E-337	Focus	5/19/2011	10:05:32 AM	12834011.12	284502.87	775.50	0.081	0.119	0.143	2.2	0.8	1.1	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-338	Focus	5/19/2011	10:09:07 AM	12834011.77	284566.36	775.63	0.059	0.091	0.108	2.2	0.6	0.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand	SHN PRIOR TO AGG	
MLDE-E-339	Focus	5/19/2011	10:21:51 AM	12833997.88	284645.76	776.06	0.831	1.004	1.303	1.3	0.7	0.9	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta				
MLDE-E-340	Focus	5/19/2011	10:24:31 AM	12833958.27	284708.22	775.64	0.035	0.041	0.054	0.8	0.5	0.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-341	Focus	5/19/2011	10:27:20 AM	12833914.15	284736.63	775.70	0.039	0.046	0.060	0.6	0.3	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-E-342	Focus	5/19/2011	10:30:18 AM	12833859.60	284780.18	775.67	0.038	0.046	0.060	0.7	0.4	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-343	Focus	5/19/2011	10:33:44 AM	12833895.85	284812.70	775.68	0.047	0.056	0.073	0.7	0.4	0.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-344	Focus	5/19/2011	10:36:57 AM	12833953.23	284807.04	775.66	0.053	0.063	0.083	1.6	0.7	0.8	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-345	Focus	5/19/2011	10:41:25 AM	12833971.15	284751.06	775.67	0.045	0.051	0.068	0.8	0.6	0.7				Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand	MANY SHN PRIOR TO AGG	
MLDE-E-346	Focus	5/19/2011	10:50:56 AM	12834020.31	284653.41	775.60	0.037	0.045	0.058	1.3	0.5	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-347	Focus	5/19/2011	10:54:03 AM	12834057.12	284719.05	775.70	0.067	0.087	0.110	1.5	0.6	1.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-348	Focus	5/19/2011	11:00:27 AM	12834096.00	284652.25	775.67	0.038	0.049	0.063	1.1	1.2	1.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-381	Focus	5/19/2011	2:29:38 PM	12833891.20	284466.07	773.72	0.808	3.120	3.223	0.9	1.2	1.9	Light	Light	Few	Island	No	No	Delta	None	Soft Sediment		
MLDE-E-382	Focus	5/19/2011	2:36:37 PM	12833893.03	284387.97	774.48	0.910	3.496	3.613	0.5	1.0	2.5	Heavy	Heavy	Many	Island	No	No	Delta	5%-25%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-383	Focus	5/19/2011	2:40:32 PM	12833945.01	284437.02	775.60	0.044	0.156	0.163	1.0	1.0	1.1	Moderate	Moderate	Common	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-E-384	Focus	5/19/2011	2:44:27 PM	12834233.57	284427.10	764.08	1.961	4.887	5.266	1.1	1.2	1.8	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-385	Focus	5/19/2011	2:48:07 PM	12834127.99	284413.82	775.21	2.107	4.560	5.023	0.7	0.1	0.1	Light	Light	Few	Left	No	No	Delta	5%-25%	Sand		
MLDE-E-391	Focus	5/19/2011	3:17:02 PM	12833924.78	284376.15	775.36	1.199	1.770	2.138	3.1	0.9	0.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-392	Focus	5/19/2011	3:19:40 PM	12833973.19	284420.65	775.77	0.058	0.078	0.098	3.1	1.0	1.1	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-393	Focus	5/19/2011	3:22:11 PM	12834060.06	284457.88	775.75	0.039	0.049	0.062	2.0	1.4	2.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-394	Focus	5/19/2011	3:25:29 PM	12834165.41	284470.44	775.78	0.059	0.079	0.099	1.9	0.6	1.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-395	Focus	5/19/2011	3:28:31 PM	12834131.43	284428.75	775.83	0.083	0.117	0.143	1.9	0.2	0.3	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-E-396	Focus	5/19/2011	3:32:25 PM	12833969.80	284374.02	779.17	12.766	4.862	13.661	1.5	0.1	0.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Delta	None	Gravel & Larger		
MLDE-D-405	Focus	5/20/11	9:52:02 AM	12834229.91	285089.80	775.6373	0.0716	0.1016	0.1243	2.2	0.7	0.7	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN AND GLOB/On Surface	
MLDE-D-406	Focus	5/20/11	9:55:33 AM	12834242.47	285089.01	775.5573	0.0865	0.122	0.1495	2.3	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-407	Focus	5/20/11	10:03:25 AM	12834339.67	285159.59	775.7366	0.0697	0.0984	0.1206	1.8	1.1	1.1	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-408	Focus	5/20/11	10:06:48 AM	12834334.89	285171.70	775.7231	0.0573	0.0812	0.0993	1.3	1.6	1.6	Moderate	Moderate	Common	Island	<1ft/sec		Delta	None	Silt over Sand		
MLDE-D-409	Focus	5/20/11	10:14:40 AM	12834418.60	285144.47	775.7602	0.0653	0.0851	0.1073	2.1	0.3	0.4	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	5%-25%	Silt over Sand	PHOTO 1/Photo 2	
MLDE-D-410	Focus	5/20/11	10:20:08 AM	12834511.36	285111.15	775.8184	0.0631	0.0754	0.0983	1.4	0.9	0.9	Moderate	Light	Common	Island	<1ft/sec		Delta	5%-25%	Sand & Silt		
MLDE-D-411	Focus	5/20/11	10:22:55 AM	12834498.47	285113.92	775.7138	0.0551	0.0656	0.0857	1.1	1.0	1.4	Light	Light	Few	Island	<1ft/sec		Delta	5%-25%	Sand & Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-D-412	Focus	5/20/11	10:29:15 AM	12834504.31	285061.77	775.888	0.0449	0.0547	0.0708	1.2	0.7	1.3	Light	Light	Few	Island	No		Delta	5%-25%	Silt over Sand		
MLDE-D-413	Focus	5/20/11	10:31:02 AM	12834490.03	285059.69	775.7422	0.0354	0.0431	0.0558	1.5	0.6	0.7	Moderate	Moderate	Common	Island	No		Delta	5%-25%	Silt over Sand		
MLDE-D-414	Focus	5/20/11	10:37:05 AM	12834464.27	284959.32	774.0913	1.6079	1.8924	2.4833	1.0	1.0	1.1	Light	Light	Few	Island	No		Delta	None	Silt over Sand		
MLDE-D-415	Focus	5/20/11	10:39:52 AM	12834480.34	284958.94	775.6519	1.9395	2.1247	2.8768	1.4	0.7	0.8	Light	Light	Few	Island	No		Delta	5%-25%	Silt over Sand		
MLDE-D-416	Focus	5/20/11	10:45:55 AM	12834361.19	284902.32	775.5657	0.0599	0.0731	0.0945	1.1	0.9	1.2	Moderate	Light	Common	Island	No		Delta	None	Silt over Sand		
MLDE-D-417	Focus	5/20/11	10:47:44 AM	12834357.34	284876.65	775.7746	0.0649	0.0795	0.1026	1.4	1.0	1.4	Light	Light	Few	Island	No		Delta	None	Silt over Sand		
MLDE-D-418	Focus	5/20/11	10:56:58 AM	12834342.20	284683.09	775.3347	0.7802	1.0108	1.2769	1.1	0.6	0.6	None	None	None	Island	No		Delta	5%-25%	Silt over Sand		
MLDE-D-419	Focus	5/20/11	11:00:23 AM	12834357.68	284681.31	775.8712	1.024	1.3638	1.7054	1.1	0.2	0.7	None	None	None	Island	No		Delta	5%-25%	Silt over Sand		
MLDE-D-420	Focus	5/20/11	11:06:16 AM	12834330.86	284574.55	775.6016	0.0566	0.0783	0.0966	1.0	1.1	1.1	None	None	None	Island	No		Delta	<5%	Silt over Sand		
MLDE-D-421	Focus	5/20/11	11:07:28 AM	12834347.51	284572.10	775.5914	0.0562	0.0768	0.0952	0.9	1.0	1.0	None	None	None	Island	No		Delta	<5%	Silt over Sand		
MLDE-D-422	Focus	5/20/11	11:12:55 AM	12834324.76	284505.63	775.6628	0.0664	0.0946	0.1156	0.7	2.0	2.8	None	None	None	Island	No		Delta	<5%	Soft Sediment		
MLDE-D-423	Focus	5/20/11	11:16:39 AM	12834250.70	284609.60	775.6422	0.0651	0.0951	0.1152	0.8	1.5	1.6	None	None	None	Island	No		Delta	<5%	Silt over Sand		
MLDE-D-424	Focus	5/20/11	11:21:01 AM	12834181.04	284809.78	775.7368	0.0538	0.0808	0.0971	1.5	1.5	1.9	None	None	None	Island	No		Delta	<5%	Soft Sediment		
MLDE-D-425	Focus	5/20/11	11:22:51 AM	12834197.03	284808.51	775.6988	0.0454	0.0689	0.0825	1.5	0.8	0.9	None	None	None	Island	No		Delta	<5%	Silt over Sand		
MLDE-D-426	Focus	5/20/11	11:30:19 AM	12834111.20	284978.89	775.7005	0.0491	0.078	0.0922	1.8	0.1	0.2	Light	Light	Few	Island	<1ft/sec		Delta	<5%	Sand		
MLDE-D-427	Focus	5/20/11	11:31:54 AM	12834125.66	284978.15	775.7494	0.0465	0.0745	0.0878	2.3	0.4	0.5	None	None	None	Island	<1ft/sec		Delta	<5%	Sand & Gravel		
MLDE-D-428	Focus	5/20/11	11:36:48 AM	12834163.00	285009.01	775.7732	0.0629	0.1034	0.1211	3.0	0.4	0.5	None	None	None	Island	1-3 ft/sec		Delta	<5%	Silt over Sand		
MLDE-D-429	Focus	5/20/11	11:38:53 AM	12834169.83	285021.66	775.7548	0.0574	0.0953	0.1113	3.5	0.2	0.2	None	None	None	Island	1-3 ft/sec		Delta	<5%	Sand		
MLDE-D-430	Focus	5/20/11	11:44:14 AM	12834196.98	285049.00	775.7021	0.0433	0.0736	0.0855	2.9	0.0	0.1	None	None	None	Island	1-3 ft/sec		Delta	<5%	Sand		
MLDE-D-431	Focus	5/20/11	11:46:23 AM	12834190.74	285061.61	775.7553	0.0654	0.1193	0.136	2.6	0.5	0.6	Light	Light	Few	Island	1-3 ft/sec		Delta	<5%	Silt over Sand		
MLDE-E-479	Focus	5/24/2011	11:24:54 AM	12835045.31	285233.89	775.7779	0.0838	0.0911	0.1238	1.2	1.0	1.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-480	Focus	5/24/2011	11:28:45 AM	12834971.57	285178.97	775.9211	0.1364	0.2296	0.267	2.8	0.4	0.7	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-481	Focus	5/24/2011	11:32:41 AM	12834946.03	285330.83	775.7983	0.0792	0.1041	0.1308	1.4	1.2	1.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-482	Focus	5/24/2011	11:36:12 AM	12835014.49	285449.91	775.7128	0.0667	0.0864	0.1092	1.4	1.3	2.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-485	Focus	5/24/2011	11:48:56 AM	12834769.09	285405.11	775.7317	0.0465	0.066	0.0807	1.2	0.8	1.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-486	Focus	5/24/2011	11:53:14 AM	12834605.52	285411.34	775.7249	0.0359	0.0499	0.0615	0.8	1.6	1.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Silt over Sand		
MLDE-E-487	Focus	5/24/2011	11:55:41 AM	12834605.02	285420.82	775.8211	0.047	0.0629	0.0785	0.6	1.7	2.0	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment		PLUS 3FT NORTH
MLDE-E-488	Focus	5/24/2011	1:26:23 PM	12834699.47	285317.06	775.6962	0.125	0.1037	0.1624	2.6	1.8	2.3	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	HVY SHN PRIOR TO AGG	
MLDE-E-489	Focus	5/24/2011	1:29:02 PM	12834821.27	285305.73	775.7726	0.106	0.0721	0.1282	1.0	1.1	1.8	Light	Light	Few	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-E-490	Focus	5/24/2011	1:34:36 PM	12834640.13	285284.31	775.8492	0.1243	0.0716	0.1434	2.0	2.5	3.7	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SNH PRIOR TO AGG	
MLDE-E-491	Focus	5/24/2011	1:47:21 PM	12834519.30	285169.92	775.7739	0.1632	0.1109	0.1973	1.4	0.7	0.9	Heavy	Moderate	Many	Left	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	HVY SHN PRIOR TO AGG	
MLDE-E-492	Focus	5/24/2011	1:52:18 PM	12834499.38	285265.63	775.6761	0.1172	0.0773	0.1404	2.7	2.3	2.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	HVY SHN PRIOR TO AGG	
MLDE-E-493	Focus	5/24/2011	2:01:33 PM	12834408.31	285194.87	775.6995	0.079	0.0902	0.12	2.6	0.6	0.8	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	HVY SHN PRIOR TO AGG	
MLDE-E-494	Focus	5/24/2011	2:06:04 PM	12834466.28	285110.01	775.6581	0.0815	0.1004	0.1293	0.6	1.9	2.4	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	HVY SHN PRIOR TO AGG	
MLDE-E-495	Focus	5/24/2011	2:15:22 PM	12834386.69	285092.93	775.8142	0.0533	0.0752	0.0922	1.0	0.9	1.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	HVY SHN PRIOR TO AGG	
MLDE-E-496	Focus	5/24/2011	2:22:09 PM	12834248.94	285105.04	775.6867	0.0408	0.0626	0.0747	2.2	0.7	1.2	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-497	Focus	5/24/2011	2:26:40 PM	12834210.63	285111.68	775.6591	0.0418	0.0705	0.0819	1.7	0.9	1.2	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-498	Focus	5/24/2011	2:34:07 PM	12834194.88	285090.46	775.6465	0.0432	0.086	0.0963	1.0	1.4	1.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-499	Focus	5/24/2011	2:37:58 PM	12834153.10	285057.31	775.5342	0.0728	0.1354	0.1537	1.3	1.3	1.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-500	Focus	5/24/2011	2:43:03 PM	12834007.45	285028.08	775.7381	0.0335	0.0673	0.0752	0.5	0.5	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-501	Focus	5/24/2011	2:48:16 PM	12833957.11	285059.84	775.6389	0.0456	0.1077	0.1169	0.7	0.5	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-502	Focus	5/24/2011	2:54:10 PM	12834045.13	285108.56	775.8422	0.037	0.1341	0.1391	1.1	1.2	1.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-503	Focus	5/24/2011	2:59:55 PM	12834045.37	285143.28	775.6954	0.0482	0.1296	0.1383	1.6	0.5	1.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-504	Focus	5/24/2011	3:05:53 PM	12833998.21	285122.70	774.955	0.7593	2.7896	2.8911	1.4	0.5	0.8	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-505	Focus	5/24/2011	3:14:33 PM	12834098.28	285180.51	779.6564	0.9878	3.8671	3.9913	2.0	0.5	0.8	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-506	Focus	5/24/2011	3:17:16 PM	12834020.90	285144.18	775.0833	0.819	3.1205	3.2262	1.0	0.4	0.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-507	Focus	5/24/2011	3:19:50 PM	12833974.05	285169.92	775.7139	0.0393	0.1225	0.1286	0.2	0.9	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-E-508	Focus	5/24/2011	3:24:44 PM	12833933.32	285230.79	775.7032	0.0406	0.1009	0.1087	1.0	0.9	1.2	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand	SHN PRIOR TO AGG	
MLDE-E-509	Focus	5/24/2011	3:29:33 PM	12833914.88	285182.05	775.7639	0.0385	0.0942	0.1018	0.2	1.1	1.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand	SHN PRIOR TO AGG	
MLDE-E-510	Focus	5/24/2011	3:34:47 PM	12833847.33	285213.55	775.768	0.0447	0.0968	0.1066	1.2	0.5	0.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-E-511	Focus	5/24/2011	3:39:32 PM	12833794.81	285172.32	775.6825	0.6339	1.1769	1.3367	0.7	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-512	Focus	5/24/2011	3:50:14 PM	12833805.88	285011.22	775.6203	0.0339	0.0538	0.0636	3.1	1.3	1.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		PT NOGO DEAD TREE PT IS 50FT EAST
MLDE-E-513	Focus	5/24/2011	3:53:41 PM	12833724.65	285008.15	775.6365	0.0332	0.0512	0.061	0.6	1.4	1.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-517	Focus	5/24/2011	4:25:34 PM	12833731.55	285015.15	775.6397	0.0373	0.0492	0.0617	0.5	1.3	2.1	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-518	Focus	5/24/2011	4:27:48 PM	12833755.20	285062.45	775.6709	0.0398	0.0522	0.0656	0.6	1.0	1.2	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-D-527	Focus	5/24/2011	9:13:00 AM	12833760.41	285114.04	774.023	7.1236	8.8688	11.3755	0.6	0.6	0.9	Moderate	Light	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-528	Focus	5/24/2011	9:15:00 AM	12833768.43	285123.64	773.0895	6.5802	8.0259	10.3785	0.8	0.3	0.4	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-529	Focus	5/24/2011	9:21:00 AM	12833721.14	285120.49	773.586	6.6992	7.8407	10.3129	0.5	0.0	0.1	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-543	Focus	5/24/2011	11:13:00 AM	12833779.16	284904.05	775.0073	0.0469	0.0741	0.0877	5.0	0.7	0.8	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN COME UPSTREAM	
MLDE-D-544	Focus	5/24/2011	11:20:00 AM	12833775.45	284896.66	775.1087	0.0313	0.0517	0.0604	4.9	0.4	0.8	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN COME UPSTREAM	
MLDE-D-545	Focus	5/24/2011	11:25:00 AM	12833758.36	284951.63	775.4446	0.059	0.0992	0.1154	0.8	0.3	0.5	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	5%-25%	Silt over Sand	SHEEN COME UPSTREAM	
MLDE-D-546	Focus	5/24/2011	11:32:00 AM	12833772.18	284958.21	774.9926	0.0571	0.1045	0.1191	3.3	0.2	0.4	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-547	Focus	5/24/2011	11:35:00 AM	12833756.61	284957.57	775.1901	0.0477	0.0872	0.0994	0.5	0.5	0.7	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	IN ROOT MASS ALONG ISLAND	
MLDE-D-548	Focus	5/24/2011	11:43:00 AM	12833834.01	284989.53	775.4392	0.0742	0.1399	0.1583	3.8	1.6	1.7	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-549	Focus	5/24/2011	11:55:00 AM	12833875.65	284981.91	776.9991	1.2361	2.143	2.4739	1.6	0.2	0.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-550	Focus	5/24/2011	11:59:00 AM	12833873.73	284997.61	775.0441	1.0537	1.6509	1.9585	2.2	0.4	0.5	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-551	Focus	5/24/2011	12:06:00 PM	12833924.49	284897.69	774.8526	0.044	0.0706	0.0832	0.8	0.4	0.6	Light	Light	Few	Island	1-3 ft/sec		Delta	5%-25%	Silt over Sand		
MLDE-D-552	Focus	5/24/2011	1:41:00 PM	12834226.89	285269.76	775.3488	0.0391	0.0735	0.0833	1.0	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-553	Focus	5/24/2011	1:49:00 PM	12834270.20	285360.93	774.9245	0.0388	0.0818	0.0905	1.7	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-554	Focus	5/24/2011	1:55:00 PM	12834439.91	285453.21	775.4609	0.0317	0.0781	0.0843	3.1	0.2	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-555	Focus	5/24/2011	2:02:00 PM	12834374.95	285296.96	775.0317	0.0285	0.0802	0.0851	0.7	0.3	0.4	Light	Light	Few	Island	1-3 ft/sec		Delta	<5%	Sand		
MLDE-D-556	Focus	5/24/2011	2:12:00 PM	12834403.60	285217.48	774.225	0.7644	3.0075	3.1031	1.0	2.2	2.8	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	SHEEN ON ARRIVE	
MLDE-D-557	Focus	5/24/2011	2:23:00 PM	12834436.50	285171.61	775.2741	0.0264	0.0755	0.0799	2.0	0.8	0.9	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVE HEAVY SHEEN UPSTM	
MLDE-D-558	Focus	5/24/2011	2:32:00 PM	12834363.90	285172.76	775.2906	0.0399	0.0844	0.0933	1.3	1.5	1.7	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	ORGANIC CONN DOW CHANNEL	
MLDE-D-559	Focus	5/24/2011	2:41:00 PM	12834133.62	285016.57	775.1757	0.0419	0.0847	0.0945	3.0	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt	BNDY	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-D-560	Focus	5/24/2011	2:48:00 PM	12834172.94	285000.81	774.997	0.0504	0.0847	0.0986	2.9	0.3	0.4	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-561	Focus	5/24/2011	2:55:00 PM	12834169.28	284908.96	774.4774	0.0371	0.0584	0.0692	1.0	1.9	2.0	None	None	None	Island	<1ft/sec		Delta	<5%	Organic		
MLDE-D-562	Focus	5/24/2011	3:00:00 PM	12834096.96	284995.01	774.9025	0.0545	0.077	0.0943	3.0	0.2	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-618	Focus	5/26/2011	1:31:08 PM	12834365.81	284847.91	775.4643	0.0334	0.0497	0.0599	1.1	2.1	2.3	Light	Light	Few	Island	<1ft/sec		Delta	5%-25%	Organic		
MLDE-D-619	Focus	5/26/2011	1:35:22 PM	12834405.46	284780.54	775.524	0.0376	0.0457	0.0592	0.4	2.1	2.2	None	None	None	Island	<1ft/sec		Delta	50%-75%	Organic		
MLDE-D-744	Focus	6/6/2011	11:30:53 AM	12834918.20	285277.90	775.8047	0.0434	0.0779	0.0892	1.2	1.2	1.3	Moderate	Moderate	Common	Island	<1ft/sec		Delta	<5%	Organic	SHEEN ON ARRIVAL	
MLDE-D-745	Focus	6/6/2011	11:33:08 AM	12834932.26	285295.60	775.8361	0.0355	0.06	0.0697	1.9	0.7	0.8	Light	Light	Few	Island	<1ft/sec		Delta	<5%	Silt over Sand	SHEEN ON ARRIVAL	
MLDE-D-746	Focus	6/6/2011	1:38:37 PM	12834610.61	285298.30	776.0078	0.0289	0.0482	0.0562	1.5	1.1	3.1	Heavy	Heavy	Many	Left	<1ft/sec		Delta	None	Soft Sediment	SHEEN ON ARRIVAL SOME ORGANIC	
MLDE-D-747	Focus	6/6/2011	1:49:53 PM	12834437.25	285260.61	776.1485	0.0353	0.067	0.0757	1.0	1.3	1.4	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL SOME ORGANIC PHOTO 5 AND 6	
MLDE-D-748	Focus	6/6/2011	1:54:08 PM	12834376.43	285322.56	776.0427	0.0393	0.0833	0.0921	0.9	0.1	0.2	Light	Light	Few	Island	<1ft/sec		Delta	None	Sand	SOME ORGANIC	
MLDE-D-749	Focus	6/6/2011	2:01:00 PM	12834368.51	285229.69	776.2889	0.0352	0.0834	0.0905	1.0	0.3	0.4	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Sand & Silt		
MLDE-D-750	Focus	6/6/2011	2:09:48 PM	12834392.30	284901.10	776.0554	0.0487	0.1324	0.1411	0.9	1.2	1.4	Light	Light	Few	Island	<1ft/sec		Delta	<5%	Organic		
MLDE-D-751	Focus	6/6/2011	2:16:11 PM	12834325.86	284911.25	776.1575	0.0292	0.0904	0.095	1.3	0.8	1.6	Light	Light	Few	Island	<1ft/sec		Delta	5%-25%	Organic		
MLDE-D-752	Focus	6/6/2011	2:23:51 PM	12834364.49	284949.71	775.4361	0.0405	0.155	0.1602	0.3	1.6	1.8	Light	Light	Few	Island	<1ft/sec		Delta	50%-75%	Organic		
MLDE-D-753	Focus	6/6/2011	2:33:50 PM	12834288.85	285081.45	775.9464	0.0354	0.0865	0.0935	2.2	0.2	0.3	Light	Light	Few	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL	
MLDE-D-754	Focus	6/6/2011	2:39:16 PM	12834228.09	285137.27	775.7255	0.0358	0.0777	0.0856	0.5	0.6	1.8	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Sand over Silt	PHOTO 7 AND 8	
MLDE-D-755	Focus	6/6/2011	2:47:03 PM	12834115.37	285043.98	775.967	0.0847	0.0807	0.117	1.8	0.5	0.7	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL	
MLDE-D-756	Focus	6/6/2011	2:54:17 PM	12834069.52	285018.07	775.8437	0.035	0.0596	0.0691	2.3	0.8	1.1	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL	
MLDE-D-757	Focus	6/6/2011	3:07:00 PM	12834055.03	285071.59	775.7276	0.1071	0.1234	0.1634	0.8	1.0	1.3	Light	Light	Few	Island	1-3 ft/sec		Delta	5%-25%	Organic		
MLDE-D-758	Focus	6/6/2011	3:17:41 PM	12834018.69	285076.26	775.8168	0.0325	0.0459	0.0563	1.4	0.6	0.8	None	None	None	Island	1-3 ft/sec		Delta	None	Sand & Gravel		
MLDE-D-759	Focus	6/6/2011	3:23:46 PM	12834054.60	285131.17	775.9676	0.0501	0.0666	0.0834	1.7	0.6	0.7	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-760	Focus	6/6/2011	3:32:02 PM	12834031.23	285172.22	775.7852	0.0401	0.053	0.0665	0.7	0.3	1.8	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-761	Focus	6/6/2011	3:37:53 PM	12833982.58	285145.84	775.8234	0.0468	0.0607	0.0766	0.6	0.5	0.7	Heavy	Moderate	Many	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-B-868	Focus	6/9/2011	2:59:07 PM	12833857.24	284403.10	775.6413	0.0312	0.0457	0.0554	0.7	2.0	2.2	None	None	None	Island	No	No	Delta	None	Soft Sediment		
MLDE-B-869	Focus	6/9/2011	3:07:13 PM	12833865.20	284355.74	775.5665	0.0431	0.059	0.073	0.5	2.1	2.2	Heavy	Heavy	Common	Island	No	No	Delta	None	Soft Sediment		EDGE OF MUDFLAT
MLDE-B-870	Focus	6/9/2011	3:16:31 PM	12833931.55	284351.62	782.1403	4.5738	5.5015	7.1544	1.1	0.3	0.3	Light	Light	Few	Left	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		BAD POS
MLDE-B-871	Focus	6/9/2011	3:22:48 PM	12834050.68	284436.45	775.6087	0.0708	0.0733	0.1019	2.9	1.0	1.3	Light	Light	None	Left	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-872	Focus	6/9/2011	3:27:25 PM	12833997.00	284452.89	775.5876	0.0466	0.0567	0.0734	2.0	1.3	1.5	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-873	Focus	6/9/2011	3:44:36 PM	12834193.09	284440.81	776.3603	1.5577	1.4368	2.1191	1.3	1.1	1.1	None	None	None	Left	<1ft/sec	<1 ft/sec	Delta	<5%	Sand & Silt		
MLDE-B-874	Focus	6/9/2011	3:48:15 PM	12834161.39	284519.05	775.7084	0.0495	0.0728	0.088	1.7	0.4	0.8	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-B-875	Focus	6/9/2011	3:52:52 PM	12834132.73	284583.96	775.6541	0.0585	0.0711	0.0921	1.7	0.7	1.2	Light	Light	None	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Silt over Sand		
MLDE-B-876	Focus	6/9/2011	3:58:08 PM	12834111.17	284683.44	775.8353	0.045	0.0669	0.0807	2.0	0.4	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-B-877	Focus	6/9/2011	4:02:15 PM	12834045.17	284567.05	775.5936	0.0355	0.0477	0.0595	1.0	1.1	1.2	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-D-883	Focus	6/9/2011	10:48:19 AM	12833746.51	285001.62	775.7185	0.0534	0.0761	0.0929	0.8	1.0	1.3	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Soft Sediment	HVY SHEEN ARRIVAL PHOTOS 5 AND 6 HVY SHEEN ANCHOR	
MLDE-D-884	Focus	6/9/2011	10:58:18 AM	12833781.31	285040.37	775.8196	0.0264	0.0392	0.0472	0.8	0.2	0.3	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLDE-D-885	Focus	6/9/2011	11:02:39 AM	12833714.79	285072.68	775.7226	0.0287	0.0438	0.0524	0.5	0.1	0.3	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Sand over Silt	SHEEN ON ARRIVAL PHOTOS 7 AND 8	
MLDE-D-888	Focus	6/9/2011	1:30:26 PM	12833783.14	285085.27	775.679	0.0565	0.098	0.1131	1.9	0.5	0.7	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLDE-D-889	Focus	6/9/2011	1:36:05 PM	12833802.12	285140.52	775.7546	0.0518	0.0961	0.1092	0.4	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-890	Focus	6/9/2011	1:42:16 PM	12833827.03	285176.25	775.7288	0.0411	0.0872	0.0964	0.4	1.9	2.0	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Sand over Silt		
MLDE-D-891	Focus	6/9/2011	1:47:55 PM	12833815.49	285204.95	775.5994	0.0386	0.0902	0.0981	0.7	0.7	0.9	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		S EDGE OF SANDBAR
MLDE-D-892	Focus	6/9/2011	1:53:39 PM	12833869.95	285138.82	775.6725	0.0399	0.1036	0.111	0.4	0.9	1.0	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		W EDGE OF SANDBAR
MLDE-D-893	Focus	6/9/2011	2:00:23 PM	12833993.35	285255.75	775.6852	0.0382	0.1115	0.1179	0.6	1.0	1.3	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	<5%	Sand over Silt	LGHT SHEEN ARRIVL PHOTOS 9 AND 10 GLOBS APPROX 1MM	
MLDE-D-894	Focus	6/9/2011	2:05:41 PM	12833964.23	285266.30	777.4678	0.8743	3.4241	3.534	0.6	0.6	1.4	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Sand over Silt		
MLDE-D-895	Focus	6/9/2011	2:09:15 PM	12833957.28	285285.36	775.8915	0.9052	3.5863	3.6988	1.5	0.4	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-896	Focus	6/9/2011	3:25:03 PM	12833804.80	284791.10	775.3491	0.0402	0.0522	0.0659	0.8	0.2	0.4	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand	LGHT SHEEN ARRIVL	
MLDE-D-897	Focus	6/9/2011	3:34:06 PM	12833893.21	284845.57	775.5975	0.0447	0.0573	0.0727	1.5	0.1	0.2	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand	LGHT SHEEN ARRIVL	
MLDE-D-898	Focus	6/9/2011	3:40:53 PM	12833964.74	284840.55	775.6389	0.0504	0.0614	0.0795	1.1	0.4	0.7	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Organic		
MLDE-D-899	Focus	6/9/2011	3:48:02 PM	12833996.59	284792.89	775.5934	0.039	0.0499	0.0633	2.0	0.5	0.6	Moderate	Light	Common	Island	1-3 ft/sec		Delta	None	Soft Sediment	SHEEN FROM ANCHOR	
MLDE-D-900	Focus	6/9/2011	3:53:41 PM	12833958.91	284741.33	775.3581	0.0419	0.0517	0.0666	0.6	0.9	1.0	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	PHOTO 11 AND 12	
MLDE-D-901	Focus	6/9/2011	3:59:04 PM	12833995.68	284700.52	775.4104	0.0433	0.0558	0.0706	0.6	0.9	1.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	SHEEN FROM ANCHOR PHOTO 13 AND 14	
MLDE-D-914	Focus	6/10/2011	4:01:26 PM	12833854.45	284866.26	775.8891	0.0549	0.0799	0.097	1.4	0.4	0.4	Moderate	Moderate	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-915	Focus	6/10/2011	4:11:15 PM	12833813.17	284950.56	775.6415	0.0376	0.0616	0.0721	4.1	0.7	0.8	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLDE-D-916	Focus	6/10/2011	4:17:05 PM	12833835.70	285038.58	775.8142	0.0328	0.0575	0.0662	3.5	0.7	1.0	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-917	Focus	6/10/2011	4:25:08 PM	12833903.43	285049.05	775.5003	0.0323	0.063	0.0708	4.8	1.0	1.0	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MP 37.00-37.25																							
37.04LG-B-01	Other	6/11/11	1:52:53 PM	12833442.02	285383.68	775.6053	0.0239	0.088	0.0912	3.3	0.2	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
37.11LG-B-01	Other	6/11/11	2:01:24 PM	12833035.01	285315.03	775.2823	0.8459	3.354	3.459	1.9	0.1	0.2	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		
37.24LG-B-01	Other	6/11/11	2:11:14 PM	12832403.15	285374.80	775.5893	0.097	0.2911	0.3068	2.0	0.1	0.3	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand & Silt		
MLDE-E-38	Focus	5/2/2011	2:12:52 PM	12833769.10	284209.37	763.8458	7.8691	13.3688	15.5128	1.2	0.3	0.3	Light	Light	Few	Left	<1ft/sec		Strt Channel Edg	None	Sand		
MLDE-E-39	Focus	5/2/2011	2:23:17 PM	12833607.18	284316.92	766.7481	6.0719	9.9191	11.63	0.9	1.1	1.2	Moderate	Light	Common	Island	<1ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-40	Focus	5/2/2011	2:30:46 PM	12833514.00	284304.79	775.7618	0.0288	0.0455	0.0539	1.1	1.3	1.5	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-41	Focus	5/2/2011	2:38:43 PM	12833612.96	284093.53	774.7963	1.4247	2.494	2.8722	1.7	0.4	0.6	Light	Light	None	Left	1-3 ft/sec		Strt Channel Edg	<5%	Silt over Sand		
MLDE-E-42	Focus	5/2/2011	2:44:10 PM	12833353.70	284244.37	775.686	0.0782	0.13	0.1517	0.1	0.1	0.1	Light	Light	Few	Island	<1ft/sec		Mid-Channel	5%-25%	Sand		
MLDE-E-46	Focus	5/2/2011	3:44:49 PM	12833646.34	284918.77	775.8388	0.0275	0.0467	0.0542	1.0	0.7	0.9	Light	Light	None	Island	<1ft/sec		Mid-Channel	5%-25%	Silt over Sand		
MLDE-E-47	Focus	5/2/2011	3:51:35 PM	12833447.49	284785.42	775.857	0.0274	0.0473	0.0547	1.1	0.4	0.4	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	5%-25%	Sand		
MLDE-E-48	Focus	5/2/2011	3:56:36 PM	12833491.26	284777.52	775.8396	0.0417	0.0723	0.0835	1.1	0.5	1.2	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-49	Focus	5/2/2011	4:03:28 PM	12833248.44	284421.29	775.6961	0.039	0.0684	0.0787	0.9	0.6	0.8	Light	Light	Few	Island	<1ft/sec		Mid-Channel	5%-25%	Silt over Sand		
MLDE-E-50	Focus	5/2/2011	4:11:40 PM	12833330.34	284421.70	775.9401	0.1441	0.256	0.2938	0.5	1.0	2.2	Light	Light	Few	Island	<1ft/sec		Mid-Channel	5%-25%	Silt over Sand		
MLDE-E-51	Focus	5/2/2011	4:18:24 PM	12833215.52	284320.83	775.7475	0.0551	0.0991	0.1133	0.6	0.7	1.6	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	5%-25%	Silt over Sand		
MLDE-E-52	Focus	5/2/2011	4:22:39 PM	12833103.52	284377.15	777.5388	1.6122	2.7489	3.1868	1.3	1.0	2.5	Moderate	Moderate	Common	Island	<1ft/sec		Mid-Channel	5%-25%	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-E-53	Focus	5/2/2011	4:29:29 PM	12833141.22	284438.76	775.66	0.0231	0.0523	0.0572	0.8	0.9	1.2	Moderate	Moderate	Common	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-54	Focus	5/2/2011	4:33:32 PM	12833166.86	284496.24	775.7802	0.0293	0.0666	0.0727	0.8	0.3	0.6	Light	Light	Few	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-55	Focus	5/2/2011	4:38:31 PM	12832994.49	284376.41	775.6691	0.043	0.117	0.1247	0.7	0.8	0.9	Moderate	Moderate	Common	Island	<1ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-56	Focus	5/2/2011	4:44:19 PM	12833031.13	284425.44	775.7486	0.0335	0.0874	0.0936	1.1	0.1	0.7	Light	Light	None	Island	1-3 ft/sec		Mid-Channel	5%-25%	Soft Sediment		
MLDE-E-57	Focus	5/2/2011	4:49:19 PM	12832886.51	284378.36	775.5959	0.0353	0.0858	0.0927	0.6	0.8	1.4	Heavy	Heavy	Many	Island	1-3 ft/sec		Mid-Channel	<5%	Soft Sediment		
MLDE-E-58	Focus	5/2/2011	4:53:25 PM	12832930.91	284442.99	775.6043	0.0256	0.0501	0.0562	0.5	0.3	0.3	Moderate	Moderate	Common	Island	1-3 ft/sec		Mid-Channel	<5%	Sand		
MLDE-E-59	Focus	5/2/2011	5:01:39 PM	12832954.96	284545.23	764.5662	7.0799	9.9734	12.2308	0.6	0.2	0.2	Light	Light	None	Island	>3 ft/sec		Mid-Channel	<5%	Sand over Silt		
MLDE-E-60	Focus	5/2/2011	5:07:37 PM	12832833.53	284338.31	775.5658	0.042	0.0651	0.0775	0.9	1.4	2.5	Moderate	Light	Common	Island	1-3 ft/sec		Mid-Channel	<5%	Soft Sediment		
MLDE-E-61	Focus	5/4/2011	2:51:55 PM	12833276.65	284484.48	775.5407	0.0325	0.0525	0.0617	0.5	0.2	0.4	Light	Light	Few	Island	<1ft/sec		Other-Comments	None	Silt over Sand		DELTA
MLDE-E-62	Focus	5/4/2011	3:03:24 PM	12833390.26	284454.98	775.4856	0.0341	0.055	0.0648	0.7	0.6	0.9	Heavy	Heavy	Many	Island	No		Other-Comments	<5%			DELTA SILT ORGANI
MLDE-E-63	Focus	5/4/2011	3:10:46 PM	12833331.04	284358.05	775.6125	0.0384	0.0554	0.0674	1.0	0.5	0.7	None	None	None	Island	<1ft/sec		Other-Comments	None	Sand		DELTA
MLDE-E-64	Focus	5/4/2011	3:17:28 PM	12833434.00	284449.54	775.5677	0.0471	0.0715	0.0856	1.7	0.6	1.0	None	None	None	Island	<1ft/sec		Other-Comments	None	Sand & Silt		DELTA
MLDE-E-65	Focus	5/4/2011	3:27:45 PM	12833384.43	284499.10	775.5764	0.0335	0.053	0.0627	2.1	0.1	0.1	None	None	None	Island	<1ft/sec		Other-Comments	None	Sand		DELTA
MLDE-E-66	Focus	5/4/2011	3:35:48 PM	12833308.43	284416.00	775.5032	0.0405	0.0663	0.0777	1.0	0.3	1.3	Moderate	Moderate	Common	Island	No		Other-Comments	None	Soft Sediment		DELTA
MLDE-E-67	Focus	5/4/2011	3:41:37 PM	12833283.96	284423.48	775.4014	0.0322	0.0545	0.0633	0.7	0.3	0.4	Light	Light	Few	Island	<1ft/sec		Other-Comments	None	Silt over Sand		DELTA
MLDE-E-68	Focus	5/4/2011	3:46:42 PM	12833271.60	284371.29	775.4813	0.0267	0.0462	0.0533	0.6	0.4	0.5	Light	Light	Few	Island	No		Other-Comments	None	Soft Sediment		DELTA
MLDE-E-69	Focus	5/4/2011	3:52:52 PM	12833279.05	284493.46	775.5199	0.0316	0.0567	0.065	1.1	0.2	0.3	None	None	None	Island	<1ft/sec		Other-Comments	None	Silt over Sand		DELTA
MLDE-E-70	Focus	5/4/2011	3:58:29 PM	12833124.98	284498.67	775.3696	0.0382	0.0708	0.0904	0.5	0.1	1.2	Heavy	Heavy	Many	Island	No		Other-Comments	None	Silt over Sand		DELTA
MLDE-E-71	Focus	5/4/2011	4:00:28 PM	12833129.47	284507.01	775.5238	0.0344	0.0704	0.0784	1.0	0.4	1.0	None	None	None	Island	No		Other-Comments	None	Sand		DELTA BD
MLDE-E-72	Focus	5/4/2011	4:05:43 PM	12833150.11	284467.55	775.5545	0.0289	0.0574	0.0642	0.6	0.8	1.1	Heavy	Heavy	Many	Island	<1ft/sec		Other-Comments	None	Silt over Sand		DELTA
MLDE-E-73	Focus	5/4/2011	4:07:41 PM	12833159.45	284467.49	775.5326	0.0303	0.0612	0.0683	1.0	0.5	0.7	Moderate	Moderate	Common	Island	<1ft/sec		Other-Comments	None	Silt over Sand		DELTA BD
MLDE-E-74	Focus	5/4/2011	4:11:40 PM	12833162.86	284462.08	775.494	0.0285	0.0594	0.0659	1.2	0.4	0.6	Light	Light	Few	Island	<1ft/sec		Other-Comments	None	Sand		DELTA
MLDE-E-75	Focus	5/4/2011	4:17:09 PM	12833100.16	284378.30	775.411	0.0297	0.0655	0.0719	1.0	1.1	1.9	Heavy	Moderate	Many	Island	No		Other-Comments	None	Soft Sediment		DELTA
MLDE-E-76	Focus	5/4/2011	4:21:50 PM	12833095.76	284331.04	775.4883	0.0338	0.0918	0.0978	1.2	0.1	0.3	Light	Light	Few	Island	<1ft/sec		Other-Comments	None	Sand		DELTA BD
MLDE-E-77	Focus	5/4/2011	4:26:10 PM	12833025.41	284416.64	775.4929	0.0294	0.0682	0.0743	0.7	0.8	1.0	Moderate	Moderate	Common	Island	No		Other-Comments	None	Soft Sediment		DELTA
MLDE-E-78	Focus	5/4/2011	4:27:37 PM	12833023.83	284425.38	775.6198	0.032	0.075	0.0816	1.9	0.2	0.5	None	None	None	Island	1-3 ft/sec		Other-Comments	None	Sand		DELTA BG
MLDE-D-106	Focus	5/17/2011	11:51:51 AM	12832525.03	284575.76	775.6415	0.0418	0.0693	0.081	1.1	0.4	0.6	Moderate	Moderate	Common	Island	No	No	Delta	None	Organic	PHOTOS3AND4 EPAPHOTOS SHEENFOUNDONARVL	
MLDE-D-107	Focus	5/17/2011	11:57:58 AM	12832516.65	284571.95	775.5566	0.0319	0.0541	0.0629	1.0	0.8	0.8	Moderate	Moderate	Common	Island	No	No	Delta	25%-50%	Sand over Silt		
MLDE-D-108	Focus	5/17/2011	12:07:41 PM	12832532.83	284544.42	775.487	0.033	0.0601	0.0686	1.5	0.4	0.5	Light	Light	Few	Island	No	No	Delta	<5%	Sand over Silt		
MLDE-D-109	Focus	5/17/2011	12:09:13 PM	12832537.70	284530.94	776.3689	0.0281	0.0487	0.0562	1.1	0.9	0.9	Moderate	Moderate	Common	Island	No	No	Delta	5%-25%	Organic		
MLDE-D-110	Focus	5/17/2011	12:17:01 PM	12832495.31	284506.30	775.5961	0.0262	0.0462	0.0532	1.0	0.4	0.5	Moderate	Moderate	Common	Island	No	No	Delta	50%-75%	Organic		
MLDE-D-111	Focus	5/17/2011	12:21:35 PM	12832483.63	284506.02	775.5693	0.0218	0.0376	0.0435	1.4	0.3	0.4	Heavy	Heavy	Many	Island	No	No	Delta	5%-25%	Silt over Sand		
MLDE-D-112	Focus	5/17/2011	12:33:52 PM	12832469.67	284497.94	775.3301	0.0338	0.0519	0.0619	1.2	0.4	0.5	Moderate	Moderate	Common	Island	No	No	Delta	5%-25%	Silt over Sand		
MLDE-D-113	Focus	5/17/2011	12:40:39 PM	12832415.39	284506.74	775.5945	0.0259	0.0384	0.0463	1.2	0.3	0.5	Heavy	Heavy	Many	Island	No	No	Delta	5%-25%	Silt over Sand	EPAPHOTO	
MLDE-D-114	Focus	5/17/2011	12:43:38 PM	12832423.67	284505.76	775.4683	0.0306	0.0444	0.0539	1.0	0.4	0.7	Light	Light	Few	Island	No	No	Delta	5%-25%	Silt over Sand		
MLDE-D-115	Focus	5/17/2011	12:44:31 PM	12832415.91	284508.19	775.4781	0.0308	0.044	0.0537	1.0	0.4	0.4	Moderate	Moderate	Common	Island	No	No	Delta	5%-25%	Silt over Sand		
MLDE-D-116	Focus	5/17/2011	12:52:02 PM	12832432.41	284406.99	775.5131	0.0318	0.042	0.0527	1.3	0.1	0.1	Light	Light	Few	Island	No	No	Delta	5%-25%	Organic		
MLDE-D-117	Focus	5/17/2011	12:54:09 PM	12832416.27	284409.47	775.5091	0.0382	0.0498	0.0628	1.5	0.5	0.6	Moderate	Moderate	Common	Island	No	No	Delta	5%-25%	Silt over Sand		
MLDE-D-118	Focus	5/17/2011	1:02:03 PM	12832330.85	284511.39	767.6888	9.4878	14.7506	17.5385	1.3	0.7	0.7	Light	Light	Few	Island	No	No	Delta	None	Soft Sediment		
MLDE-D-119	Focus	5/17/2011	1:05:46 PM	12832346.57	284512.90	766.4527	9.7481	15.0905	17.9652	1.0	0.6	0.7	Light	Light	Few	Island	No	No	Delta	None	Soft Sediment		
MLDE-D-120	Focus	5/17/2011	1:21:36 PM	12832368.09	284595.73	769.0237	8.071	12.5786	14.9453	1.3	0.2	0.3	Light	Light	Few	Island	No	No	Delta	None	Soft Sediment		
MLDE-D-121	Focus	5/17/2011	1:26:14 PM	12832387.73	284582.04	775.5192	0.0335	0.0421	0.0538	1.3	0.2	0.2	Light	Light	Few	Island	No	No	Delta	None	Soft Sediment		
MLDE-D-122	Focus	5/17/2011	1:31:57 PM	12832439.21	284640.86	775.5734	0.0416	0.054	0.0682	1.3	0.2	0.2	Light	Light	Few	Island	No	No	Delta	None	Sand		
MLDE-D-123	Focus	5/17/2011	1:34:28 PM	12832458.26	284641.93	775.5367	0.0422	0.0565	0.0705	1.0	0.2	0.4	Light	Light	Few	Island	No	No	Delta	None	Sand & Silt		
MLDE-D-124	Focus	5/17/2011	1:40:48 PM	12832588.19	284718.71	775.4053	0.0273	0.0386	0.0473	1.1	0.2	0.2	Light	Light	Few	Island	No	No	Delta	None	Silt over Sand		
MLDE-D-125	Focus	5/17/2011	1:44:16 PM	12832589.55	284736.37	775.4696	0.0388	0.0572	0.0691	1.1	0.3	0.3	Light	Light	Few	Island	No	No	Delta	None	Silt over Sand		
MLDE-D-126	Focus	5/17/2011	1:50:20 PM	12832556.50	284664.94	775.6122	0.0336	0.0521	0.062	0.7	0.5	0.6	Heavy	Heavy	Many	Island	No	No	Delta	None	Silt over Sand	PHOTOS5AND6	
MLDE-D-127	Focus	5/17/2011	1:54:50 PM	12832563.91	284679.27	775.4551	0.0337	0.0542	0.0639	1.1	0.3	0.3	Light	Light	Few	Island	No	No	Delta	None	Silt over Sand		
MLDE-D-128	Focus	5/17/2011	1:57:19 PM	12832555.67	284682.11	775.4014	0.0346	0.057	0.0667	1.0	0.3	0.3	Moderate	Moderate	Common	Island	No	No	Delta	None	Silt over Sand		
MLDE-D-129	Focus	5/17/2011	2:01:58 PM	12832654.32	284630.75	775.5221	0.0305	0.0525	0.0607	0.8	0.3	0.4	Light	Light	Few	Island	No	No	Delta	None	Organic		
MLDE-D-130	Focus	5/17/2011	2:09:21 PM	12832691.88	284692.83	775.0693	0.5709	1.073	1.2154	0.8	0.9	1.0	Heavy	Heavy	Many	Island	No	No	Delta	25%-50%	Organic		
MLDE-D-131	Focus	5/17/2011	2:14:12 PM	12832707.34	284688.75	775.5058	0.0269	0.0539	0.0602	0.5	0.5	0.8	Heavy	Heavy	Many	Island	No	No	Delta	25%-50%	Soft Sediment		
MLDE-D-132	Focus	5/17/2011	2:18:01 PM	12832690.28	284711.66	775.6137	0.0325	0.0688	0.0761	0.9	0.6	0.6	Heavy	Heavy	Many	Island	No	No	Delta	25%-50%	Soft Sediment		
MLDE-D-133	Focus	5/17/2011	2:36:28 PM	12832741.52	284693.88	775.4001	0.0389	0.1475	0.1525	0.0	0.0	0.0	Heavy	Heavy	Many	Island	No	No	Delta	25%-50%	Soft Sediment	OIL EVERYWHERE	
MLDE-E-134	Focus	5/17/2011	2:38:28 PM	12832738.11	284682.56	775.6005	0.0314	0.0968	0.1018	1.3	0.3	0.3	Light	Light	Few	Island	No	No	Delta	25%-50%	Sand & Silt		
MLDE-E-135	Focus	5/17/2011	2:42:51 PM	12832752.25	284712.01	775.6969	0.0286	0.1096	0.1132	1.5	0.4	0.4	Light	Light	Few	Island	No	No	Delta	25%-50%	Silt over Sand		
MLDE-E-136	Focus	5/17/2011	2:47:58 PM	12832743.29	284762.33	775.6379	0.0501	0.1728	0.1799	1.1	0.6	0.7	Heavy	Heavy	Many	Island	No	No	Delta	25%-50%	Silt over Sand		
MLDE-E-137	Focus	5/17/2011	2:51:03 PM	12832755.68	284759.07	775.1932	0.0503	0.1093	0.1203	2.0	0.5	0.5	Light	Light	Few	Island	No	No	Delta	25%-50%	Silt over Sand		
MLDE-E-138	Focus	5/17/2011	2:55:24 PM	12832672.20	284786.85	775.5692	0.0246	0.0575	0.0625	0.7	0.8	1.0	Light	Light	Few	Island	No	No	Delta	25%-50%	Silt over Sand		
MLDE-E-139	Focus	5/17/2011	3:02:53 PM	12832880.72	284840.32	775.6066	0.0257	0.0522	0.0582	0.8	0.6	0.6	Moderate	Moderate	Common	Island	No	No	Delta	25%-50%	Silt over Sand		
MLDE-E-140	Focus	5/17/2011	3:05:13 PM	12832874.34	284846.58	775.5591	0.0323	0.0605	0.0686	1.0	0.4	0.4	Light	Light	Few	Island	No	No	Delta	25%-50%	Silt over Sand		
MLDE-E-141	Focus	5/17/2011	3:17:05 PM	12832930.24	284893.82	775.5322	0.0327	0.0531	0.0624	1.0	0.2	0.2	Light	Light	Few	Island	No	No	Delta	25%-50%	Silt over Sand		
MLDE-E-142	Focus	5/17/2011	3:37:20 PM	12832993.13	284817.71	775.1802	0.0319	0.0452	0.0553	1.2	0.2	0.2	Light	Light	Few	Island	No	No	Delta	25%-50%	Silt over Sand	VRYHVYSHEENIN CURRENT OMFG	
MLDE-E-143	Focus	5/17/2011	3:43:38 PM	12832944.95	284748.61	775.52	0.0316	0.0442	0.0543	1.1	0.9	1.0	Moderate	Moderate	Common	Island	No	No	Delta	<5%	Silt over Sand		
MLDE-E-144	Focus	5/17/2011	3:46:58 PM	12832961.10	284725.88	775.4317	0.042	0.0575	0.0712	1.5	0.1	0.1	None	None	None	Island	No	No	Delta	None	Sand		
MLDE-E-145	Focus	5/17/2011	3:52:44 PM	12832889.61	284713.37	775.4681	0.0279	0.0369	0.0463	1.3	0.4	0.5	Heavy	Heavy	Many	Island	No	No	Delta	None	Silt over Sand		
MLDE-E-146	Focus	5/17/2011	3:59:12 PM	12832905.16	284668.83	775.533	0.0419	0.0546	0.0689	2.4	0.2	0.4	None	None	None	Island	No	No	Delta	None	Sand & Silt		
MLDE-E-147	Focus	5/18/2011	9:15:26 AM	12832684.65	284247.49	775.4098	0.0398	0.0694	0.08	0.8	1.7	2.1	Moderate	Light	Common	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-148	Focus	5/18/2011	9:19:24 AM	12832709.53	284243.98	775.5431	0.031	0.0526	0.061	0.7	1.3	1.5	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-149	Focus	5/18/2011	9:22:16 AM	12832736.31	284224.37	775.4402	0.0312	0.0545	0.0628	1.3	0.7	3.2	Light	Light	Few	Island	No	No	Delta	None	Soft Sediment		
MLDE-E-150	Focus	5/18/2011	9:28:46 AM	12832725.45	284262.82	766.315	7.2979	9.8594	12.2665	1.1	1.3	1.5	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		ABOVE GRD 5
MLDE-E-151	Focus	5/18/2011	9:33:21 AM	12832707.30	284263.60	766.3543	7.3186	9.543	12.0263	1.1	1.2	1.4	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		ABOVE GRD E5
MLDE-E-152	Focus	5/18/2011	9:37:33 AM	12832698.19	284296.44	765.3724	7.9115	9.9967	12.7486	1.0	1.7	3.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		ABOVE GRD E5
MLDE-E-153	Focus	5/18/2011	9:44:21 AM	12832658.45	284254.85	775.4938	0.0356	0.0508	0.062	1.1	1.8	2.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		ABOVE GRID E5
MLDE-E-154	Focus	5/18/2011	9:48:48 AM	12832606.57	284231.95	775.4813	0.0539	0.0713	0.0894	1.0	0.9	3.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		ABOVE GRD E5
MLDE-E-155	Focus	5/18/2011	9:53:18 AM	12832615.96	284273.01	775.4718	0.0381	0.0518	0.0643	1.2	1.2	1.7	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		ABOVE GRD E5

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-E-156	Focus	5/18/2011	9:59:08 AM	12832757.22	284327.05	775.5377	0.0602	0.0856	0.1046	0.8	0.9	1.2	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Soft Sediment		
MLDE-E-157	Focus	5/18/2011	10:01:17 AM	12832782.40	284338.56	775.4194	2.664	3.6187	4.4936	1.1	1.2	1.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-158	Focus	5/18/2011	10:07:08 AM	12832794.72	284356.02	775.5733	0.0405	0.0569	0.0698	1.1	0.8	1.3	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		PHT386N387
MLDE-E-159	Focus	5/18/2011	10:12:41 AM	12832749.32	284367.42	775.2983	0.0666	0.1016	0.1214	0.7	0.9	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-160	Focus	5/18/2011	10:21:59 AM	12832675.98	284292.66	775.4451	0.0491	0.0636	0.0803	1.1	1.4	1.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-161	Focus	5/18/2011	10:28:50 AM	12832743.62	284301.75	775.522	0.0502	0.0601	0.0783	1.2	0.8	1.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-162	Focus	5/18/2011	10:32:48 AM	12832800.19	284353.77	775.9725	0.2962	0.4046	0.5014	1.2	0.9	1.2	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-163	Focus	5/18/2011	10:36:55 AM	12832796.91	284373.15	775.4564	0.2708	0.3669	0.456	0.8	0.3	2.1	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-164	Focus	5/18/2011	10:39:47 AM	12832768.67	284399.07	775.5394	0.0453	0.0538	0.0703	0.8	0.9	1.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-165	Focus	5/18/2011	10:44:12 AM	12832818.97	284324.53	775.4873	0.0489	0.0632	0.0799	0.8	1.2	1.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-166	Focus	5/18/2011	10:46:21 AM	12832829.66	284361.37	775.4951	0.0462	0.0544	0.0714	0.9	0.9	1.1	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-167	Focus	5/18/2011	10:53:45 AM	12832852.40	284409.56	775.4928	0.0463	0.0579	0.0741	0.8	0.8	1.0	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-168	Focus	5/18/2011	12:09:30 PM	12832883.01	284456.06	775.512	0.0366	0.0654	0.075	0.4	0.2	0.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-169	Focus	5/18/2011	12:10:30 PM	12832888.78	284450.78	775.4162	0.0362	0.0646	0.0741	0.7	0.6	0.8	Moderate	Moderate	Common	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-170	Focus	5/18/2011	12:18:18 PM	12832913.63	284471.54	775.5119	0.0252	0.0432	0.05	0.4	0.7	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-171	Focus	5/18/2011	12:26:10 PM	12832916.19	284404.24	775.585	0.0351	0.0555	0.0657	0.5	0.4	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-172	Focus	5/18/2011	12:28:47 PM	12832887.87	284371.38	775.4949	0.0295	0.0457	0.0544	1.0	0.7	1.3	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-173	Focus	5/18/2011	12:32:24 PM	12832861.08	284328.61	775.52	0.0293	0.044	0.0528	1.6	0.7	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-174	Focus	5/18/2011	12:38:46 PM	12832786.09	284277.89	775.4979	0.0452	0.0686	0.0822	1.4	1.1	2.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-175	Focus	5/18/2011	12:43:16 PM	12832838.11	284289.47	775.4458	0.0348	0.0485	0.0597	2.4	0.5	0.8	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-176	Focus	5/18/2011	12:46:51 PM	12832875.71	284316.10	775.48	0.0306	0.0409	0.0511	2.4	0.4	2.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-177	Focus	5/18/2011	12:50:21 PM	12832923.83	284407.41	775.4777	0.0445	0.0583	0.0733	0.4	0.6	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand		
MLDE-E-178	Focus	5/18/2011	1:02:02 PM	12832978.62	284452.14	775.4078	0.0529	0.0617	0.0813	0.8	1.1	1.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-179	Focus	5/18/2011	1:05:55 PM	12832968.23	284497.19	775.5227	0.0493	0.056	0.0746	0.2	0.2	0.3	Light	None	Few	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-E-180	Focus	5/18/2011	1:09:21 PM	12832919.51	284501.47	775.4337	0.0439	0.0486	0.0655	0.1	0.5	1.6	None	None	None	Island	No	No	Delta	None	Sand		
MLDE-E-181	Focus	5/18/2011	1:15:58 PM	12832860.51	284458.02	775.4744	0.0388	0.0462	0.0603	0.8	0.7	1.2	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-182	Focus	5/18/2011	1:24:15 PM	12832834.18	284463.97	775.439	0.0448	0.0439	0.0627	0.4	0.2	0.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-183	Focus	5/18/2011	1:30:27 PM	12832809.63	284407.11	775.4634	0.0485	0.0647	0.0809	0.7	0.9	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Sand & Silt		
MLDE-E-184	Focus	5/18/2011	1:34:08 PM	12832804.10	284357.23	775.4514	0.0394	0.0542	0.0671	1.1	1.0	1.2	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-185	Focus	5/18/2011	1:41:56 PM	12832790.53	284403.45	775.3973	0.0279	0.0424	0.0507	0.6	0.9	1.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-186	Focus	5/18/2011	1:49:38 PM	12832783.48	284285.61	775.4226	0.0354	0.0563	0.0665	1.1	0.8	1.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-187	Focus	5/18/2011	1:58:07 PM	12832943.82	284303.30	775.4963	0.036	0.062	0.0717	0.9	0.7	1.4	Moderate	Heavy	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-188	Focus	5/18/2011	2:01:23 PM	12832995.63	284298.27	775.552	0.0321	0.0574	0.0658	0.7	1.1	1.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand & Silt		
MLDE-E-189	Focus	5/18/2011	2:05:19 PM	12833026.99	284306.24	775.4494	0.032	0.1008	0.1057	0.8	0.9	1.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-190	Focus	5/18/2011	2:10:19 PM	12833109.38	284295.99	775.5267	0.0298	0.0597	0.0667	1.9	0.7	1.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-191	Focus	5/18/2011	2:15:15 PM	12833070.45	284225.39	775.5891	0.0364	0.0828	0.0905	0.5	0.1	0.2	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-E-192	Focus	5/18/2011	2:17:30 PM	12833096.48	284221.58	775.4625	0.0347	0.078	0.0854	0.7	0.3	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-193	Focus	5/18/2011	2:20:38 PM	12833033.20	284207.02	775.5258	0.0365	0.0914	0.0985	0.7	0.8	2.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-194	Focus	5/18/2011	2:40:02 PM	12832965.80	284208.82	775.3146	0.0391	0.1511	0.1561	0.8	0.6	0.7	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-195	Focus	5/18/2011	2:43:53 PM	12832884.73	284240.83	775.7165	0.0429	0.2438	0.2475	1.1	1.0	1.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-196	Focus	5/18/2011	2:49:07 PM	12832918.97	284184.65	775.6161	0.0417	0.103	0.1111	0.5	0.6	1.9	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-197	Focus	5/18/2011	2:51:11 PM	12832983.64	284167.72	775.5542	0.0305	0.0795	0.0851	0.4	1.1	2.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-198	Focus	5/18/2011	2:53:35 PM	12833057.56	284152.09	775.4661	0.0339	0.0764	0.0835	0.1	0.2	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-199	Focus	5/18/2011	2:55:39 PM	12833109.47	284137.97	775.5339	0.0382	0.0886	0.0965	0.5	0.8	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-200	Focus	5/18/2011	3:03:45 PM	12832893.56	284289.54	775.4754	0.0374	0.0695	0.0789	1.8	1.4	1.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-201	Focus	5/18/2011	3:11:41 PM	12833188.71	284270.53	775.5163	0.0264	0.0428	0.0503	1.0	0.8	0.9	Heavy	Moderate	Many	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-202	Focus	5/18/2011	3:15:41 PM	12833214.01	284317.52	775.5086	0.0353	0.0551	0.0654	0.6	0.9	1.3	Heavy	Moderate	Many	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-203	Focus	5/18/2011	3:23:57 PM	12833267.56	284299.09	775.5239	0.0346	0.0514	0.0619	1.0	1.3	1.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	MUCH SHEEN PRIOR TO AGG	
MLDE-E-204	Focus	5/18/2011	3:28:28 PM	12833246.25	284272.40	775.4448	0.0385	0.0554	0.0675	0.8	1.2	1.8	Moderate	Moderate	Common	Island	No	No	Delta	None	Soft Sediment		
MLDE-E-205	Focus	5/18/2011	3:34:03 PM	12833226.48	284224.39	775.5111	0.0336	0.0473	0.058	1.2	1.4	1.8	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-206	Focus	5/18/2011	3:40:05 PM	12833165.98	284264.48	775.5008	0.0324	0.0442	0.0548	0.9	0.9	1.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-207	Focus	5/18/2011	3:44:12 PM	12833157.63	284262.82	775.3961	0.0441	0.0606	0.075	1.2	0.7	1.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-208	Focus	5/18/2011	3:47:57 PM	12833173.78	284308.11	775.4668	0.0371	0.0493	0.0617	1.1	1.0	1.8	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-209	Focus	5/18/2011	3:50:48 PM	12833159.00	284301.51	775.5424	0.0343	0.045	0.0566	2.4	0.4	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-210	Focus	5/18/2011	4:00:10 PM	12833128.47	284226.06	775.4507	0.0459	0.0604	0.0758	1.0	0.4	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-211	Focus	5/18/2011	9:20:43 AM	12833096.96	284886.75	775.7522	0.0336	0.0673	0.0752	0.9	0.5	0.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Silt over Sand		
MLDE-D-212	Focus	5/18/2011	9:22:27 AM	12833105.73	284876.04	775.4624	0.0264	0.0518	0.0582	0.6	0.3	0.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand		
MLDE-D-213	Focus	5/18/2011	9:30:21 AM	12833182.24	284918.18	775.497	0.0379	0.0676	0.0775	0.8	0.7	0.8	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Silt over Sand		
MLDE-D-214	Focus	5/18/2011	9:31:43 AM	12833190.43	284904.07	775.4933	0.0314	0.0552	0.0635	0.4	0.1	0.2	None	None	None	Island	1-3 ft/sec	<1 ft/sec	Delta	25%-50%	Sand		
MLDE-D-215	Focus	5/18/2011	9:37:43 AM	12833290.83	284980.42	775.5569	0.0376	0.0611	0.0718	0.9	0.2	0.7	Light	Light	Few	Island	<1ft/sec	No	Delta	5%-25%	Silt over Sand		
MLDE-D-216	Focus	5/18/2011	9:38:41 AM	12833298.47	284965.14	775.5306	0.0411	0.066	0.0778	1.1	0.2	0.3	None	None	None	Island	1-3 ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-217	Focus	5/18/2011	9:46:10 AM	12833447.50	285073.55	772.4835	3.3864	5.5545	6.5054	1.0	0.3	0.4	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-218	Focus	5/18/2011	9:48:06 AM	12833458.39	285058.86	777.4603	1.1297	1.6405	1.9918	1.6	0.1	0.1	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-219	Focus	5/18/2011	9:54:51 AM	12833550.62	285128.84	775.5194	0.0425	0.0616	0.0748	0.9	0.4	0.5	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-220	Focus	5/18/2011	9:57:04 AM	12833558.44	285118.21	775.4464	0.0473	0.067	0.082	2.5	0.1	0.1	None	None	None	Island	>3 ft/sec	No	Delta	None	Sand & Gravel		
MLDE-D-221	Focus	5/18/2011	10:05:27 AM	12833683.80	285230.47	781.8389	1.6049	2.389	2.8781	2.7	0.0	0.1	None	None	None	Island	>3 ft/sec	No	Delta	None	Sand & Gravel		
MLDE-D-222	Focus	5/18/2011	10:07:37 AM	12833667.34	285247.76	781.5767	2.1863	3.5466	4.1663	0.6	0.5	0.7	Light	Light	Few	Island	No	No	Delta	None	Silt over Sand		
MLDE-D-223	Focus	5/18/2011	10:15:14 AM	12833494.23	285197.72	775.4881	0.0636	0.0976	0.1165	0.4	0.5	0.5	Heavy	Heavy	Many	Island	No	No	Delta	None	Silt over Sand	PHOTOS1AND2	
MLDE-D-224	Focus	5/18/2011	10:17:58 AM	12833502.51	285211.47	775.6124	0.037	0.0472	0.06	1.3	0.1	0.1	Light	Light	Few	Island	No	No	Delta	None	Sand	PHOTOS1AND2	
MLDE-D-225	Focus	5/18/2011	10:20:25 AM	12833506.88	285206.31	775.4846	0.0394	0.0512	0.0646	0.5	0.1	0.1	Light	Light	Few	Island	No	No	Delta	None	Sand	PHOTOS1AND2	
MLDE-D-226	Focus	5/18/2011	10:29:20 AM	12833378.92	285175.50	775.7244	0.0414	0.0503	0.0652	1.4	0.2	0.2	Moderate	Moderate	Common	Island	No	No	Delta	None	Sand	PHOTOS1AND2	
MLDE-D-227	Focus	5/18/2011	10:31:35 AM	12833377.61	285186.78	775.4279	0.0557	0.0683	0.0881	1.0	0.4	0.9	Light	Light	Few	Island	No	No	Delta	None	Silt over Sand		
MLDE-D-228	Focus	5/18/2011	10:38:57 AM	12833247.43	285095.88	775.5523	0.0412	0.0489	0.064	1.4	0.2	0.3	Moderate	Moderate	Common	Island	No	No	Delta	None	Organic	SHEENFOUNDONARVL	
MLDE-D-229	Focus	5/18/2011	10:41:15 AM	12833238.04	285106.49	775.6634	0.0471	0.0566	0.0736	1.7	0.2	0.2	Light	Light	Few	Island	No	No	Delta	None	Silt over Sand	SHEENFOUNDONARVL	
MLDE-D-230	Focus	5/18/2011	10:47:34 AM	12833222.92	285135.10	775.6342	0.0446	0.0528	0.0691	1.3	0.1	0.1	None	None	None	Island	No	No	Delta	None	Sand		
MLDE-D-231	Focus	5/18/2011	12:08:38 PM	12833032.72	285026.11	775.5028	0.0349	0.0627	0.0718	2.1	0.3	0.4	None	None	None	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-232	Focus	5/18/2011	12:10:30 PM	12833028.71	285042.75	775.54	0.0413	0.0736	0.0843	0.2	0.1	0.1	None	None	None	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-233	Focus	5/18/2011	12:16:30 PM	12833149.41	285113.50	775.57	0.0273	0.0473	0.0547	2.0	0.4	0.4	None	None	None	Island	<1ft/sec	No	Delta	None	Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-D-234	Focus	5/18/2011	12:26:36 PM	12833092.68	285143.52	775.4729	0.0348	0.055	0.0651	0.6	0.2	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-235	Focus	5/18/2011	12:32:28 PM	12833023.09	285111.70	775.6139	0.0333	0.05	0.0601	0.6	0.2	0.3	None	None	None	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-236	Focus	5/18/2011	12:46:05 PM	12832929.02	285033.05	775.017	0.0366	0.0492	0.0613	0.3	0.1	0.2	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-237	Focus	5/18/2011	1:05:07 PM	12834018.26	285185.81	775.5389	0.0441	0.0501	0.0667	0.2	0.2	0.2	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand over Silt		
MLDE-D-238	Focus	5/18/2011	1:08:44 PM	12834013.88	285171.37	775.5553	0.0444	0.0489	0.066	0.6	0.3	0.5	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Sand over Silt	PHOTOS3AND4	
MLDE-D-239	Focus	5/18/2011	1:13:12 PM	12833936.12	285148.30	775.6415	0.0542	0.0666	0.0859	0.3	0.1	0.1	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand over Silt	PHOTOS3AND4	
MLDE-D-240	Focus	5/18/2011	1:15:42 PM	12833950.04	285138.10	775.6097	0.029	0.0347	0.0452	0.6	0.3	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-241	Focus	5/18/2011	1:36:06 PM	12833881.13	285107.34	775.6477	0.0326	0.0459	0.0563	0.7	0.3	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-242	Focus	5/18/2011	1:40:47 PM	12833837.06	285121.31	775.6624	0.029	0.0425	0.0514	0.4	0.1	0.2	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-243	Focus	5/18/2011	1:48:03 PM	12833860.05	285182.65	775.5942	0.0402	0.0633	0.075	0.3	0.1	0.1	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-244	Focus	5/18/2011	1:51:16 PM	12833867.95	285165.90	775.6343	0.0376	0.0608	0.0715	0.9	0.6	0.7	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-245	Focus	5/18/2011	1:56:31 PM	12833856.55	285163.40	775.5506	0.0312	0.0529	0.0614	0.8	0.7	0.8	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand	PHOTOS5AND6 LOTS O OIL	
MLDE-D-246	Focus	5/18/2011	2:03:57 PM	12833904.96	285214.43	775.8974	0.0326	0.0599	0.0681	0.4	0.1	0.1	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-264	Focus	5/19/2011	8:34:00 AM	12833025.34	283983.79	775.62	0.035	0.064	0.073	1.5	1.9	2.0	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-265	Focus	5/19/2011	8:37:00 AM	12833023.28	283997.65	775.57	0.033	0.060	0.068	1.0	1.6	1.6	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand	PHOTOS1AND2	
MLDE-D-266	Focus	5/19/2011	8:45:00 AM	12833070.53	283978.47	775.84	0.038	0.069	0.078	2.3	1.0	1.0	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-267	Focus	5/19/2011	8:48:00 AM	12833062.12	283992.98	775.58	0.044	0.082	0.093	1.8	1.6	1.7	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-268	Focus	5/19/2011	8:53:00 AM	12833156.16	283970.19	775.58	0.046	0.085	0.097	1.7	1.2	1.3	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-269	Focus	5/19/2011	8:55:00 AM	12833146.78	283985.41	775.53	0.061	0.112	0.127	1.8	1.0	1.2	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-270	Focus	5/19/2011	9:08:00 AM	12833219.83	283995.12	775.55	0.053	0.099	0.112	1.3	1.5	1.6	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand	PHOTOS4AND5AND6	
MLDE-D-271	Focus	5/19/2011	9:10:00 AM	12833235.52	283994.37	775.52	0.045	0.082	0.093	1.0	1.8	1.9	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-272	Focus	5/19/2011	9:17:00 AM	12833296.88	283970.11	775.54	0.035	0.062	0.071	2.3	0.8	1.1	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Gravel		
MLDE-D-273	Focus	5/19/2011	9:19:00 AM	12833280.75	283984.50	775.60	0.038	0.066	0.077	2.3	0.3	0.5	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-274	Focus	5/19/2011	9:21:00 AM	12833286.01	283985.17	775.54	0.041	0.069	0.080	2.5	0.3	0.3	None	None	None	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-275	Focus	5/19/2011	9:30:00 AM	12833377.74	284035.67	775.67	0.041	0.064	0.077	2.0	0.5	0.5	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-276	Focus	5/19/2011	9:34:00 AM	12833366.85	284044.35	775.74	0.037	0.056	0.067	1.0	1.9	2.3	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Organic	PHOT0S6AND8 SUPERHEAVYSHEEN	
MLDE-D-277	Focus	5/19/2011	9:41:00 AM	12833465.39	284054.77	775.66	0.048	0.068	0.083	1.6	0.7	0.9	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Organic	PHOT0S6AND8 SUPERHEAVYSHEEN	
MLDE-D-278	Focus	5/19/2011	9:43:00 AM	12833479.73	284047.25	775.71	0.041	0.057	0.070	1.7	0.5	0.7	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-279	Focus	5/19/2011	9:49:00 AM	12833556.70	284100.14	775.71	0.041	0.057	0.071	2.1	0.9	1.0	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt	SHEENINCURRENT	
MLDE-D-280	Focus	5/19/2011	9:56:00 AM	12833563.93	284101.52	775.72	0.109	0.170	0.202	2.0	0.8	0.8	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt	SHEENINCURRENT LOTSOSHEEN	
MLDE-D-281	Focus	5/19/2011	9:59:00 AM	12833549.76	284084.53	775.87	0.105	0.168	0.198	1.9	1.0	1.1	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand	SHEENINCURRENT LOTSOSHEEN	
MLDE-D-282	Focus	5/19/2011	10:21:00 AM	12832971.24	284117.09	775.70	0.036	0.043	0.056	0.6	0.3	0.4	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand	SHEENINCURRENT LOTSOSHEEN	
MLDE-D-283	Focus	5/19/2011	10:23:00 AM	12832986.83	284113.35	775.74	0.048	0.058	0.075	0.7	0.2	0.4	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt	SHEENINCURRENT LOTSOSHEEN	
MLDE-D-284	Focus	5/19/2011	10:30:00 AM	12833038.92	284125.99	774.98	0.036	0.043	0.056	0.2	0.3	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-285	Focus	5/19/2011	10:33:00 AM	12833061.83	284111.98	775.50	0.048	0.057	0.075	0.5	0.1	0.1	None	None	None	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-286	Focus	5/19/2011	10:39:00 AM	12833157.14	284094.57	775.50	0.076	0.081	0.111	1.1	0.4	0.6	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	5%-25%	Sand	PHOTOS8AND9	
MLDE-D-287	Focus	5/19/2011	10:41:00 AM	12833169.77	284082.92	775.69	0.040	0.047	0.062	1.0	1.2	1.9	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	5%-25%	Silt over Sand		
MLDE-D-288	Focus	5/19/2011	10:49:00 AM	12833302.05	284095.50	775.54	0.033	0.040	0.051	0.9	2.1	2.4	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-289	Focus	5/19/2011	10:51:00 AM	12833283.77	284106.20	775.60	0.044	0.054	0.069	1.0	1.1	1.2	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-290	Focus	5/19/2011	10:53:00 AM	12833294.58	284082.42	776.00	0.045	0.056	0.071	1.0	1.9	2.1	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-291	Focus	5/19/2011	11:03:00 AM	12833399.79	284138.69	775.53	0.042	0.056	0.070	0.7	0.3	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-292	Focus	5/19/2011	11:04:00 AM	12833384.56	284135.65	775.64	0.041	0.054	0.068	0.6	0.2	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-296	Focus	5/19/2011	12:31:00 PM	12832514.57	284074.80	784.73	3.347	6.000	6.871	2.0	1.5	1.7	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-297	Focus	5/19/2011	12:34:00 PM	12832505.26	284064.11	775.66	0.038	0.056	0.068	2.0	1.7	1.8	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-298	Focus	5/19/2011	12:42:00 PM	12832666.78	284052.39	775.68	0.026	0.034	0.043	2.2	0.2	1.6	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-299	Focus	5/19/2011	12:45:00 PM	12832665.43	284073.29	775.58	0.051	0.068	0.085	2.4	1.1	1.2	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-300	Focus	5/19/2011	12:52:00 PM	12832727.55	284110.04	775.53	0.042	0.051	0.066	1.9	0.8	0.9	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-301	Focus	5/19/2011	12:58:00 PM	12832734.57	284089.30	775.70	0.051	0.059	0.078	1.8	1.3	1.8	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-302	Focus	5/19/2011	1:28:00 PM	12832726.50	283938.86	775.80	0.038	0.054	0.066	2.7	0.4	0.4	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-303	Focus	5/19/2011	1:30:00 PM	12832741.56	283956.54	775.68	0.047	0.066	0.081	2.0	1.1	1.2	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-304	Focus	5/19/2011	1:37:00 PM	12832842.16	283926.23	775.79	0.041	0.062	0.074	2.5	0.0	0.6	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-305	Focus	5/19/2011	1:38:00 PM	12832842.78	283905.47	775.83	0.043	0.064	0.077	3.0	0.5	0.6	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-306	Focus	5/19/2011	1:44:00 PM	12832959.46	283927.54	775.79	0.038	0.060	0.071	2.5	0.3	0.4	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-307	Focus	5/19/2011	1:46:00 PM	12832965.97	283904.91	775.73	0.043	0.069	0.081	3.3	0.2	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand		
MLDE-D-308	Focus	5/19/2011	2:09:00 PM	12833197.34	283934.08	775.75	0.033	0.068	0.076	2.1	0.2	0.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-E-349	Focus	5/19/2011	12:09:03 PM	12833751.12	284735.78	775.71	0.039	0.068	0.079	1.8	0.2	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-350	Focus	5/19/2011	12:13:37 PM	12833701.29	284679.51	775.52	0.164	0.263	0.310	0.4	1.1	1.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-351	Focus	5/19/2011	12:15:48 PM	12833598.66	284639.58	775.68	0.043	0.072	0.084	1.4	0.6	0.9	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-352	Focus	5/19/2011	12:17:35 PM	12833503.50	284603.89	775.65	0.041	0.068	0.079	0.8	1.2	1.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-353	Focus	5/19/2011	12:18:33 PM	12833497.23	284608.36	775.59	0.383	0.596	0.709	2.2	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-354	Focus	5/19/2011	12:20:55 PM	12833442.10	284558.86	775.63	0.032	0.051	0.061	0.8	0.6	0.7	Heavy	Moderate	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-355	Focus	5/19/2011	12:21:45 PM	12833436.73	284566.98	775.56	0.044	0.071	0.083	1.6	0.3	0.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-356	Focus	5/19/2011	12:24:18 PM	12833475.49	284509.50	775.66	0.039	0.060	0.071	1.0	1.8	2.4	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-357	Focus	5/19/2011	12:31:38 PM	12833540.98	284496.49	775.62	0.048	0.071	0.085	1.1	1.1	2.1	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-358	Focus	5/19/2011	12:40:03 PM	12833599.62	284436.73	775.66	0.056	0.084	0.102	1.1	0.7	0.8	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-359	Focus	5/19/2011	12:43:15 PM	12833592.68	284426.74	775.35	0.033	0.044	0.055	1.5	1.0	1.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-360	Focus	5/19/2011	12:46:30 PM	12833659.51	284370.35	775.65	0.050	0.067	0.083	1.1	0.9	1.2	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-361	Focus	5/19/2011	12:48:53 PM	12833625.14	284326.53	774.21	4.110	6.413	7.617	1.3	1.2	1.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-362	Focus	5/19/2011	12:52:10 PM	12833582.39	284383.18	775.54	0.059	0.075	0.095	1.0	0.4	2.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	MUCH SHN PRIOR 2 AGG	
MLDE-E-363	Focus	5/19/2011	12:55:05 PM	12833539.47	284400.77	775.66	0.070	0.096	0.119	0.6	1.7	2.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	MUCH SHN PRIOR 2 AGG	
MLDE-E-364	Focus	5/19/2011	12:57:53 PM	12833457.96	284399.99	763.48	7.888	12.212	14.538	0.5	1.0	1.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-365	Focus	5/19/2011	1:00:59 PM	12833442.57	284341.91	775.68	0.055	0.062	0.083	1.7	0.6	0.8				Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR 2 AGG	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-E-366	Focus	5/19/2011	1:07:43 PM	12833503.82	284303.85	775.69	0.052	0.063	0.082	1.0	1.4	2.0	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	MUCHSHN PRIOR 2AG	
MLDE-E-367	Focus	5/19/2011	1:11:02 PM	12833546.96	284283.24	775.68	0.054	0.066	0.085	0.9	1.1	1.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	SNH PRIOR TO AGG	
MLDE-E-368	Focus	5/19/2011	1:14:58 PM	12833604.38	284367.02	776.50	1.198	1.822	2.180	0.9	1.2	1.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-E-369	Focus	5/19/2011	1:18:53 PM	12833569.02	284425.89	775.85	0.101	0.153	0.183	1.0	1.0	1.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-370	Focus	5/19/2011	1:21:32 PM	12833526.74	284435.29	775.78	0.083	0.126	0.151	1.0	1.2	1.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-371	Focus	5/19/2011	1:24:07 PM	12833480.44	284457.81	775.63	0.050	0.065	0.082	0.6	0.9	1.4	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-372	Focus	5/19/2011	1:28:20 PM	12833409.23	284219.89	776.12	0.300	0.475	0.562	0.8	0.3	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-373	Focus	5/19/2011	1:31:57 PM	12833417.72	284295.81	775.71	0.049	0.070	0.085	1.4	0.2	0.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-374	Focus	5/19/2011	1:34:53 PM	12833414.94	284358.20	775.76	0.046	0.069	0.083	1.5	0.5	0.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-375	Focus	5/19/2011	1:40:46 PM	12833420.20	284444.24	775.73	0.044	0.068	0.081	2.1	0.6	0.9	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-376	Focus	5/19/2011	1:44:36 PM	12833667.87	284373.69	775.71	0.132	0.225	0.261	1.0	1.2	1.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-377	Focus	5/19/2011	1:53:18 PM	12833770.49	284396.92	775.79	0.043	0.073	0.084	1.1	0.9	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-378	Focus	5/19/2011	2:17:18 PM	12833722.30	284429.51	775.60	0.038	0.097	0.105	1.1	0.9	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Silt over Sand		
MLDE-E-379	Focus	5/19/2011	2:23:24 PM	12833793.26	284480.49	775.95	0.056	0.309	0.314	0.8	1.1	1.2	Light	Light	Few	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-E-380	Focus	5/19/2011	2:26:32 PM	12833841.04	284433.88	776.53	0.751	2.782	2.882	1.1	0.8	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-386	Focus	5/19/2011	2:54:09 PM	12833589.61	284202.18	775.54	0.037	0.091	0.098	2.1	1.1	1.4	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-387	Focus	5/19/2011	2:58:13 PM	12833652.81	284250.23	775.55	0.039	0.085	0.094	1.5	1.6	2.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-388	Focus	5/19/2011	3:01:09 PM	12833719.15	284323.42	775.47	0.035	0.067	0.075	1.5	1.0	1.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-389	Focus	5/19/2011	3:04:48 PM	12833771.46	284364.49	775.77	0.091	0.171	0.194	1.1	0.9	1.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-390	Focus	5/19/2011	3:08:35 PM	12833848.66	284327.64	775.67	0.043	0.070	0.082	2.1	1.4	1.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-397	Focus	5/19/2011	3:35:05 PM	12833888.08	284328.66	775.77	0.108	0.124	0.164	2.9	0.7	0.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-398	Focus	5/19/2011	3:39:02 PM	12833843.26	284292.37	775.69	0.068	0.076	0.102	2.6	0.5	0.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-399	Focus	5/19/2011	3:42:59 PM	12833733.67	284285.37	775.73	0.051	0.069	0.086	1.1	1.5	1.9	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-400	Focus	5/19/2011	3:47:07 PM	12833750.71	284217.38	774.61	1.521	2.035	2.540	2.0	1.5	2.0	Moderate	Moderate	Common	Left	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-401	Focus	5/19/2011	3:50:40 PM	12833666.96	284189.77	775.80	0.134	0.097	0.165	2.2	1.2	1.8	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-402	Focus	5/19/2011	3:54:08 PM	12833577.46	284131.54	775.79	0.091	0.094	0.131	2.2	0.8	1.3	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-403	Focus	5/19/2011	3:58:07 PM	12833562.28	284088.25	775.81	0.073	0.087	0.114	2.2	1.0	1.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-404	Focus	5/19/2011	4:00:46 PM	12833557.76	284027.86	775.81	0.073	0.075	0.105	1.9	1.1	1.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-432	Focus	5/20/11	9:44:23 AM	12832809.87	284541.99	775.5308	0.0626	0.0856	0.106	0.4	0.7	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-433	Focus	5/20/11	9:48:05 AM	12832748.31	284496.27	775.5997	0.0774	0.1117	0.1359	0.7	0.5	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-D-434	Focus	5/20/11	9:51:25 AM	12832664.17	284433.38	775.4975	0.0696	0.0991	0.1211	1.7	0.8	2.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand	SHN PRIOR TO AGG	
MLDE-D-435	Focus	5/20/11	9:56:03 AM	12832631.84	284371.50	775.5074	0.0849	0.1195	0.1466	1.6	0.9	1.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-D-436	Focus	5/20/11	10:00:18 AM	12832627.41	284341.23	775.491	0.1855	0.2382	0.3019	1.2	1.0	1.3	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR 2 AGG	
MLDE-D-437	Focus	5/20/11	10:04:55 AM	12832547.48	284265.80	775.5672	0.0713	0.1008	0.1235	1.5	1.8	2.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-D-438	Focus	5/20/11	10:08:18 AM	12832518.93	284205.04	775.5624	0.058	0.0753	0.0951	1.1	0.9	2.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-D-439	Focus	5/20/11	10:12:22 AM	12832379.07	284096.29	775.6263	0.0791	0.1026	0.1296	1.0	1.6	2.1	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-D-445	Focus	5/20/11	10:50:25 AM	12832505.81	284106.53	775.4507	0.0983	0.1208	0.1557	1.1	2.3	3.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-446	Focus	5/20/11	10:52:39 AM	12832541.20	284148.85	775.4543	0.0882	0.1114	0.1421	0.7	0.6	0.8	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-447	Focus	5/20/11	10:54:38 AM	12832578.55	284206.93	775.4854	0.0732	0.0936	0.1189	0.8	0.7	2.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-448	Focus	5/20/11	10:59:01 AM	12832603.67	284255.75	775.6142	0.0817	0.1102	0.1372	1.2	1.6	1.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-449	Focus	5/20/11	11:04:54 AM	12832650.20	284313.47	775.4597	0.0615	0.0839	0.104	1.1	0.8	1.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-450	Focus	5/20/11	11:07:39 AM	12832709.38	284364.20	777.7799	1.1426	1.7938	2.1268	0.4	0.6	1.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Other-Comments	None	Soft Sediment		
MLDE-D-451	Focus	5/20/11	11:10:08 AM	12832748.65	284422.58	775.406	0.0621	0.0868	0.1067	0.1	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-452	Focus	5/20/11	11:11:56 AM	12832772.24	284483.58	775.4145	0.0592	0.0839	0.1027	0.3	0.2	0.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-453	Focus	5/20/11	11:13:23 AM	12832817.75	284507.09	775.4146	0.0739	0.1056	0.1289	0.6	0.9	1.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-454	Focus	5/20/11	11:15:21 AM	12832859.34	284546.22	775.5339	0.0869	0.1287	0.1553	1.1	0.4	0.6	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-D-455	Focus	5/20/11	12:05:40 PM	12832756.97	284609.52	775.4046	0.0637	0.1119	0.1288	0.9	0.9	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-456	Focus	5/20/11	12:13:22 PM	12832659.36	284586.18	775.4752	0.0362	0.0593	0.0695	0.9	0.3	0.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-D-457	Focus	5/20/11	12:18:40 PM	12832623.53	284548.32	775.3585	0.0728	0.1146	0.1358	1.0	0.7	1.0	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-D-458	Focus	5/20/11	12:29:27 PM	12832618.35	284510.34	775.5649	0.0542	0.086	0.1016	0.8	0.5	0.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-D-459	Focus	5/20/11	12:32:51 PM	12832566.77	284461.75	775.4792	0.0686	0.1039	0.1245	1.0	0.5	0.6	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-460	Focus	5/20/11	12:39:27 PM	12832522.75	284416.78	775.4888	0.0461	0.0612	0.0766	1.1	0.9	1.0	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-514	Focus	5/24/2011	3:59:48 PM	12833716.39	284965.50	775.5863	0.0293	0.0436	0.0525	0.8	0.6	0.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-515	Focus	5/24/2011	4:05:03 PM	12833682.45	284981.02	769.3339	6.7917	12.2749	14.0285	0.7	0.5	0.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-516	Focus	5/24/2011	4:19:42 PM	12833680.44	285038.66	775.7444	0.06	0.0967	0.1138	1.2	1.2	1.3	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-E-519	Focus	5/24/2011	4:31:05 PM	12833635.36	285034.17	775.7563	0.0486	0.0632	0.0798	1.2	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-520	Focus	5/24/2011	4:36:50 PM	12833596.92	284957.04	775.6559	0.03	0.0331	0.0447	1.2	0.8	1.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-521	Focus	5/24/2011	4:40:00 PM	12833585.73	285160.38	775.6885	0.0454	0.0585	0.074	1.1	0.4	0.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-522	Focus	5/24/2011	4:43:32 PM	12833497.20	285111.53	775.7188	0.0497	0.0605	0.0783	0.6	0.7	1.1	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-523	Focus	5/24/2011	4:46:41 PM	12833488.45	285136.52	775.7347	0.0585	0.0727	0.0933	0.3	0.9	1.1	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-E-524	Focus	5/24/2011	4:49:57 PM	12833438.96	285189.76	775.6432	0.0831	0.1193	0.1454	0.7	0.5	2.8	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-525	Focus	5/24/2011	4:54:45 PM	12833468.86	285000.32	775.5831	0.0438	0.0537	0.0693	1.8	0.4	0.7	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-526	Focus	5/24/2011	4:57:40 PM	12833406.22	285047.37	775.7009	0.043	0.0536	0.0687	0.8	0.4	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-D-530	Focus	5/24/2011	9:30:00 AM	12833577.30	285233.23	773.44	7.3244	8.4037	11.1476	1.2	0.4	0.5	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-531	Focus	5/24/2011	9:42:00 AM	12833556.50	284885.87	775.31	0.0673	0.0948	0.1163	1.7	0.2	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand	SHEEN ARRIVE	
MLDE-D-532	Focus	5/24/2011	9:48:00 AM	12833545.68	284925.42	775.4813	0.0569	0.0807	0.0987	1.5	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-533	Focus	5/24/2011	9:55:00 AM	12833543.45	284984.54	775.3771	0.0637	0.0832	0.1048	1.1	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-534	Focus	5/24/2011	10:06:00 AM	12833575.59	285030.24	775.1247	0.0536	0.0678	0.0864	1.4	0.4	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-535	Focus	5/24/2011	10:13:00 AM	12833668.40	285026.30	775.3439	0.0822	0.0985	0.1283	1.2	0.5	0.7	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-536	Focus	5/24/2011	10:21:00 AM	12833646.54	285060.51	775.5429	0.0715	0.0868	0.1125	1.5	0.2	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-537	Focus	5/24/2011	10:29:00 AM	12833478.01	284949.01	775.4626	0.0622	0.0757	0.098	0.1	0.1	0.1	None	None	None	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLDE-D-538	Focus	5/24/2011	10:36:00 AM	12833419.17	284937.77	774.7164	0.0527	0.0668	0.0851	1.4	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-539	Focus	5/24/2011	10:40:00 AM	12833378.10	284946.50	775.0075	0.0577	0.075	0.0946	2.0	0.4	0.5	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-540	Focus	5/24/2011	10:46:00 AM	12833280.91	284889.32	775.3205	0.0411	0.0557	0.0692	0.4	0.1	0.2	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLDE-D-541	Focus	5/24/2011	10:55:00 AM	12833400.13	284831.68	775.4717	0.0309	0.0438	0.0536	2.7	0.3	0.5	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-542	Focus	5/24/2011	11:01:00 AM	12833479.98	284838.70	775.1486	0.0572	0.0839	0.1016	1.5	0.2	0.4	Moderate	Moderate	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-563	Focus	5/24/2011	3:13:00 PM	12832797.34	285065.71	774.772	0.0349	0.0481	0.0594	1.2	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-564	Focus	5/24/2011	3:26:00 PM	12832803.13	284971.72	775.0346	0.0368	0.0484	0.0608	0.9	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-565	Focus	5/24/2011	3:33:00 PM	12832959.63	285096.99	775.0407	0.0399	0.0519	0.0655	1.5	0.2	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-D-566	Focus	5/24/2011	3:39:00 PM	12832674.02	285082.52	775.2097	0.0425	0.0557	0.07	0.2	0.2	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-567	Focus	5/24/2011	3:45:00 PM	12832545.53	285116.20	775.1316	0.0519	0.064	0.0824	0.2	0.1	0.2	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand	ALONG FELLEN TREE	
MLDE-D-568	Focus	5/24/2011	3:53:00 PM	12832536.27	284972.17	775.0996	0.0552	0.0666	0.0865	0.2	0.1	0.2	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-569	Focus	5/24/2011	3:57:00 PM	12832414.77	284904.11	775.0176	0.0462	0.0573	0.0736	0.1	0.2	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-570	Focus	5/24/2011	4:02:00 PM	12832333.13	285037.31	774.6332	0.0543	0.071	0.0894	0.6	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-571	Focus	5/25/2011	8:55:55 AM	12832342.23	284771.96	775.4571	0.0628	0.108	0.125	1.1	0.6	0.9	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-572	Focus	5/25/2011	9:05:52 AM	12832455.99	284792.75	775.221	0.0563	0.0885	0.1049	1.3	0.2	0.5	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-573	Focus	5/25/2011	9:11:32 AM	12832642.79	284840.04	775.4341	0.0555	0.0884	0.1044	1.8	0.3	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-574	Focus	5/25/2011	9:20:06 AM	12832706.61	284576.74	775.5003	0.0925	0.1457	0.1726	1.2	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-575	Focus	5/25/2011	9:30:31 AM	12832632.59	284447.48	775.409	0.0625	0.0893	0.109	1.2	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-576	Focus	5/25/2011	9:34:21 AM	12832577.57	284408.17	775.1079	0.0524	0.0743	0.0909	1.5	0.2	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-E-577	Focus	5/25/2011	8:53:40 AM	12833305.59	285113.88	775.6387	0.0595	0.1042	0.12	0.9	1.1	1.2	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-578	Focus	5/25/2011	8:58:07 AM	12833315.16	285157.78	775.6097	0.0695	0.1176	0.1366	1.0	0.5	0.6	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-579	Focus	5/25/2011	9:02:02 AM	12833174.27	285060.31	775.5038	0.0664	0.1162	0.1339	1.3	0.6	0.8	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-580	Focus	5/25/2011	9:04:45 AM	12833111.01	285009.23	775.4548	0.0632	0.1077	0.1249	1.1	0.6	0.9	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-581	Focus	5/25/2011	9:07:43 AM	12833038.46	284951.94	775.5927	0.0415	0.0642	0.0765	1.1	0.8	2.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-582	Focus	5/25/2011	9:10:43 AM	12833052.75	284884.14	775.665	0.084	0.096	0.1276	1.0	0.6	0.6	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-583	Focus	5/25/2011	9:13:03 AM	12833080.17	284855.83	775.8203	0.0655	0.1111	0.1289	0.5	0.3	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-584	Focus	5/25/2011	9:16:47 AM	12833135.93	284855.60	775.7848	0.0806	0.121	0.1454	0.2	0.2	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-585	Focus	5/25/2011	9:18:53 AM	12833244.23	284963.98	775.7799	0.0957	0.144	0.1729	0.7	1.5	1.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-586	Focus	5/25/2011	9:26:16 AM	12832933.22	284761.10	775.6472	0.0658	0.0962	0.1166	0.9	0.4	0.5	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-587	Focus	5/25/2011	9:30:37 AM	12832880.98	284713.06	775.5674	0.0596	0.0855	0.1042	1.2	0.6	0.7	Heavy	Moderate	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-588	Focus	5/25/2011	9:35:30 AM	12832837.47	284680.82	775.5364	0.0554	0.0785	0.0961	1.0	0.4	0.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		DEAD TREE AT PNT
MLDE-E-589	Focus	5/25/2011	9:39:45 AM	12832853.71	284634.79	775.6629	0.0575	0.0812	0.0995	3.1	0.5	1.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-601	Focus	5/26/2011	10:28:37 AM	12832496.15	284168.77	775.6801	0.0664	0.0943	0.1154	2.3	0.7	1.3	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Soft Sediment	MOD AMOUNT ORG MATTER	
MLDE-D-602	Focus	5/26/2011	10:30:30 AM	12832491.82	284182.33	774.9571	0.0642	0.0911	0.1115	1.5	2.0	2.1	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Soft Sediment	MOD AMOUNT ORG MATTER	
MLDE-D-603	Focus	5/26/2011	10:36:33 AM	12832514.22	284114.16	775.4718	0.0515	0.0729	0.0893	1.0	0.8	2.4	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Soft Sediment	MOD AMOUNT ORG MATTER	
MLDE-D-604	Focus	5/26/2011	10:44:01 AM	12832551.27	284343.58	775.62	0.0427	0.0549	0.0695	2.0	0.4	0.9	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-605	Focus	5/26/2011	10:54:33 AM	12832824.27	284564.91	775.592	0.0593	0.0714	0.0928	1.4	0.5	0.8	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-606	Focus	5/26/2011	11:02:38 AM	12832935.74	284666.07	774.9329	0.0629	0.0746	0.0976	1.8	0.1	0.2	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-607	Focus	5/26/2011	11:07:26 AM	12833068.16	284680.92	775.4961	0.0673	0.081	0.1053	0.8	0.6	0.6	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-608	Focus	5/26/2011	11:11:28 AM	12833059.64	284688.27	775.3732	0.0462	0.0541	0.0712	0.8	0.3	0.4	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-609	Focus	5/26/2011	11:14:31 AM	12833083.71	284698.96	774.9857	0.0521	0.0646	0.083	0.4	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-610	Focus	5/26/2011	11:19:12 AM	12833091.99	284620.40	774.725	0.0443	0.055	0.0706	0.9	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLDE-D-611	Focus	5/26/2011	11:27:02 AM	12833117.47	284549.35	775.5214	0.0398	0.0499	0.0638	2.1	0.3	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-612	Focus	5/26/2011	11:33:21 AM	12833178.31	284584.16	775.6635	0.055	0.0717	0.0904	2.0	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-613	Focus	5/26/2011	11:40:01 AM	12833198.05	284531.52	775.4738	0.0528	0.0724	0.0896	1.3	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-614	Focus	5/26/2011	11:51:14 AM	12832721.02	283997.03	775.1426	0.0433	0.0629	0.0764	1.5	1.1	1.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-615	Focus	5/26/2011	11:53:10 AM	12832722.20	284010.94	775.4371	0.0431	0.0635	0.0768	1.6	1.1	1.1	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-616	Focus	5/26/2011	12:01:08 PM	12832685.44	284070.46	775.4151	0.0503	0.0776	0.0925	2.2	0.7	1.2	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-617	Focus	5/26/2011	12:07:49 PM	12832779.86	284025.91	775.2851	0.0327	0.0525	0.0618	1.3	1.2	1.6	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-620	Focus	5/26/2011	1:53:05 PM	12833237.63	284510.30	775.5597	0.0315	0.0398	0.0507	3.1	0.1	0.1	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-621	Focus	5/26/2011	2:00:21 PM	12833334.03	284557.34	775.3797	0.034	0.0463	0.0575	2.6	0.1	0.1	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-622	Focus	5/26/2011	2:11:56 PM	12832773.45	284013.26	775.4515	0.0378	0.0575	0.0688	1.3	1.2	1.3	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-623	Focus	5/26/2011	2:22:59 PM	12832831.97	283972.29	775.5912	0.028	0.0468	0.0545	1.5	1.3	1.4	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	MOD ORGANIC	
MLDE-D-624	Focus	5/26/2011	2:31:58 PM	12832923.60	283924.04	775.627	0.0349	0.0643	0.0732	2.3	0.2	0.5	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-625	Focus	5/26/2011	2:40:15 PM	12832454.68	283880.24	775.5932	0.0351	0.0726	0.0806	2.5	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-626	Focus	5/26/2011	2:45:20 PM	12832473.33	283926.13	775.4983	0.0323	0.0726	0.0795	4.0	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-627	Focus	5/26/2011	2:53:18 PM	12832549.59	283973.70	775.4483	0.0257	0.0707	0.0752	2.7	0.8	0.9	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-628	Focus	5/26/2011	2:55:02 PM	12832560.03	283970.08	775.4044	0.0284	0.0809	0.0857	2.9	2.1	2.6	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLDE-E-634	Focus	5/26/2011	9:30:52 AM	12832874.89	284818.23	775.7832	0.0695	0.128	0.1457	1.1	0.5	0.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-635	Focus	5/26/2011	9:40:26 AM	12832805.82	284769.99	775.8596	0.0717	0.1341	0.152	1.4	1.1	1.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-636	Focus	5/26/2011	9:49:23 AM	12832780.34	284828.58	775.588	0.0736	0.163	0.1789	2.0	0.7	1.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		ON A LOG
MLDE-E-637	Focus	5/26/2011	9:53:23 AM	12832789.59	284848.75	775.4801	0.1006	0.1835	0.2093	1.4	1.2	1.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-638	Focus	5/26/2011	9:57:14 AM	12832706.82	284784.59	775.5578	0.0834	0.1371	0.1604	0.8	1.3	1.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-639	Focus	5/26/2011	9:59:42 AM	12832668.39	284822.67	775.6411	0.0803	0.1289	0.1519	2.6	0.6	1.8	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-640	Focus	5/26/2011	10:04:52 AM	12832674.05	284677.09	775.6472	0.0549	0.0839	0.1002	1.0	0.6	0.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-641	Focus	5/26/2011	10:08:53 AM	12832661.97	284670.31	775.6713	0.0393	0.0579	0.07	1.3	0.5	0.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-642	Focus	5/26/2011	10:14:30 AM	12832550.52	284691.16	775.6574	0.0423	0.0595	0.073	1.3	0.6	1.1	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-643	Focus	5/26/2011	10:16:54 AM	12832522.25	284745.37	775.7546	0.0467	0.0633	0.0787	1.4	1.8	2.6	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-644	Focus	5/26/2011	10:22:01 AM	12832553.97	284573.91	775.7242	0.0489	0.0662	0.0823	1.3	0.8	0.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Silt over Sand		
MLDE-E-645	Focus	5/26/2011	10:25:06 AM	12832585.79	284541.42	775.7853	0.0595	0.0794	0.0992	1.7	0.6	0.7	Heavy	Moderate	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Silt over Sand		
MLDE-E-646	Focus	5/26/2011	10:28:02 AM	12832437.57	284549.86	775.7308	0.0601	0.0858	0.1047	0.9	0.6	0.7	Heavy	Moderate	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Silt over Sand		
MLDE-E-647	Focus	5/26/2011	10:36:15 AM	12832438.09	284496.96	775.7122	0.0529	0.0803	0.0961	1.2	1.0	1.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-648	Focus	5/26/2011	10:39:25 AM	12832475.50	284464.54	775.7495	0.0509	0.0699	0.0865	1.1	0.8	0.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Silt over Sand		
MLDE-E-665	Focus	5/26/2011	2:13:22 PM	12832542.77	284089.68	775.6931	0.036	0.0551	0.0658	1.9	2.5	3.9	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-668	Focus	5/26/2011	2:43:08 PM	12832765.59	283917.18	775.7731	0.0456	0.0909	0.1017	3.0	0.6	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-669	Focus	5/26/2011	2:53:36 PM	12832663.92	284008.23	775.6528	0.0716	0.1281	0.1467	2.0	0.3	1.2	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-670	Focus	5/26/2011	3:06:45 PM	12832700.30	283920.14	774.321	0.762	2.9812	3.0771	3.5	0.5	0.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-E-671	Focus	5/26/2011	3:11:54 PM	12832771.35	284048.61	775.7493	0.0401	0.1238	0.1301	1.5	1.4	2.0	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-672	Focus	5/26/2011	3:14:59 PM	12832795.56	284120.01	775.5558	0.0319	0.0816	0.0876	1.6	1.3	2.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-673	Focus	5/26/2011	3:18:14 PM	12832736.86	284156.14	775.6084	0.0334	0.0867	0.0929	2.0	0.9	1.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-674	Focus	5/26/2011	3:23:46 PM	12832669.36	284107.88	775.4167	0.0258	0.0554	0.0611	1.9	0.9	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-675	Focus	5/26/2011	3:28:08 PM	12832692.60	284223.16	775.6148	0.0321	0.0605	0.0685	0.8	0.3	0.4	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Point Bar	<5%	Silt over Sand		
MLDE-E-676	Focus	5/26/2011	3:38:27 PM	12832952.79	284276.81	775.6194	0.0311	0.0513	0.06	1.0	1.0	1.7	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-677	Focus	5/26/2011	3:41:33 PM	12832923.53	284358.42	775.7727	0.0367	0.0587	0.0693	2.1	0.6	1.8	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-E-678	Focus	5/26/2011	3:44:48 PM	12833078.42	284499.37	775.8066	0.0407	0.0638	0.0756	2.2	0.6	0.9	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-679	Focus	5/26/2011	3:47:42 PM	12832984.36	284418.44	775.6792	0.0333	0.0514	0.0612	2.5	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-680	Focus	5/26/2011	3:51:32 PM	12833031.56	284345.64	775.6838	0.0429	0.064	0.077	2.0	0.8	1.2	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-681	Focus	5/26/2011	3:55:48 PM	12833155.70	284393.27	775.8326	0.0916	0.1635	0.1874	2.0	0.8	0.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-682	Focus	5/26/2011	3:59:27 PM	12833164.84	284359.43	775.607	0.0304	0.0434	0.0529	2.7	0.8	1.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-683	Focus	5/26/2011	4:08:04 PM	12833057.35	284246.16	775.7089	0.0493	0.0707	0.0862	1.3	1.4	1.9	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-684	Focus	5/26/2011	4:12:01 PM	12833192.67	284234.34	775.781	0.0442	0.0607	0.0751	1.2	1.1	1.8	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-685	Focus	5/26/2011	4:15:07 PM	12833156.41	284199.25	775.5571	0.0639	0.1017	0.1201	1.1	0.4	1.0	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-686	Focus	5/26/2011	4:21:30 PM	12833114.88	284136.21	775.6432	0.0368	0.048	0.0605	0.7	0.3	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-687	Focus	5/26/2011	4:24:13 PM	12833094.70	284116.92	774.7656	7.7454	11.6507	13.9903	0.6	0.4	4.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-688	Focus	5/26/2011	4:27:51 PM	12832976.37	284046.69	775.5983	0.0418	0.0543	0.0685	1.0	1.7	2.1	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-689	Focus	5/26/2011	4:36:18 PM	12833104.12	283999.54	775.6453	0.0417	0.0522	0.0668	3.2	0.3	1.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-690	Focus	5/26/2011	4:41:41 PM	12832978.95	283926.20	775.623	0.0422	0.0506	0.0659	3.2	0.8	1.0	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-691	Focus	5/27/2011	9:11:17 AM	12833140.48	283966.03	775.768	0.024	0.047	0.0527	2.3	1.2	1.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-692	Focus	5/27/2011	9:21:31 AM	12833200.59	284022.35	775.7986	0.0292	0.0524	0.06	1.9	0.6	1.1	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-693	Focus	5/27/2011	9:29:30 AM	12833143.85	284037.60	775.7189	0.0444	0.0763	0.0883	1.6	1.6	1.9	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-694	Focus	5/27/2011	9:35:57 AM	12833233.77	284073.92	775.7424	0.0312	0.0554	0.0636	1.5	1.7	2.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-695	Focus	5/27/2011	9:41:02 AM	12833292.13	283991.91	775.7427	0.0323	0.0559	0.0646	2.4	1.6	2.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	SOFT IN POCKETS OF COBBLES
MLDE-E-696	Focus	5/27/2011	9:44:24 AM	12833454.39	284015.83	775.6985	0.0451	0.0857	0.0969	1.7	1.0	1.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-697	Focus	5/27/2011	9:46:15 AM	12833494.12	283957.11	775.7531	0.0286	0.05	0.0577	1.1	1.6	1.9	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-698	Focus	5/27/2011	9:51:07 AM	12833561.85	283962.14	775.6125	0.0424	0.0867	0.0965	2.2	0.6	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-699	Focus	5/27/2011	9:55:59 AM	12833470.09	284077.86	775.8118	0.0337	0.0588	0.0678	1.9	0.9	1.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-700	Focus	5/27/2011	9:58:59 AM	12833341.62	284083.65	775.7504	0.033	0.0555	0.0646	0.9	0.5	2.1	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-701	Focus	5/27/2011	10:00:58 AM	12833331.12	284144.34	775.9595	0.3992	0.591	0.7132	0.3	0.0	1.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-702	Focus	5/27/2011	10:08:59 AM	12833565.72	284154.41	775.6975	0.0461	0.0749	0.0879	2.3	0.8	1.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-E-703	Focus	5/27/2011	10:12:32 AM	12833606.54	284160.56	775.7034	0.038	0.0596	0.0707	2.5	1.1	1.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-704	Focus	5/27/2011	10:15:35 AM	12833572.95	284225.37	775.7326	0.0713	0.0921	0.1165	1.2	1.6	2.2	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-705	Focus	5/27/2011	10:21:16 AM	12833672.23	284193.73	775.6598	0.0679	0.1048	0.1249	2.5	1.4	2.1	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-706	Focus	5/27/2011	10:26:49 AM	12833687.72	284157.69	774.8961	1.5526	3.0012	3.379	1.8	0.5	0.7	None	None	None	Left	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-707	Focus	5/27/2011	10:29:05 AM	12833774.05	284248.83	775.5384	0.0653	0.1082	0.1264	2.8	0.7	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-708	Focus	5/27/2011	10:31:28 AM	12833772.22	284303.50	775.6405	0.0733	0.11	0.1322	0.8	2.0	2.3	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-708	Focus	6/5/11	3:13:13 PM	12832961.74	283956.70	775.559	0.0541	0.0802	0.0967	2.0	0.6	0.6	Heavy	Heavy	Many	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-709	Focus	6/5/11	2:30:04 PM	12833038.89	284035.70	778.0409	1.0922	3.7266	3.8833	0.8	1.5	2.0	Heavy	Heavy	Many	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-B-710	Focus	6/5/11	2:21:34 PM	12833108.64	284089.44	775.4322	0.7684	2.4375	2.5558	0.6	0.3	0.5	Light	Light	None	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Sand & Silt		
MLDE-B-711	Focus	6/5/11	12:47:47 PM	12833201.84	284099.83	775.7946	0.0495	0.0581	0.0763	1.1	1.4	1.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-712	Focus	6/5/11	3:19:26 PM	12833093.98	283946.76	775.9298	0.7772	1.1066	1.3522	2.5	0.6	0.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-713	Focus	6/5/11	3:23:57 PM	12833160.21	283941.01	775.0073	1.1654	1.5269	1.9208	2.2	0.7	0.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-714	Focus	6/5/11	3:35:05 PM	12833265.20	284034.14	773.3432	1.2511	1.6548	2.0746	1.2	1.6	1.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-715	Focus	6/5/11	4:28:43 PM	12833342.63	284167.68	775.3725	0.0468	0.0748	0.0883	0.2	0.1	0.1	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-716	Focus	6/5/11	1:02:10 PM	12833279.46	284103.72	775.633	0.0707	0.0722	0.1011	1.0	1.7	2.0	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-717	Focus	6/5/11	3:44:50 PM	12833332.84	283996.76	775.0052	0.8765	1.1335	1.4329	2.2	0.4	0.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-718	Focus	6/5/11	4:19:05 PM	12833382.62	284095.61	775.2178	1.4072	1.9907	2.4379	0.6	0.4	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-B-719	Focus	6/5/11	4:53:09 PM	12833497.72	283969.43	772.668	0.9134	1.9777	2.1784	1.1	1.2	1.5	Moderate	Heavy	Few	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Sand & Silt		
MLDE-B-720	Focus	6/5/11	12:14:46 PM	12833299.96	284260.38	775.4617	0.0449	0.0722	0.085	1.9	0.2	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Sand & Silt		
MLDE-B-721	Focus	6/5/11	12:01:10 PM	12833248.61	284217.77	775.6267	0.048	0.0842	0.097	1.1	1.1	1.3	Moderate	Moderate	Few	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-B-722	Focus	6/5/11	2:37:49 PM	12832850.03	284154.06	775.4707	0.8884	2.1507	2.327	0.5	0.4	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		SAND BAR
MLDE-B-723	Focus	6/5/11	3:04:13 PM	12832894.40	284098.61	778.0415	1.3719	2.1846	2.5797	0.9	1.6	1.6	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-724	Focus	6/5/11	2:53:08 PM	12832889.48	284004.89	777.6281	1.0308	1.7495	2.0306	1.1	2.0	2.0	Heavy	Heavy	Common	Island	No	No	Delta	None	Soft Sediment		
MLDE-B-725	Focus	6/5/11	11:19:45 AM	12833057.26	284213.00	775.7032	0.0578	0.0886	0.1058	0.6	0.2	0.2	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-B-726	Focus	6/5/11	12:38:05 PM	12833291.15	284179.96	775.695	0.0404	0.0525	0.0662	1.7	0.5	0.7	Light	Light	None	Island	1-3 ft/sec	1-3 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-727	Focus	6/5/11	12:26:12 PM	12833313.69	284314.65	775.6411	0.0411	0.0593	0.0722	1.2	0.4	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-728	Focus	6/5/11	3:57:22 PM	12833395.93	284015.31	775.5161	0.0456	0.0537	0.0704	1.8	1.0	1.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt	DEL	
MLDE-B-729	Focus	6/5/11	3:53:10 PM	12833385.88	284020.38	774.4898	1.3066	1.675	2.1243	2.0	0.7	0.9	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-730	Focus	6/5/11	4:08:52 PM	12833431.57	284046.90	776.9559	1.4636	2.045	2.5148	2.0	0.9	1.0	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-731	Focus	6/5/11	5:00:31 PM	12833534.04	284017.36	774.3816	0.7653	1.8186	1.9731	1.8	1.0	1.0	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-732	Focus	6/5/11	5:06:13 PM	12833538.31	284097.25	775.4676	1.0558	2.7964	2.9891	2.1	0.9	1.0	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-733	Focus	6/5/11	4:44:13 PM	12833447.18	284055.68	775.6165	0.0524	0.0836	0.0987	1.8	0.2	0.3	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-734	Focus	6/5/11	11:43:06 AM	12833168.99	284181.26	775.6822	0.0478	0.0825	0.0954	0.7	0.2	0.4	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand & Silt		
MLDE-B-735	Focus	6/5/11	11:27:05 AM	12833110.20	284196.46	775.6001	0.0465	0.0747	0.088	0.7	0.2	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-736	Focus	6/5/11	11:05:04 AM	12833065.26	284232.22	775.5362	0.06	0.0857	0.1046	1.1	0.2	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-B-802	Focus	6/7/2011	11:21:31 AM	12832573.00	283939.27	778.0457	0.9563	1.5624	1.8318	3.9	0.7	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-803	Focus	6/7/2011	11:26:25 AM	12832565.95	284150.51	779.1448	1.6034	2.7605	3.1924	0.5	0.4	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		SAND BAR
MLDE-B-804	Focus	6/7/2011	11:33:58 AM	12832478.72	284208.45	779.6143	1.2815	2.2654	2.6028	1.7	1.9	2.1	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-811	Focus	6/7/2011	1:43:30 PM	12832490.93	284550.13	775.5137	0.0355	0.0655	0.0745	1.8	0.3	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Sand		
MLDE-B-812	Focus	6/7/2011	1:49:12 PM	12832511.72	284691.42	771.8844	1.0561	2.1044	2.3545	1.4	0.2	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand		
MLDE-B-813	Focus	6/7/2011	2:34:49 PM	12832539.64	284708.04	775.5715	0.0372	0.0811	0.0892	1.4	0.0	0.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-814	Focus	6/7/2011	2:41:57 PM	12832729.69	284814.12	777.1438	1.3005	2.447	2.7711	1.2	0.3	1.3	Light	Light	None	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Sand		
MLDE-B-815	Focus	6/7/2011	2:49:57 PM	12832802.82	284662.23	779.4343	0.7774	1.3275	1.5384	1.2	0.3	0.4	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-816	Focus	6/7/2011	2:57:53 PM	12832725.52	284487.10	775.7545	0.0514	0.0808	0.0957	0.9	0.1	0.2	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		SAND BAR
MLDE-B-817	Focus	6/7/2011	3:06:54 PM	12832679.18	284413.93	768.4177	1.3888	2.0339	2.4629	1.1	0.1	0.4	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-818	Focus	6/7/2011	3:10:31 PM	12832613.18	284397.33	773.3404	1.457	2.0858	2.5443	1.0	1.3	1.8	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-B-819	Focus	6/7/2011	3:42:10 PM	12832595.45	284327.99	776.1954	1.497	1.9405	2.4508	1.8	0.4	0.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-820	Focus	6/7/2011	3:48:23 PM	12832658.40	284267.54	774.8268	1.2713	1.5788	2.027	1.4	0.3	1.1	Moderate	Heavy	Few	Island	<1ft/sec	<1 ft/sec	Lake	None	Soft Sediment		
MLDE-B-821	Focus	6/7/2011	3:58:20 PM	12832647.29	284234.73	775.0312	1.7807	2.1849	2.8187	1.1	0.0	0.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-822	Focus	6/7/2011	4:05:58 PM	12832671.22	284216.56	774.0758	1.0787	1.3902	1.7596	0.8	0.2	0.2	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-823	Focus	6/8/2011	10:05:24 AM	12832723.33	284206.34	775.5771	0.051	0.061	0.0795	1.4	0.2	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-824	Focus	6/8/2011	10:14:19 AM	12832737.15	284268.81	775.4891	0.0493	0.0593	0.0771	0.8	0.4	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-825	Focus	6/8/2011	10:17:17 AM	12832731.17	284271.90	775.5357	0.0414	0.05	0.0649	1.0	0.6	0.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Sand & Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-B-826	Focus	6/8/2011	10:25:13 AM	12832962.58	284240.16	775.4304	0.0377	0.0466	0.0599	1.0	0.0	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand & Silt		SAND BAR
MLDE-B-827	Focus	6/8/2011	10:34:01 AM	12832939.20	284280.89	775.4802	0.0407	0.051	0.0652	0.7	0.3	0.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		SAND BAR
MLDE-B-828	Focus	6/8/2011	10:42:52 AM	12832968.47	284344.30	775.3957	0.055	0.0526	0.0761	1.9	0.1	0.1	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-829	Focus	6/8/2011	11:00:05 AM	12832970.18	284340.93	775.5226	0.0359	0.0526	0.0637	1.8	0.4	1.3	Moderate	Moderate	Common	Island	1-3 ft/sec	1-3 ft/sec	Delta	<5%	Sand & Silt		
MLDE-B-830	Focus	6/8/2011	12:45:55 PM	12832981.07	284386.61	775.3393	0.1074	0.108	0.1523	1.2	0.2	0.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand & Silt		
MLDE-B-831	Focus	6/8/2011	12:55:47 PM	12833066.64	284457.05	775.3752	0.0598	0.0623	0.0864	1.5	0.2	0.4	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-832	Focus	6/8/2011	1:02:53 PM	12833107.90	284493.03	775.7554	0.0767	0.0965	0.1232	1.2	0.0	0.7	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-833	Focus	6/8/2011	1:08:52 PM	12833196.50	284323.00	775.5517	0.0673	0.0944	0.1159	0.5	0.1	0.2	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-834	Focus	6/8/2011	1:16:17 PM	12833057.61	284655.87	775.5321	0.0461	0.0691	0.0831	0.2	0.6	0.7	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		SAND BAR
MLDE-B-835	Focus	6/8/2011	1:21:33 PM	12833035.82	284694.83	775.4082	0.045	0.0707	0.0838	0.8	0.5	0.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-836	Focus	6/8/2011	1:57:29 PM	12833029.10	284728.76	776.0771	0.0512	0.2166	0.2226	1.1	0.2	0.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-837	Focus	6/8/2011	2:03:07 PM	12832971.29	284664.75	775.4248	0.049	0.1271	0.1362	1.1	-99.0	-99.0	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	DEL	
MLDE-B-838	Focus	6/8/2011	2:06:35 PM	12833005.19	284624.05	775.4272	0.0404	0.1238	0.1303	1.0	-99.0	-99.0	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	DEL	
MLDE-B-839	Focus	6/8/2011	2:11:50 PM	12832944.98	284602.27	776.4289	0.7494	2.9694	3.0625	1.6	0.4	0.4	Light	Moderate	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		DWND TREE
MLDE-B-840	Focus	6/8/2011	2:19:32 PM	12833060.16	284591.80	776.3018	0.7725	2.4086	2.5295	1.4	0.2	0.2	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		EDGE OF SAND BAR
MLDE-B-841	Focus	6/8/2011	2:26:27 PM	12833014.11	284794.82	775.8683	0.0458	0.1388	0.1462	1.3	-99.0	-99.0	Heavy	Heavy	Many	Island			Delta		Sand & Silt		
MLDE-B-842	Focus	6/8/2011	2:33:27 PM	12833080.81	284781.36	775.4478	0.0356	0.0738	0.082	0.5	0.0	0.1	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-843	Focus	6/8/2011	2:40:04 PM	12833033.22	284872.99	775.6417	0.0266	0.0477	0.0547	1.4	0.4	0.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-844	Focus	6/8/2011	2:45:10 PM	12833015.33	284908.76	775.5154	0.0332	0.0573	0.0663	1.3	0.4	0.7	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-845	Focus	6/8/2011	3:12:32 PM	12833175.62	285092.07	775.4349	0.056	0.0737	0.0926	1.9	0.2	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-846	Focus	6/8/2011	3:22:44 PM	12833104.97	285025.47	775.3077	0.0388	0.0516	0.0645	2.1	0.0	0.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-847	Focus	6/8/2011	3:28:05 PM	12833079.86	284982.04	775.3103	0.0488	0.0635	0.0801	1.2	0.1	0.2	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-848	Focus	6/8/2011	3:34:10 PM	12833138.66	284880.23	775.3742	1.5793	2.1281	2.6501	0.8	0.1	0.5	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand		SAND BAR
MLDE-B-849	Focus	6/8/2011	3:43:34 PM	12833239.77	284946.87	775.8195	0.038	0.0499	0.0627	0.8	0.2	0.5	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Sand		
MLDE-B-850	Focus	6/8/2011	3:49:19 PM	12833362.02	285003.89	775.7199	0.0958	0.1347	0.1653	1.5	0.0	0.1	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand		
MLDE-B-851	Focus	6/8/2011	4:36:43 PM	12833436.14	285050.58	775.5422	0.1637	0.2525	0.301	1.6	0.1	0.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand & Silt		
MLDE-B-852	Focus	6/8/2011	4:43:42 PM	12833530.99	285107.86	775.8823	0.0301	0.0747	0.0805	2.0	0.1	0.1	None	None	None	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Sand		
MLDE-B-853	Focus	6/9/2011	10:05:10 AM	12833428.17	284488.24	775.0005	0.0564	0.0671	0.0877	0.6	0.2	0.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-854	Focus	6/9/2011	10:19:59 AM	12833475.82	284426.04	774.9634	0.034	0.0419	0.054	1.0	0.8	2.5	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Sand & Silt		
MLDE-B-855	Focus	6/9/2011	10:30:26 AM	12833414.22	284374.15	775.0267	0.0353	0.0443	0.0567	1.4	0.2	0.2	Light	Light	None	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Sand		
MLDE-B-856	Focus	6/9/2011	10:40:07 AM	12833309.99	284388.23	774.9346	0.0409	0.0546	0.0682	1.0	0.3	1.5	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-857	Focus	6/9/2011	10:53:34 AM	12833456.89	284316.68	775.0337	0.0325	0.0468	0.057	1.3	0.8	0.8	Moderate	Heavy	Few	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-B-858	Focus	6/9/2011	11:00:29 AM	12833472.76	284286.24	775.0766	0.0332	0.05	0.0601	1.0	1.6	1.7	Light	Light	Few	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Soft Sediment		
MLDE-B-859	Focus	6/9/2011	11:05:28 AM	12833554.49	284249.40	774.904	0.0209	0.0326	0.0387	1.3	1.1	1.1	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-860	Focus	6/9/2011	1:58:12 PM	12833608.64	284285.10	774.3733	0.879	2.5058	2.6555	1.3	0.9	0.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-861	Focus	6/9/2011	2:05:34 PM	12833621.32	284402.26	772.9639	0.7787	3.0466	3.1445	1.1	0.9	0.9	Light	Light	Few	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-B-862	Focus	6/9/2011	2:11:28 PM	12833635.61	284366.40	775.0111	0.9603	3.7531	3.874	1.2	1.2	1.2	Light	Light	Few	Island	No	No	Delta	25%-50%	Soft Sediment		
MLDE-B-863	Focus	6/9/2011	2:20:03 PM	12833682.96	284338.72	775.687	0.0298	0.0837	0.0889	1.5	0.5	0.5	None	None	None	Island	No	No	Delta	<5%	Soft Sediment		
MLDE-B-864	Focus	6/9/2011	2:27:50 PM	12833692.54	284286.18	775.6289	0.0289	0.062	0.0684	1.4	1.4	1.4	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-865	Focus	6/9/2011	2:35:29 PM	12833674.01	284205.70	775.7357	0.0319	0.0622	0.0699	2.6	0.3	0.8	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	HEAVY SURF SHEEN	
MLDE-B-866	Focus	6/9/2011	2:42:42 PM	12833737.05	284201.25	775.0991	0.9059	1.722	1.9457	2.0	0.7	0.9	Light	Light	Few	Left	No	No	Delta	None	Soft Sediment		
MLDE-B-867	Focus	6/9/2011	2:51:21 PM	12833789.37	284339.08	775.6212	0.0311	0.0482	0.0574	0.7	1.2	1.8	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		MUDFLAT
MLDE-B-878	Focus	6/9/2011	9:59:02 AM	12833449.27	284837.91	775.5676	0.0468	0.0562	0.0731	2.8	1.0	1.2	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-879	Focus	6/9/2011	10:15:50 AM	12833472.29	284877.15	775.6927	0.0463	0.0548	0.0718	1.6	0.5	0.6	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLDE-D-880	Focus	6/9/2011	10:22:59 AM	12833559.51	284904.20	776.0698	0.0306	0.037	0.048	2.6	0.4	0.5	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt	SHEEN FROM ANCHOR	
MLDE-D-881	Focus	6/9/2011	10:30:52 AM	12833633.42	284946.27	775.6247	0.0384	0.0485	0.0619	1.2	1.5	2.3	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Sand & Silt	HVY SHEEN ANCHOR PHOTOS 1 AND 2	
MLDE-D-882	Focus	6/9/2011	10:39:29 AM	12833689.69	284944.47	775.6832	0.0429	0.0573	0.0716	0.8	0.3	1.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	PHOTOS 3 AND 4	
MLDE-D-886	Focus	6/9/2011	11:08:12 AM	12833685.64	285080.59	775.8415	0.0377	0.0595	0.0705	0.8	0.8	1.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Sand over Silt	SHEEN FROM ANCHOR	
MLDE-D-887	Focus	6/9/2011	11:12:12 AM	12833677.20	285127.53	776.0244	0.0366	0.0593	0.0697	3.0	0.3	0.5	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-902	Focus	6/10/2011	4:43:26 PM	12832449.53	284301.24	775.9367	0.0255	0.0631	0.068	1.5	0.5	1.7	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-903	Focus	6/10/2011	4:35:47 PM	12833040.15	284815.99	775.6679	0.0324	0.0804	0.0867	0.5	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		WEST EDGE SANDBAR
MLDE-B-904	Focus	6/10/2011	2:03:43 PM	12833183.81	284707.23	763.978	9.051	17.5748	19.7686	0.7	0.1	0.2	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		SAND BAR
MLDE-D-905	Focus	6/10/2011	3:14:28 PM	12833301.19	284769.70	775.4788	0.0402	0.0535	0.0669	0.9	0.2	0.3	None	None	None	Island	<1ft/sec		Delta	None	Sand		
MLDE-D-906	Focus	6/10/2011	3:19:12 PM	12833250.94	284621.17	776.2489	0.0386	0.0504	0.0635	2.3	0.1	0.2	None	None	None	Island	<1ft/sec		Delta	None	Sand		
MLDE-D-907	Focus	6/10/2011	3:25:42 PM	12833389.69	284694.64	775.9558	0.0341	0.0444	0.056	1.5	0.8	0.9	Light	Light	Few	Island	<1ft/sec		Delta	25%-50%	Sand & Silt		
MLDE-D-908	Focus	6/10/2011	3:31:35 PM	12833394.71	284613.53	775.258	0.0417	0.0535	0.0678	2.8	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-909	Focus	6/10/2011	3:37:02 PM	12833510.56	284679.07	775.6917	0.0521	0.0647	0.0831	2.1	0.4	0.5	Light	Light	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-910	Focus	6/10/2011	3:47:26 PM	12833641.08	284715.54	775.6752	0.0362	0.0437	0.0568	2.1	0.0	0.0	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-911	Focus	6/10/2011	3:41:19 PM	12833582.78	284736.33	775.8668	0.0464	0.0629	0.0781	1.4	0.5	0.5	Light	Light	Few	Island	<1ft/sec		Delta	<5%	Sand & Silt		
MLDE-D-912	Focus	6/10/2011	3:52:22 PM	12833702.55	284827.42	775.6398	0.0462	0.0582	0.0743	1.1	0.7	0.8	Moderate	Moderate	Few	Island	<1ft/sec		Delta	<5%	Soft Sediment	SHEEN FROM BOAT	
MLDE-D-913	Focus	6/10/2011	3:56:32 PM	12833727.07	284788.73	775.7752	0.0469	0.0616	0.0774	2.9	0.1	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDS-D-01	Focus	5/16/2011	11:01:37 AM	12833439.49	283853.80	773.9232	0.9576	1.1856	1.524	0.6	1.6	1.8	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDS-D-02	Focus	5/16/2011	11:06:40 AM	12833519.49	283930.22	775.371	0.0461	0.0575	0.0737	1.7	0.8	1.1	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDS-D-03	Focus	5/16/2011	11:12:38 AM	12833441.88	283961.72	775.8306	0.0906	0.1372	0.1645	0.9	1.2	1.4	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Soft Sediment	SHEENFOUNDONARVL PHOTOS1AND2	
MLDS-D-04	Focus	5/16/2011	11:14:18 AM	12833435.76	283969.06	775.6018	0.0425	0.0558	0.0701	1.3	0.8	0.8	Light	Light	Few	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDS-D-05	Focus	5/16/2011	11:20:54 AM	12833380.17	283944.40	775.6205	0.0394	0.0543	0.0671	1.0	0.7	0.8	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDS-D-06	Focus	5/16/2011	11:27:04 AM	12833421.35	283906.70	775.5871	0.0343	0.0484	0.0593	1.0	1.5	1.6	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDS-D-07	Focus	5/16/2011	11:34:52 AM	12833513.49	283838.06	784.9773	2.1559	3.1547	3.821	1.6	1.2	1.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDS-D-08	Focus	5/16/2011	11:41:55 AM	12833333.37	283804.36	787.8931	2.0807	3.3593	3.9515	2.0	0.4	0.4	Light	Light	Few	Left	<1ft/sec	No	Delta	<5%	Soft Sediment		
MLDS-D-09	Focus	5/16/2011	11:47:58 AM	12833115.33	283805.50	778.6047	1.0565	1.6936	1.9961	1.0	0.2	0.2	Light	Light	Few	Left	No	No	Delta	None	Soft Sediment	SHEENFOUNDONARVL	
MLDS-D-10	Focus	5/16/2011	11:50:52 AM	12833119.02	283812.57	756.5518	7.4702	11.9484	14.0914	1.3	0.2	0.2	None	None	None	Left	No	No	Delta	None	Soft Sediment	SHEENFOUNDONARVL	
MLDS-D-11	Focus	5/16/2011	11:57:53 AM	12833007.94	283815.03	775.5503	0.0484	0.0871	0.0996	0.6	0.3	0.3	None	None	None	Left	No	No	Delta	None	Sand		
MLDS-D-12	Focus	5/16/2011	12:05:12 PM	12832577.67	283845.41	775.4232	0.0323	0.0554	0.0641	1.3	0.1	0.1	Light	Light	Few	Left	No	No	Delta	None	Silt over Sand		
MLDS-D-13	Focus	5/16/2011	12:12:27 PM	12832513.77	283797.17	775.5745	0.043	0.0781	0.0892	1.1	0.5	0.6	None	None	None	Left	No	No	Delta	None	Silt over Sand	SHEENFOUNDONARVL	
MLDS-D-14	Focus	5/16/2011	12:17:59 PM	12832327.74	283868.71	775.6177	0.0498	0.089	0.102	1.2	0.4	0.4	Moderate	Moderate	Common	Left	No	No	Delta	None	Organic		
MLDS-D-15	Focus	5/16/2011	12:20:02 PM	12832331.85	283875.24	775.266	0.0443	0.0785	0.0901	2.8	0.2	0.2	None	None	None	Left	<1ft/sec	No	Delta	None	Sand		
MLDS-D-16	Focus	5/16/2011	12:22:26 PM	12832319.85	283872.89	776.379	0.9067	1.619	1.8556	2.2	0.5	0.5	Light	Light	Few	Left	<1ft/sec	No	Delta	None	Silt over Sand		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MDLS-D-17	Focus	5/19/2011	1:56:00 PM	12833220.42	283843.88	775.82	0.039	0.068	0.079	1.5	1.0	1.0	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MDLS-D-18	Focus	5/19/2011	1:58:00 PM	12833241.27	283857.80	775.90	0.039	0.072	0.082	1.2	2.0	2.3	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MDLS-E-19	Focus	5/27/2011	9:13:59 AM	12833199.46	283869.08	775.7258	0.0267	0.0483	0.0552	2.1	0.8	1.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MDLS-E-20	Focus	5/27/2011	9:17:20 AM	12833233.34	283827.35	776.1274	0.0323	0.056	0.0646	1.9	1.2	1.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MDLS-B-21	Focus	6/5/11	3:28:42 PM	12833193.42	283829.18	774.6653	1.7284	2.0603	2.6893	1.4	2.0	2.2	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MP 37.25-37.50																							
37.29LG-B-01	Other	6/11/11	2:19:31 PM	12832183.33	285184.17	775.5287	0.0471	0.0781	0.0912	1.0	0.1	0.4	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand & Gravel		SAND BAR
37.34LG-B-01	Other	6/11/11	2:54:46 PM	12831899.00	284940.28	775.5708	0.038	0.0547	0.0666	2.5	1.1	1.1	Heavy	Heavy	Many	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Silt over Sand	NOT DELINEATED DUE TO BOOM WORKERS	
37.36LG-B-01	Other	6/11/11	2:27:59 PM	12831809.18	285206.23	775.5476	0.0335	0.0647	0.0729	1.8	0.3	0.6	None	None	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Sand		
37.42LG-B-01	Other	6/11/11	2:37:16 PM	12831503.31	284931.13	775.4819	0.0363	0.0598	0.0699	3.4	0.7	0.9	Light	Light	Few	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Soft Sediment		
37.45LG-B-01	Other	6/11/11	3:03:41 PM	12831357.73	285193.41	775.4926	0.0327	0.0446	0.0554	4.9	2.8	2.8	Light	Light	None	Center	1-3 ft/sec	1-3 ft/sec	Mid-Channel	None	Soft Sediment		
MLD-D-01	Other	5/26/2011	3:09:57 PM	12831984.51	283718.95	777.1298	1.8362	6.9247	7.164	1.1	0.1	0.2	Light	Light	Few	Left	<1ft/sec		Delta	5%-25%	Sand		
MLD-D-02	Other	5/26/2011	3:14:25 PM	12831888.48	283784.35	775.3611	0.0367	0.1083	0.1143	2.0	0.8	0.9	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-03	Other	5/26/2011	3:20:16 PM	12831843.53	283818.34	775.4005	0.0356	0.0911	0.0978	2.7	0.5	0.6	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-04	Other	5/26/2011	4:07:48 PM	12831443.14	284191.50	775.0103	0.038	0.0518	0.0643	2.1	1.5	1.6	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLD-D-05	Other	5/26/2011	4:11:16 PM	12831449.67	284198.95	775.0883	0.0323	0.0436	0.0542	2.8	0.6	0.8	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-06	Other	5/26/2011	4:17:37 PM	12831392.84	284133.78	775.258	0.0393	0.0518	0.065	3.4	0.1	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLD-D-07	Other	5/26/2011	4:23:05 PM	12831483.03	284082.60	775.6139	0.0415	0.0441	0.0606	3.5	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLD-D-08	Other	5/26/2011	4:32:18 PM	12831573.61	284037.63	775.319	0.047	0.0525	0.0705	3.3	0.5	0.6	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-09	Other	5/26/2011	4:37:14 PM	12831657.91	283968.86	775.0177	0.049	0.0597	0.0772	3.0	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-10	Other	5/26/2011	4:38:46 PM	12831672.13	283966.96	775.4757	0.0394	0.0417	0.0574	2.9	0.2	0.3	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-11	Other	5/26/2011	4:44:21 PM	12831676.58	283788.22	775.2213	0.0996	0.1569	0.1859	1.8	0.1	0.2	Light	Light	Few	Left	1-3 ft/sec		Delta	None	Sand & Silt		
MLD-D-12	Other	5/26/2011	4:49:54 PM	12831545.82	283892.12	792.6337	2.4598	3.8969	4.6083	1.4	0.3	0.3	Light	Light	Few	Left	1-3 ft/sec		Delta	None	Sand & Gravel		
MLD-D-13	Other	5/27/2011	9:21:24 AM	12831298.16	284055.86	775.3266	0.028	0.0499	0.0573	3.1	0.9	1.1	None	None	None	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLD-D-14	Other	5/27/2011	9:26:51 AM	12831220.76	284138.20	775.4902	0.0297	0.0524	0.0602	2.9	1.5	1.8	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLD-D-15	Other	5/27/2011	9:34:08 AM	12831182.00	283966.28	775.4865	0.0442	0.0836	0.0946	1.1	3.0	3.5	None	None	None	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLD-D-16	Other	5/27/2011	9:40:00 AM	12831078.91	284027.96	775.6394	0.0381	0.0696	0.0794	1.5	1.0	2.3	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-18	Other	5/27/2011	9:52:14 AM	12831038.17	284272.92	775.3996	0.0367	0.0607	0.0709	2.6	1.3	1.6	Light	Light	None	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLD-D-20	Other	6/11/11	10:39:22 AM	12832131.98	284705.94	775.4852	0.0378	0.0534	0.0654	1.3	0.2	0.8	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLD-D-21	Other	6/11/11	2:46:31 PM	12831711.15	284828.79	775.5652	0.0329	0.0501	0.06	2.6	2.0	3.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLD-D-22	Other	6/11/11	10:48:48 AM	12831872.70	284682.36	775.5523	0.0332	0.0489	0.0591	2.7	2.2	3.5	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%			
MLD-D-23	Other	6/11/11	10:34:54 AM	12832083.59	284554.01	775.4702	0.0395	0.0537	0.0667	1.8	0.6	1.8	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Sand		
MLD-D-24	Other	6/11/11	10:25:26 AM	12831875.70	284520.83	775.4426	0.0386	0.0507	0.0637	1.3	1.6	2.9	None	None	None	Island	No	No	Delta	None	Silt over Sand	PRE-EXISTING SHEEN	
MLD-D-25	Other	6/13/11	1:50:51 PM	12831926.95	284945.01	775.4633	0.0416	0.1622	0.1674	2.4	1.0	1.4	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL	
MLD-D-26	Other	6/13/11	1:55:42 PM	12831820.42	284922.20	773.5713	0.7235	2.5517	2.6523	2.6	0.9	1.1	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-27	Other	6/13/11	2:01:38 PM	12831790.86	284921.61	775.6455	0.0335	0.0864	0.0926	2.7	4.1	4.1	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	LGHT SHEEN ARRIVL	
MLD-D-28	Other	6/13/11	2:22:14 PM	12831742.09	284902.58	775.5584	0.0261	0.0456	0.0525	2.8	2.0	4.0	Light	Light	Few	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-29	Other	6/13/11	2:31:23 PM	12831968.05	284966.70	775.4835	0.034	0.0539	0.0637	2.3	2.9	3.0	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Sand over Silt	MOD SHEEN ARRIVL	
MLD-D-30	Other	6/13/11	2:40:21 PM	12832030.24	284968.68	775.6412	0.0288	0.0433	0.052	2.1	2.2	2.4	Moderate	Moderate	Common	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-31	Other	6/13/11	2:45:13 PM	12832073.60	284963.58	775.499	0.0267	0.0388	0.0471	2.0	1.6	2.4	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR, PHOTO 3 AND 4	
MLD-D-32	Other	6/13/11	2:49:57 PM	12832147.44	285003.84	775.4633	0.0347	0.0489	0.0599	0.8	1.0	2.2	Light	Light	Few	Island	<1ft/sec		Delta	None	Sand	EDGE OF SANDBAR	
MLD-D-33	Other	6/13/11	2:58:17 PM	12831864.31	284958.12	775.3617	0.0376	0.0512	0.0635	2.7	3.7	4.4	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-34	Other	6/13/11	3:10:39 PM	12831859.02	284997.39	775.4694	0.0448	0.0581	0.0734	2.6	3.4	4.4	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-35	Other	6/13/11	3:16:53 PM	12831871.26	285064.08	775.4958	0.0424	0.0549	0.0693	2.0	1.5	1.6	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-36	Other	6/13/11	3:25:19 PM	12831842.81	285082.69	775.6408	0.0333	0.0389	0.0512	2.1	1.8	2.0	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-37	Other	6/13/11	3:30:42 PM	12831863.66	285129.35	775.4562	0.0442	0.0521	0.0683	2.2	2.3	2.5	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-38	Other	6/13/11	3:38:10 PM	12831853.89	285160.21	775.649	0.0576	0.0769	0.0961	2.9	1.0	1.5	Heavy	Moderate	Many	Island	<1ft/sec		Delta	None	Silt over Sand	LGHT SHEEN ARRIVL	
MLD-D-39	Other	6/13/11	3:44:05 PM	12831846.57	285204.95	775.315	0.0488	0.0632	0.0799	1.8	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		
MLD-D-40	Other	6/13/11	4:02:44 PM	12831900.98	284888.50	775.6381	0.0309	0.0524	0.0608	2.6	2.0	2.1	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-41	Other	6/13/11	4:08:25 PM	12831888.38	284822.44	775.5364	0.0257	0.0469	0.0535	2.6	1.1	1.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	LGHT SHEEN ANCHOR	
MLD-D-42	Other	6/13/11	4:14:30 PM	12831891.12	284742.08	775.5941	0.0213	0.0423	0.0474	2.4	1.3	1.5	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	LGHT SHEEN ANCHOR	
MLD-D-43	Other	6/13/11	4:20:39 PM	12831854.65	284674.24	775.5032	0.03	0.0648	0.0714	2.9	2.2	3.6	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand over Silt	LGHT SHEEN ANCHOR	
MLD-D-44	Other	6/14/11	10:14:56 AM	12831967.17	284899.12	775.6508	0.0467	0.0603	0.0763	2.4	1.8	1.9	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	PHOTOS 1 AND 2	
MLD-D-45	Other	6/14/11	10:25:25 AM	12831967.96	284816.01	775.6114	0.0322	0.0437	0.0543	2.5	0.9	1.0	Moderate	Moderate	Common	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-46	Other	6/14/11	10:35:48 AM	12831993.82	284736.28	775.5597	0.0298	0.0436	0.0528	2.3	1.1	1.2	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	HVY SHEEN ANCHOR	
MLD-D-47	Other	6/14/11	10:47:16 AM	12832080.46	284897.14	775.5546	0.0301	0.0475	0.0563	2.2	1.8	2.0	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	LGHT SHEEN ANCHOR	
MLD-D-48	Other	6/14/11	10:56:28 AM	12832094.92	284779.75	775.323	0.0326	0.0541	0.0631	2.3	3.2	2.6	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-49	Other	6/14/11	11:05:50 AM	12832191.90	284923.98	775.5107	0.0364	0.0628	0.0726	1.9	1.5	2.4	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-50	Other	6/14/11	11:21:47 AM	12832318.65	284889.12	775.5843	0.0345	0.0614	0.0705	2.4	2.3	2.5	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	I FROM ANCHOR, PHOTOS 3 AND 4	
MLD-D-51	Other	6/14/11	11:36:51 AM	12832199.14	284834.01	775.7163	0.0304	0.048	0.0568	2.8	1.6	1.8	Moderate	Moderate	Common	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-52	Other	6/14/11	11:56:59 AM	12832219.19	284775.38	775.5902	0.0435	0.0591	0.0734	1.5	0.6	0.7	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		
MLD-D-53	Other	6/14/11	11:47:24 AM	12832319.40	284830.72	775.5607	0.0472	0.0696	0.0842	0.6	0.5	0.6	Light	Light	Few	Island	<1ft/sec		Delta	None	Sand		
MLD-D-54	Other	6/14/11	3:31:29 PM	12831822.61	284850.16	775.5914	0.0436	0.0528	0.0685	2.7	3.6	3.8	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand	N FROM ANCHOR, SOME GRAVEL	
MLD-D-55	Other	6/14/11	3:22:41 PM	12831763.60	284767.51	775.6607	0.0415	0.0485	0.0639	2.5	0.5	3.1	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Sand & Silt	SHEEN FROM ANCHOR	
MLD-D-56	Other	6/14/11	2:29:00 PM	12831953.93	285173.68	775.7147	0.0289	0.0451	0.0535	1.0	0.5	0.8	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand		ON SANDBAR
MLD-D-57	Other	6/14/11	2:14:56 PM	12831940.42	285099.36	775.4971	0.0329	0.06	0.0684	1.9	1.5	1.8	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-58	Other	6/14/11	2:21:53 PM	12832047.91	285106.66	775.5386	0.036	0.0617	0.0714	1.1	0.5	1.4	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand	SHEEN FROM ANCHOR	
MLD-D-59	Other	6/14/11	1:42:26 PM	12832017.42	285032.77	775.5888	0.0377	0.1158	0.1218	1.9	2.1	2.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-60	Other	6/14/11	1:36:20 PM	12831926.77	285012.63	775.4225	0.0249	0.0686	0.073	2.4	1.0	1.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-61	Other	6/14/11	2:39:55 PM	12831768.05	285147.74	775.5276	0.039	0.0574	0.0694	3.1	1.4	1.5	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-62	Other	6/14/11	2:08:10 PM	12831769.59	285049.69	775.4019	0.0301	0.0642	0.0709	2.5	4.0	4.4	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-63	Other	6/14/11	1:28:36 PM	12831758.39	284990.53	775.8043	0.0259	0.0617	0.067	2.7	1.0	1.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-64	Other	6/14/11	1:21:06 PM	12831671.22	284956.64	775.4671	0.0338	0.0674	0.0754	3.0	2.2	2.5	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-65	Other	6/14/11	2:01:09 PM	12831672.86	285064.31	775.5137	0.0378	0.1036	0.1103	2.8	3.2	4.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
MLD-D-66	Other	6/14/11	2:52:17 PM	12831667.53	285145.23	775.6217	0.0415	0.0567	0.0703	3.8	0.4	1.3	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLD-D-67	Other	6/14/11	2:57:13 PM	12831643.06	285194.62	775.7875	0.0382	0.0511	0.0638	3.7	3.8	3.9	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
MLD-D-68	Other	6/14/11	1:50:34 PM	12831577.79	284999.80	776.1823	0.8103	3.1989	3.2999	3.1	1.5	1.6	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-D-79	Focus	5/16/2011	12:34:17 PM	12832024.88	284123.38	775.5367	0.0316	0.05	0.0592	0.9	1.4	1.5	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment	SHEENFOUNDONARVL	
MLDE-D-80	Focus	5/16/2011	12:36:43 PM	12832007.85	284119.83	775.476	0.0356	0.0553	0.0658	1.4	1.0	1.1	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-81	Focus	5/16/2011	12:44:11 PM	12831820.79	284006.39	775.2005	0.04	0.0599	0.072	1.2	0.5	0.8	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-82	Focus	5/16/2011	12:58:20 PM	12831797.87	284110.92	775.4963	0.0635	0.0887	0.1091	1.2	0.8	1.7	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-83	Focus	5/16/2011	1:06:45 PM	12831933.12	284136.84	775.1128	0.0549	0.0703	0.0892	1.0	1.6	2.1	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-84	Focus	5/16/2011	1:14:13 PM	12831986.23	284186.04	775.4879	0.0603	0.0684	0.0912	1.1	0.8	1.2	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-85	Focus	5/16/2011	1:16:42 PM	12831987.77	284174.46	775.2025	0.8846	1.0261	1.3548	1.0	1.2	1.4	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-86	Focus	5/16/2011	1:21:42 PM	12831977.41	284223.29	775.2769	0.0421	0.0519	0.0668	1.5	0.6	0.9	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-87	Focus	5/16/2011	2:43:12 PM	12832173.12	284209.95	776.3447	0.8513	2.6831	2.8149	1.0	0.5	1.1	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Soft Sediment	SHEENFOUNDONARVL	
MLDE-D-88	Focus	5/16/2011	2:50:10 PM	12832265.51	284174.31	775.1922	0.0551	0.3438	0.3482	1.0	0.5	0.7	Heavy	Heavy	Many	Island	1-3 ft/sec	No	Delta	None	Soft Sediment	SHEENFOUNDONARVL PHOTOS3AND4	FALLEN LOG
MLDE-D-89	Focus	5/16/2011	2:51:48 PM	12832269.95	284182.25	775.4779	0.0563	0.3222	0.3271	1.3	0.5	0.6	Light	Light	Few	Island	1-3 ft/sec	No	Delta	None	Soft Sediment	SHEENFOUNDONARVL	
MLDE-D-90	Focus	5/16/2011	2:53:23 PM	12832273.17	284167.98	775.365	0.162	0.2756	0.3197	1.3	0.4	0.4	Moderate	Moderate	Common	Island	1-3 ft/sec	No	Delta	None	Silt over Sand	SHEENFOUNDONARVL	
MLDE-D-91	Focus	5/16/2011	3:00:21 PM	12832317.17	284074.83	775.254	0.0429	0.099	0.1078	1.3	0.4	0.7	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-92	Focus	5/16/2011	3:05:40 PM	12832202.84	284109.20	775.3987	0.0354	0.0798	0.0873	0.6	1.2	1.4	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-93	Focus	5/16/2011	3:07:14 PM	12832200.93	284118.28	775.2548	0.0394	0.079	0.0883	1.2	0.9	0.9	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-94	Focus	5/16/2011	3:10:49 PM	12832176.97	284159.38	775.3693	0.0342	0.0647	0.0732	0.9	1.1	1.2	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-95	Focus	5/16/2011	3:12:54 PM	12832176.04	284151.03	763.467	6.922	11.1576	13.1303	1.7	1.0	1.1	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-96	Focus	5/16/2011	3:16:57 PM	12832162.96	284078.98	774.813	0.0358	0.0617	0.0713	1.3	0.9	1.1	Moderate	Moderate	Common	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-97	Focus	5/16/2011	3:20:03 PM	12832133.19	284061.00	775.4543	0.0353	0.0589	0.0687	1.2	0.9	1.0	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Organic	GREYSHEENPRESENT	
MLDE-D-98	Focus	5/16/2011	3:25:22 PM	12832190.99	284049.87	775.4725	0.0329	0.0515	0.0611	0.9	0.6	1.3	Heavy	Heavy	Many	Island	1-3 ft/sec	No	Delta	None	Organic	SHEENFOUNDONARVL PHOTOS5AND6	
MLDE-D-99	Focus	5/16/2011	3:30:51 PM	12832152.16	283976.17	775.4891	0.0326	0.0487	0.0586	2.8	0.6	0.7	Heavy	Heavy	Many	Island	1-3 ft/sec	No	Delta	None	Silt over Sand	SHEENFOUNDONARVL PHOTOS5AND6	
MLDE-D-100	Focus	5/16/2011	3:37:25 PM	12832191.59	283871.31	775.4277	0.0482	0.0662	0.0819	5.2	0.5	0.5	None	None	None	Left	1-3 ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-101	Focus	5/16/2011	3:43:01 PM	12832139.60	284036.31	775.5037	0.0315	0.0442	0.0543	0.6	1.0	1.1	Heavy	Heavy	Common	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-102	Focus	5/16/2011	3:46:51 PM	12832126.83	284033.70	775.5443	0.0463	0.0637	0.0787	0.8	0.7	0.8	Moderate	Moderate	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-103	Focus	5/16/2011	3:50:26 PM	12832081.95	284049.33	775.4566	0.0367	0.0499	0.0619	1.0	0.7	0.7	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand	SHEENFOUNDONARVL	
MLDE-D-104	Focus	5/16/2011	3:54:26 PM	12832062.57	284149.08	775.5205	0.0452	0.0631	0.0776	1.2	0.8	0.9	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Silt over Sand		
MLDE-D-105	Focus	5/16/2011	3:56:17 PM	12832051.71	284151.22	775.4031	0.0383	0.0519	0.0645	1.2	0.8	1.1	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Organic		
MLDE-D-293	Focus	5/19/2011	12:13:00 PM	12832234.08	284113.72	775.43	0.046	0.079	0.092	1.0	0.8	1.0	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	25%-50%	Soft Sediment		
MLDE-D-294	Focus	5/19/2011	12:24:00 PM	12832347.50	284084.09	775.68	0.040	0.063	0.075	1.2	1.9	1.9	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	5%-25%	Soft Sediment		
MLDE-D-295	Focus	5/19/2011	12:26:00 PM	12832355.00	284105.52	775.66	0.036	0.056	0.066	1.3	1.0	1.4	Heavy	Heavy	Many	Island	<1ft/sec	No	Delta	None	Soft Sediment		
MLDE-D-309	Focus	5/19/2011	2:23:00 PM	12831940.16	284159.66	775.41	0.034	0.094	0.100	1.4	2.1	2.5	Light	Light	Few	Island	<1ft/sec	No	Delta	None	Sand & Silt		
MLDE-D-440	Focus	5/20/11	10:15:09 AM	12832291.97	283981.72	775.6061	0.0588	0.0757	0.0959	3.0	0.5	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-D-441	Focus	5/20/11	10:18:15 AM	12832216.92	283914.48	775.3634	0.085	0.1204	0.1474	4.2	0.8	1.6	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand	SHN PRIOR TO AGG	
MLDE-D-442	Focus	5/20/11	10:31:06 AM	12832394.52	283850.82	775.946	5.5269	7.7575	9.525	2.5	1.0	1.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-443	Focus	5/20/11	10:34:48 AM	12832377.44	283920.73	775.5935	0.068	0.0819	0.1065	5.4	3.3	3.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	SHN PRIOR TO AGG	
MLDE-D-444	Focus	5/20/11	10:37:50 AM	12832401.84	283976.30	775.5732	0.0989	0.1212	0.1564	3.0	1.0	1.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-D-590	Focus	5/26/2011	9:34:44 AM	12832262.07	284595.32	780.8699	8.5483	11.6297	14.4335	2.3	0.3	1.1	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-591	Focus	5/26/2011	9:40:23 AM	12832289.08	284428.35	775.4162	0.0729	0.1357	0.154	1.4	0.5	0.7	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	5%-25%	Silt over Sand		
MLDE-D-592	Focus	5/26/2011	9:43:51 AM	12832268.93	284426.91	774.9406	0.0527	0.0916	0.1057	1.5	0.6	0.7	Moderate	Moderate	Common	Island	1-3 ft/sec		Delta	<5%	Silt over Sand		
MLDE-D-593	Focus	5/26/2011	9:45:58 AM	12832285.30	284422.30	775.2712	0.0587	0.1052	0.1205	1.5	0.5	0.5	Light	Light	Few	Island	1-3 ft/sec		Delta	5%-25%	Silt over Sand		
MLDE-D-594	Focus	5/26/2011	9:50:18 AM	12832246.23	284406.84	774.4146	0.0672	0.1171	0.1351	1.4	0.6	1.3	Moderate	Light	Common	Island	1-3 ft/sec		Delta	<5%	Silt over Sand		
MLDE-D-595	Focus	5/26/2011	9:53:01 AM	12832243.04	284394.27	774.5649	0.0865	0.1581	0.1802	1.4	0.7	0.7	Light	Light	Few	Island	1-3 ft/sec		Delta	<5%	Silt over Sand		
MLDE-D-596	Focus	5/26/2011	9:58:22 AM	12832338.92	284295.54	774.7812	0.0879	0.1426	0.1676	3.1	0.3	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-597	Focus	5/26/2011	10:07:11 AM	12832382.78	284165.83	774.8344	0.0496	0.0863	0.0996	1.8	0.6	0.7	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand	PHOTO 1-2	
MLDE-D-598	Focus	5/26/2011	10:12:06 AM	12832380.85	284180.69	775.3439	0.0471	0.0674	0.0822	1.8	0.3	0.4	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVE SHEEN UPSTRM	
MLDE-D-599	Focus	5/26/2011	10:14:53 AM	12832349.11	284148.54	774.8935	0.0479	0.0672	0.0826	1.6	0.6	0.6	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDE-D-600	Focus	5/26/2011	10:21:58 AM	12832404.57	284245.25	775.3244	0.0451	0.0611	0.0759	2.2	0.2	0.2	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDE-D-629	Focus	5/26/2011	3:45:48 PM	12831865.61	284039.64	775.2075	0.7013	1.123	1.324	1.2	1.8	3.0	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	5%-25%	Soft Sediment		
MLDE-D-630	Focus	5/26/2011	3:50:44 PM	12831785.33	284072.95	774.8738	0.0387	0.0582	0.0699	1.0	2.0	3.5	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	5%-25%	Soft Sediment		LILLY PAD AREA
MLDE-D-631	Focus	5/26/2011	3:52:39 PM	12831781.96	284081.10	775.5731	0.0389	0.0575	0.0694	1.6	1.8	2.7	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	5%-25%	Soft Sediment		LILLY PAD AREA
MLDE-D-632	Focus	5/26/2011	3:59:35 PM	12831683.91	284125.69	775.415	0.7653	1.0043	1.2627	1.3	2.2	3.2	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	5%-25%	Soft Sediment		LILLY PAD AREA
MLDE-D-633	Focus	5/26/2011	4:01:03 PM	12831680.31	284132.81	775.4025	0.0324	0.0457	0.0561	1.4	2.3	3.4	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Soft Sediment	PHOTO 3-4	
MLDE-E-649	Focus	5/26/2011	10:44:35 AM	12832425.00	284383.13	775.7253	0.0459	0.0588	0.0746	1.3	0.6	0.7	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Silt over Sand		
MLDE-E-650	Focus	5/26/2011	10:47:22 AM	12832394.41	284461.39	775.6806	0.0499	0.0614	0.0791	0.9	0.9	1.5	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-651	Focus	5/26/2011	10:49:51 AM	12832368.14	284471.31	775.6312	0.0388	0.0475	0.0613	0.9	1.3	1.6	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-E-652	Focus	5/26/2011	10:53:31 AM	12832283.62	284480.71	775.6684	0.0569	0.0688	0.0893	1.5	0.5	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-653	Focus	5/26/2011	11:42:54 AM	12831932.67	284081.12	775.7373	0.0393	0.0539	0.0667	1.7	2.3	2.7	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-654	Focus	5/26/2011	11:46:57 AM	12831946.79	283973.75	775.7705	0.036	0.0531	0.0641	3.4	1.4	2.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-655	Focus	5/26/2011	1:30:46 PM	12831972.96	284026.56	774.6956	0.0545	0.0628	0.0832	3.1	0.8	1.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-656	Focus	5/26/2011	1:35:04 PM	12832005.51	284217.45	775.4664	0.0518	0.065	0.0831	1.3	1.3	2.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-657	Focus	5/26/2011	1:37:27 PM	12832139.91	284201.19	775.6171	0.0551	0.0662	0.0861	1.1	1.1	1.2	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-E-658	Focus	5/26/2011	1:42:36 PM	12832072.33	284010.53	775.6572	0.0477	0.0584	0.0755	1.5	1.5	1.8	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-659	Focus	5/26/2011	1:45:46 PM	12832062.00	283928.81	775.7045	0.0465	0.0558	0.0726	3.6	0.5	0.9	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-660	Focus	5/26/2011	1:49:23 PM	12832174.76	283913.31	775.6671	0.0526	0.0542	0.0755	4.2	0.7	1.0	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-661	Focus	5/26/2011	1:53:04 PM	12832222.00	284063.64	775.7263	0.0439	0.0583	0.073	1.4	0.7	0.9	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDE-E-662	Focus	5/26/2011	2:01:33 PM	12832226.57	283976.26	775.6619	0.0461	0.067	0.0814	3.5	0.6	1.1	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-663	Focus	5/26/2011	2:06:31 PM	12832295.64	284215.41	775.6819	0.0365	0.0538	0.065	2.1	0.2	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-E-664	Focus	5/26/2011	2:09:18 PM	12832414.97	284120.32	775.6895	0.0434	0.0657	0.0787	1.4	0.9	1.9	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-666	Focus	5/26/2011	2:25:29 PM	12832419.47	284009.14	775.7438	0.0283	0.0486	0.0563	2.0	2.0	2.4	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-E-667	Focus	5/26/2011	2:32:03 PM	12832376.51	284076.91	775.819	0.0328	0.0605	0.0688	1.2	1.7	2.3	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-762	Focus	6/6/2011	10:11:24 AM	12831406.87	284190.48	775.7148	0.0513	0.0654	0.0831	3.0	0.0	0.5	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand	MOD SURFACE SHN	
MLDE-B-763	Focus	6/6/2011	10:21:18 AM	12831420.47	284164.11	775.7357	0.0539	0.0646	0.0842	3.1	0.0	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Gravel		
MLDE-B-764	Focus	6/6/2011	10:30:45 AM	12831489.52	284208.43	775.7398	0.0464	0.0551	0.072	2.4	1.1	1.2	Moderate	Heavy	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-765	Focus	6/6/2011	10:37:31 AM	12831585.25	284208.70	775.7637	0.0477	0.0583	0.0753	1.1	-99.0	-99.0	Moderate	Heavy	None	Island			Delta		Soft Sediment	DEL	
MLDE-B-766	Focus	6/6/2011	10:44:12 AM	12831591.68	284264.29	775.7665	0.0521	0.0659	0.084	1.7	-99.0	-99.0	Moderate	Heavy	Few	Island			Delta		Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDE-B-767	Focus	6/6/2011	10:50:58 AM	12831652.87	284179.42	775.7547	0.0448	0.0593	0.0743	1.3	2.9	3.5	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-768	Focus	6/6/2011	10:58:00 AM	12831729.93	284275.86	775.7597	0.0276	0.0375	0.0466	2.1	2.0	3.1	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-769	Focus	6/6/2011	11:04:41 AM	12831692.61	284245.32	775.9431	0.0312	0.0446	0.0544	1.7	-99.0	-99.0	Moderate	Moderate	Few	Island			Delta		Soft Sediment		
MLDE-B-770	Focus	6/6/2011	11:12:54 AM	12831635.57	284336.11	775.7595	0.0308	0.0465	0.0558	2.5	1.5	1.6	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-771	Focus	6/6/2011	11:22:14 AM	12831747.41	284103.08	775.6533	0.0364	0.0582	0.0687	1.1	0.6	3.2	Moderate	Heavy	Few	Island	No	No	Delta	50%-75%	Soft Sediment		
MLDE-B-772	Focus	6/6/2011	11:29:41 AM	12831741.46	284188.57	775.7364	0.0357	0.058	0.0681	1.2	-99.0	-99.0	Moderate	Moderate	Few	Island			Delta	None	Soft Sediment		
MLDE-B-773	Focus	6/6/2011	11:35:00 AM	12831787.32	284215.41	775.7198	0.0325	0.0555	0.0643	1.3	-99.0	-99.0	Moderate	Heavy	Few	Island			Delta		Soft Sediment		
MLDE-B-774	Focus	6/6/2011	11:44:13 AM	12831891.62	284138.55	775.642	0.0415	0.0727	0.0837	1.3	1.2	2.6	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Soft Sediment		
MLDE-B-775	Focus	6/6/2011	1:06:54 PM	12831804.94	284264.71	775.6005	0.0397	0.0511	0.0648	2.0	1.0	2.8	Light	Moderate	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-776	Focus	6/6/2011	1:12:36 PM	12831888.51	284255.94	775.534	0.0533	0.0717	0.0894	1.7	-99.0	-99.0	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-777	Focus	6/6/2011	1:22:58 PM	12831961.35	284255.44	775.8073	0.049	0.0727	0.0877	1.8	0.6	1.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-778	Focus	6/6/2011	1:28:20 PM	12831857.00	284364.97	775.7409	0.0447	0.0693	0.0825	2.3	0.4	0.7	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-779	Focus	6/6/2011	1:41:50 PM	12831494.12	284136.11	775.7235	0.0308	0.053	0.0613	2.9	0.1	0.3	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-780	Focus	6/6/2011	1:51:54 PM	12831621.00	284172.56	775.5824	0.0392	0.1019	0.1092	1.2	1.8	1.9	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-781	Focus	6/6/2011	2:00:54 PM	12831626.77	284070.13	775.9183	0.0341	0.081	0.0879	3.3	0.2	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-782	Focus	6/6/2011	2:12:56 PM	12831644.84	284098.37	775.7708	0.0326	0.0971	0.1025	2.0	1.4	1.4	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-783	Focus	6/6/2011	2:33:25 PM	12831713.85	284039.80	775.5226	0.0284	0.0691	0.0747	3.0	0.9	1.0	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-784	Focus	6/6/2011	2:40:30 PM	12831814.73	284054.65	775.7411	0.0346	0.0732	0.0809	1.4	0.2	0.2	Heavy	Moderate	Many	Island	No	No	Delta	50%-75%	Sand & Silt		
MLDE-B-785	Focus	6/6/2011	2:48:17 PM	12831842.92	284102.36	775.6658	0.0368	0.0681	0.0775	1.4	0.6	1.8	Moderate	Heavy	Few	Island	<1ft/sec	<1 ft/sec	Delta	50%-75%	Soft Sediment		
MLDE-B-786	Focus	6/6/2011	2:57:44 PM	12831918.00	284028.44	775.6541	0.0291	0.0466	0.0549	1.3	1.3	1.6	Heavy	Heavy	Common	Island	No	No	Delta	25%-50%	Soft Sediment		
MLDE-B-787	Focus	6/6/2011	3:12:43 PM	12832047.74	283984.10	775.6225	0.0378	0.0552	0.0668	3.3	0.3	0.4	Light	Light	Few	Island	No	No	Delta	None	Sand & Silt		
MLDE-B-788	Focus	6/6/2011	3:17:22 PM	12832169.65	283972.27	775.6085	0.0287	0.0406	0.0497	3.5	0.3	0.5	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand		
MLDE-B-789	Focus	6/6/2011	3:23:40 PM	12832175.23	283993.29	775.7103	0.0354	0.0486	0.0601	3.1	0.8	0.8	Moderate	Moderate	Few	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Sand & Silt		
MLDE-B-790	Focus	6/6/2011	3:29:48 PM	12832124.31	284123.55	775.6729	0.0347	0.0462	0.0578	1.6	0.2	0.2	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Sand & Silt		
MLDE-B-791	Focus	6/6/2011	3:33:55 PM	12832079.41	284147.78	775.6914	0.0277	0.0363	0.0456	-99.0	-99.0	-99.0	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	DELINEATION POINT	
MLDE-B-792	Focus	6/6/2011	3:37:32 PM	12832019.81	284173.05	775.6375	0.0346	0.0451	0.0569	1.5	0.2	0.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Soft Sediment	DELINEATION POINT	
MLDE-B-793	Focus	6/6/2011	3:43:48 PM	12832129.60	284160.59	775.558	0.0303	0.0392	0.0496	1.6	0.4	0.4	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-794	Focus	6/6/2011	3:48:44 PM	12832085.47	284201.48	775.6158	0.0367	0.0425	0.0562	1.4	1.3	1.7	Moderate	Heavy	Few	Island	1-3 ft/sec	1-3 ft/sec	Delta	<5%	Soft Sediment		
MLDE-B-795	Focus	6/6/2011	4:22:18 PM	12832129.80	284235.36	775.6326	0.0351	0.0546	0.0649	1.6	0.8	0.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-796	Focus	6/6/2011	4:32:04 PM	12832091.91	284289.10	775.5828	0.0321	0.0559	0.0645	2.6	0.1	0.2	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand	DELINEATION POINT	
MLDE-B-797	Focus	6/7/2011	10:21:59 AM	12832273.98	284114.96	775.553	0.0442	0.0518	0.0681	1.3	0.6	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-798	Focus	6/7/2011	10:32:11 AM	12832376.59	284035.13	775.5813	0.048	0.0582	0.0754	2.4	1.0	1.0	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDE-B-799	Focus	6/7/2011	10:38:48 AM	12832354.90	283994.99	775.7319	1.1264	1.4144	1.8081	3.2	0.3	0.4	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt	DELINEATION POINT	
MLDE-B-800	Focus	6/7/2011	10:44:26 AM	12832480.76	283999.23	777.2534	1.1867	1.5423	1.946	2.9	0.8	0.9	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDE-B-801	Focus	6/7/2011	11:12:05 AM	12832427.54	283984.79	775.6033	0.0411	0.0641	0.0761	3.3	0.4	0.4	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt	DELINEATIOM POINT	
MLDE-B-805	Focus	6/7/2011	11:40:59 AM	12832381.74	284395.39	775.4305	0.0326	0.0596	0.0679	1.8	0.6	0.6	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Soft Sediment		
MLDE-B-806	Focus	6/7/2011	11:46:21 AM	12832329.98	284372.45	770.6405	1.1327	2.0436	2.3366	1.6	1.3	1.3	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	25%-50%	Sand & Silt	DELINEATION POINT	
MLDE-B-807	Focus	6/7/2011	1:20:16 PM	12832248.73	284452.43	775.4951	0.0327	0.0489	0.0588	1.5	0.4	0.4	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	5%-25%	Soft Sediment		
MLDE-B-808	Focus	6/7/2011	1:27:10 PM	12832373.23	284452.51	775.4527	0.0385	0.0613	0.0724	0.9	0.6	1.1	Moderate	Moderate	Few	Island	No	No	Delta	50%-75%	Sand & Silt		VEG ISLAND
MLDE-B-809	Focus	6/7/2011	1:31:27 PM	12832389.08	284446.93	774.0143	1.6291	2.7019	3.1551	1.1	0.6	1.2	Light	Light	Few	Island	No	No	Delta	5%-25%	Soft Sediment		
MLDE-B-810	Focus	6/7/2011	1:37:07 PM	12832436.03	284449.73	775.6103	1.3712	2.3442	2.7158	1.4	0.0	0.1	Heavy	Heavy	Many	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-01	Focus	5/17/2011	8:52:42 AM	12831524.46	284477.28	775.6076	0.0324	0.0583	0.0667	2.8	0.7	1.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-02	Focus	5/17/2011	9:02:38 AM	12831584.67	284485.12	775.9418	0.0307	0.0551	0.0631	2.2	0.8	0.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDW-D-03	Focus	5/17/2011	9:05:40 AM	12831602.19	284514.98	775.666	0.0336	0.0596	0.0684	1.8	1.2	1.2	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDW-D-04	Focus	5/17/2011	9:11:48 AM	12831684.75	284480.99	775.5603	0.031	0.0554	0.0635	1.6	1.3	1.8	Light	Light	Few	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-05	Focus	5/17/2011	9:22:25 AM	12831656.47	284568.60	775.4529	0.0359	0.0613	0.071	1.5	2.3	2.6	Moderate	Moderate	Common	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-06	Focus	5/17/2011	9:25:53 AM	12831650.86	284587.98	766.0867	7.1755	10.2397	12.5035	1.8	1.4	1.7	Light	Light	Few	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Soft Sediment		EPAPHOTOS
MLDW-D-07	Focus	5/17/2011	9:31:31 AM	12831577.13	284630.50	764.2927	7.2831	9.9414	12.3237	2.0	1.1	1.1	Light	Light	Few	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Soft Sediment		EPAPHOTOS
MLDW-D-08	Focus	5/17/2011	9:38:33 AM	12831530.03	284652.03	775.5296	0.0274	0.0426	0.0507	2.3	1.2	1.7	Light	Light	Few	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-09	Focus	5/17/2011	9:49:14 AM	12831495.64	284373.03	775.6414	0.031	0.0438	0.0536	2.4	0.8	0.8	Moderate	Moderate	Common	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Silt over Sand	PHOTOS1AND2	
MLDW-D-10	Focus	5/17/2011	9:51:02 AM	12831483.88	284392.10	775.4515	0.0324	0.0452	0.0556	2.5	0.8	0.9	Light	Light	Few	Island	1-3 ft/sec	1-3 ft/sec	Delta	None	Silt over Sand		
MLDW-D-11	Focus	5/17/2011	9:54:42 AM	12831495.27	284343.64	775.4979	0.0486	0.067	0.0827	2.1	0.7	0.9	Light	Light	Few	Island	1-3 ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDW-E-12	Focus	5/26/2011	11:03:23 AM	12831643.99	284563.57	775.6927	0.0681	0.0815	0.1062	1.8	3.0	3.5	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-E-13	Focus	5/26/2011	11:07:34 AM	12831670.58	284594.31	775.8084	0.0638	0.0765	0.0996	1.9	1.6	3.3	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-E-14	Focus	5/26/2011	11:17:28 AM	12831521.14	284412.97	775.6846	0.0352	0.042	0.0548	2.9	0.4	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-E-15	Focus	5/26/2011	11:20:31 AM	12831412.98	284365.26	775.6203	0.0413	0.0501	0.0649	1.8	1.3	1.4	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDW-E-16	Focus	5/26/2011	11:31:52 AM	12831372.56	284316.75	775.6228	0.0604	0.0814	0.1014	2.0	1.8	2.6	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-E-17	Focus	5/26/2011	11:35:16 AM	12831313.67	284276.47	775.6085	0.065	0.0861	0.1078	2.9	0.6	0.8	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-18	Focus	5/27/2011	9:14:50 AM	12831352.23	284240.99	775.6309	0.0302	0.0543	0.0621	2.7	0.6	2.7	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDW-D-19	Focus	5/27/2011	10:04:53 AM	12831174.18	284512.74	775.5755	0.043	0.068	0.0804	2.7	0.8	2.1	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDW-D-20	Focus	5/27/2011	10:13:46 AM	12831269.38	284538.92	775.3646	0.0426	0.0594	0.0731	3.1	0.6	1.7	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDW-D-21	Focus	5/27/2011	10:20:01 AM	12831235.27	284416.23	775.3729	0.0327	0.0439	0.0548	2.1	1.7	1.7	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDW-D-22	Focus	5/27/2011	10:26:15 AM	12831392.15	284518.07	775.5276	0.0402	0.0571	0.0699	2.8	0.8	0.9	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDW-D-23	Focus	5/27/2011	10:34:05 AM	12831493.32	284462.76	775.413	0.0448	0.0594	0.0744	2.7	2.1	2.2	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
MLDW-D-24	Focus	5/27/2011	10:39:39 AM	12831591.55	284416.90	775.377	0.0538	0.069	0.0875	2.8	0.4	0.5	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
MLDW-D-25	Focus	5/27/2011	10:47:37 AM	12831486.54	284253.23	775.4587	0.0476	0.0577	0.0748	1.5	1.9	2.1	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand	LIGHT SHEEN ARRIVE	
MLDW-D-26	Focus	5/27/2011	10:54:48 AM	12831433.01	284349.17	775.5232	0.0489	0.0587	0.0764	1.9	1.0	1.2	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Silt over Sand	MOD SHEEN ON ARRIVE	
MLDW-D-27	Focus	5/27/2011	11:01:27 AM	12831552.54	284290.40	775.4513	0.0487	0.0584	0.076	1.8	0.8	1.5	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Soft Sediment		
MLDW-B-28	Focus	6/6/2011	4:42:04 PM	12831652.43	284532.46	775.5638	0.0298	0.0588	0.066	1.5	1.2	2.8	Heavy	Heavy	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt		
MLDW-B-29	Focus	6/6/2011	4:47:19 PM	12831713.23	284585.55	775.6026	0.0324	0.0682	0.0755	1.9	1.7	2.3	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-B-30	Focus	6/6/2011	4:53:23 PM	12831613.50	284582.21	775.566	0.0326	0.0745	0.0814	1.7	1.7	1.8	Moderate	Moderate	Common	Island	No	No	Delta	None	Sand & Silt		
MLDW-B-31	Focus	6/6/2011	4:57:42 PM	12831532.92	284617.73	776.507	1.3772	2.054	2.473	2.1	1.7	2.1	Moderate	Moderate	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Sand & Silt	DELINEATION POINT	
MLDW-D-32	Focus	6/10/2011	4:51:32 PM	12831540.79	284384.07	775.6021	0.0291	0.0721	0.0777	2.6	0.4	0.9	Light	Light	Few	Island	<1ft/sec		Delta	None	Sand & Silt		
MLDW-D-33	Focus	6/10/2011	11:26:51 AM	12831391.11	284674.87	775.6842	0.0295	0.0514	0.0592	2.5	1.6	1.6	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-34	Focus	6/10/2011	11:13:46 AM	12831459.65	284644.47	775.6262	0.0307	0.0514	0.0599	2.1	1.4	1.6	Moderate	Moderate	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		SOFTSED IS CLAY
MLDW-D-35	Focus	6/10/2011	11:33:36 AM	12831322.51	284713.61	775.6073	0.0304	0.055	0.0628	2.9	1.8	2.1	Moderate	Light	Common	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		SEE MIKE R
MLDW-D-36	Focus	6/10/2011	11:44:08 AM	12831284.20	284742.11	775.6073	0.0352	0.0606	0.0701	3.1	2.0	2.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-37	Focus	6/10/2011	11:53:14 AM	12831412.60	284802.63	775.7374	0.0377	0.0593	0.0702	2.8	1.9	2.0	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDW-D-38	Focus	6/10/2011	12:00:53 PM	12831373.84	284741.66	775.7622	0.0312	0.0472	0.0566	3.3	0.9	0.9	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Location ID	Type	Date	Time	Easting	Northing	Elevation (ft)	Position Quality (ft)	Height Quality (ft)	3DCQ (ft)	Water Depth (ft)	One-hand Push (ft)	Two-hand Push (ft)	Submerged Oil Category	Sheen	Globules	Bank	Velocity	Bed Velocity	River Setting	Aquatic Vegetation	Bed Type	Submerged Oil Comments	Location Comments
MLDW-D-39	Focus	6/10/2011	12:13:19 PM	12831315.32	284630.40	775.4363	0.1	0.0953	0.1381	2.7	1.2	1.9	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
MLDW-D-40	Focus	6/10/2011	12:25:31 PM	12831232.37	284685.22	775.6461	0.0533	0.0639	0.0832	3.3	0.3	0.4	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
MLDW-B-41	Focus	6/11/11	10:18:44 AM	12831521.48	284569.76	775.5013	0.0341	0.042	0.0541	1.6	2.0	2.2	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment	LIGHT EXISTING SHEEN	
MLDW-B-42	Focus	6/11/11	10:10:16 AM	12831357.83	284457.04	775.4855	0.0339	0.0403	0.0527	2.8	0.5	0.5	Light	Light	Few	Center	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand	LIGHT EXISTING SHEEN	
MLDW-B-43	Focus	6/11/11	10:05:35 AM	12831399.36	284422.61	775.5014	0.0444	0.0576	0.0728	2.5	0.7	0.9	Moderate	Moderate	Few	Center	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand	LIGHT EXISTING	
MLDW-B-44	Focus	6/11/11	9:59:32 AM	12831315.46	284350.58	775.6107	0.0803	0.1077	0.1344	2.4	1.1	1.2	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand	EXISTING SHEEN PT	
MP 37.50-37.75																							
MLD-D-17	Other	5/27/2011	9:46:46 AM	12830876.82	284158.90	777.0908	1.0787	1.865	2.1545	1.6	1.1	1.5	None	None	None	Left	1-3 ft/sec		Delta	None	Soft Sediment	SHEEN ON ARRIVE	
MLD-D-19	Other	5/27/2011	9:58:11 AM	12830925.88	284505.79	775.6764	0.0458	0.077	0.0896	3.7	0.8	1.6	None	None	None	Island	1-3 ft/sec		Delta	None	Silt over Sand		
37.51LG-B-01	Other	6/11/11	3:10:27 PM	12830992.90	284828.82	772.9179	9.9546	14.3092	17.4312	8.8	0.1	0.2	None	None	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand	TOO DEEP TO MEASURE	
37.52LG-B-01	Other	6/11/11	3:54:16 PM	12830945.85	285002.13	775.3856	0.0358	0.0563	0.0667	5.4	0.7	0.7	Light	Light	None	Center	<1ft/sec	<1 ft/sec	Mid-Channel	None	Sand		
37.75N-D-01	Focus	6/9/2011	2:22:09 PM	12830582.05	285334.73	775.3716	0.0603	0.1575	0.1687	1.0	0.3	0.4	None	None	None	Right	1-3 ft/sec		Delta	None	Sand	MOD SHEEN ARRIVAL	
37.75N-D-02	Focus	6/9/2011	2:30:55 PM	12830635.82	285278.70	775.2832	0.0345	0.0737	0.0814	2.1	0.4	0.5	Light	Light	Few	Center	1-3 ft/sec		Delta	None	Sand & Gravel	LGHT SHEEN ARRIVL GLOBS UNDER 1MM THIN SILT ON TOP	
37.75N-D-03	Focus	6/9/2011	2:35:17 PM	12830699.49	285337.30	775.6118	0.1178	0.1459	0.1875	1.1	0.2	0.3	Light	Light	Few	Right	1-3 ft/sec		Delta	None	Silt over Sand	SHEEN ON ARRIVAL	ORGANIC CONTENT
37.75N-D-04	Focus	6/9/2011	2:47:35 PM	12830818.81	285289.99	774.3805	2.5318	4.1297	4.844	1.4	0.0	0.1	Light	Light	Few	Right	1-3 ft/sec		Delta	5%-25%	Sand & Gravel	SHEEN ON ARRIVAL	
37.75N-D-05	Focus	6/9/2011	2:51:16 PM	12830828.27	285234.82	775.6566	0.0283	0.0441	0.0524	3.3	0.1	0.1	Light	Light	Few	Center	1-3 ft/sec		Delta	None	Sand & Silt	SHEEN ON ARRIVAL	
37.75N-D-06	Focus	6/9/2011	2:56:59 PM	12830896.78	285283.86	759.8812	2.6197	3.6542	4.4963	1.4	0.1	0.2	Light	Light	Few	Right	1-3 ft/sec		Delta	5%-25%	Sand & Gravel	SHEEN ON ARRIVAL SOME SILT	
37.75S-B-01	Other	6/9/2011	4:28:46 PM	12830723.93	284859.23	775.5271	0.0231	0.0491	0.0542	1.6	0.5	0.5	Light	Light	Few	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		
37.75S-B-02	Other	6/9/2011	4:33:05 PM	12830520.67	284889.39	775.5016	0.039	0.1	0.1073	1.5	0.7	0.7	None	None	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Silt over Sand		POINT IN TREE
37.75S-B-03	Other	6/9/2011	4:37:12 PM	12830424.14	284813.29	775.58	0.0329	0.0714	0.0787	1.0	1.4	1.5	Light	Light	None	Island	<1ft/sec	<1 ft/sec	Delta	None	Soft Sediment		
37.75S-B-04	Other	6/9/2011	4:42:56 PM	12830378.90	284743.43	775.5088	0.0355	0.0831	0.0903	0.6	2.5	2.6	None	None	None	Island	No		Delta	25%-50%	Soft Sediment		
37.75S-B-05	Other	6/9/2011	4:46:37 PM	12830370.15	284673.61	775.4831	0.0493	0.1184	0.1283	0.8	1.3	1.3	None	None	None	Left	No		Delta	25%-50%	Silt over Sand		
37.75S-B-06	Other	6/9/2011	4:50:15 PM	12830228.30	284682.69	775.5728	0.0354	0.0898	0.0965	1.9	1.7	1.7	None	None	None	Island	No		Delta	<5%	Soft Sediment		
37.75S-B-07	Other	6/9/2011	4:53:33 PM	12830309.95	284745.89	775.5309	0.0193	0.0573	0.0604	1.0	2.4	2.5	None	None	None	Island	No		Delta	<5%	Soft Sediment		
37.75S-B-08	Other	6/9/2011	4:57:16 PM	12830370.96	284833.83	775.5015	0.0319	0.0859	0.0917	1.2	1.2	1.2	Light	Light	Few	Island	No		Delta	None	Soft Sediment		
37.75S-D-09	Other	6/9/2011	4:30:31 PM	12830301.75	284898.83	775.1962	0.0259	0.0513	0.0575	1.0	0.6	0.7	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	50%-75%	Organic	SHEEN ON ARRIVAL	
37.75S-D-10	Other	6/9/2011	4:37:10 PM	12830188.05	284847.94	775.6547	0.0351	0.0757	0.0835	1.5	0.1	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Organic	ORGANIC OVER SAND	
37.75S-D-11	Other	6/9/2011	4:40:42 PM	12830123.85	284836.98	775.6741	0.0405	0.1016	0.1094	1.6	0.5	0.6	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	ORGANIC OVER SAND SHEEN ON ARRIVAL PHOTOS 13 AND 14	
37.75S-D-12	Other	6/9/2011	4:45:33 PM	12830067.33	284766.48	775.6203	0.0662	0.1781	0.19	1.3	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Organic	ORGANIC OVER SAND SHEEN ON ARRIVAL GRAVEL	
37.75S-D-13	Other	6/9/2011	4:49:50 PM	12829990.06	284635.88	775.5193	0.0338	0.0854	0.0918	2.4	1.9	2.0	Moderate	Moderate	Common	Left	1-3 ft/sec		Delta	None	Organic		
37.75S-D-14	Other	6/9/2011	4:53:58 PM	12830053.00	284685.77	775.4251	0.0682	0.1622	0.1759	1.7	0.1	0.2	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Gravel		
37.75S-D-15	Other	6/9/2011	4:58:11 PM	12830110.59	284668.63	775.4724	0.0312	0.0956	0.1005	0.7	1.3	1.4	Heavy	Heavy	Many	Island	1-3 ft/sec		Delta	None	Organic	SHEEN ON ARRIVAL PHOTOS 15 AND 16	
37.75S-D-16	Other	6/9/2011	5:02:18 PM	12830194.00	284618.25	775.4987	0.9097	2.0806	2.2708	0.9	0.5	0.6	Light	Light	Few	Left	1-3 ft/sec		Delta	None	Organic	SHEEN ON ARRIVAL ORGANIC OVER SAND	
37.75S-D-17	Other	6/10/2011	12:02:54 PM	12830063.60	284821.55	775.7115	0.044	0.0655	0.0789	2.1	0.3	0.5	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Organic	SHEEN FROM ANCHOR	ORGANIC OVER SAND
37.75S-D-18	Other	6/10/2011	12:08:23 PM	12830046.81	284891.82	775.7149	0.0429	0.0603	0.074	2.7	1.5	1.7	Heavy	Moderate	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
37.75S-D-19	Other	6/10/2011	12:12:05 PM	12830035.44	284902.05	775.4647	0.0602	0.083	0.1025	2.8	2.8	3.0	Heavy	Moderate	Many	Island	<1ft/sec		Delta	None	Silt over Sand	OPP SIDE OF BOOM SHEEN ON ARRIVAL SOME ORGANICS	
37.75S-D-20	Other	6/10/2011	11:51:00 AM	12830067.52	284623.81	775.7305	0.051	0.0845	0.0987	1.5	0.8	1.0	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Organic	SHEEN FROM ANCHOR	
37.75S-D-21	Other	6/10/2011	11:31:34 AM	12829974.05	284694.59	775.6089	0.0424	0.077	0.0879	2.8	0.2	0.2	Heavy	Moderate	Many	Island	<1ft/sec		Delta	None	Organic		SAND UNDER ORGANC
37.75S-D-22	Other	6/10/2011	11:29:05 AM	12829977.97	284690.66	775.6977	0.046	0.084	0.0958	2.8	0.3	0.4	Heavy	Moderate	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR PHOTOS 1 AND 2	
37.75S-D-23	Other	6/10/2011	11:39:18 AM	12829943.60	284724.31	775.536	0.0463	0.0819	0.0941	2.8	1.0	1.2	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand	SOME ORGANIC PHOTOS 3 AND 4	
37.75S-D-24	Other	6/10/2011	11:41:53 AM	12829932.53	284738.16	775.5297	0.0438	0.0765	0.0881	2.7	0.6	1.7	Heavy	Heavy	Many	Island	<1ft/sec		Delta	None	Silt over Sand		SOME ORGANIC OPP SIDE OF BOOM
37.75S-D-25	Other	6/10/2011	11:14:45 AM	12829927.55	284621.21	776.6326	1.1849	2.1273	2.435	2.6	1.7	1.8	Light	Light	Few	Island	<1ft/sec		Delta	None	Silt over Sand	SHEEN FROM ANCHOR	
37.75S-D-26	Other	6/11/11	10:50:45 AM	12830352.09	284897.42	775.2705	0.0365	0.0545	0.0656	1.3	0.2	0.3	Light	Light	Few	Center	<1ft/sec		Delta	None	Silt over Sand	SHNONARRIVAL	
37.75S-D-27	Other	6/11/11	10:46:07 AM	12830314.20	284937.39	775.3959	0.0362	0.0524	0.0637	2.0	0.3	0.5	Light	Light	Few	Center	<1ft/sec		Delta	None	Silt over Sand		
37.75S-D-28	Other	6/11/11	10:41:21 AM	12830244.62	284899.29	775.256	0.0384	0.0537	0.066	1.0	0.1	0.2	Light	Light	Few	Island	<1ft/sec		Delta	None	Organic	SHNONARRIVAL	
37.75S-D-29	Other	6/11/11	10:33:25 AM	12830117.22	284886.11	775.3089	0.0388	0.0524	0.0652	1.9	0.8	0.9	Heavy	Heavy	Many	Left	<1ft/sec		Delta	None	Silt over Sand		PHOTO 3 4
37.75S-D-30	Other	6/11/11	10:59:26 AM	12830119.39	284932.04	775.2219	0.0293	0.0462	0.0547	2.5	2.0	2.2	Heavy	Heavy	Many	Center	<1ft/sec		Delta	None	Silt over Sand		
37.75S-D-31	Other	6/11/11	9:58:53 AM	12829873.60	284905.31	775.1155	0.0487	0.0579	0.0756	4.9	1.8	2.9	Light	Light	Few	Center	<1ft/sec		Delta	None	Silt over Sand		
37.75S-D-32	Other	6/11/11	10:07:33 AM	12829871.43	284795.95	775.0295	0.0503	0.0611	0.0791	2.7	1.0	1.3	Heavy	Heavy	Many	Center	<1ft/sec		Delta	None	Silt over Sand		SOME ORGANIC, PHOTOS 1 2
37.75S-D-33	Other	6/11/11	10:14:59 AM	12829812.56	284800.46	775.2401	0.0395	0.0479	0.062	3.0	-99.0	1.0	Heavy	Moderate	Many	Center	<1ft/sec		Delta	None	Silt over Sand	1-2 MM GLOBS	
37.75S-D-34	Other	6/11/11	10:23:09 AM	12829686.45	284812.89	775.0599	0.0454	0.0574	0.0732	4.7	3.4	3.8	Light	Light	Few	Center	<1ft/sec		Delta	None	Silt over Sand		
37.75S-D-35	Other	6/13/11	4:32:45 PM	12830230.25	284923.34	775.5247	0.0244	0.0615	0.0662	2.4	0.2	0.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
37.75S-D-36	Other	6/13/11	4:40:33 PM	12830120.97	284988.62	775.3869	0.0233	0.0582	0.0627	4.4	3.6	4.1	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
37.75S-D-37	Other	6/13/11	4:49:23 PM	12830059.28	284989.14	775.426	0.0301	0.0757	0.0815	5.7	1.8	3.1	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		
37.75S-D-38	Other	6/13/11	5:00:32 PM	12829890.69	285066.15	775.6135	0.0332	0.084	0.0903	6.9	0.2	0.4	None	None	None	Island	1-3 ft/sec		Delta	None	Sand		
37.75S-D-39	Other	6/13/11	5:05:40 PM	12829960.77	284998.39	775.534	0.0322	0.0778	0.0842	7.0	1.3	1.3	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand	SAND OVR GRAVEL	
37.75S-D-40	Other	6/13/11	5:09:25 PM	12829711.00	284959.57	775.5425	0.0319	0.0744	0.081	6.2	0.8	1.4	Light	Light	Few	Island	1-3 ft/sec		Delta	None	Sand & Silt		

Note: Coordinates in NAD83 Michigan State Plane South International Feet, Vertical Datum NAVD88
Records shaded based on submerged oil category.

Table 2. In-Channel Poling Delineation Table
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
Kalamazoo River														
2.55 North	Moderate	<0.1 acres	1,500 sq ft	4/26/11	30-60%	10-20	2	0	1.7 ft	0.4 ft	0.5 ft	<1 ft/sec	None	Known Sub Site 2.55R1 and O&M location 2.75 I1
4.15 South A	Heavy	0.2 acres	7,900 sq ft	5/10/11	30-60%	20+	0	1	3.4 ft	0.6 ft	1.2 ft	>3 ft/sec	None	Known Sub Site 4.15L1
4.15 South B	Moderate	0.35 acres	15,400 sq ft	5/1/11	30-60%	1-20	2	0	2.2 ft	1.6 ft	2.4 ft	1-3 ft/sec	None	New Site associated with O&M location 4.25 IE
4.29T	Moderate	0.35 acres	15,200 sq ft	5/10/11	30-60%	10-20	1	0	1.0 ft	0.2 ft	0.2 ft	1-3 ft/sec	<5%	New Site associated with O&M location 4.50 IF
4.3 South A	Heavy	0.8 acres	35,300 sq ft	5/10/11	30-100%	10-20+	3	2	1.8 ft	1.0 ft	2.3 ft	None-3 ft/sec	None-<5%	Known Sub Site 4.30L1 and O&M site 4.50 L1
4.3 South B	Heavy	1.1 acres	47100 sq ft	5/10/11	<30-100%	0-20	3	1	1.1 ft	2.0 ft	3.4 ft	None-<1 ft/sec	None-50%	Known Sub Site 4.55L1
4.8 North	Heavy	0.1 acres	5,000 sq ft	5/17/11	30-100%	10-20+	1	1	2.9 ft	1.1 ft	2.0 ft	None-<1 ft/sec	None	New Site
4.9 North	Heavy	<0.1 acres	3,600 sq ft	5/1/11	30-100%	1-20	1	1	1.2 ft	1.6 ft	3.0 ft	1-3 ft/sec	None-75%	Known Sub Site 4.90R1
5.25 North	Heavy	5.0 acres	218,500 sq ft	5/17/11	<30-100%	1-20+	15	17	3.6 ft	2.9 ft	3.9 ft	None->3 ft/sec	None-<5%	Known Sub Site 5.25R1
5.25 South	Moderate	<0.1 acres	800 sq ft	5/1/11	30-60%	10-20	1	0	4.0 ft	3.5 ft	4.0 ft	1-3 ft/sec	None	New Site
5.55 North/5.35 North	Heavy	5.45 acres	237,300 sq ft	5/17/11	<30-100%	1-20+	23	9	2.1 ft	2.9 ft	3.8 ft	None-<1 ft/sec	None-25%	Associated with 5.55 N (both Sub and O&M)
5.55 North	Heavy	0.25 acres	10,100 sq ft	4/30/11	30-100%	1-20+	4	4	2.1 ft	1.6 ft	1.8 ft	<1 ft/sec	None	Known Sub Site 5.55R1
5.75 Northwest	Heavy	0.45 acres	18,900 sq ft	5/16/11	60-100%	20+	0	5	4.8 ft	1.7 ft	2.5 ft	None	None-25%	New Site
5.75 South A	Heavy	0.7 acres	29,500 sq ft	5/16/11	30-100%	10-20+	1	4	3.3 ft	2.0 ft	3.2 ft	None-<1 ft/sec	None	New Site
5.75 South B	Heavy	1.0 acres	43,000 sq ft	5/16/11	30-100%	10-20+	6	8	3.4 ft	2.0 ft	3.5 ft	None-<1 ft/sec	None	Known Sub Site 5.75.L1
5.8 South	Heavy	<0.1 acres	2,600 sq ft	5/16/11	60-100%	20+	0	2	4.3 ft	1.2 ft	1.2 ft	1-3 ft/sec	None	Known Sub Site 5.80 L1
5.9 South A	Heavy	<0.1 acres	1,700 sq ft	5/11/11	30-100%	1-20	1	1	1.2 ft	0.2 ft	0.4 ft	<1 ft/sec	None	New Site associated with O&M location 6.00 L2
6.41T	Heavy	<0.1 acres	2,900 sq ft	5/11/11	30-100%	10-20	2	1	1.3 ft	0.5 ft	0.6 ft	<1-3 ft/sec	None	New Site
6.45 North A	Moderate	0.15 acres	6,600 sq ft	5/11/11	30-100%	1-20	3	0	1.3 ft	0.6 ft	0.9 ft	<1 ft/sec	None	Known Sub Site 6.45R1
7.0 R1 A	Moderate	<0.1 acres	<100 sq ft	4/30/11	30-60%	1-10	1	0	2.1 ft	0.3 ft	0.4 ft	<1 ft/sec	None	Known O&M Site 7.0R1
7.0 R1 B	Heavy	<0.1 acres	2,600 sq ft	5/11/11	30-100%	10-20+	1	2	1.9 ft	0.1 ft	0.3 ft	<1 ft/sec	None	Known O&M Site 7.0R1
7.0 South	Moderate	<0.1 acres	300 sq ft	5/3/11	30-60%	10-20	1	0	1.1 ft	0.5 ft	0.6 ft	<1 ft/sec	None	Known Sub Site 7.0L1
7.45 North	Moderate	<0.1 acres	1,700 sq ft	5/4/11	30-100%	1-20	2	0	0.5 ft	0.5 ft	0.6 ft	None to <1 ft/se	None	New Site
8.25 Islands	Moderate	0.25 acres	11,500 sq ft	5/5/11	30-60%	1-10	1	0	1.0 ft	0.4 ft	0.5 ft	<1 ft/sec	50-75%	New Site
8.5L1/L2*	Heavy	<0.1 acres	2,300 sq ft	5/16/11	30-100%	1-20+	2	4	0.3 ft	0.8 ft	1.0 ft	<1-3 ft/sec	<5-50%	New Site associated with O&M sites 8.50 L1 and L2
8.6 North	Heavy	<0.1 acres	1,100 sq ft	5/3/11	30-100%	10-20+	2	1	0.8 ft	0.8 ft	1.0 ft	<1 ft/sec	None-25%	New Site
8.75 North A	Moderate	<0.1 acres	500 sq ft	5/11/11	<30%	10-20	1	0	1.3 ft	0.8 ft	1.0 ft	<1 ft/sec	None	New Site
8.75 North B	Heavy	<0.1 acres	4,000 sq ft	5/11/11	30-100%	1-20+	1	2	1.0 ft	0.7 ft	0.9 ft	<1 ft/sec	None	New Site associated with O&M site 9.00 I1
9.15 South	Moderate	<0.1 acres	2,500 sq ft	5/3/11	30-60%	1-10	1	0	0.7 ft	1.0 ft	1.1 ft	<1 ft/sec	<5%	New Site
9.65 North	Moderate	<0.1 acres	800 sq ft	4/19/11	30-60%	1-10	1	0	0.5 ft	0.5 ft	0.7 ft	<1 ft/sec	5-25%	New Site
10.4 North	Heavy	0.1 acres	4,600 sq ft	5/17/11	30-100%	10-20+	1	7	0.9 ft	1.1 ft	1.2 ft	None-<1 ft/sec	None-50%	New Site
10.5L2	Heavy	0.4 acres	18,200 sq ft	5/7/11	30-100%	10-20+	2	5	1.2 ft	0.8 ft	1.0 ft	None to <1 ft/se	None-50%	Known O&M Site 10.5L2
10.5 North	Heavy	<0.1 acres	2,900 sq ft	5/6/11	30-100%	20+	0	3	0.6 ft	0.8 ft	0.9 ft	<1 ft/sec	N/A	New Site

Table 2. In-Channel Poling Delineation Table
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
10.75L2	Heavy	0.2 acres	8,600 sq ft	5/4/11	30-100%	1-20+	2	4	1.7 ft	0.6 ft	0.8 ft	<1 ft/sec	None	Known O&M Site 10.75L2
10.8 North	Moderate	<0.1 acres	2,300 sq ft	5/4/11	30-60%	10-20	2	0	1.5 ft	1.9 ft	3.8 ft	<1 ft/sec	None	New Site
11.75 South	Heavy	<0.1 acres	3,500 sq ft	5/11/11	60-100%	20+	0	1	0.7 ft	0.8 ft	2.1 ft	<1 ft/sec	None	New Site
11.75R1*	Heavy	0.1 acres	4,800 sq ft	5/17/11	<30-100%	10-20+	5	2	1.5 ft	1.0 ft	1.3 ft	None	None	New Site associated with O&M site 11.75 R1
12.5 A	Heavy	<0.1 acres	1,500 sq ft	5/6/11	60-100%	20+	0	1	0.9 ft	0.4 ft	0.5 ft	<1 ft/sec	None	Known Sub Site 12.50R1
12.5 B	Heavy	0.1 acres	4,700 sq ft	5/6/11	60-100%	20+	0	1	0.8 ft	0.9 ft	0.9 ft	<1 ft/sec	<5%	Known Sub Site 12.50R1
13.25 North	Moderate	0.1 acres	5,300 sq ft	5/7/11	30-60%	10-20	2	0	1.5 ft	1.1 ft	2.7 ft	None to <1 ft/se	5-50%	New Site
13.5L1	Heavy	0.25 acres	10,500 sq ft	5/7/11	30-100%	10-20+	1	1	2.7 ft	1.1 ft	1.5 ft	<1 ft/sec	None-5%	Known Sub Site 13.5L1
13.6 North	Heavy	0.15 acres	7,400 sq ft	5/7/11	30-60%	10-20+	1	1	0.9 ft	0.6 ft	0.8 ft	<1 ft/sec	None	New Site
13.7 North	Heavy	0.15 acres	4,500 sq ft	5/7/11	<30-60%	10-20+	2	2	0.9 ft	1.2 ft	1.6 ft	None	5->75%	New Site
13.8 South	Heavy	0.5 acres	24,700 sq ft	5/6/11	<30-100%	10-20+	4	3	2.2 ft	0.6 ft	1.0 ft	None-<1 ft/sec	None	Known Sub Site 13.8L1
13.85 North	Moderate	<0.1 acres	1,900 sq ft	5/11/11	30-60%	10-20	2	0	0.7 ft	0.5 ft	0.7 ft	1-3 ft/sec	None-<5%	New Site
13.95 North	Heavy	0.15 acres	6,700 sq ft	5/6/11	<30-100%	1-20	3	1	1.0 ft	0.3 ft	0.5 ft	None	None	New Site
14.2 South	Heavy	0.5 acres	22,100 sq ft	5/10/11	<30-100%	1-20+	3	2	1.5 ft	0.5 ft	0.8 ft	None-<1 ft/sec	None-25%	New Site
14.28T	Heavy	0.1 acres	5,400 sq ft	5/10/11	60-100%	20+	0	1	1.7 ft	0.6 ft	1.0 ft	<1 ft/sec	None	New Site
14.35 North	Heavy	2.2 acres	96,300 sq ft	5/10/11	<30-100%	1-20+	5	16	1.7 ft	0.5 ft	0.9 ft	None-<1 ft/sec	None	New Site
14.40T A	Moderate	0.1 acres	5,100 sq ft	5/10/11	30-60%	10-20	1	0	1.9 ft	0.1 ft	0.2 ft	None	None	New Site
14.40T B	Heavy	0.4 acres	17,900 sq ft	5/12/11	60-100%	1-20+	1	1	2.5 ft	0.7 ft	0.8 ft	<1 ft/sec	None	New Site
14.6 South	Heavy	0.4 acres	17,300 sq ft	5/11/11	30-100%	10-20+	2	2	3.6 ft	0.5 ft	0.8 ft	<1 ft/sec	None	New Site
14.75	Heavy	1.25 acres	54,000 sq ft	5/10/11	<30-100%	1-20+	3	10	1.8 ft	0.6 ft	0.9 ft	None-<1 ft/sec	None-50%	Known Sub Site 14.75R1
14.9 South	Moderate	0.2 acres	9,800 sq ft	5/7/11	30-60%	1-10	2	0	0.8 ft	2.2 ft	2.4 ft	None	None	Known Sub Site 14.90L1
15.05 South A	Moderate	0.15 acres	6,200 sq ft	5/7/11	60-100%	1-10	1	0	1.1 ft	2.4 ft	2.7 ft	<1 ft/sec	5-25%	Known Sub Site 15.0L1
15.05 South B	Heavy	0.3 acres	13,400 sq ft	5/12/11	30-100%	1-20+	2	1	0.9 ft	0.5 ft	0.9 ft	<1 ft/sec	None	Known Sub Site 15.0L1
South Mill Pond A	Heavy	1.05 acres	45,500 sq ft	5/12/11	30-100%	1-20+	4	3	0.7 ft	1.3 ft	1.4 ft	None-<1 ft/sec	None-50%	New Site
South Mill Pond B	Moderate	0.15 acres	6,700 sq ft	5/6/11	60-100%	1-10	1	0	1.0 ft	2.4 ft	5.0 ft	None	50-75%	New Site
15.25	Heavy	0.15 acres	5,500 sq ft	5/10/11	30-100%	1-20+	2	2	2.0 ft	0.8 ft	1.2 ft	<1-3 ft/sec	None	Known Sub Site 15.25R1
15.4	Heavy	0.25 acres	11,400 sq ft	5/10/11	60-100%	20+	0	1	0.9 ft	2.6 ft	3.4 ft	<1 ft/sec	>75%	New Site associated with 15.50 L1
North Mill Pond*	Heavy	3.0 acres	131,700 sq ft	5/16/11	30-100%	1-20+	9	3	1.0 ft	2.1 ft	3.7 ft	<1 ft/sec	None-50%	Known Sub Site 15.5R1
Dickman Rd Bridge SE	Heavy	<0.1 acres	3,800 sq ft	5/9/11	60-100%	10-20	0	1	1.6 ft	0.6 ft	0.9 ft	<1 ft/sec	5-25%	Known Sub Site 15.5R1
15.6*	Heavy	2.0 acres	88,400 sq ft	5/18/11	30-100%	1-20+	6	25	1.1 ft	1.9 ft	2.6 ft	<1 -3 ft/sec	None->75%	New Site
18.5 South	Moderate	0.4 acres	17,300 sq ft	5/6/11	<30%	10-20	2	0	0.5 ft	0.6 ft	0.9 ft	<1 ft/sec	None	Known Sub Site 18.50L1
18.8 Center	Heavy	<0.1 acres	3,200 sq ft	5/7/11	60-100%	20+	0	1	2.0 ft	0.6 ft	0.7 ft	<1 ft/sec	<5%	Known Sub Site 18.80
19.0 Center	Moderate	<0.1 acres	3,100 sq ft	5/12/11	30-60%	10-20	1	0	3.6 ft	0.4 ft	1.1 ft	<1 ft/sec	None	New Site
19.15 South	Heavy	<0.1 acres	2,300 sq ft	5/12/11	60-100%	10-20+	0	2	2.5 ft	0.5 ft	0.8 ft	<1 ft/sec	None	New Site

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
19.25L1 A	Heavy	0.65 acres	27,500 sq ft	5/7/11	30-100%	10-20+	9	2	1.1 ft	0.6 ft	0.8 ft	None-<1 ft/sec	None	Known O&M Site 19.25L1
19.25L1 B	Heavy	0.25 acres	11,100 sq ft	5/7/11	30-100%	10-20+	1	2	1.5 ft	0.6 ft	0.7 ft	None-<1 ft/sec	None	Known O&M Site 19.25L1
19.45 North	Heavy	<0.1 acres	2,300 sq ft	5/12/11	60-100%	20+	0	1	1.2 ft	0.2 ft	0.3 ft	<1 ft/sec	None	Known Sub Site 19.45R1
19.47T	Moderate	0.15 acres	7,100 sq ft	5/7/11	30-60%	10-20	1	0	1.1 ft	0.4 ft	0.7 ft	<1 ft/sec	None	New Site
19.85 South	Moderate	0.1 acres	5,400 sq ft	5/8/11	30-60%	10-20	2	0	1.6 ft	0.6 ft	1.1 ft	None-<1 ft/sec	None	New Site
20.1 South	Heavy	0.95 acres	40,900 sq ft	5/12/11	<30-100%	1-20+	4	2	1.6 ft	0.4 ft	0.6 ft	None-<1 ft/sec	None-25%	Known Sub Site 20.10L1
20.6 South	Heavy	<0.1 acres	3,600 sq ft	5/9/11	30-100%	1-20+	1	1	2.0 ft	0.3 ft	0.5 ft	None	None-<5%	Known Sub Site 20.6L1 and former control point D5
Custer Dr Bridge SW	Moderate	<0.1 acres	2,800 sq ft	5/5/11	<30-60%	1-20	2	0	2.1 ft	0.5 ft	0.6 ft	None to <1 ft/se	None	New Site
21.4	Heavy	0.2 acres	7,700 sq ft	5/9/11	30-100%	10-20+	0	2	5.1 ft	0.4 ft	0.8 ft	<1-3 ft/sec	None	Known O&M Site 21.5R1
21.5R1	Heavy	4.1 acres	176,600 sq ft	5/5/11	<30-100%	1-20+	10	4	2.7 ft	0.6 ft	1.1 ft	None to <1 ft/se	None	Known O&M Site 21.5R1
21.54T	Moderate	<0.1 acres	2,600 sq ft	5/10/11	<30%	10-20	1	0	1.4 ft	0.2 ft	0.4 ft	<1 ft/sec	None	New Site
21.55 South	Heavy	0.3 acres	13,400 sq ft	5/9/11	30-100%	10-20+	1	2	2.4 ft	1.1 ft	2.0 ft	<1 ft/sec	None	New Site
21.92T	Heavy	0.15 acres	6,000 sq ft	5/10/11	60-100%	20+	0	1	3.3 ft	0.5 ft	0.6 ft	<1 ft/sec	None	New Site
22.0 South	Moderate	0.2 acres	8,700 sq ft	5/10/11	30-60%	10-20	2	0	2.7 ft	0.5 ft	0.5 ft	<1 ft/sec	None	Known Sub Site 22.15L1
22.15 South	Heavy	0.55 acres	22,600 sq ft	5/10/11	30-100%	10-20+	1	4	1.8 ft	0.5 ft	1.1 ft	<1 ft/sec	None	Known Sub Site 22.15L1
22.2 North	Heavy	0.4 acres	17,800 sq ft	5/17/11	30-100%	10-20+	1	3	1.3 ft	0.6 ft	0.8 ft	<1-3 ft/sec	None	Known Sub Site 22.2 North
22.4 North	Heavy	0.4 acres	16,400 sq ft	5/8/11	30-100%	10-20+	3	1	1.8 ft	0.7 ft	0.9 ft	<1 ft/sec	None	New Site
22.75 North A	Moderate	<0.1 acres	2,400 sq ft	5/9/11	30-60%	1-20	2	0	1.5 ft	0.3 ft	0.4 ft	<1 ft/sec	None	Known Sub Site 22.75R1
22.75 North B	Heavy	0.2 acres	8,500 sq ft	5/9/11	30-100%	10-20	1	1	2.5 ft	0.6 ft	1.1 ft	<1 ft/sec	None-<5%	Known Sub Site 22.75R1
22.75 North C	Moderate	<0.1 acres	1,100 sq ft	5/9/11	30-60%	10-20	1	0	2.7 ft	0.1 ft	0.2 ft	<1 ft/sec	None	New Site
23.0 South A	Heavy	0.1 acres	4,900 sq ft	5/17/11	60-100%	20+	1	1	2.2 ft	0.5 ft	0.7 ft	<1 ft/sec	None	New Site
23.0 South B	Moderate	0.2 acres	8,200 sq ft	5/9/11	30-60%	10-20	1	0	1.1 ft	1.5 ft	3.0 ft	<1 ft/sec	None	New Site
23.15 North	Moderate	<0.1 acres	1,500 sq ft	5/8/11	30-60%	10-20	2	0	1.7 ft	0.5 ft	0.6 ft	<1 ft/sec	None	Known Sub Site 23.15R1
23.83T	Heavy	0.25 acres	11,400 sq ft	5/8/11	<30-100%	20+	1	3	3.3 ft	0.6 ft	0.6 ft	None-3 ft/sec	None	New Site
23.85 North	Moderate	<0.1 acres	3,100 sq ft	5/8/11	<30-60%	10-20	2	0	1.5 ft	0.5 ft	0.6 ft	None	None	New Site
23.97T	Moderate	<0.1 acres	600 sq ft	5/9/11	30-60%	10-20	1	0	0.6 ft	0.9 ft	1.4 ft	<1 ft/sec	None	New Site
24.34T	Moderate	0.3 acres	13,900 sq ft	5/8/11	30-60%	10-20	3	0	3.8 ft	1.0 ft	1.2 ft	<1 ft/sec	None	New Site
24.65 South	Heavy	0.3 acres	13,700 sq ft	5/17/11	30-100%	10-20	4	1	2.4 ft	0.9 ft	1.0 ft	None-<1 ft/sec	None	New Site
24.72T	Heavy	<0.1 acres	3,000 sq ft	5/8/11	60-100%	20+	0	1	1.8 ft	0.8 ft	0.9 ft	<1 ft/sec	None	Known Sub Site 24.75
24.82T	Heavy	<0.1 acres	1,900 sq ft	5/8/11	60-100%	20+	0	1	1.9 ft	0.9 ft	1.0 ft	None	None	New Site
24.92T	Heavy	<0.1 acres	1,000 sq ft	5/9/11	60-100%	20+	0	1	1.4 ft	0.9 ft	1.0 ft	<1 ft/sec	None	New Site
25.47T	Moderate	<0.1 acres	3,500 sq ft	5/9/11	30-60%	10-20	3	0	2.5 ft	1.2 ft	1.4 ft	None-<1 ft/sec	None	Known Sub Site 25.5
25.7 North*	Heavy	0.1 acres	4,900 sq ft	6/9/11	30-60%	10-20+	2	2	1.8 ft	1.0 ft	2.2 ft	None-<1 ft/sec	None	New Site
25.85 North*	Moderate	0.3 acres	12,800 sq ft	5/26/11	30-60%	1-20	7	0	3.0 ft	0.6 ft	0.7 ft	<1-3 ft/sec	None-<5%	Know sub oil 25.85 North

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26.0 A	Heavy	1.0 acres	43,200 sq ft	5/10/11	<30-100%	10-20+	2	2	1.3 ft	0.6 ft	0.9 ft	None-<1 ft/sec	None-25%	Known Sub Site 26.0 R1
26.0 B*	Moderate	<0.1 acres	2,100 sq ft	6/7/11	<30%	10-20	1	0	2.3 ft	0.9 ft	1.6 ft	None	5-25%	New Site
26.1 Southeast	Heavy	0.25 acres	9,900 sq ft	5/10/11	30-100%	10-20+	3	1	2.5 ft	0.6 ft	0.8 ft	None-3 ft/sec	None	Known Sub Site 26.01 R1
26.25	Heavy	1.6 acres	69,300 sq ft	5/24/11	<30-100%	10-20+	8	5	2.6 ft	0.5 ft	1.0 ft	None-<1 ft/sec	None-50%	Known Sub Site 26.25
26.3 Northwest	Heavy	0.1 acres	4,900 sq ft	5/10/11	<30-100%	10-20+	2	1	1.4 ft	0.4 ft	0.5 ft	None-<1 ft/sec	None	Known Sub Site 26.30 R1
26.65 A	Heavy	0.2 acres	8,600 sq ft	5/17/11	60-100%	20+	0	1	2.9 ft	0.9 ft	1.2 ft	<1 ft/sec	None	Known Sub Site 26.25
26.65 B*	Heavy	0.1 acres	4,800 sq ft	5/24/11	30-100%	10-20+	1	1	2.0 ft	0.5 ft	0.9 ft	N/A	None	
26.80T	Moderate	<0.1 acres	3,200 sq ft	5/18/11	30-60%	1-20	2	0	1.2 ft	0.8 ft	0.9 ft	<1 ft/sec	None	New Site
26.8 Southeast	Moderate	0.15 acres	6,800 sq ft	5/10/11	30-60%	10-20	2	0	2.5 ft	0.8 ft	1.1 ft	<1 ft/sec	None	Known Sub Site 26.80L1
27.1 South	Heavy	0.15 acres	7,400 sq ft	5/18/11	<30-100%	10-20+	3	2	3.7 ft	0.6 ft	1.0 ft	<1-3 ft/sec	None	Known Sub Site 27.1 South / East
27.3 North	Heavy	0.35 acres	16,000 sq ft	5/10/11	<30-100%	10-20+	7	1	2.0 ft	0.9 ft	1.2 ft	None to <1 ft/se	None	Known Sub Site 27.30L1
27.5 Southeast A	Heavy	0.35 acres	15,500 sq ft	5/11/11	<30-100%	10-20+	2	2	1.7 ft	0.8 ft	0.9 ft	<1 ft/sec	None	Known Sub Site 27.50L1
27.5 Southeast B	Heavy	0.4 acres	16,600 sq ft	5/18/11	30-100%	10-20+	1	3	2.1 ft	0.6 ft	0.8 ft	None to <1 ft/se	None	Known Sub Site 27.50L1
27.5 Northwest	Heavy	0.15 acres	7,000 sq ft	5/11/11	30-100%	10-20+	3	1	2.5 ft	1.0 ft	1.1 ft	None to <1 ft/se	None	Known Sub Site 26.65R1
27.65 South	Moderate	<0.1 acres	1,000 sq ft	5/11/11	30-60%	10-20	1	0	1.3 ft	0.4 ft	0.6 ft	1-3 ft/sec	None	Known Sub Site 27.65L1
27.7 North*	Heavy	0.2 acres	9,200 sq ft	6/6/11	30-100%	0-20	7	3	1.6 ft	0.1 ft	0.4 ft	None-<1 ft/sec	None-<5%	Know Sub oil site 26.65
27.90	Heavy	0.3 acres	13,400 sq ft	5/18/11	60-100%	20+	0	5	2.5 ft	0.9 ft	1.4 ft	<1-3 ft/sec	None	Known Sub Site 27.9
28.14T	Moderate	<0.1 acres	200 sq ft	5/5/11	<30%	10-20	1	0	1.2 ft	0.6 ft	1.4 ft	None	25-50%	Known Sub Site 28.15L1
28.15 South	Heavy	0.15 acres	5,700 sq ft	5/5/11	<30-60%	10-20+	2	1	3.0 ft	1.2 ft	1.4 ft	None to <1 ft/se	None	Known Sub Site 28.15L1
28.25 A	Heavy	0.1 acres	4,600 sq ft	5/12/11	<30-100%	10-20+	1	1	1.9 ft	0.5 ft	1.2 ft	None	None	Known O&M Site 28.25R1
28.25 B	Moderate	<0.1 acres	3,300 sq ft	5/12/11	30-60%	10-20	1	0	2.0 ft	0.3 ft	0.4 ft	None	None	Known O&M Site 28.25R1
28.25 C	Heavy	<0.1 acres	400 sq ft	5/12/11	30-100%	10-20+	1	1	0.8 ft	0.7 ft	1.1 ft	None	None	Known O&M Site 28.25R1
28.25 D	Heavy	0.2 acres	9,600 sq ft	5/12/11	30-100%	10-20+	4	2	1.7 ft	0.9 ft	1.1 ft	None-<1 ft/sec	None	Known O&M Site 28.25R1
28.39T	Moderate	<0.1 acres	1,400 sq ft	5/5/11	30-60%	10-20	1	0	3.2 ft	0.9 ft	1.0 ft	<1 ft/sec	None	New Site
28.45 South*	Heavy	0.4 acres	16,900 sq ft	6/9/11	30-100%	1-20+	8	7	1.3 ft	1.2 ft	1.7 ft	None-<1 ft/sec	None-25%	Known Sub Site 28.45L1
28.47T	Heavy	<0.1 acres	1,400 sq ft	5/11/11	60-100%	20+	0	1	1.4 ft	0.5 ft	0.7 ft	1-3 ft/sec	None	Known Sub Site 28.50
28.5 South	Heavy	0.1 acres	4,400 sq ft	5/18/11	60-100%	20+	0	1	1.9 ft	0.5 ft	0.7 ft	<1 ft/sec	None	Known Sub Site 28.5 South
28.6 North	Heavy	0.3 acres	14,000 sq ft	5/13/11	60-100%	20+	0	3	2.0 ft	0.8 ft	1.0 ft	<1 ft/sec	None	Known Sub Site 28.60R1
28.75 North	Heavy	0.1 acres	5,000 sq ft	5/13/11	60-100%	10-20	0	2	1.1 ft	0.5 ft	0.8 ft	<1 ft/sec	None	Known Sub Site 28.75R1
28.8 North	Heavy	0.3 acres	12,800 sq ft	5/18/11	60-100%	10-20+	0	5	1.7 ft	0.7 ft	1.4 ft	None-<1 ft/sec	None	Known Sub Site 28.80 R1
28.9 South	Heavy	0.5 acres	21,100 sq ft	5/18/11	30-100%	10-20+	1	5	1.2 ft	0.5 ft	1.1 ft	None-3 ft/sec	None-25%	Known Sub Site 28.90 L1
29.05 South	Heavy	0.4 acres	18,300 sq ft	5/19/11	60-100%	20+	0	4	2.4 ft	0.7 ft	1.1 ft	<1 ft/sec	None	New Site
29.1 North A*	Moderate	0.15 acres	6,200 sq ft	6/7/11	30-100%	1-20+	2	2	2.6 ft	0.3 ft	0.7 ft	None-<1 ft/sec	None	New Site
29.1 North B	Heavy	<0.1 acres	2,500 sq ft	5/19/11	60-100%	20+	0	1	1.9 ft	0.9 ft	1.0 ft	<1 ft/sec	None	New Site

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
29.1 North C*	Moderate	<0.1 acres	3,000 sq ft	6/7/11	<30-60%	10-20	4	0	2.9 ft	0.1 ft	0.3 ft	<1-3 ft/sec	None	New Site
29.18T	Heavy	0.25 acres	10,500 sq ft	5/19/11	30-100%	10-20+	1	2	2.4 ft	1.0 ft	1.1 ft	<1 ft/sec	None	New Site
29.23T	Moderate	0.15 acres	6,100 sq ft	5/19/11	30-60%	10-20	3	0	2.5 ft	0.6 ft	0.9 ft	<1 ft/sec	None	New Site
29.5 North	Moderate	0.2 acres	8,800 sq ft	5/19/11	30-100%	None-10	3	0	3.3 ft	0.5 ft	0.5 ft	<1 ft/sec	None	Known Sub Site 29.50 North / South
29.75 North	Moderate	0.5 acres	21,300 sq ft	5/13/11	30-60%	1-10	4	0	2.9 ft	1.0 ft	1.7 ft	None	None-<5%	New Site
30.05 North	Moderate	0.4 acres	18,000 sq ft	5/16/11	30-100%	None-10	4	0	4.5 ft	0.4 ft	0.7 ft	<1 ft/sec	None	New Site
30.3 North	Moderate	0.2 acres	8,300 sq ft	5/19/11	30-60%	10-20	1	0	3.9 ft	0.3 ft	0.6 ft	None	None	Know Sub Site 30.25 R1
30.7 North	Heavy	0.6 acres	25,500 sq ft	5/16/11	30-100%	10-20+	2	6	2.5 ft	0.7 ft	1.5 ft	<1-3 ft/sec	None-25%	Know Sub Site 30.75 L1
30.8 South A	Heavy	0.4 acres	17,900 sq ft	5/16/11	30-100%	10-20+	1	1	2.8 ft	0.8 ft	1.3 ft	<1 ft/sec	None	Know Sub Site 30.75 L1
30.8 south B	Moderate	0.45 acres	19,700 sq ft	5/19/11	<30-60%	1-20	3	0	2.3 ft	0.7 ft	1.6 ft	None-<1 ft/sec	None	Know Sub Site 30.75 L1
30.89T A	Moderate	0.15 acres	5,900 sq ft	5/16/11	30-60%	1-10	2	0	2.5 ft	0.4 ft	0.7 ft	<1 ft/sec	None	New Site
30.89T B	Heavy	0.2 acres	8,900 sq ft	5/18/11	60-100%	20+	0	1	2.8 ft	0.6 ft	2.7 ft	<1 ft/sec	None	New Site
31.0	Heavy	<0.1 acres	3,300 sq ft	5/19/11	60-100%	20+	0	1	3.8 ft	0.7 ft	1.0 ft	<1 ft/sec	None	Known Sub Site 31.00 R1
31.25 North*	Heavy	<0.1 acres	4,000 sq ft	6/8/11	30-100%	10-20	1	1	0.9 ft	0.9 ft	1.9 ft	<1 ft/sec	<5%	Know Sub oil site 31.25 North
31.8 South A	Heavy	0.5 acres	22,800 sq ft	5/18/11	30-100%	1-20	2	1	2.8 ft	0.4 ft	0.5 ft	None-3 ft/sec	None-<5%	Known Sub Site 31.80 South
31.8 South B	Moderate	0.3 acres	13,300 sq ft	5/20/11	30-60%	10-20	2	0	3.7 ft	0.5 ft	0.7 ft	1-3 ft/sec	None	Known Sub Site 31.80 South
31.8 South C	Moderate	0.50 acres	22,100 sq ft	5/20/11	<30-60%	1-20	4	0	3.6 ft	0.6 ft	0.7 ft	<1-3 ft/sec	None	Known Sub Site 31.90 South
32.5 North	Heavy	0.15 acres	5,600 sq ft	5/17/11	30-100%	10-20	1	1	3.3 ft	0.6 ft	1.0 ft	<1-3 ft/sec	None	New Site
32.65 Southeast	Heavy	0.25 acres	10,000 sq ft	5/23/11	30-100%	10-20+	1	2	2.0 ft	0.6 ft	1.2 ft	<1 ft/sec	None-25%	New Site
32.75 Northwest*	Heavy	0.65 acres	27,300 sq ft	5/17/11	30-100%	20+	1	6	3.0 ft	0.6 ft	0.8 ft	<1-3 ft/sec	None-<5%	Known Sub Site 32.75 NW
32.75 Southeast	Moderate	<0.1 acres	1,100 sq ft	5/17/11	30-60%	10-20	1	0	2.3 ft	0.2 ft	0.4 ft	1-3 ft/sec	None	New Site
33.0 A	Heavy	0.5 acres	22,500 sq ft	5/17/11	60-100%	10-20+	0	3	2.2 ft	0.5 ft	0.9 ft	None	None	Known Sub Site 33.00 A
33.0 B	Heavy	0.55 acres	23,700 sq ft	5/25/11	30-100%	None-20+	3	6	2.4 ft	0.8 ft	1.3 ft	None-3 ft/sec	None	Known Sub site 33.00 B and 33.00 L1 O&M Site
33.2 South	Heavy	0.65 acres	27,400 sq ft	5/26/11	30-100%	10-20+	2	3	4.0 ft	1.3 ft	1.8 ft	None-3 ft/sec	None	New Site
33.25 A	Heavy	0.1 acres	5,000 sq ft	5/25/11	60-100%	20+	0	1	2.0 ft	1.0 ft	1.1 ft	1-3 ft/sec	None	New Site
33.25 B	Heavy	0.5 acres	20,500 sq ft	5/26/11	<30-100%	10-20+	1	3	2.1 ft	0.6 ft	0.9 ft	<1 ft/sec	None	Known Sub site 33.25
33.25 C	Heavy	0.3 acres	12,500 sq ft	5/18/11	60-100%	10-20+	0	3	2.7 ft	1.0 ft	1.1 ft	<1-3 ft/sec	None	New Site
33.5 South	Heavy	1.1 acres	46,900 sq ft	5/26/11	30-100%	1-20+	2	5	3.1 ft	0.7 ft	1.6 ft	None-3 ft/sec	None	Known Sub site 33.5
33.55T	Heavy	0.35 acres	15,200 sq ft	5/26/11	60-100%	20+	0	2	2.2 ft	0.7 ft	1.2 ft	<1 ft/sec	None	New Site
33.63T	Heavy	0.5 acres	21,400 sq ft	5/26/11	30-100%	10-20+	1	3	2.5 ft	0.2 ft	0.3 ft	<1-3 ft/sec	None	New Site
33.65 North	Heavy	0.45 acres	20,300 sq ft	5/26/11	30-100%	10-20+	1	1	3.7 ft	0.1 ft	0.6 ft	<1-3 ft/sec	None	New Site
33.72T	Heavy	0.5 acres	21,800 sq ft	5/26/11	30-100%	10-20+	2	3	4.9 ft	0.6 ft	0.7 ft	<1-3 ft/sec	None	New Site
33.75 North	Heavy	0.3 acres	13,300 sq ft	5/26/11	60-100%	20+	0	3	3.3 ft	0.6 ft	0.8 ft	<1-3 ft/sec	None	Known Sub site 33.75 North
33.89T	Heavy	0.2 acres	7,700 sq ft	5/26/11	30-100%	10-20+	1	1	4.4 ft	0.4 ft	0.7 ft	<1-3 ft/sec	None	New Site

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
33.95 South	Heavy	0.9 acres	38,400 sq ft	5/26/11	30-100%	10-20+	1	5	3.4 ft	0.8 ft	1.2 ft	<1-3 ft/sec	None	New Site
34.0	Moderate	0.5 acres	22,600 sq ft	5/19/11	30-100%	1-20	3	0	2.9 ft	0.5 ft	1.2 ft	<1 ft/sec	None	Known Sub Site 34.00
34.2 Southeast	Moderate	0.2 acres	7,700 sq ft	5/20/11	60-100%	None-10	3	0	1.9 ft	0.6 ft	0.8 ft	<1 ft/sec	None-<5%	New Site
34.48T*	Heavy	0.45 acres	20,000 sq ft	6/6/11	<30-100%	1-20+	4	15	1.5 ft	0.9 ft	1.8 ft	None-3 ft/sec	None-50%	New Site
34.87T	Heavy	0.2 acres	9,200 sq ft	5/27/11	30-100%	10-20+	1	2	2.3 ft	0.6 ft	0.8 ft	None-<1 ft/sec	None	New Site
34.93T	Moderate	<0.1 acres	3,300 sq ft	6/5/11	30-60%	10-20	1	0	2.4 ft	0.3 ft	0.5 ft	<1 ft/sec	None	New Site
35.1 North	Heavy	0.25 acres	10,300 sq ft	5/27/11	30-100%	10-20+	1	1	2.0 ft	1.1 ft	1.4 ft	<1 ft/sec	5-25%	New Site
35.3 North	Heavy	0.45 acres	19,800 sq ft	6/9/11	<30-100%	10-20+	2	11	1.7 ft	0.5 ft	1.1 ft	None-<1 ft/sec	None	New Site
35.6 Northwest A	Heavy	0.25 acres	11,200 sq ft	6/9/11	30-100%	1-20+	4	1	1.3 ft	0.4 ft	0.6 ft	None-<1 ft/sec	None-25%	New Site
35.6 Northwest B	Moderate	<0.1 acres	2,900 sq ft	6/9/11	30-60%	10-20	1	0	1.6 ft	0.1 ft	0.2 ft	<1 ft/sec	<5%	New Site
35.6 Southeast A	Heavy	0.3 acres	13,300 sq ft	6/9/11	30-100%	10-20+	3	1	1.0 ft	0.4 ft	0.5 ft	<1-3 ft/sec	None	New Site
35.6 Southeast B	Heavy	0.6 acres	25,900 sq ft	6/8/11	30-100%	1-20+	2	5	1.8 ft	0.5 ft	0.8 ft	None-<1 ft/sec	None-<5%	New Site
35.8 Northwest	Heavy	0.25 acres	10,400 sq ft	6/7/11	30-100%	1-20+	1	5	2.3 ft	0.6 ft	0.7 ft	<1 ft/sec	None	New Site
35.84T	Heavy	0.25 acres	11,600 sq ft	6/7/11	30-100%	10-20+	1	3	2.1 ft	0.3 ft	0.4 ft	<1 ft/sec	None	Know Sub oil site 35.8 North / West
36.1 Northwest A	Heavy	0.45 acres	20,100 sq ft	6/10/11	30-100%	10-20+	3	4	1.5 ft	0.7 ft	1.1 ft	None-<1 ft/sec	None	New Site
36.1 Northwest B	Heavy	0.2 acres	9,300 sq ft	6/10/11	<30-100%	10-20+	1	3	1.8 ft	0.8 ft	1.6 ft	<1 ft/sec	None-<5%	New Site
36.15 North*	Heavy	0.7 acres	30,600 sq ft	5/26/11	<30-100%	1-20+	11	6	1.6 ft	0.8 ft	1.1 ft	None-3 ft/sec	None-25%	New Site
36.24T	Heavy	<0.1 acres	3,700 sq ft	6/5/11	60-100%	20+	0	1	3.9 ft	0.5 ft	1.3 ft	<1 ft/sec	None	New Site
36.25 A	Heavy	0.7 acres	29,900 sq ft	6/5/11	30-100%	1-20	3	1	3.4 ft	0.6 ft	0.7 ft	None-<1 ft/sec	None	New Site
36.25 B	Moderate	0.25 acres	9,800 sq ft	6/5/11	30-60%	10-20	2	0	4.1 ft	0.9 ft	1.0 ft	None-3 ft/sec	None	New Site
36.25 C	Heavy	0.7 acres	30,100 sq ft	6/10/11	30-100%	1-20+	3	6	3.3 ft	1.1 ft	1.6 ft	<1-3 ft/sec	None-50%	New Site
36.31T	Heavy	1.15 acres	49,400 sq ft	6/6/11	<30-100%	10-20+	1	7	1.7 ft	0.9 ft	1.6 ft	<1-3 ft/sec	None-50%	New Site
36.45 North A	Heavy	1.1 acres	47,300 sq ft	6/10/11	30-100%	1-20+	6	4	1.4 ft	1.3 ft	1.9 ft	None-<1 ft/sec	50->75%	New Site
36.45 North B	Moderate	0.2 acres	9,700 sq ft	5/20/11	30-60%	1-10	1	0	1.9 ft	0.4 ft	1.2 ft	<1 ft/sec	>75%	New Site
36.50T	Heavy	0.55 acres	24,000 sq ft	6/10/11	30-100%	10-20+	4	4	1.3 ft	0.9 ft	2.4 ft	None-<1 ft/sec	<5-75%	New Site
35th St Bridge SE*	Heavy	<0.1 acres	3,400 sq ft	6/8/11	30-100%	10-20+	1	4	2.5 ft	0.3 ft	0.6 ft	<1-3 ft/sec	<5-75%	New Site
36.6 South A	Moderate	0.1 acres	4,700 sq ft	5/12/11	30-60%	10-20	2	0	1.0 ft	0.3 ft	0.4 ft	None	5-25%	Know Sub oil 36.6 South
36.6 South B	Heavy	0.6 acres	25,300 sq ft	5/12/11	<30-100%	10-20+	8	4	1.1 ft	0.7 ft	1.0 ft	None->3 ft/sec	None-25%	New Site
37.75 Islands A	Heavy	<0.1 acres	3,300 sq ft	6/11/11	60-100%	20+	0	1	1.0 ft	0.6 ft	0.7 ft	1-3 ft/sec	50-75%	New Site
37.75 Islands B	Heavy	2.8 acres	120,600 sq ft	6/11/11	30-100%	10-20+	1	14	2.3 ft	1.1 ft	1.3 ft	<1-3 ft/sec	None	New Site
37.75 Islands C	Moderate	<0.1 acres	2,700 sq ft	6/14/11	30-60%	10-20	1	0	5.9 ft	1.0 ft	1.1 ft	<1 ft/sec	None	New Site
Morrow Lake Delta														
Delta A	Heavy	3.0 acres	131,900 sq ft	6/6/11	<30-100%	10-20+	21	14	1.3 ft	1.2 ft	1.7 ft	None-3 ft/sec	None->75%	Know sub oil 37-37.5 Delta (4)
Delta B	Heavy	1.65 acres	72,800 sq ft	6/6/11	<30-100%	10-20+	9	19	1.5 ft	1.0 ft	1.2 ft	None-3 ft/sec	None->75%	Know sub oil 37-37.5 Delta (5)
Delta C	Moderate	<0.1 acres	3,700 sq ft	5/20/11	<30%	10-20	1	0	1.1 ft	0.9 ft	1.2 ft	None	None	New Site

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Delta D	Moderate	<0.1 acres	2,200 sq ft	5/18/11	30-60%	10-20	1	0	1.0 ft	1.0 ft	1.1 ft	<1 ft/sec	None	New Site
Delta E	Heavy	<0.1 acres	2,900 sq ft	5/18/11	30-100%	10-20+	1	1	0.9 ft	0.8 ft	0.9 ft	<1 ft/sec	None	New Site
Delta F	Heavy	<0.1 acres	3,500 sq ft	6/6/11	30-100%	20+	0	2	0.6 ft	0.4 ft	0.6 ft	<1-3 ft/sec	None	New Site
Delta G	Heavy	0.4 acres	16,500 sq ft	6/9/11	30-100%	10-20+	3	6	0.6 ft	0.7 ft	0.9 ft	<1-3 ft/sec	None-<5%	New Site
Delta H	Heavy	2.4 acres	104,600 sq ft	6/10/11	<30-100%	1-20+	24	20	1.4 ft	1.0 ft	1.4 ft	None-3 ft/sec	None-25%	Know sub oil 37-37.5 Delta (1)(2)
Delta I	Heavy	0.55 acres	24,800 sq ft	6/9/11	<30-100%	10-20+	5	10	0.8 ft	0.7 ft	1.1 ft	<1-3 ft/sec	None-25%	New Site
Delta J	Moderate	<0.1 acres	3,200 sq ft	6/10/11	30-60%	1-10	1	0	1.1 ft	0.7 ft	0.8 ft	<1 ft/sec	<5%	New Site
Delta K	Moderate	<0.1 acres	2,100 sq ft	5/24/11	30-60%	1-10	1	0	1.5 ft	0.2 ft	0.4 ft	1-3 ft/sec	None	New Site
Delta L	Heavy	<0.1 acres	4,100 sq ft	5/24/11	30-100%	10-20+	3	1	1.0 ft	0.4 ft	0.5 ft	<1 ft/sec	None	New Site
Delta M	Heavy	0.35 acres	14,200 sq ft	5/25/11	<30-100%	10-20+	6	1	1.0 ft	0.5 ft	1.0 ft	None-<1 ft/sec	None-<5%	New Site
Delta N	Heavy	0.15 acres	6,100 sq ft	5/25/11	<30-100%	10-20+	2	3	0.8 ft	0.7 ft	0.8 ft	<1 ft/sec	None-50%	New Site
Delta O	Moderate	0.7 acres	31,700 sq ft	6/5/11	<30-100%	1-20	11	0	1.9 ft	1.2 ft	1.7 ft	<1-3 ft/sec	None-<5%	New Site
Delta P	Heavy	0.85 acres	36,200 sq ft	6/9/11	<30-100%	1-20+	8	6	0.9 ft	1.1 ft	1.6 ft	None-<1 ft/sec	None-50%	New Site
Delta Q	Heavy	0.1 acres	4,400 sq ft	6/9/11	30-100%	1-20+	2	1	0.9 ft	0.4 ft	1.2 ft	None-<1 ft/sec	None-<5%	New Site
Delta R	Heavy	0.45 acres	19,200 sq ft	6/8/11	30-100%	1-20+	9	5	1.1 ft	0.6 ft	1.2 ft	None-3 ft/sec	None-25%	New Site
Delta S	Heavy	0.35 acres	15,600 sq ft	6/8/11	30-100%	10-20+	1	4	0.9 ft	0.5 ft	0.5 ft	<1-3 ft/sec	None	New Site
Delta T	Heavy	0.7 acres	31,800 sq ft	6/8/11	<30-100%	10-20+	5	6	1.2 ft	0.6 ft	0.8 ft	None-<1 ft/sec	None-50%	New Site
Delta U	Heavy	1.1 acres	48,800 sq ft	6/7/11	<30-100%	1-20+	17	9	1.0 ft	0.9 ft	1.3 ft	None-3 ft/sec	None-50%	New Site
Delta V	Heavy	0.5 acres	21,500 sq ft	5/26/11	30-100%	10-20+	6	6	0.9 ft	0.6 ft	0.7 ft	None-<1 ft/sec	None-50%	New Site
Delta W	Heavy	0.5 acres	22,000 sq ft	6/7/11	<30-100%	1-20+	8	3	1.3 ft	0.5 ft	0.6 ft	None-<1 ft/sec	None-75%	Know sub oil 37-37.5 Delta (7e)
Delta X	Heavy	0.4 acres	18,200 sq ft	6/7/11	<30-100%	1-20+	7	4	1.1 ft	0.6 ft	0.9 ft	None-3 ft/sec	None-75%	New Site
Delta Y	Moderate	<0.1 acres	400 sq ft	5/18/11	30-60%	10-20	1	0	0.5 ft	0.1 ft	0.2 ft	<1 ft/sec	None	New Site
Delta Z	Heavy	10.1 acres	440,600 sq ft	6/7/11	<30-100%	None-20+	47	79	0.7 ft	0.3 ft	0.7 ft	None-3 ft/sec	None-75%	Know sub oil 37-37.5 Delta (7b)
Delta AA	Moderate	<0.1 acres	1,700 sq ft	5/19/11	30-60%	10-20	1	0	1.5 ft	1.0 ft	1.0 ft	<1 ft/sec	None	New Site
Delta BB	Moderate	<0.1 acres	200 sq ft	5/16/11	30-60%	10-20	1	0	1.2 ft	0.4 ft	0.4 ft	None	None	New Site
Delta CC	Heavy	1.15 acres	51,100 sq ft	6/10/11	<30-100%	1-20	7	1	2.0 ft	1.8 ft	2.3 ft	None-3 ft/sec	None	Know sub oil 37-37.5 Delta (7f)
Delta DD	Moderate	0.65 acres	29,200 sq ft	6/11/11	30-60%	1-20	4	0	2.2 ft	1.2 ft	1.4 ft	<1-3 ft/sec	None	New Site
Delta EE	Heavy	6.6 acres	288,000 sq ft	6/14/11	30-100%	10-20+	6	31	2.4 ft	1.8 ft	2.3 ft	<1-3 ft/sec	None	New Site
Talmadge Creek														
Talmadge Creek A	Moderate	<0.1 acres	<100 sq ft	4/27/11	30-60%	10-20	1	0	1.9 ft	0.2 ft	0.2 ft	<1 ft/sec	None	Known Sub Site Talmadge Source to I-69
Talmadge Creek B	Heavy	<0.1 acres	1,300 sq ft	4/27/11	30-100%	1-20+	8	8	1.0 ft	0.6 ft	0.8 ft	<1 ft/sec	None	Known Sub Site Talmadge Source to I-69
Talmadge Creek C	Heavy	<0.1 acres	400 sq ft	4/27/11	30-100%	1-20	6	1	0.7 ft	0.5 ft	0.7 ft	<1 ft/sec	None	New Site
Talmadge Creek D	Heavy	<0.1 acres	200 sq ft	4/27/11	30-100%	10-20+	3	2	0.7 ft	0.4 ft	0.6 ft	<1 ft/sec	None	New Site
Talmadge Creek E	Heavy	<0.1 acres	<100 sq ft	4/27/11	60-100%	10-20	0	1	0.6 ft	0.5 ft	0.6 ft	<1 ft/sec	None	New Site
Talmadge Creek F	Heavy	<0.1 acres	<100 sq ft	4/27/11	60-100%	10-20	0	1	0.6 ft	0.5 ft	0.7 ft	<1 ft/sec	None	New Site
Talmadge Creek G	Moderate	<0.1 acres	200 sq ft	4/27/11	30-60%	1-20	3	0	0.8 ft	0.9 ft	1.1 ft	1-3 ft/sec	None	New Site

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
Talmadge Creek H	Heavy	<0.1 acres	900 sq ft	4/27/11	30-100%	1-20+	8	3	0.7 ft	0.8 ft	0.8 ft	<1-3 ft/sec	None	New Site
Talmadge Creek I	Moderate	<0.1 acres	<100 sq ft	4/28/11	30-60%	1-10	1	0	1.0 ft	0.4 ft	0.5 ft	>3 ft/sec	None	New Site
Talmadge Creek J	Moderate	<0.1 acres	400 sq ft	4/28/11	30-60%	10-20	3	0	1.4 ft	0.6 ft	1.0 ft	1-3 ft/sec	None	New Site
Talmadge Creek K	Moderate	<0.1 acres	600 sq ft	4/28/11	30-60%	1-20	7	0	1.4 ft	0.4 ft	0.7 ft	1-3 ft/sec	None	New Site
Talmadge Creek L	Heavy	<0.1 acres	200 sq ft	4/28/11	30-100%	10-20+	2	1	1.4 ft	0.5 ft	0.9 ft	1-3 ft/sec	None	New Site
Talmadge Creek M	Moderate	<0.1 acres	<100 sq ft	4/28/11	30-60%	10-20	1	0	2.1 ft	0.8 ft	0.8 ft	1-3 ft/sec	None	New Site
Talmadge Creek N	Heavy	<0.1 acres	<100 sq ft	4/28/11	60-100%	10-20	0	1	1.0 ft	0.8 ft	1.7 ft	1-3 ft/sec	None	New Site
Talmadge Creek O	Heavy	<0.1 acres	<100 sq ft	4/28/11	60-100%	10-20	0	1	1.1 ft	0.4 ft	0.6 ft	>3 ft/sec	None	New Site
Talmadge Creek P	Moderate	<0.1 acres	<100 sq ft	4/28/11	30-60%	10-20	1	0	0.7 ft	0.6 ft	0.6 ft	1-3 ft/sec	None	New Site
Talmadge Creek Q	Heavy	<0.1 acres	200 sq ft	4/28/11	60-100%	20+	0	1	1.1 ft	0.2 ft	0.2 ft	1-3 ft/sec	None	New Site
Talmadge Creek R	Heavy	<0.1 acres	400 sq ft	4/28/11	30-100%	1-20+	2	1	1.0 ft	0.5 ft	0.5 ft	<1 ft/sec	None	New Site
Talmadge Creek S	Moderate	<0.1 acres	200 sq ft	4/28/11	30-60%	10-20	1	0	0.8 ft	0.5 ft	0.5 ft	>3 ft/sec	None	New Site
Talmadge Creek T	Heavy	<0.1 acres	300 sq ft	4/28/11	60-100%	10-20	0	1	1.0 ft	0.2 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek U	Heavy	<0.1 acres	200 sq ft	4/29/11	30-100%	10-20	1	1	1.0 ft	0.4 ft	0.5 ft	1-3 ft/sec	None	New Site
Talmadge Creek V	Heavy	<0.1 acres	100 sq ft	4/29/11	60-100%	20+	0	2	0.9 ft	0.3 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek W	Moderate	<0.1 acres	100 sq ft	4/29/11	30-60%	10-20	1	0	0.9 ft	0.1 ft	0.2 ft	1-3 ft/sec	None	New Site
Talmadge Creek X	Heavy	<0.1 acres	<100 sq ft	4/29/11	60-100%	10-20	0	1	1.0 ft	0.9 ft	1.0 ft	1-3 ft/sec	None	New Site
Talmadge Creek Y	Moderate	<0.1 acres	100 sq ft	4/29/11	30-60%	10-20	1	0	1.2 ft	1.1 ft	1.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek Z	Moderate	<0.1 acres	100 sq ft	4/29/11	30-60%	10-20	1	0	0.7 ft	0.3 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek AA	Heavy	<0.1 acres	200 sq ft	4/30/11	30-100%	1-20	1	1	0.9 ft	0.6 ft	0.6 ft	1-3 ft/sec	None	New Site
Talmadge Creek BB	Moderate	<0.1 acres	200 sq ft	4/30/11	30-60%	10-20	1	0	0.8 ft	0.4 ft	0.5 ft	1-3 ft/sec	None	New Site
Talmadge Creek CC	Heavy	<0.1 acres	<100 sq ft	4/30/11	60-100%	10-20	0	2	1.5 ft	0.2 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek DD	Moderate	<0.1 acres	<100 sq ft	4/30/11	30-60%	1-10	1	0	0.6 ft	0.7 ft	1.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek EE	Moderate	<0.1 acres	<100 sq ft	4/30/11	30-60%	10-20	1	0	0.5 ft	0.3 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek FF	Moderate	<0.1 acres	100 sq ft	4/30/11	30-60%	10-20	2	0	1.1 ft	0.1 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek GG	Moderate	<0.1 acres	100 sq ft	4/30/11	30-60%	10-20	1	0	0.9 ft	0.7 ft	1.2 ft	1-3 ft/sec	None	New Site
Talmadge Creek HH	Heavy	<0.1 acres	400 sq ft	4/30/11	30-100%	10-20+	2	1	0.6 ft	1.0 ft	1.1 ft	1-3 ft/sec	None	New Site
Talmadge Creek II	Heavy	<0.1 acres	300 sq ft	4/30/11	30-100%	10-20+	1	1	0.7 ft	1.0 ft	1.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek JJ	Moderate	<0.1 acres	<100 sq ft	4/30/11	30-60%	10-20	1	0	0.5 ft	0.8 ft	1.9 ft	1-3 ft/sec	None	New Site
Talmadge Creek KK	Moderate	<0.1 acres	400 sq ft	4/30/11	30-60%	1-10	1	0	0.4 ft	0.4 ft	1.5 ft	1-3 ft/sec	None	New Site
Talmadge Creek LL	Moderate	<0.1 acres	<100 sq ft	4/30/11	60-100%	None	0	1	0.8 ft	0.3 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek MM	Moderate	<0.1 acres	200 sq ft	4/30/11	30-60%	10-20	1	0	1.1 ft	0.3 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek NN	Moderate	<0.1 acres	400 sq ft	4/30/11	30-60%	10-20	3	0	0.6 ft	0.5 ft	0.6 ft	1-3 ft/sec	None	New Site
Talmadge Creek OO	Heavy	<0.1 acres	3,500 sq ft	4/30/11	30-100%	1-20+	9	4	1.0 ft	0.7 ft	0.8 ft	1-3 ft/sec	None	New Site

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
Talmadge Creek PP	Heavy	<0.1 acres	400 sq ft	4/30/11	60-100%	20+	0	2	1.0 ft	0.1 ft	0.1 ft	1-3 ft/sec	None	New Site
Talmadge Creek QQ	Heavy	<0.1 acres	<100 sq ft	4/30/11	60-100%	20+	0	1	0.2 ft	0.5 ft	0.7 ft	1-3 ft/sec	None	New Site
Talmadge Creek RR	Heavy	<0.1 acres	400 sq ft	4/30/11	30-100%	10-20+	1	1	0.4 ft	0.6 ft	0.7 ft	1-3 ft/sec	None	New Site
Talmadge Creek SS	Heavy	<0.1 acres	200 sq ft	5/1/11	30-100%	10-20+	2	1	1.4 ft	0.3 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek TT	Moderate	<0.1 acres	200 sq ft	5/1/11	30-60%	1-10	2	0	0.7 ft	0.1 ft	0.1 ft	1-3 ft/sec	None	New Site
Talmadge Creek UU	Heavy	<0.1 acres	300 sq ft	5/1/11	30-100%	10-20	1	1	0.5 ft	0.2 ft	0.3 ft	1-3 ft/sec	None	Known Sub Site Talmadge I69 to 15.5
Talmadge Creek VV	Heavy	<0.1 acres	1,000 sq ft	5/1/11	30-100%	10-20+	2	4	0.7 ft	0.6 ft	0.9 ft	1-3 ft/sec	None	New Site
Talmadge Creek WW	Heavy	<0.1 acres	2,500 sq ft	5/1/11	30-100%	10-20+	4	16	0.8 ft	0.9 ft	1.2 ft	<1-3 ft/sec	None	New Site
Talmadge Creek XX	Heavy	<0.1 acres	500 sq ft	5/1/11	60-100%	10-20	0	3	0.8 ft	0.1 ft	0.3 ft	1-3 ft/sec	None	Known Sub Site Talmadge 15.5 to Confluence
Talmadge Creek YY	Heavy	<0.1 acres	<100 sq ft	5/1/11	60-100%	20+	0	1	0.4 ft	0.5 ft	0.5 ft	1-3 ft/sec	None	New Site
Talmadge Creek ZZ	Moderate	<0.1 acres	<100 sq ft	5/1/11	30-60%	10-20	1	0	0.7 ft	0.3 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek AAA	Moderate	<0.1 acres	200 sq ft	5/1/11	30-60%	10-20	1	0	0.4 ft	0.3 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek BBB	Heavy	<0.1 acres	1,200 sq ft	5/1/11	30-100%	10-20+	1	7	0.7 ft	0.3 ft	0.6 ft	1-3 ft/sec	None	New Site
Talmadge Creek CCC	Heavy	<0.1 acres	800 sq ft	5/1/11	30-100%	10-20+	2	5	0.8 ft	0.5 ft	0.5 ft	1-3 ft/sec	None	New Site
Talmadge Creek DDD	Heavy	<0.1 acres	400 sq ft	5/1/11	30-100%	10-20+	1	2	0.5 ft	0.3 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek EEE	Moderate	<0.1 acres	300 sq ft	5/1/11	30-60%	10-20	1	0	0.0 ft	0.2 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek FFF	Heavy	<0.1 acres	200 sq ft	5/1/11	30-100%	10-20	1	1	0.3 ft	0.2 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek GGG	Moderate	<0.1 acres	300 sq ft	5/1/11	30-60%	10-20	3	0	0.4 ft	0.2 ft	0.2 ft	1-3 ft/sec	None	New Site
Talmadge Creek HHH	Heavy	<0.1 acres	300 sq ft	5/1/11	30-100%	10-20+	2	1	0.5 ft	0.1 ft	0.1 ft	1-3 ft/sec	None	New Site
Talmadge Creek III	Heavy	<0.1 acres	400 sq ft	5/1/11	30-100%	10-20+	1	3	0.4 ft	0.4 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek JJJ	Heavy	<0.1 acres	100 sq ft	5/1/11	30-100%	10-20+	1	1	0.9 ft	0.9 ft	1.0 ft	1-3 ft/sec	None	New Site
Talmadge Creek KKK	Heavy	<0.1 acres	100 sq ft	5/1/11	30-60%	20+	0	1	0.4 ft	0.2 ft	0.5 ft	1-3 ft/sec	None	New Site
Talmadge Creek LLL	Moderate	<0.1 acres	100 sq ft	5/1/11	30-60%	10-20	1	0	0.0 ft	0.3 ft	0.7 ft	1-3 ft/sec	None	New Site
Talmadge Creek MMM	Moderate	<0.1 acres	100 sq ft	5/1/11	30-60%	10-20	1	0	0.0 ft	0.2 ft	0.6 ft	1-3 ft/sec	None	New Site
Talmadge Creek NNN	Heavy	<0.1 acres	300 sq ft	5/1/11	60-100%	10-20	0	1	0.0 ft	0.7 ft	0.7 ft	1-3 ft/sec	None	New Site
Talmadge Creek OOO	Heavy	<0.1 acres	200 sq ft	5/1/11	60-100%	10-20	0	1	0.1 ft	0.3 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek PPP	Heavy	<0.1 acres	1,000 sq ft	5/1/11	30-100%	10-20+	3	2	0.4 ft	0.6 ft	0.7 ft	1-3 ft/sec	None	New Site
Talmadge Creek QQQ	Moderate	<0.1 acres	300 sq ft	5/1/11	30-60%	10-20	1	0	0.1 ft	0.9 ft	1.0 ft	1-3 ft/sec	None	New Site
Talmadge Creek RRR	Heavy	<0.1 acres	200 sq ft	5/1/11	30-100%	10-20	1	1	0.5 ft	0.6 ft	0.6 ft	1-3 ft/sec	None	New Site
Talmadge Creek SSS	Moderate	<0.1 acres	100 sq ft	5/2/11	30-60%	10-20	2	0	0.5 ft	0.2 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek TTT	Moderate	<0.1 acres	200 sq ft	5/2/11	30-60%	10-20	1	0	0.0 ft	0.3 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek UUU	Moderate	<0.1 acres	200 sq ft	5/2/11	30-60%	10-20	1	0	0.1 ft	0.3 ft	0.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek VVV	Moderate	<0.1 acres	200 sq ft	5/2/11	30-60%	10-20	1	0	0.6 ft	0.4 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek WWW	Heavy	<0.1 acres	300 sq ft	5/2/11	60-100%	20+	0	1	0.3 ft	1.1 ft	1.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek XXX	Heavy	<0.1 acres	300 sq ft	5/2/11	60-100%	20+	0	1	1.1 ft	0.4 ft	0.6 ft	1-3 ft/sec	None	New Site

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation	Notes
Talmadge Creek YYY	Heavy	<0.1 acres	2,000 sq ft	5/2/11	60-100%	20+	0	2	0.0 ft	0.2 ft	0.4 ft	1-3 ft/sec	None	New Site
Talmadge Creek ZZZ	Heavy	<0.1 acres	1,700 sq ft	5/2/11	60-100%	20+	0	1	0.6 ft	1.1 ft	1.2 ft	1-3 ft/sec	None	New Site
Talmadge Creek AAAA	Heavy	<0.1 acres	300 sq ft	5/2/11	60-100%	20+	0	1	0.3 ft	0.5 ft	0.6 ft	1-3 ft/sec	None	New Site
Talmadge Creek BBBB	Moderate	<0.1 acres	400 sq ft	5/2/11	30-60%	10-20	1	0	0.0 ft	0.3 ft	0.5 ft	1-3 ft/sec	None	New Site
Talmadge Creek CCCC	Moderate	<0.1 acres	700 sq ft	5/2/11	30-60%	1-10	1	0	0.5 ft	0.2 ft	0.2 ft	1-3 ft/sec	None	New Site
Talmadge Creek DDDD	Moderate	<0.1 acres	100 sq ft	5/24/11	30-60%	1-10	1	0	0.4 ft	1.2 ft	1.3 ft	1-3 ft/sec	None	New Site
Talmadge Creek EEEE	Heavy	<0.1 acres	200 sq ft	5/24/11	60-100%	10-20	0	1	0.3 ft	0.4 ft	0.5 ft	None	None	New Site
Talmadge Creek FFFF	Heavy	<0.1 acres	200 sq ft	5/24/11	60-100%	20+	0	1	0.0 ft	0.7 ft	0.8 ft	None	None	New Site
Talmadge Creek GGGG	Heavy	<0.1 acres	200 sq ft	5/24/11	60-100%	20+	0	1	0.0 ft	0.3 ft	0.3 ft	None	None	New Site
Talmadge Creek HHHH	Heavy	<0.1 acres	200 sq ft	5/24/11	30-100%	1-20+	2	1	0.2 ft	0.4 ft	0.4 ft	<1-3 ft/sec	None	New Site
Talmadge Creek IIII	Moderate	<0.1 acres	400 sq ft	5/24/11	30-60%	10-20	2	0	0.1 ft	0.4 ft	0.5 ft	<1 ft/sec	None	New Site

* delineation based on data collected by Strike Teams

Submerged Oil Summary - Kalamazoo River	
Total number of locations:	**200**
Number of locations ≥0.25 acres:	**91**
Approximate Total Area:	**77.9 acres (3,399,500 sq ft)**
Moderate (62 Locations) ----------	9.3 acres (405,500 sq ft)
Heavy (138 Locations) ----------	68.7 acres (2,994,000 sq ft)

Submerged Oil Summary - Morrow Lake Delta	
Total number of locations:	**31**
Number of locations ≥0.25 acres:	**19**
Approximate Total Area:	**33.3 acres (1,453,100 sq ft)**
Moderate (9 Locations) ----------	1.7 acres (74,500 sq ft)
Heavy (22 Locations) ----------	31.6 acres (1,378,600 sq ft)

Submerged Oil Summary - Talmadge Creek	
Total number of locations:	**87**
Number of locations ≥0.25 acres:	**0**
Approximate Total Area:	**0.8 acres (32,700 sq ft)**
Moderate (37 Locations) ----------	0.2 acres (7,600 sq ft)
Heavy (50 Locations) ----------	0.6 acres (25,100 sq ft)

Table 3. Overbank Poling Delineation Table
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation
Kalamazoo River													
8.29RDB	Heavy	<0.1 acres	800 sq ft	6/15/11	30-100%	10-20	1	1	0.5 ft	1.6 ft	1.6 ft	None	None
11.27LDB A	Moderate	<0.1 acres	1,900 sq ft	5/20/11	30-60%	10-20	1	0	1.9 ft	0.2 ft	0.3 ft	<1 ft/sec	None
11.27LDB B	Moderate	<0.1 acres	2,300 sq ft	5/20/11	<30-60%	10-20	5	0	1.6 ft	0.4 ft	0.5 ft	<1 ft/sec	None-<5%
11.27LDB C	Heavy	0.35 acres	15,100 sq ft	5/20/11	<30-100%	1-20+	4	14	1.6 ft	1.2 ft	1.5 ft	None-<1 ft/sec	<5-50%
11.27LDB D	Heavy	0.2 acres	7,900 sq ft	5/20/11	<30-100%	10-20+	4	8	1.3 ft	1.5 ft	1.9 ft	None-<1 ft/sec	<5->75%
11.78LDB	Heavy	<0.1 acres	2,300 sq ft	5/3/11	30-100%	10-20+	1	1	0.8 ft	1.5 ft	2.4 ft	<1 ft/sec	None
13.67LDB	Moderate	<0.1 acres	900 sq ft	5/16/11	30-60%	1-10	1	0	1.5 ft	1.8 ft	1.8 ft	None	<5%
13.73LDB	Moderate	<0.1 acres	1,700 sq ft	5/16/11	30-60%	1-10	3	0	2.1 ft	2.6 ft	2.7 ft	None	None
15.65RDB A	Heavy	<0.1 acres	200 sq ft	5/22/11	60-100%	10-20	1	0	0.2 ft	0.0 ft	0.1 ft	1-3 ft/sec	None
15.65RDB B	Heavy	<0.1 acres	300 sq ft	5/22/11	60-100%	1-20+	1	1	0.7 ft	0.2 ft	0.3 ft	None	None
22.06RDB	Moderate	0.25 acres	10,400 sq ft	5/19/11	60-100%	1-10	1	0	1.7 ft	3.3 ft	3.8 ft	None	5-25%
22.00RDB	Moderate	<0.1 acres	1,200 sq ft	6/6/11	<30%	10-20	1	0	0.9 ft	1.5 ft	1.9 ft	None	5-25%
22.10RDB	Heavy	1.6 acres	70,700 sq ft	5/19/11	30-100%	1-20	16	1	2.3 ft	2.4 ft	2.8 ft	None-<1 ft/sec	<5-25%
22.21RDB	Heavy	0.2 acres	9,700 sq ft	6/7/11	30-100%	1-20+	4	2	1.4 ft	0.9 ft	1.1 ft	<1-3 ft/sec	None-<5%
22.23RDB	Moderate	<0.1 acres	2,800 sq ft	5/20/11	60-100%	1-10	1	0	1.7 ft	0.5 ft	0.6 ft	<1 ft/sec	<5%
22.57RDB	Heavy	0.35 acres	14,400 sq ft	6/7/11	<30-100%	10-20+	1	1	2.6 ft	0.5 ft	0.8 ft	None-<1 ft/sec	None
24.28RDB	Moderate	0.2 acres	8,000 sq ft	5/20/11	30-100%	1-10	4	0	1.5 ft	1.1 ft	1.3 ft	<1-3 ft/sec	<5-25%
24.60RDB	Moderate	0.1 acres	4,500 sq ft	5/8/11	30-60%	1-10	1	0	0.9 ft	2.1 ft	2.4 ft	<1 ft/sec	None
24.74RDB	Heavy	0.5 acres	21,000 sq ft	5/26/11	30-100%	10-20+	2	1	3.4 ft	1.5 ft	2.2 ft	<1 ft/sec	<5-25%
24.99RDB	Heavy	<0.1 acres	3,200 sq ft	6/10/11	30-60%	20+	0	1	1.0 ft	0.6 ft	1.1 ft	<1 ft/sec	None
25.08RDB	Moderate	<0.1 acres	2,100 sq ft	5/8/11	30-60%	10-20	1	0	2.0 ft	0.4 ft	0.4 ft	<1 ft/sec	None
25.18LDB	Moderate	<0.1 acres	1,200 sq ft	5/23/11	30-60%	1-10	2	0	3.2 ft	0.4 ft	0.7 ft	<1 ft/sec	None
25.41LDB A	Heavy	2.6 acres	112,800 sq ft	6/8/11	<30-100%	1-20+	11	28	1.9 ft	0.7 ft	1.3 ft	None-3 ft/sec	None-50%
25.41LDB B	Moderate	<0.1 acres	2,200 sq ft	6/8/11	<30%	10-20	1	0	0.9 ft	0.3 ft	0.9 ft	1-3 ft/sec	25-50%
25.41LDB C	Heavy	2.75 acres	119,800 sq ft	6/9/11	<30-100%	10-20+	4	8	1.0 ft	0.7 ft	1.3 ft	<1-3 ft/sec	None->75%
25.45RDB	Moderate	<0.1 acres	3,500 sq ft	5/13/11	<30-60%	1-20	3	0	0.3 ft	0.3 ft	0.5 ft	None	None
26.11RDB	Moderate	<0.1 acres	600 sq ft	6/13/11	60-100%	None	2	0	1.7 ft	0.5 ft	1.0 ft	None	25-75%
26.81RDB	Heavy	0.45 acres	19,300 sq ft	5/18/11	<30-100%	10-20+	2	5	5.5 ft	1.1 ft	1.4 ft	None	<5-25%
26.85RDB	Moderate	0.3 acres	12,200 sq ft	5/18/11	30-60%	10-20	2	0	7.3 ft	2.8 ft	3.0 ft	<1 ft/sec	<5%
27.50RDB	Moderate	<0.1 acres	1,700 sq ft	6/5/11	30-60%	1-10	1	0	1.8 ft	0.2 ft	0.4 ft	None	None
27.58RDB	Moderate	<0.1 acres	2,400 sq ft	6/5/11	30-60%	10-20	2	0	3.2 ft	0.1 ft	0.3 ft	None	None
27.66RDB	Heavy	<0.1 acres	3,100 sq ft	6/5/11	30-100%	10-20+	1	1	1.4 ft	0.1 ft	0.4 ft	<1 ft/sec	None

Table 3. Overbank Poling Delineation Table
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Delineation Area	Overall Type	Approximate Size		Date of Most Recent Poling	Range of Sheen	Range of Globules	# of Moderate Poling Locations	# Heavy Poling Locations	Mean Water Depth	Mean Soft Sediment Thickness	Mean Depth to Hard Bottom	Water Velocity	Aquatic Vegetation
27.98LDB	Moderate	0.1 acres	4,500 sq ft	5/24/11	30-60%	1-10	1	0	0.7 ft	0.2 ft	0.3 ft	<1 ft/sec	None
28.12LDB A	Moderate	<0.1 acres	2,300 sq ft	6/8/11	<30%	10-20	1	0	1.2 ft	0.3 ft	1.4 ft	None	5-25%
28.12 LDB B	Moderate	0.3 acres	12,100 sq ft	6/8/11	<30-60%	10-20	4	0	0.7 ft	0.4 ft	0.6 ft	None	<5-25%
28.12LDB C	Moderate	0.2 acres	8,000 sq ft	6/9/11	<30%	10-20	2	0	2.4 ft	1.8 ft	2.6 ft	None	5-50%
28.26RDB	Moderate	<0.1 acres	800 sq ft	5/24/11	30-60%	10-20	1	0	0.6 ft	0.1 ft	0.3 ft	<1 ft/sec	<5%
28.32RDB	Heavy	<0.1 acres	400 sq ft	5/24/11	60-100%	20+	0	1	0.5 ft	0.3 ft	0.4 ft	<1 ft/sec	5-25%
28.33RDB	Heavy	<0.1 acres	600 sq ft	5/24/11	60-100%	20+	0	1	0.8 ft	0.2 ft	0.3 ft	<1 ft/sec	5-25%
28.42RDB	Moderate	<0.1 acres	4,100 sq ft	5/24/11	<30-60%	1-20	2	0	1.4 ft	0.6 ft	0.7 ft	<1 ft/sec	5-25%
28.61RDB	Moderate	<0.1 acres	700 sq ft	5/8/11	30-60%	10-20	1	0	1.6 ft	1.2 ft	1.2 ft	<1 ft/sec	None
29.71RDB	Moderate	0.1 acres	4,800 sq ft	6/7/11	30-60%	1-10	1	0	0.8 ft	0.1 ft	0.3 ft	None	None
31.25RDB	Moderate	<0.1 acres	800 sq ft	5/23/11	30-60%	10-20	1	0	2.4 ft	0.5 ft	1.2 ft	<1 ft/sec	None
31.26RDB	Moderate	<0.1 acres	2,100 sq ft	5/23/11	30-60%	1-10	1	0	2.3 ft	1.2 ft	2.3 ft	<1 ft/sec	None
31.99LDB	Moderate	<0.1 acres	1,700 sq ft	5/23/11	30-60%	10-20	1	0	2.5 ft	0.0 ft	0.0 ft	<1 ft/sec	25-50%
32.15RDB	Heavy	<0.1 acres	3,300 sq ft	5/24/11	<30-100%	10-20+	3	1	2.0 ft	0.6 ft	0.8 ft	<1 ft/sec	None
32.75RDB	Heavy	0.25 acres	10,200 sq ft	5/23/11	60-100%	20+	0	1	0.5 ft	0.3 ft	0.5 ft	None	5-25%
32.89LDB	Moderate	0.15 acres	6,800 sq ft	5/5/11	30-60%	1-20	3	0	1.8 ft	0.6 ft	0.9 ft	<1 ft/sec	None
33.04RDB	Heavy	<0.1 acres	1,300 sq ft	5/24/11	60-100%	10-20+	0	2	1.5 ft	0.4 ft	0.5 ft	None-<1 ft/sec	5-25%
33.93RDB	Heavy	0.2 acres	8,700 sq ft	6/8/11	30-100%	10-20+	1	2	0.8 ft	0.8 ft	1.3 ft	<1 ft/sec	<5%
33.98RDB	Moderate	<0.1 acres	1,200 sq ft	6/8/11	30-60%	10-20	1	0	1.0 ft	0.4 ft	0.6 ft	<1 ft/sec	<5%
34.75LDB	Moderate	<0.1 acres	3,400 sq ft	5/23/11	30-60%	1-10	5	0	0.8 ft	0.3 ft	0.8 ft	None	25-50%
34.91LDB	Moderate	<0.1 acres	2,600 sq ft	5/26/11	30-60%	1-20	3	0	1.7 ft	1.2 ft	2.3 ft	None-<1 ft/sec	None-25%
35.08LDB	Heavy	<0.1 acres	400 sq ft	5/26/11	30-100%	10-20	1	1	1.7 ft	0.5 ft	1.6 ft	None	None-<5%
35.19LDB	Heavy	<0.1 acres	400 sq ft	6/9/11	60-100%	20+	0	2	1.2 ft	0.1 ft	0.1 ft	<1 ft/sec	None
36.09RDB	Moderate	<0.1 acres	1,900 sq ft	5/17/11	30-60%	10-20	1	0	1.0 ft	1.2 ft	1.3 ft	<1 ft/sec	5-25%
36.23RDB	Heavy	<0.1 acres	2,700 sq ft	5/26/11	60-100%	20+	0	1	1.2 ft	0.4 ft	0.8 ft	None	25-50%

Strike Poling Delineation Summary	
Total number of locations:	**57**
Number of locations ≥0.25 acres:	**11**
Approximate Total Area:	**12.5 acres (544,100 sq ft)**
Moderate (33 Locations) ----------	2.7 acres (117,200 sq ft)
Heavy (24 Locations) ----------	9.8 acres (428,200 sq ft)

SORT Figures



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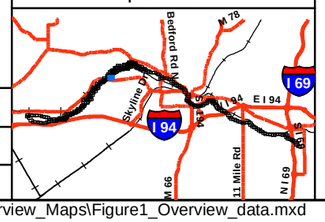
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200

Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 1 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Overview_Maps\Figure1_Overview_data.mxd

Aerial Photography Date: April 2011 over 2010 County Aerial

4.00
3.75
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75

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Drawn:	NS	6/13/2011
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Project #:	60162778	

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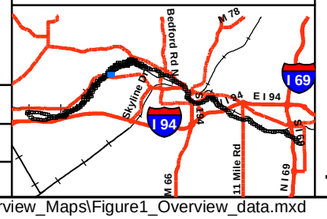

Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 2 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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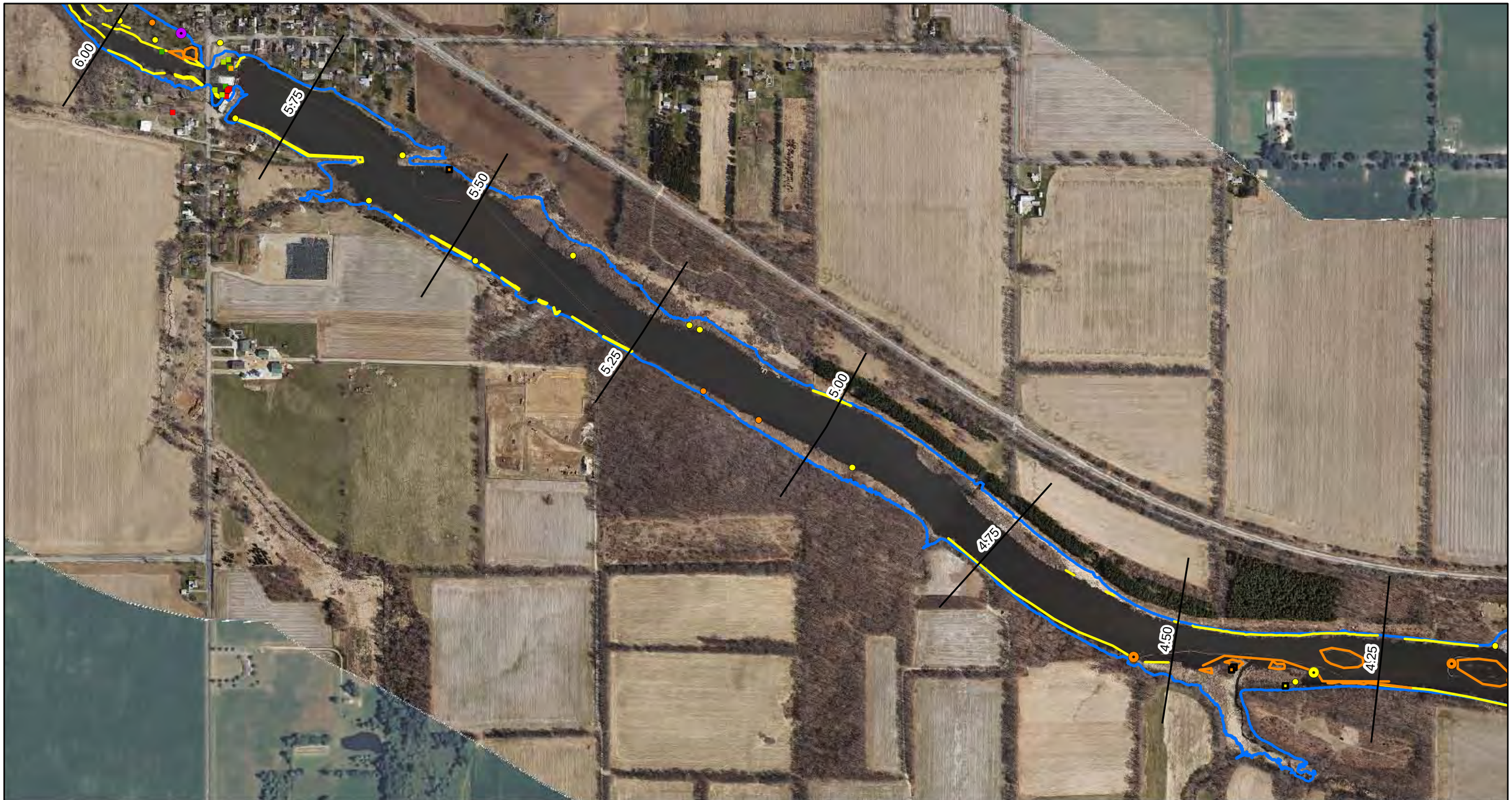

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Drawn:	NS	6/13/2011
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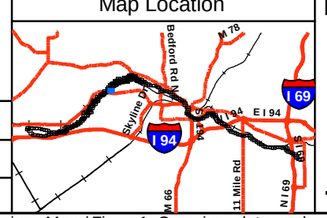
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 3 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010 County Aerial



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Project #:	60162778	

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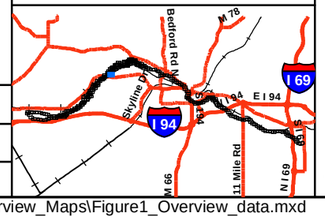

Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 4 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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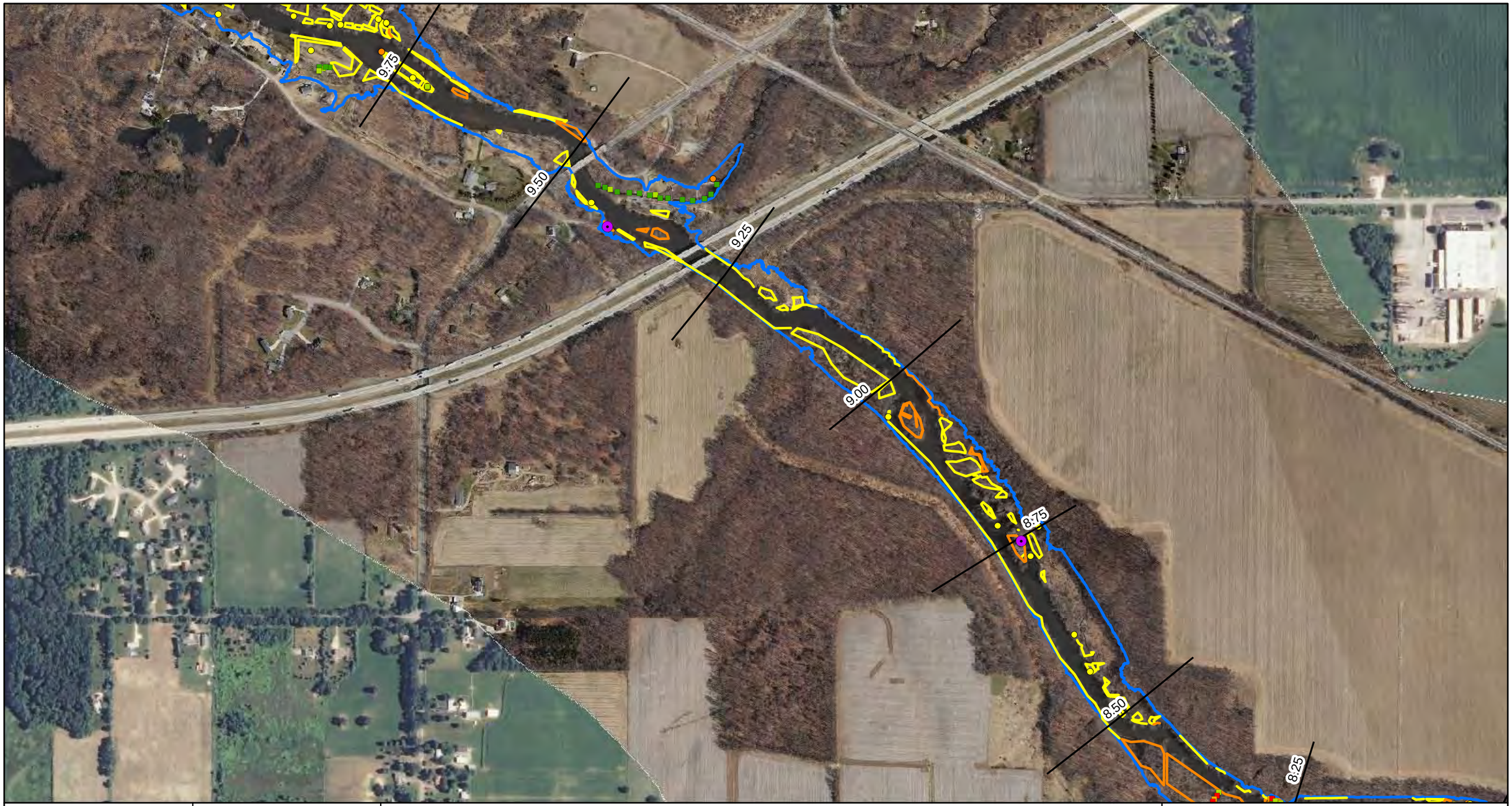

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Approved:	PS	6/13/2011
Project #:	60162778	

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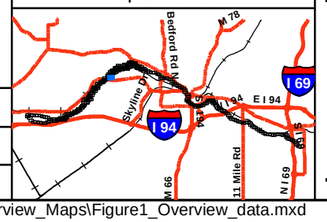

Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 5 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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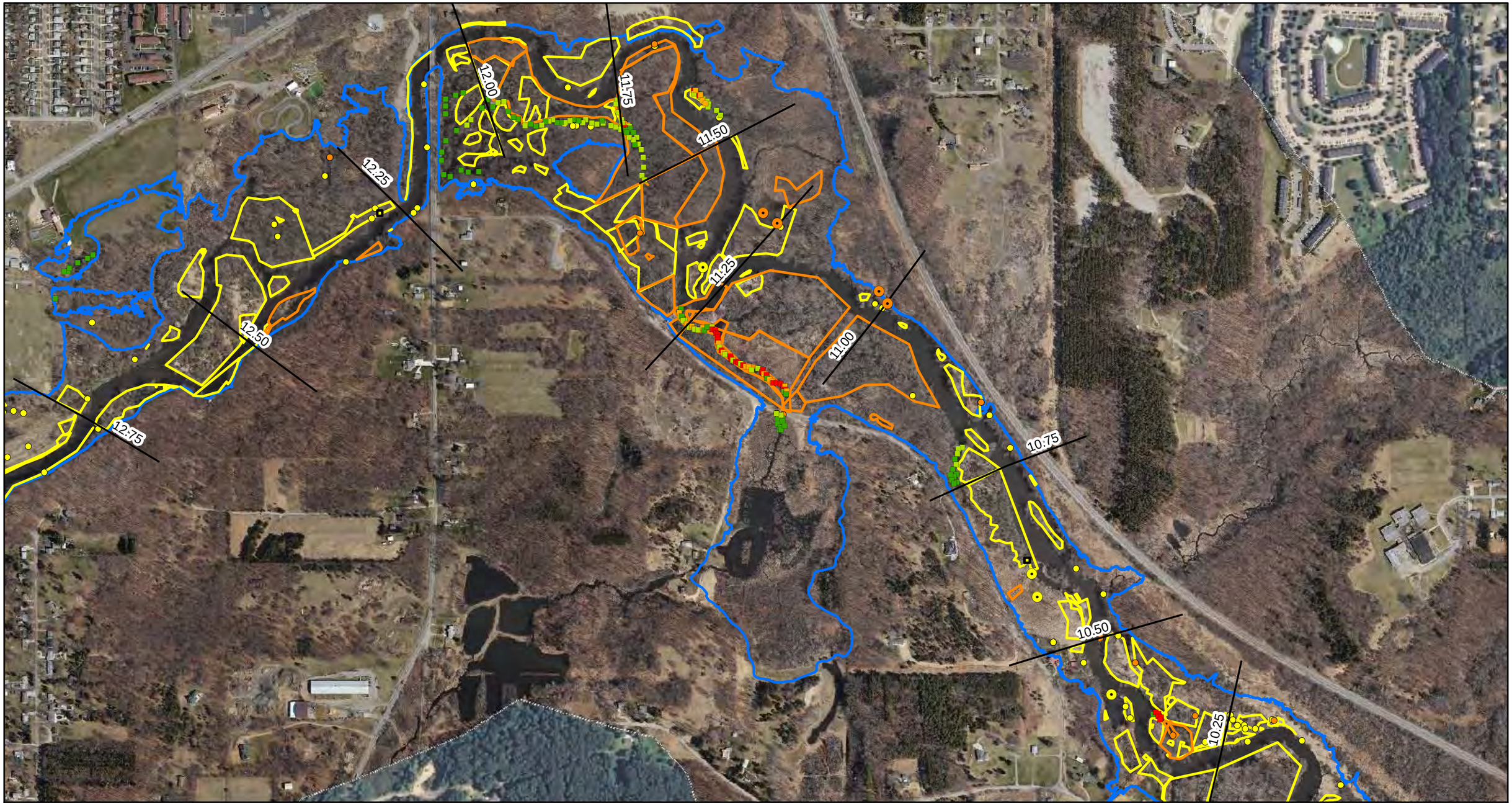

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Project #:	60162778	

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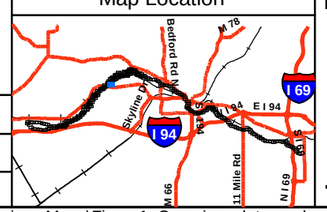

Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 6 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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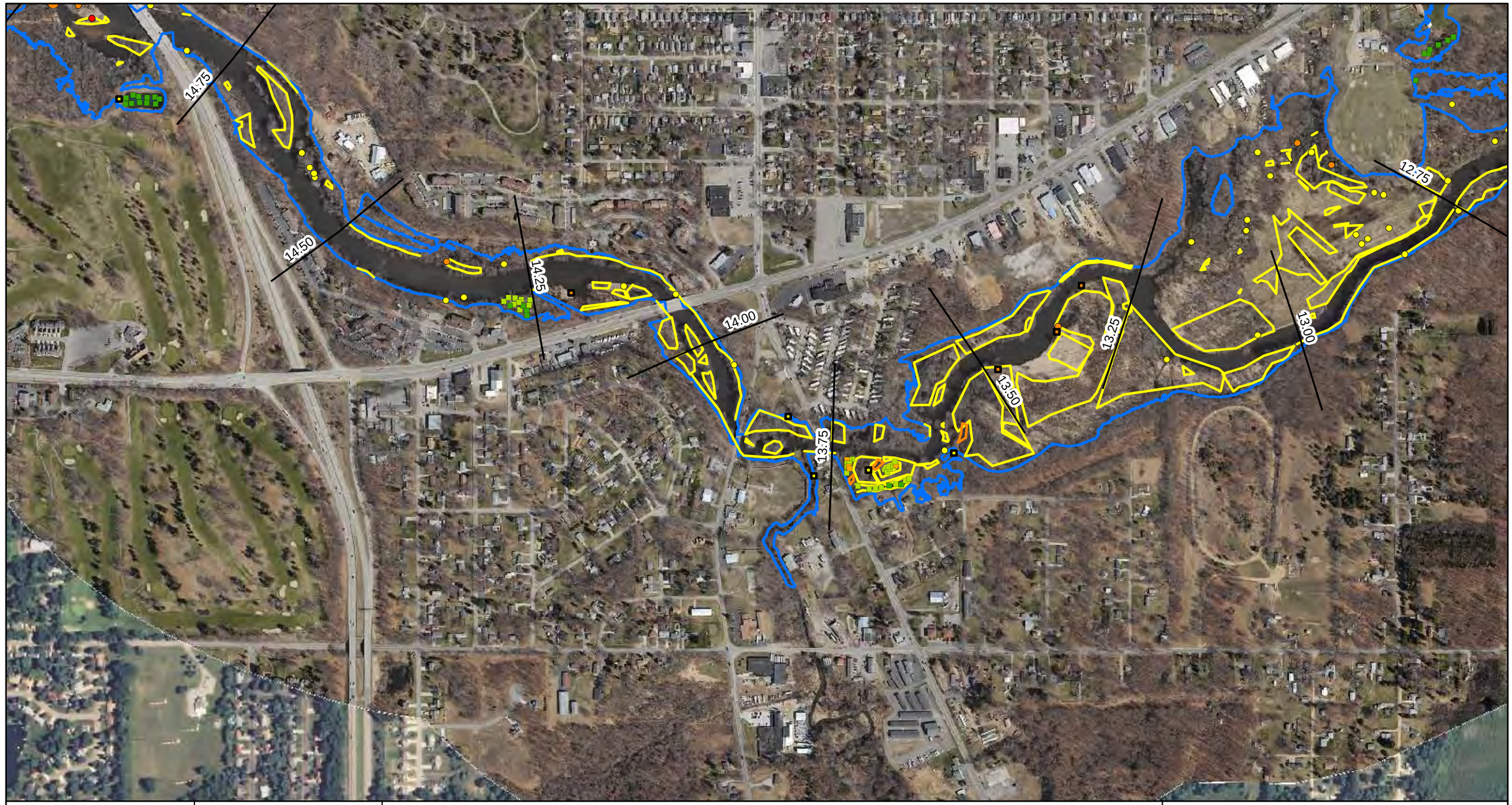

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Project #:	60162778	

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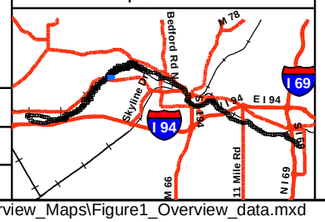

Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 7 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010 County Aerial

15.75
15.50
15.25
15.00
14.75
14.50

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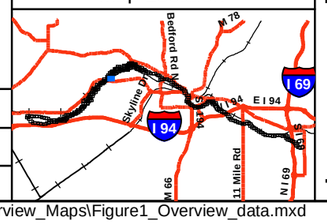
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 8 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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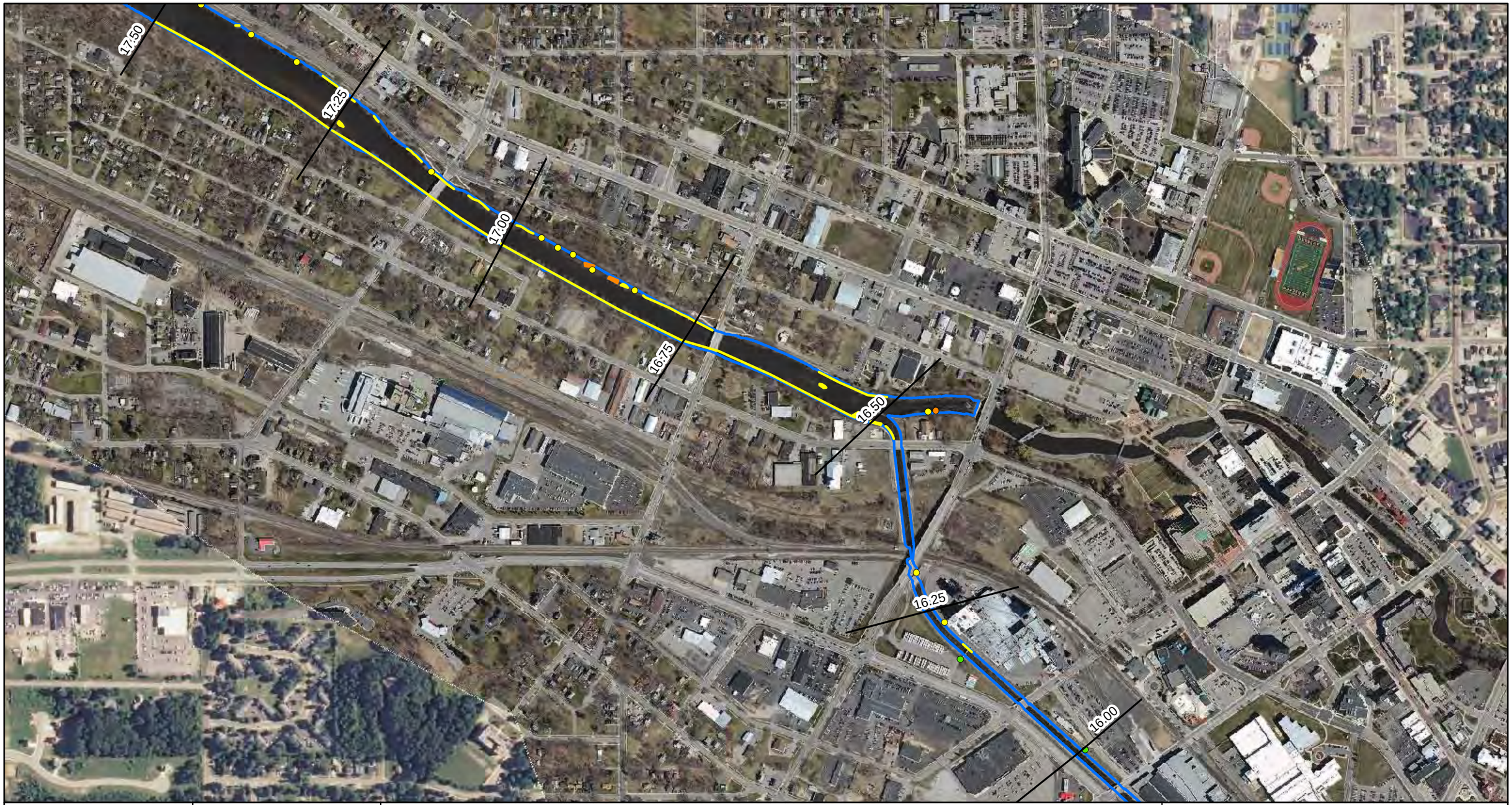
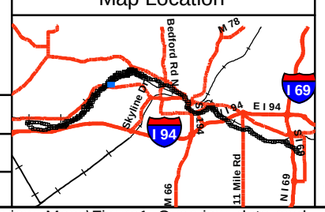


ENBRIDGE

Drawn:	NS	6/13/2011
Approved:	PS	6/13/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200

Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 9 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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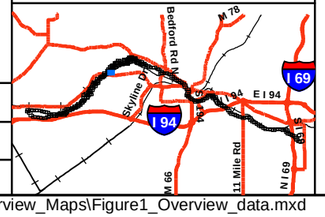
Aerial Photography Date: April 2011 over 2010 County Aerial

19.25
19.00
18.75
18.50
18.25
18.00
17.75

ENBRIDGE

Drawn:	NS	6/13/2011
Approved:	PS	6/13/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200

Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 10 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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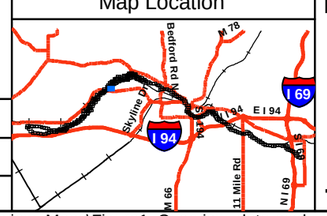
Aerial Photography Date: April 2011 over 2010 County Aerial

21.50
21.25
21.00
20.75
20.50
20.25
20.00
19.75

ENBRIDGE

Drawn:	NS	6/13/2011
Approved:	PS	6/13/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200

Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 11 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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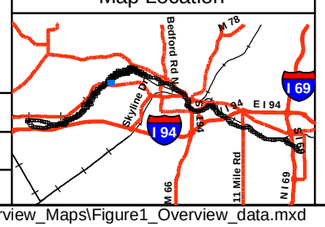
Aerial Photography Date: April 2011 over 2010 County Aerial



ENBRIDGE

Drawn:	NS	6/13/2011
Approved:	PS	6/13/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 12 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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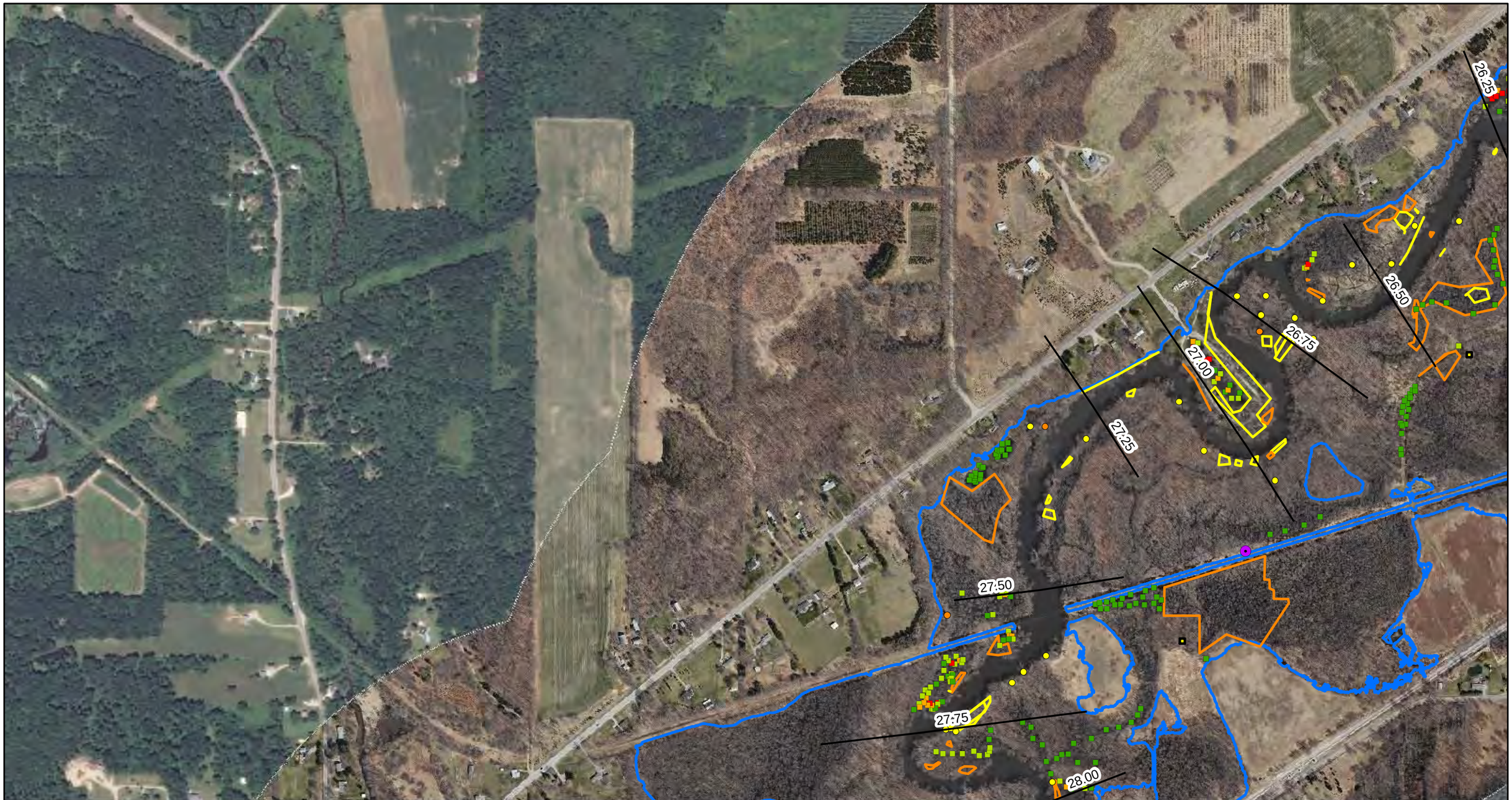
Aerial Photography Date: April 2011 over 2010 County Aerial



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Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200

Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 13 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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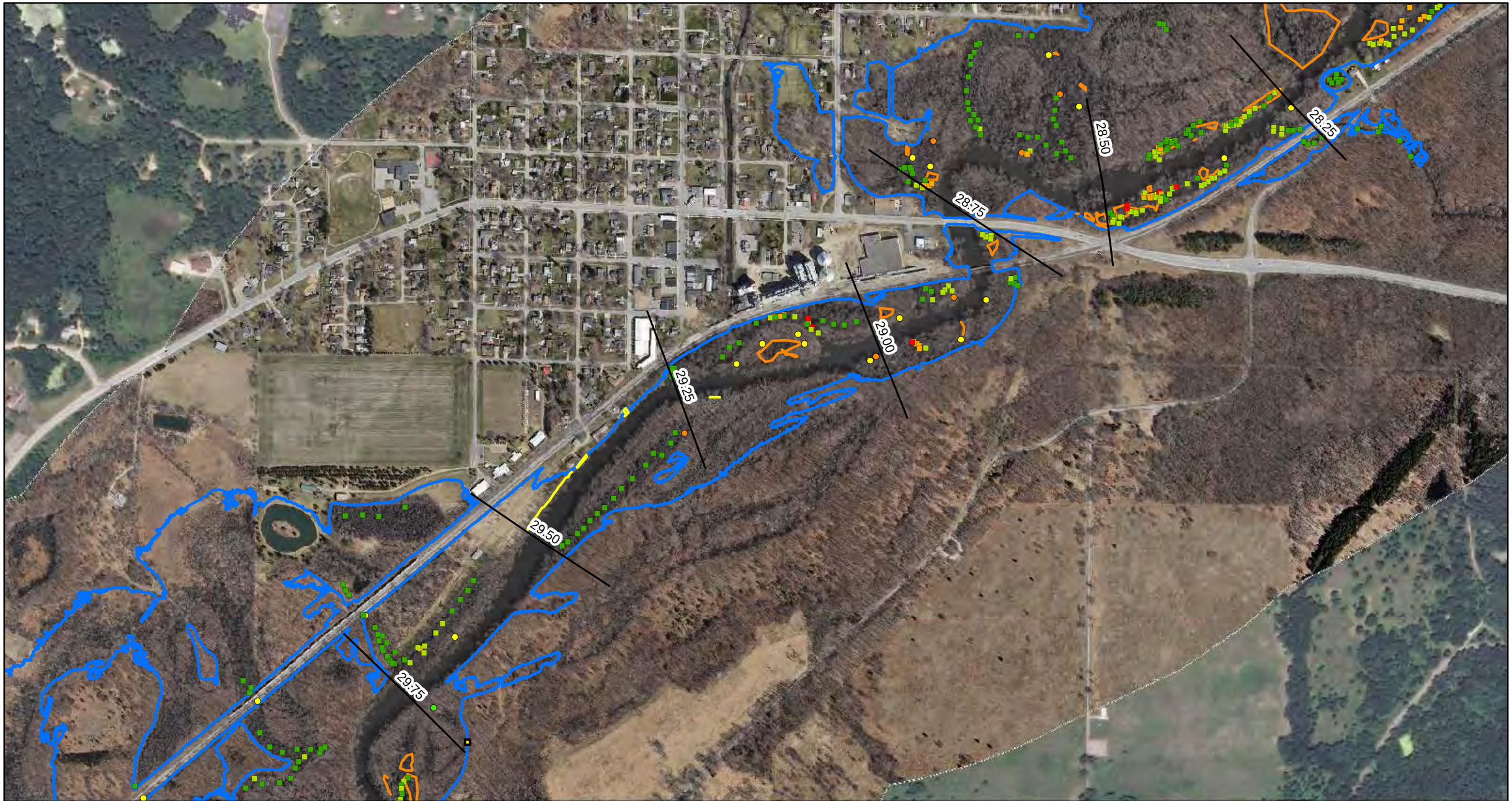
Aerial Photography Date: April 2011 over 2010 County Aerial



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Drawn:	NS	6/13/2011
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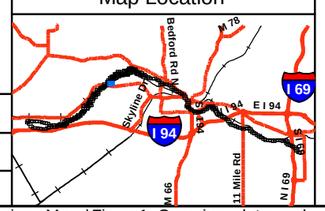
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 14 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010 County Aerial



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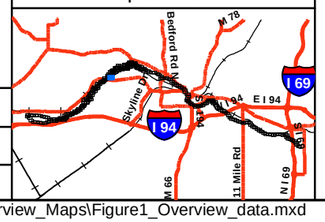
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 15 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010 County Aerial



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Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200

Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 16 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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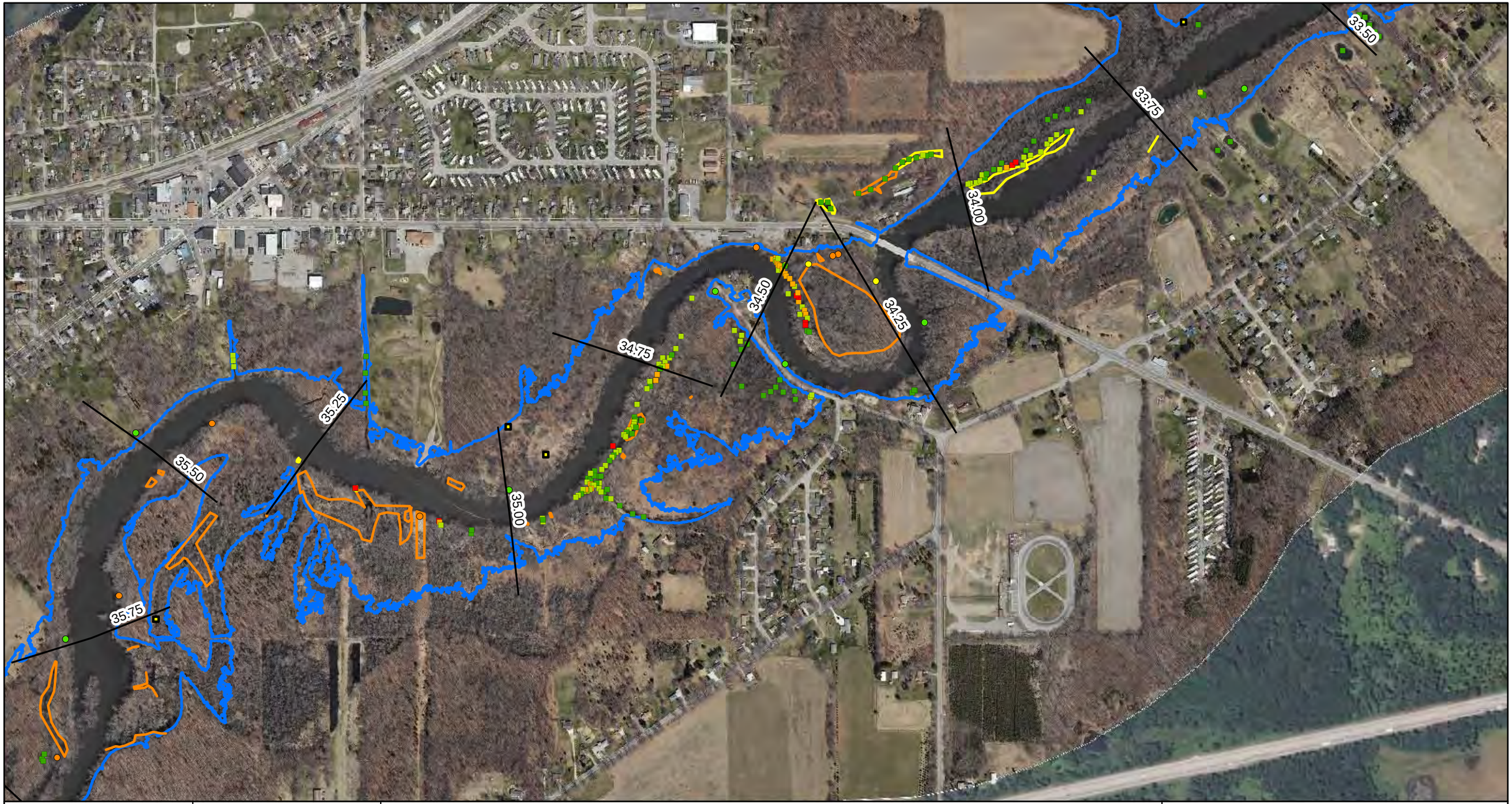
Aerial Photography Date: April 2011 over 2010 County Aerial



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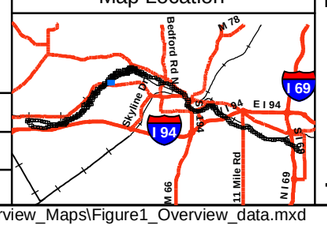
Approved:	PS	6/13/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 17 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010 County Aerial



ENBRIDGE

Drawn:	NS	6/13/2011
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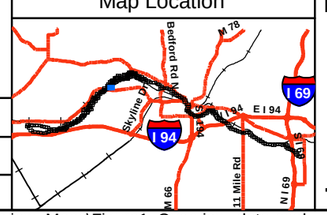
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200

Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 18 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010 County Aerial



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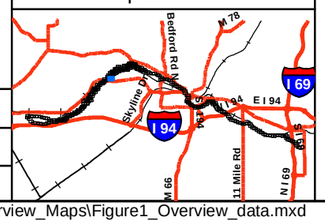
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 300 600 1,200
Scale in Feet

FIGURE 1
DATA OVERVIEW
SHEET 19 OF 19

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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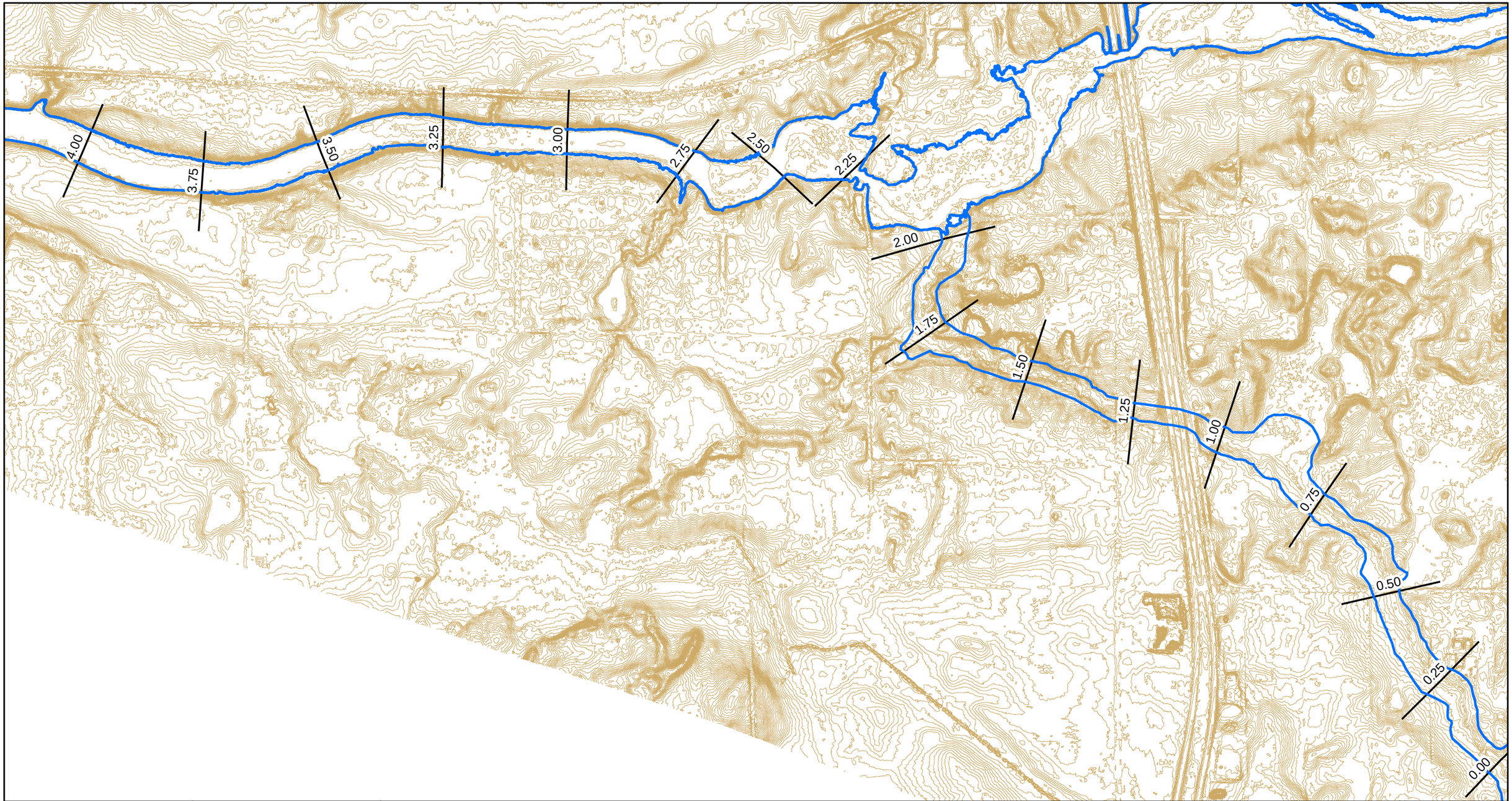
Aerial Photography Date: April 2011 over 2010 County Aerial



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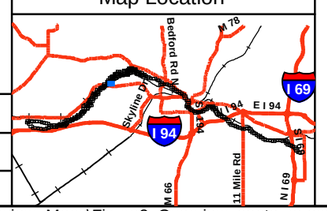
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 1 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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7.75
7.50
7.25
7.00
6.75
6.50
6.25
6.00
5.75
5.50
5.25
5.00
4.75
4.50
4.25

ENBRIDGE

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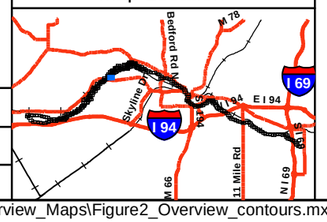
Approved:	PS	6/14/2011
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 2 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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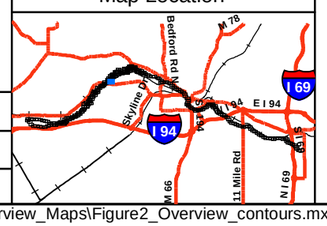
10.50
10.25
10.00
9.75
9.50
9.25
9.00
8.75
8.50
8.25
8.00
7.75
7.50

ENBRIDGE

Drawn:	NS	6/14/2011
Approved:	PS	6/14/2011
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 3 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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15.50
15.25
15.00
14.75
14.50
14.25
14.00
13.75
13.50
13.25
13.00
12.75
12.50
12.25
12.00
11.75
11.50
11.25
11.00
10.75

ENBRIDGE

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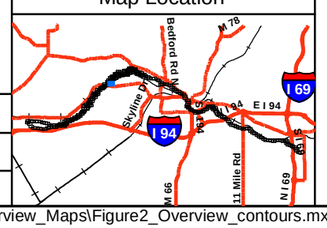
Approved:	PS	6/14/2011
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 4 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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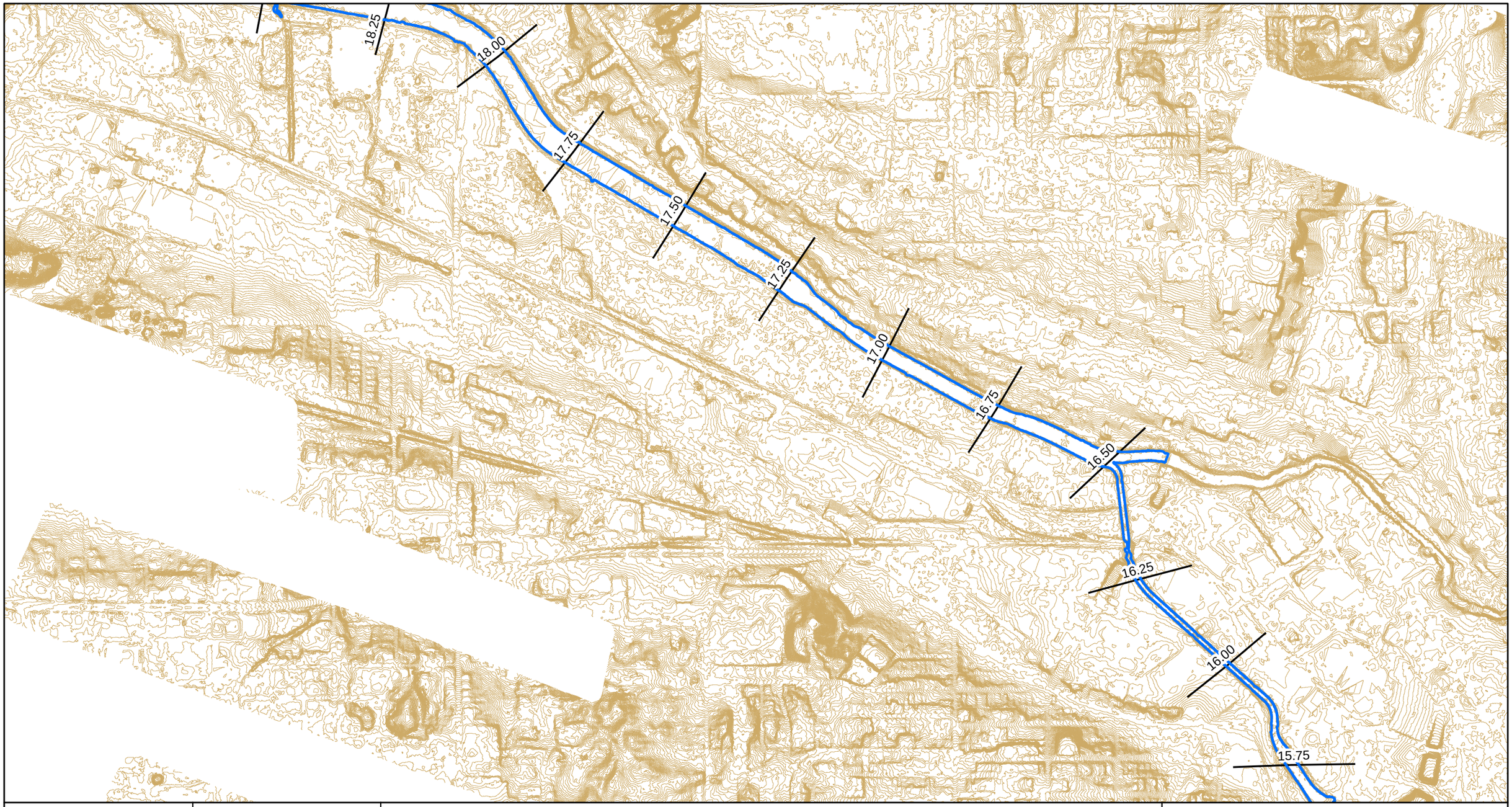

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Project #:	60162778	

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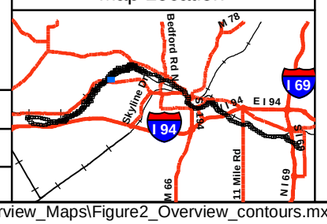

Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 5 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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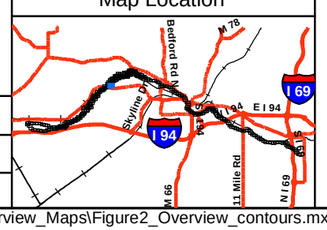
21.25
21.00
20.75
20.50
20.25
20.00
19.75
19.50
19.25
19.00
18.75
18.50
18.25

ENBRIDGE

Drawn:	NS	6/14/2011
Approved:	PS	6/14/2011
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 6 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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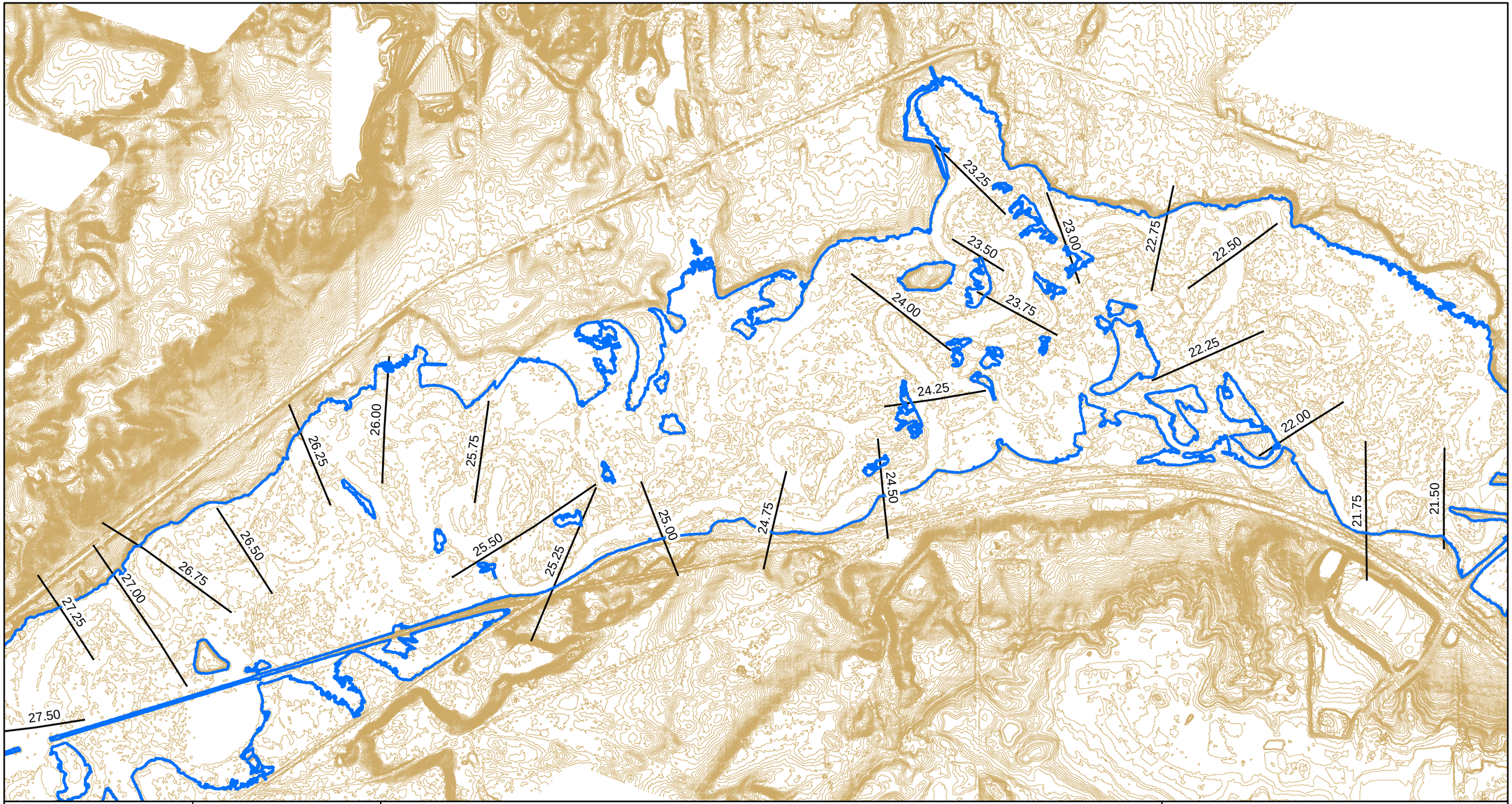

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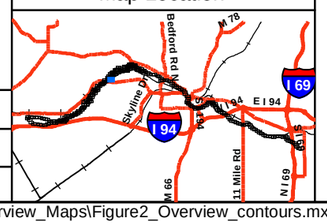
Approved:	PS	6/14/2011
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 7 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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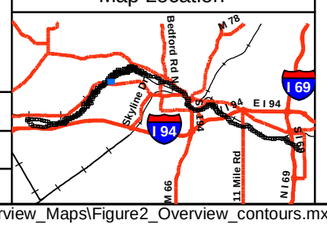
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 8 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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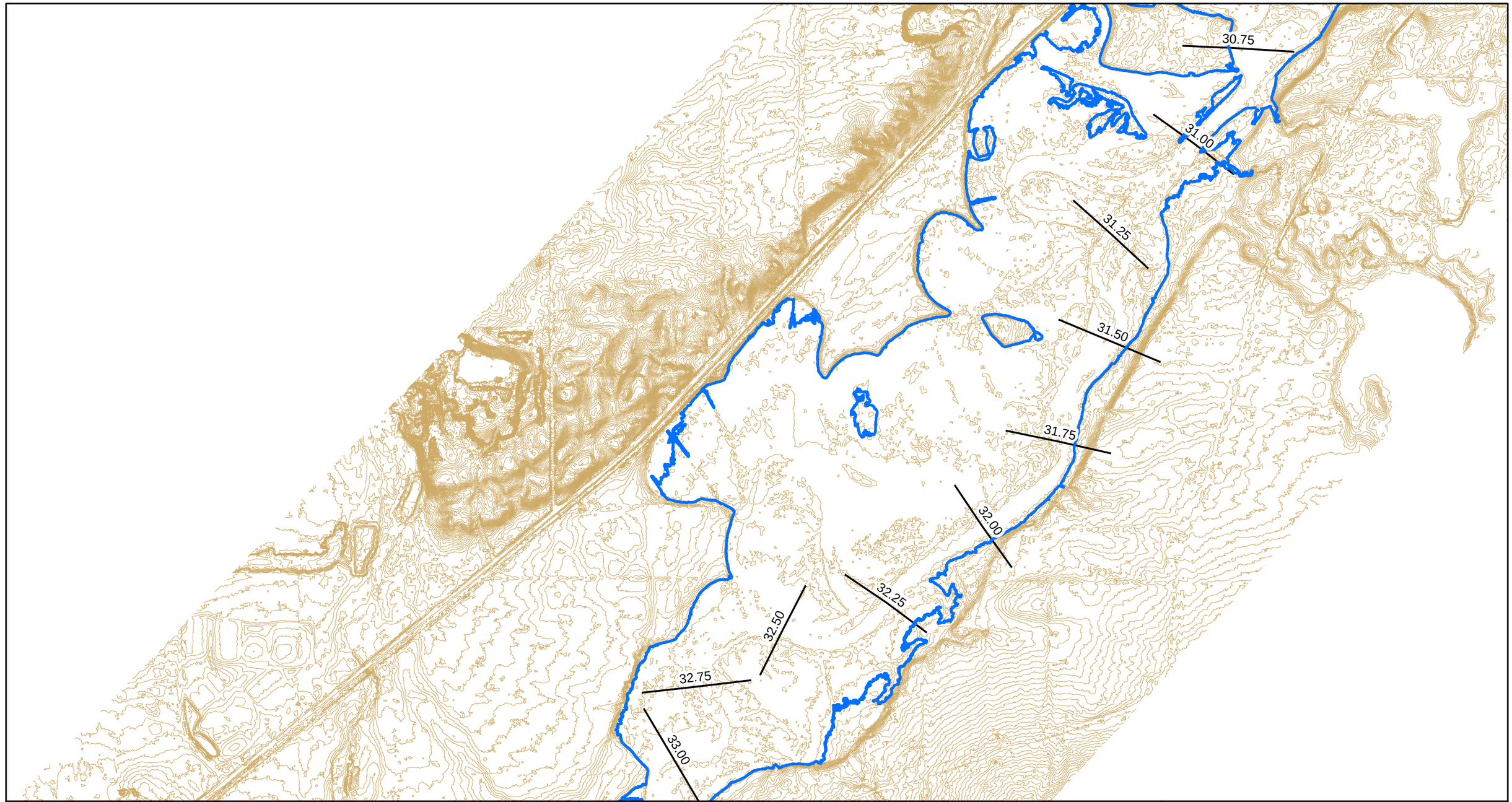

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Drawn:	NS	6/14/2011
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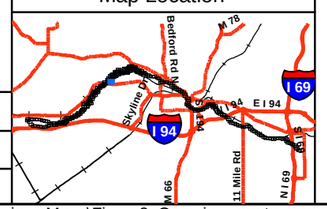
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 9 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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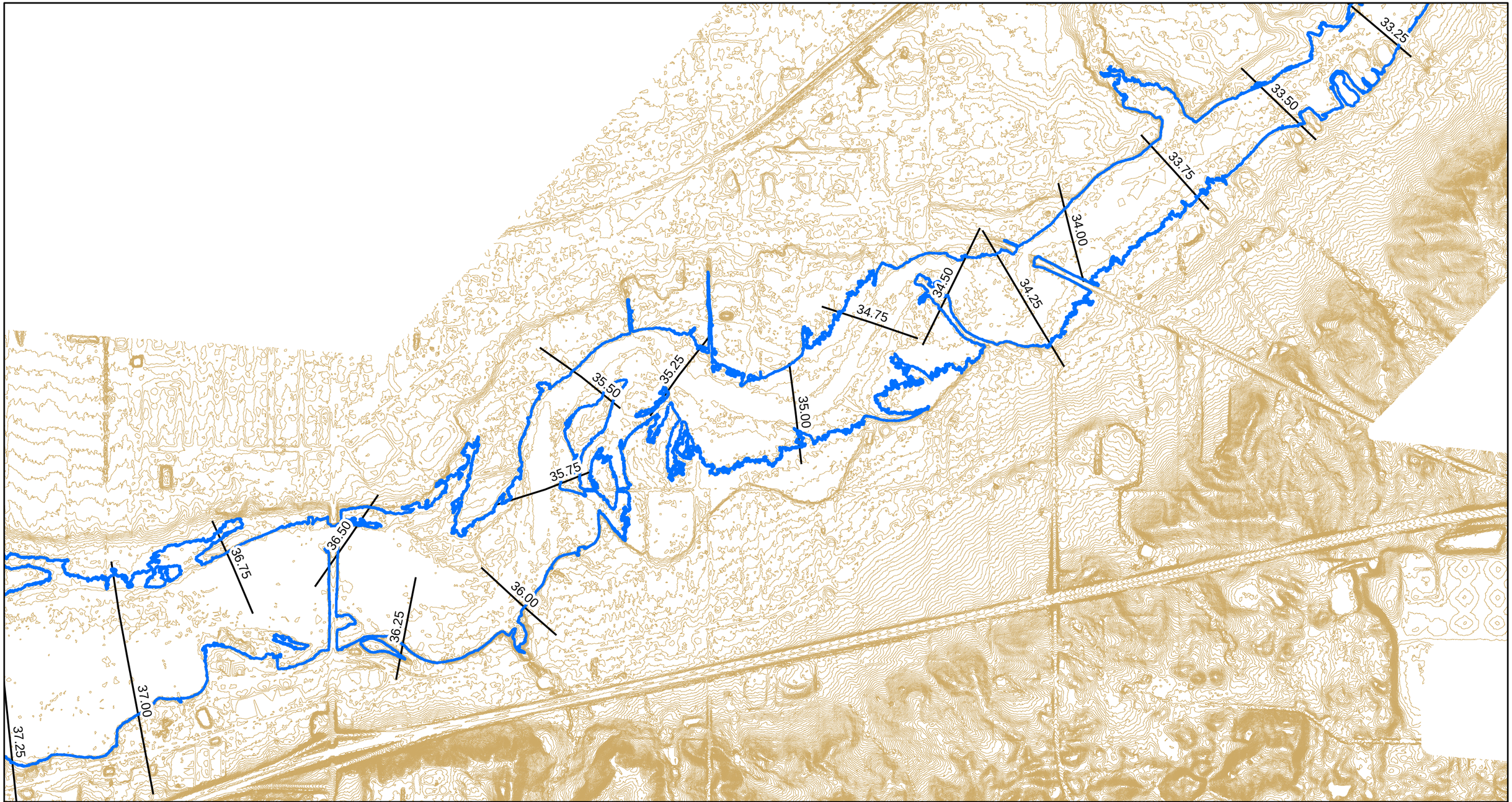
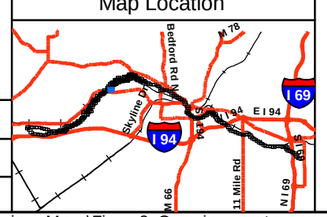


ENBRIDGE		
Drawn:	NS	6/14/2011
Approved:	PS	6/14/2011
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 10 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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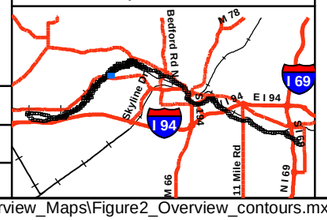
40.25
40.00
39.75
39.50
39.25
39.00
38.75
38.50
38.25
38.00
37.75
37.50

ENBRIDGE

Drawn:	NS	6/14/2011
Approved:	PS	6/14/2011
Project #:	60162778	

Map Location



Legend

- Final Inundation Model
- Quarter Mile Grid Segments
- 2011 Contours - 1 Foot Interval

N

0 500 1,000 2,000

Scale in Feet

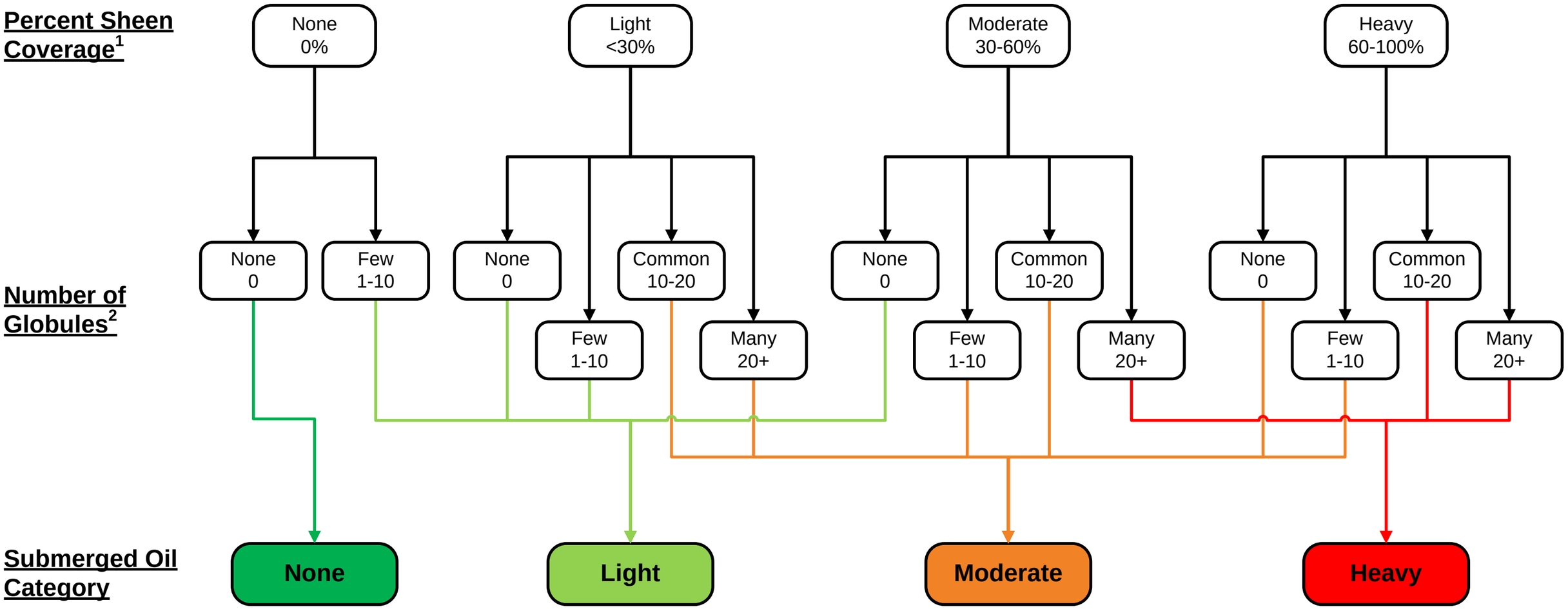
FIGURE 2
INUNDATION MODEL
AND TOPOGRAPHIC CONTOURS
SHEET 11 OF 11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Overview_Maps\Figure2_Overview_contours.mxd

SO Figures

Figure1: Submerged Oil Field Observation Flowchart



Notes:
1. Percent coverage per square yard
2. Number of globules per square yard



ENBRIDGE

Drawn:	BRS	6/14/2011
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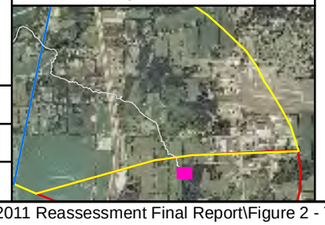
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.00 - MP0.02

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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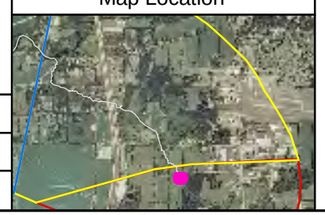
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.03 - MP0.09

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011



ENBRIDGE

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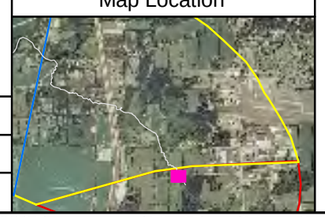
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.10 - MP0.13

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.14 - MP0.17

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.18 - MP0.22

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.23 - MP0.28

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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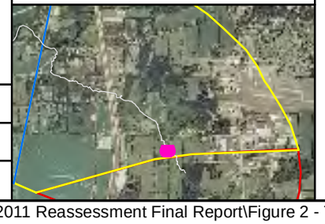
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.28 - MP0.32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
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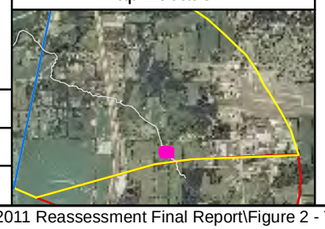
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.33 - MP0.36

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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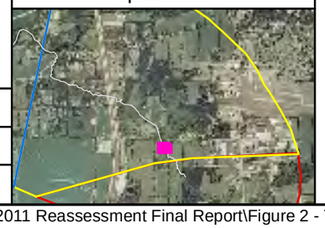
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.36 - MP0.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.41 - MP0.45

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

Talmadge Creek Y

Talmadge Creek X

0.49

Talmadge Creek W

0.48

0.47

Talmadge Creek V

ENBRIDGE

Drawn:	BRS	6/14/2011
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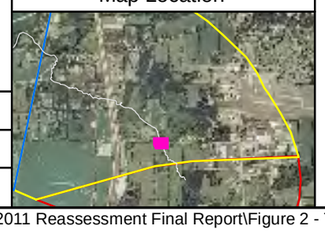
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP-0.46 - MP0.49

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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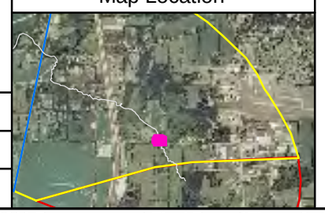
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/14/2011
Approved:	DBR 6/14/2011
Project #:	106-4186

Map Location



Legend

Submerged Oil
with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.50 - MP0.53

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP-0.54 - MP0.56

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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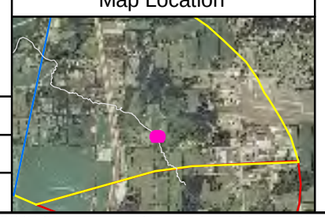
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate
- Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP-0.57 - MP0.60

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil
with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.61 - MP0.66

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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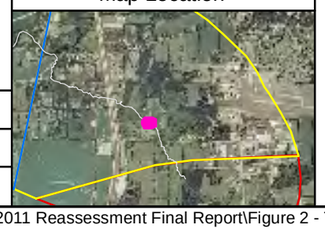
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/14/2011
Approved:	DBR 6/14/2011
Project #:	106-4186

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS
TALMADGE CREEK

MP0.67 - MP0.72

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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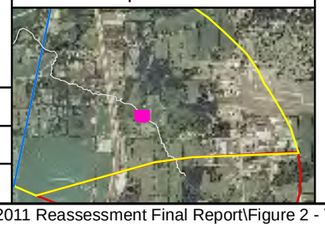
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.73 - MP0.78

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.79 - MP0.82

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

Talmadge Creek II

0.86

Talmadge Creek HH

0.85

Talmadge Creek GG

Talmadge Creek FF

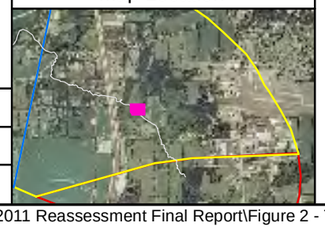
0.84

0.83

ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)

- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Delineation Areas

- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.83 - MP0.86

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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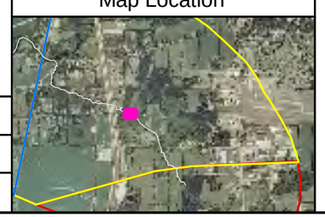
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.87 - MP0.94

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP0.95 - MP1.05

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.06 - MP1.11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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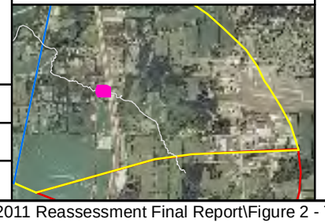
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.12 - MP1.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 2 - Talmadge Creek.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.26 - MP1.32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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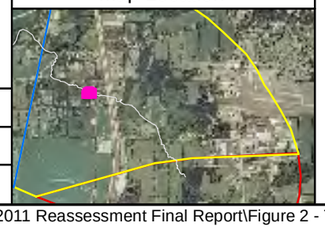
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.33 - MP1.39

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

Talmadge Creek FFF

Talmadge Creek GGG

1.45

1.44

1.43

1.42

1.41

1.4

Talmadge Creek EEE

ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil
with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.41 - MP1.45

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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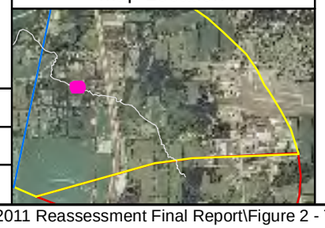
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.46 - MP1.51

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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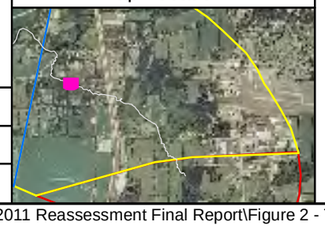
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.52 - MP1.60

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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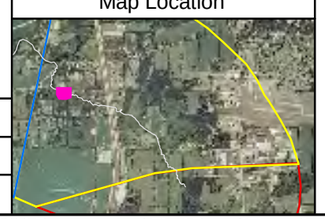
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.61 - MP1.66

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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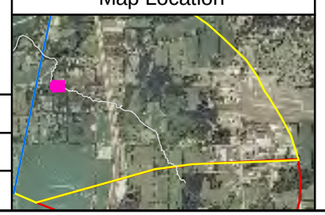
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.67 - MP1.73

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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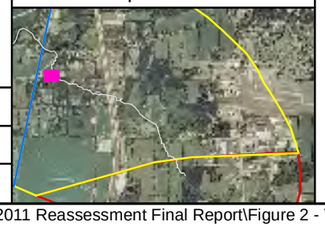
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.74 - MP1.78

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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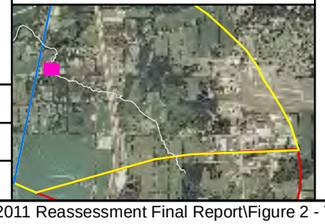
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.79 - MP1.82

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil
with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.83 - MP1.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.86 - MP1.89

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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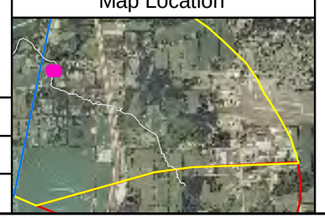
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE
Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.90 - MP1.94

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/14/2011
Approved:	DBR 6/14/2011
Project #:	106-4186

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30
Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS
TALMADGE CREEK

MP1.95 - MP1.99

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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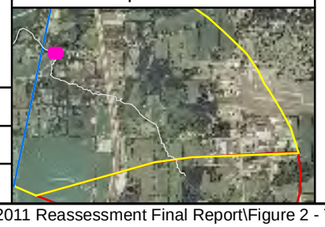
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	6/14/2011
Approved:	DBR	6/14/2011
Project #:	106-4186	

Map Location



Legend

Submerged Oil with soft sediment thickness (ft)
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

Delineation Areas
- Heavy
- Moderate

Milepost

N

0 15 30

Scale in Feet

FIGURE 2: POLING ASSESSMENT RESULTS TALMADGE CREEK

MP1.99 - MP2.03

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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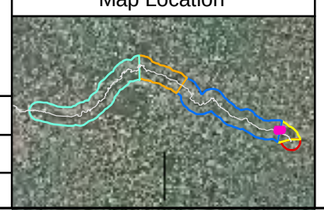
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 3: POLING ASSESSMENT RESULTS CONFLUENCE TO CERESCO DAM

MP 01.95 - MP 02.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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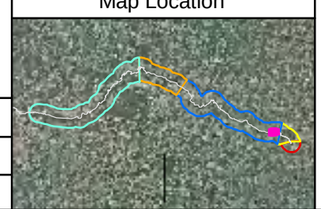
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 3: POLING ASSESSMENT RESULTS CONFLUENCE TO CERESCO DAM

MP 02.60 - MP 03.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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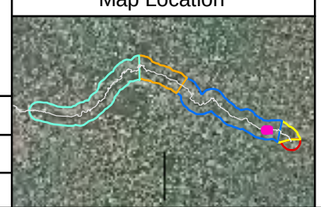
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 3: POLING ASSESSMENT RESULTS CONFLUENCE TO CERESCO DAM

MP 03.40 - MP 04.20

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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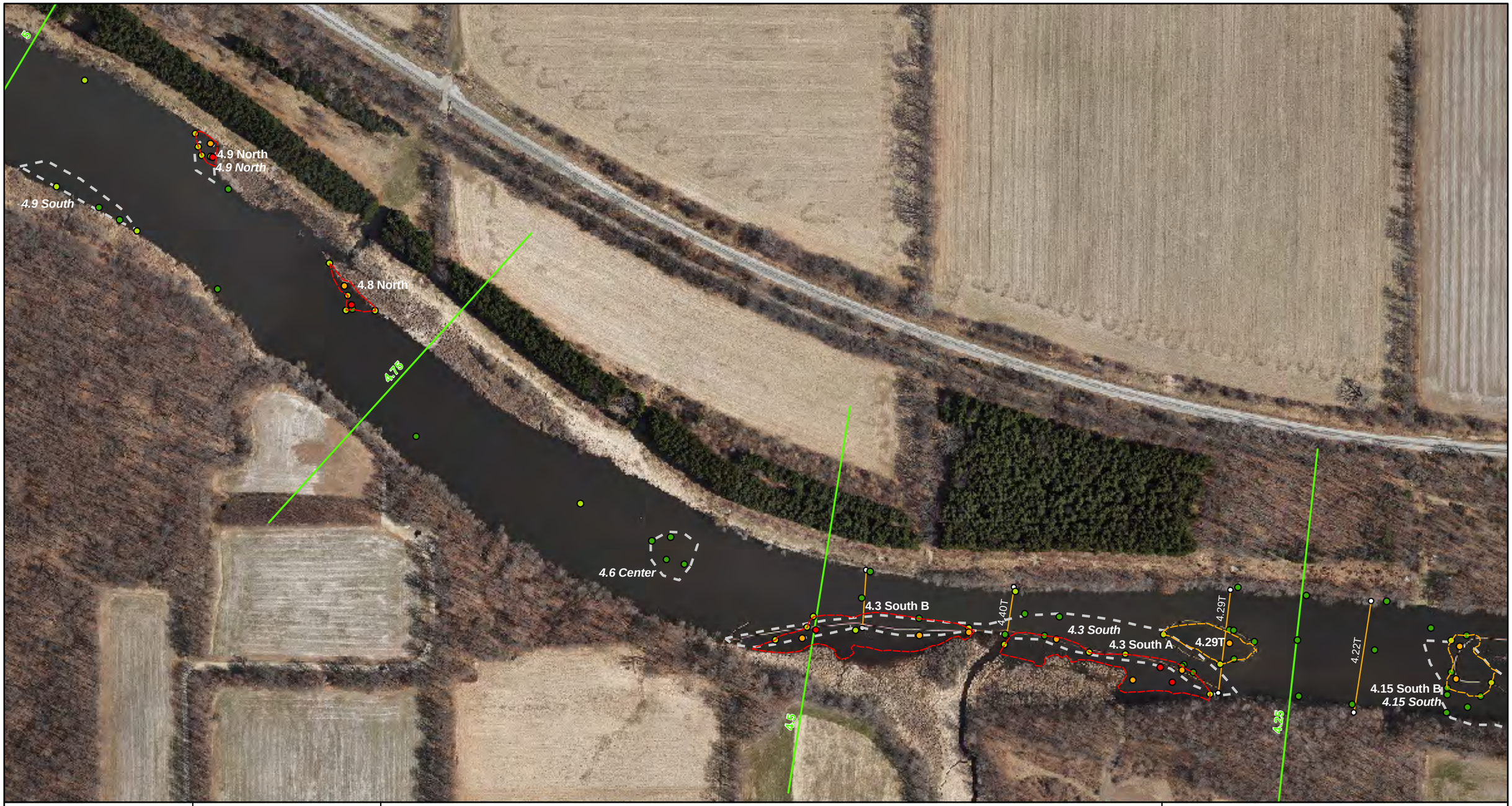
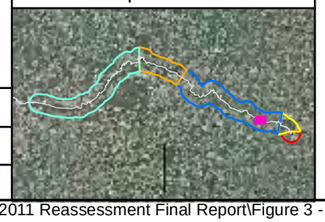
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 3: POLING ASSESSMENT RESULTS CONFLUENCE TO CERESCO DAM

MP 04.15 - MP 05.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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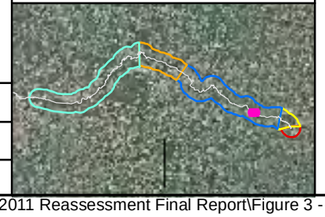
Aerial Photography Date: April 2011

5.75 South A5.75 South
5.55 North
5.75 North/5.55 North
5.63 South
5.55 North/5.35 North
5.35 North
5.25 North
5.25 South
5.25 North
5.25 South
4.9 South
5.75
5.5
5.25
5

ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 3: POLING ASSESSMENT RESULTS CONFLUENCE TO CERESCO DAM

MP 04.90 - MP 05.65

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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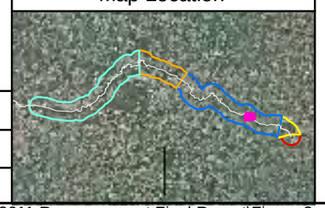
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 3: POLING ASSESSMENT RESULTS CONFLUENCE TO CERESCO DAM

MP 05.65 - MP 06.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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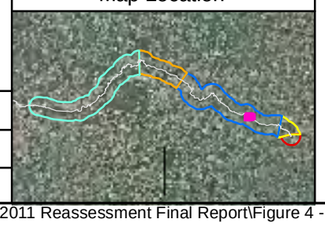
Aerial Photography Date: April 2011

6.25 North
6.25
6.25 South
6.20T
6.2 South
6.1 North
6.09T
5.9 North
5.96T
5.9 South B
5.9 South A
5.9 South A
5.8 North
5.75 Northwest
6
5.8 South
5.8 South
5.75 South B
5.75 North/5.55 North
5.75 South
5.55 North
5.63 South
5.75 South A
5.75
5.63 South
5.55 North/5.35 North
5.5

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 05.65 - MP 06.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 06.20 - MP 07.15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011



ENBRIDGE

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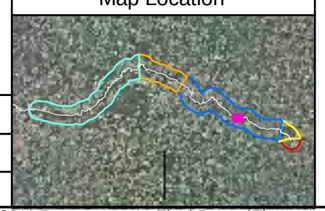
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 07.15 - MP 07.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011

8.75

8.75 North

8.75 North A

8.68T

8.6 North

8.6 North

8.58T

8.5

8.43T

8.5L1/L2

8.5 L1/L2

8.29RDB

8.25 Islands

8.25 Islands

8.21T

8.05 Center

8.0

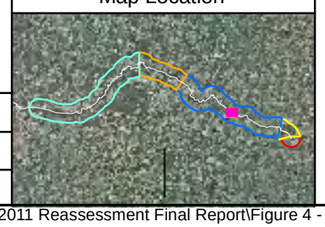
7.95T

8.0

ENBRIDGE

Drawn:	BRS 06/15/2011
Approved:	DBR 06/15/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 07.90 - MP 08.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



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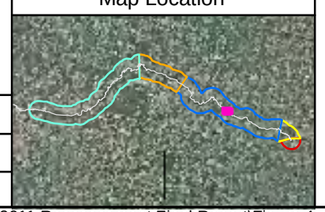
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 08.70 - MP 09.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 09.25 - MP 10.05

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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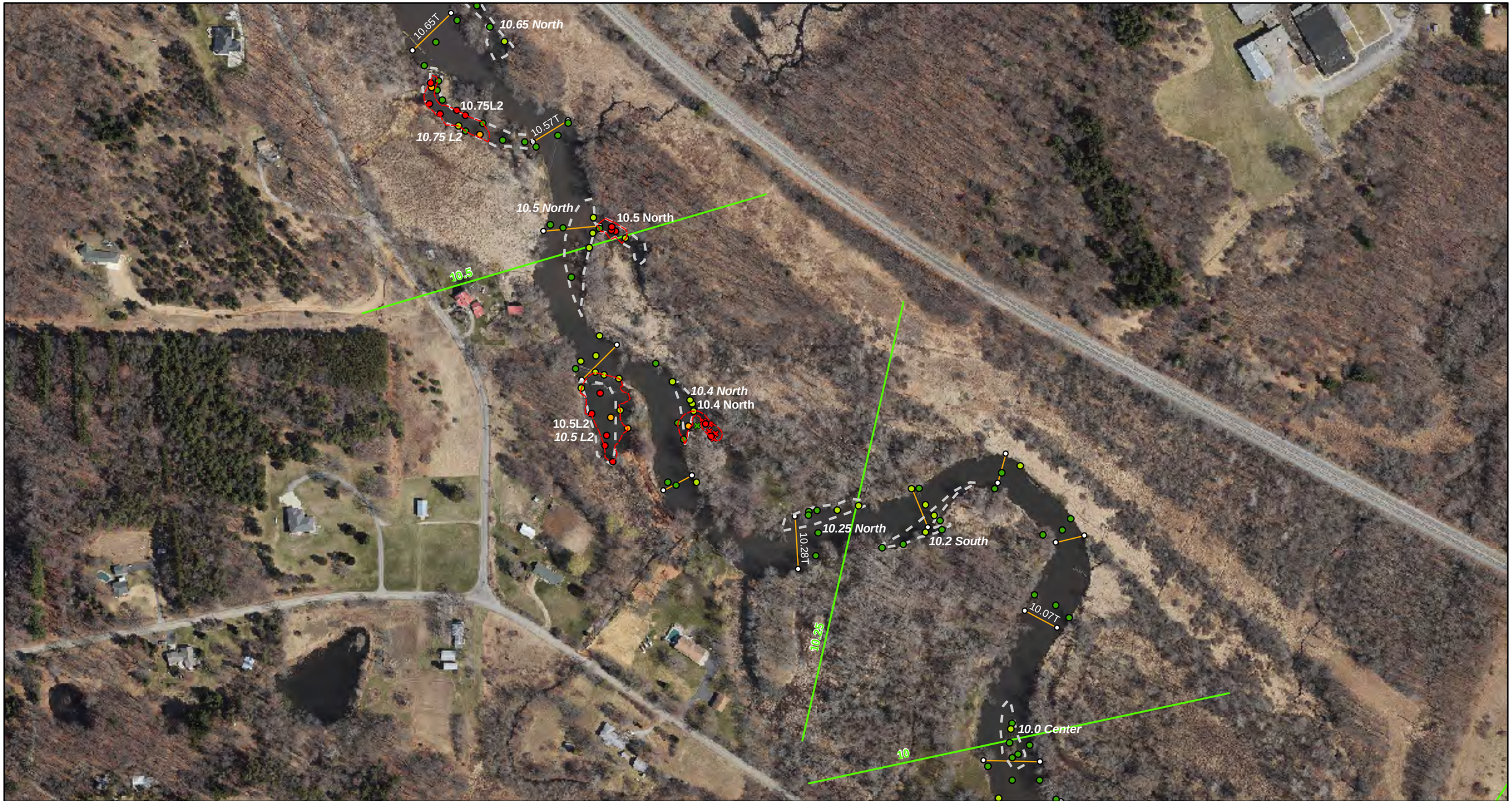

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 10.00 - MP 10.65

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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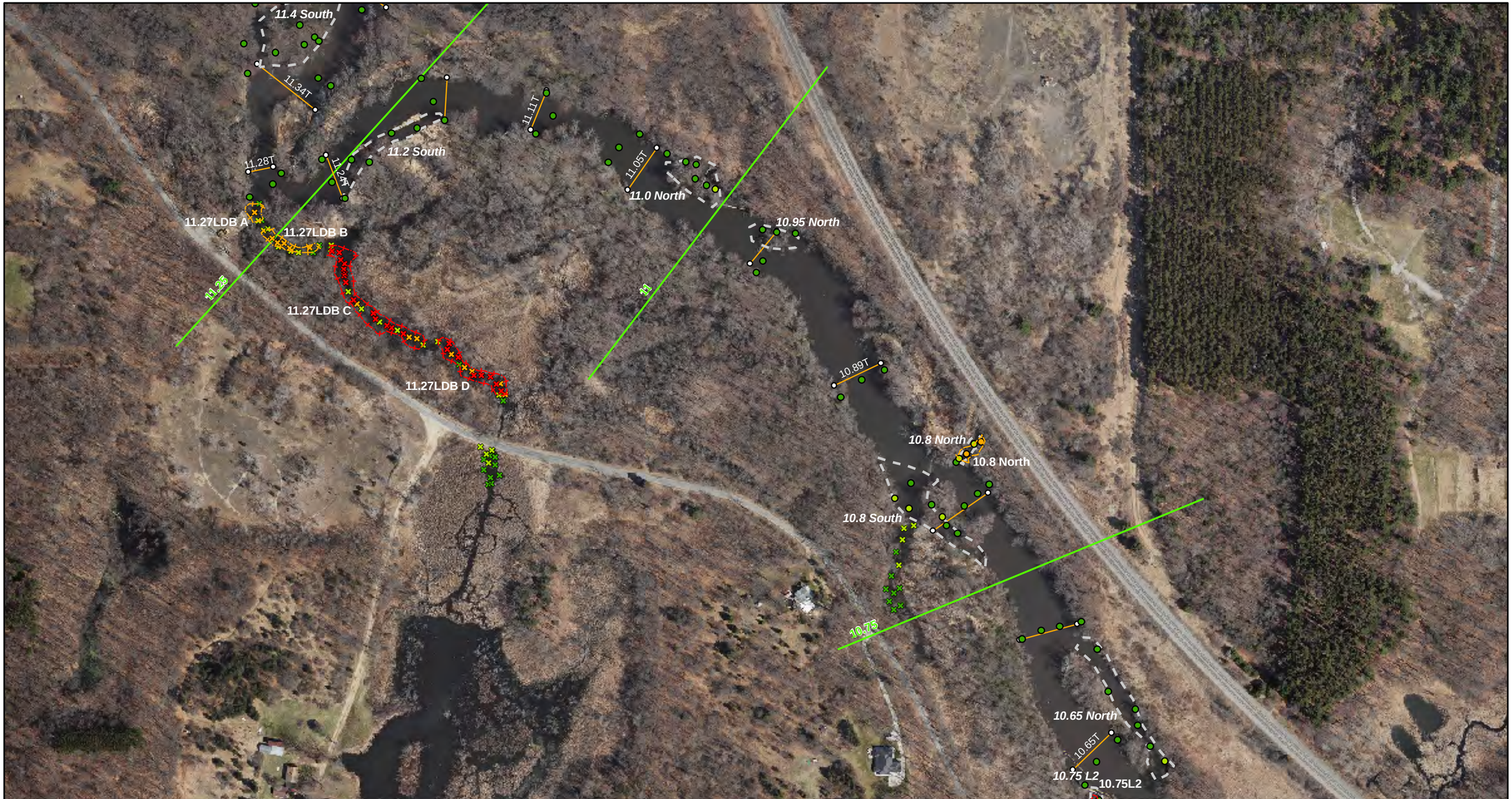
Aerial Photography Date: April 2011



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Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 10.60 - MP 11.40

ENBRIDGE LINE 6B MP 608
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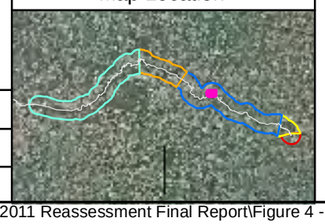
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 11.10 - MP 12.45

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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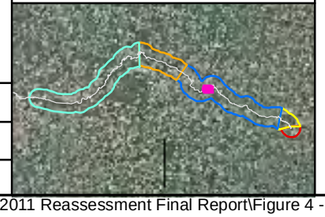
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 12.30 - MP 13.05

ENBRIDGE LINE 6B MP 608
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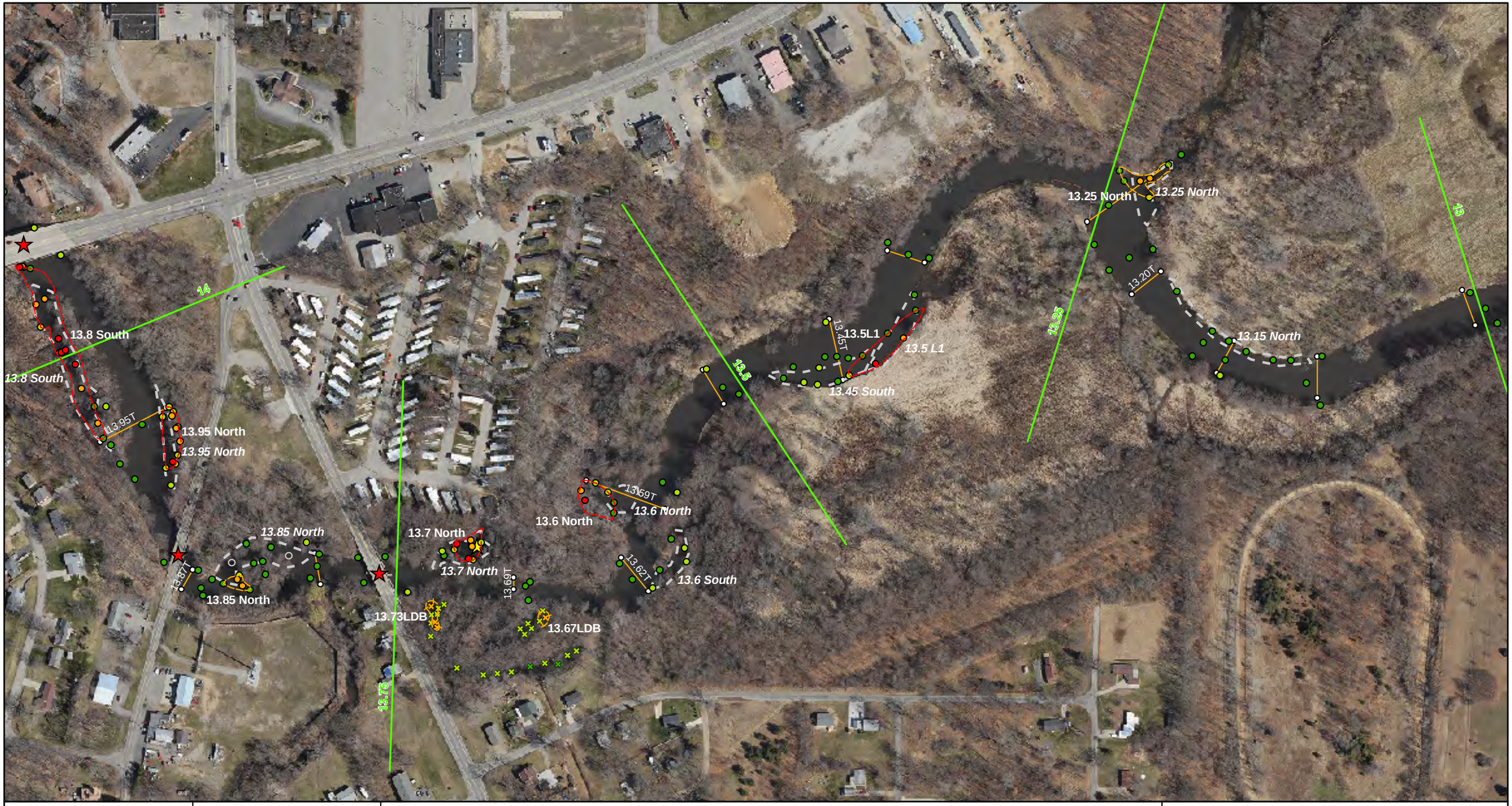
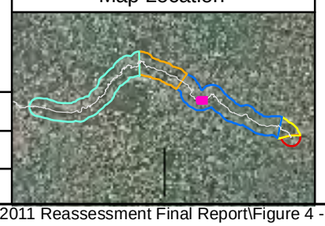
Aerial Photography Date: April 2011



Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 13.00 - MP 14.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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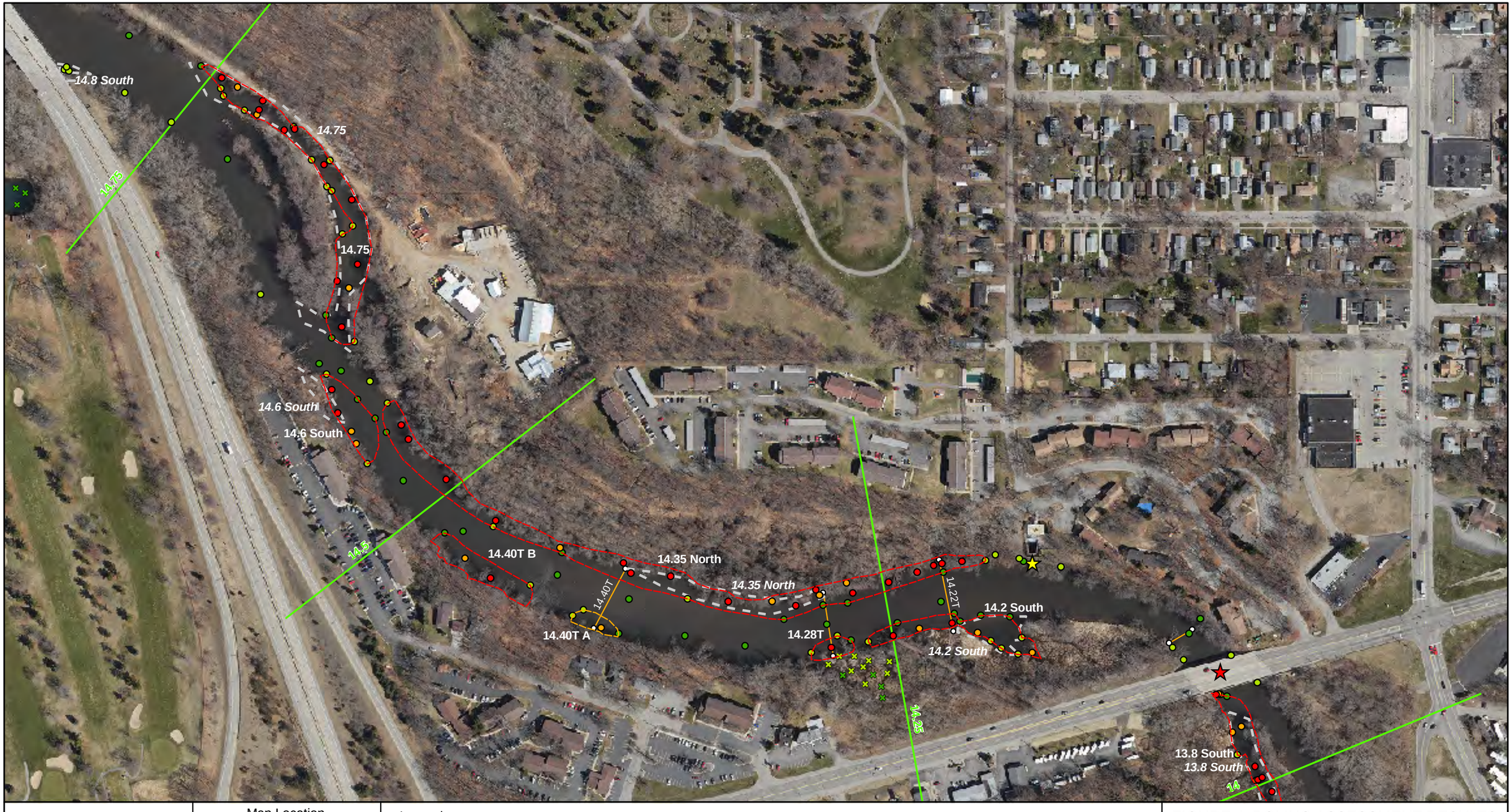
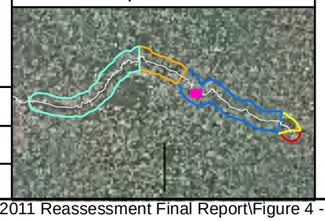
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 14.00 - MP 14.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

15.25
15.25
15.25
South Mill Pond B
South Mill Pond
15.05 South B
South Mill Pond A
15.05 South
15.05 South A
15
14.9 South
14.9 South
14.8 South
14.75
14.75
14.75

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 14.65 - MP 15.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011

15.75

15.65RDB A

15.65RDB B

15.6

15.6

Dickman Rd Bridge

North Mill Pond

15.4

15.4

North Mill Pond

15.5

15.25

15.25

15.25

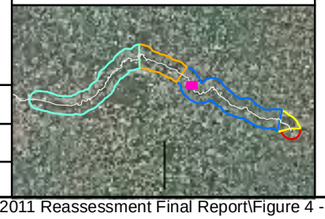
South Mill Pond

South Mill Pond B

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 4: POLING ASSESSMENT RESULTS CERESCO DAM TO KALAMAZOO RIVER DAM

MP 15.25 - MP 15.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

15.75

15.65RDB A

15.65RDB B

15.6

15.6

Dickman Rd Bridge

North Mill Pond

15.4

15.4

North Mill Pond

15.3

15.25

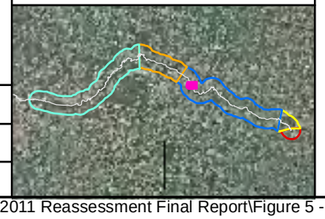
15.25

15.25

South Mill Pond

South Mill Pond B

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

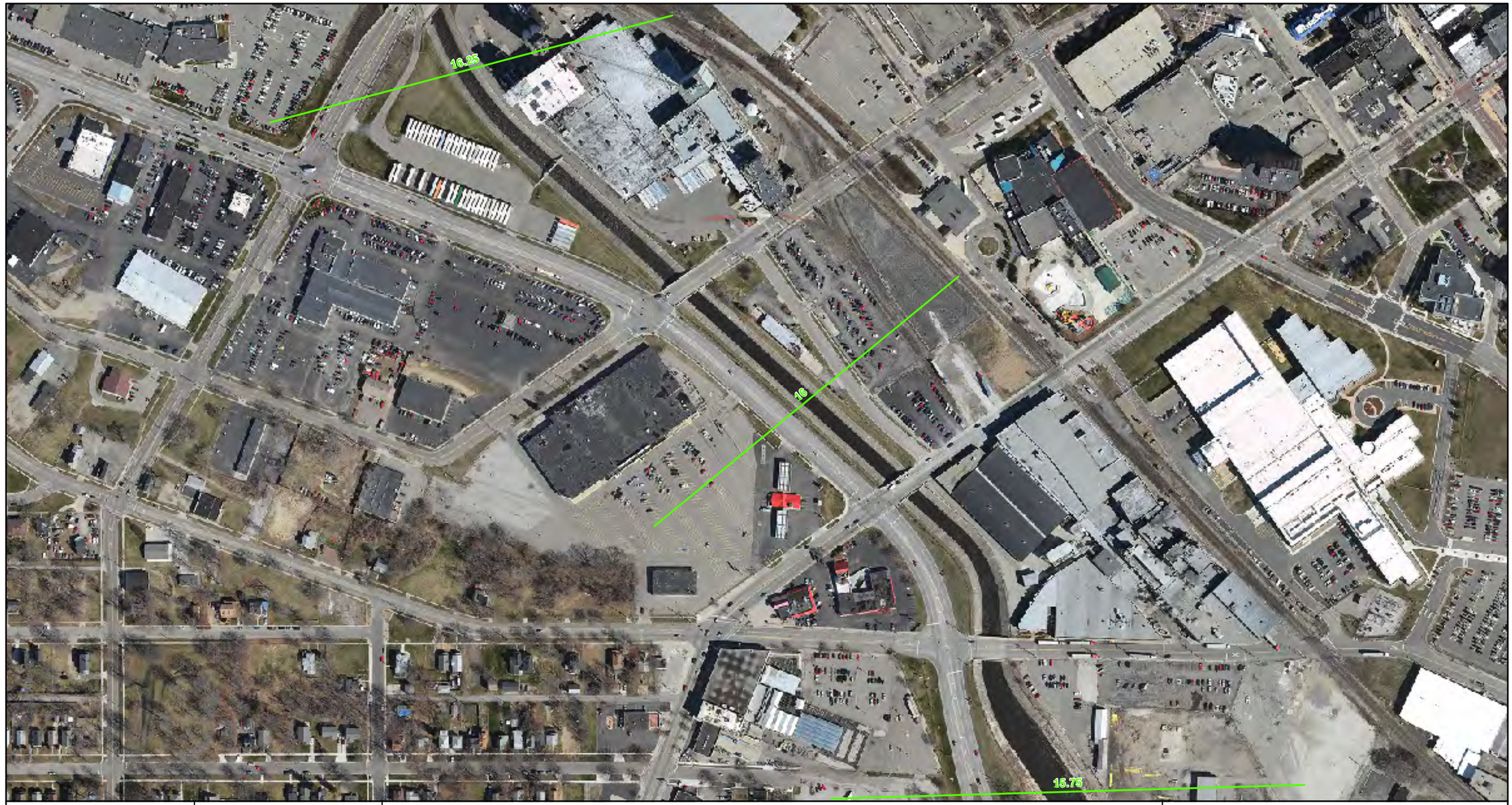
FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 15.25 - MP 15.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 5 - KZR Dam to MP 21.5.mxd

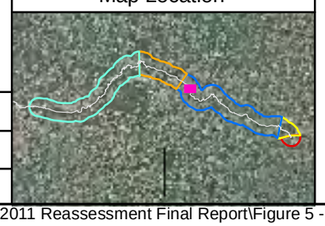
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 15.75 - MP 16.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 5 - KZR Dam to MP 21.5.mxd

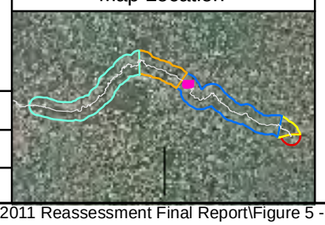
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

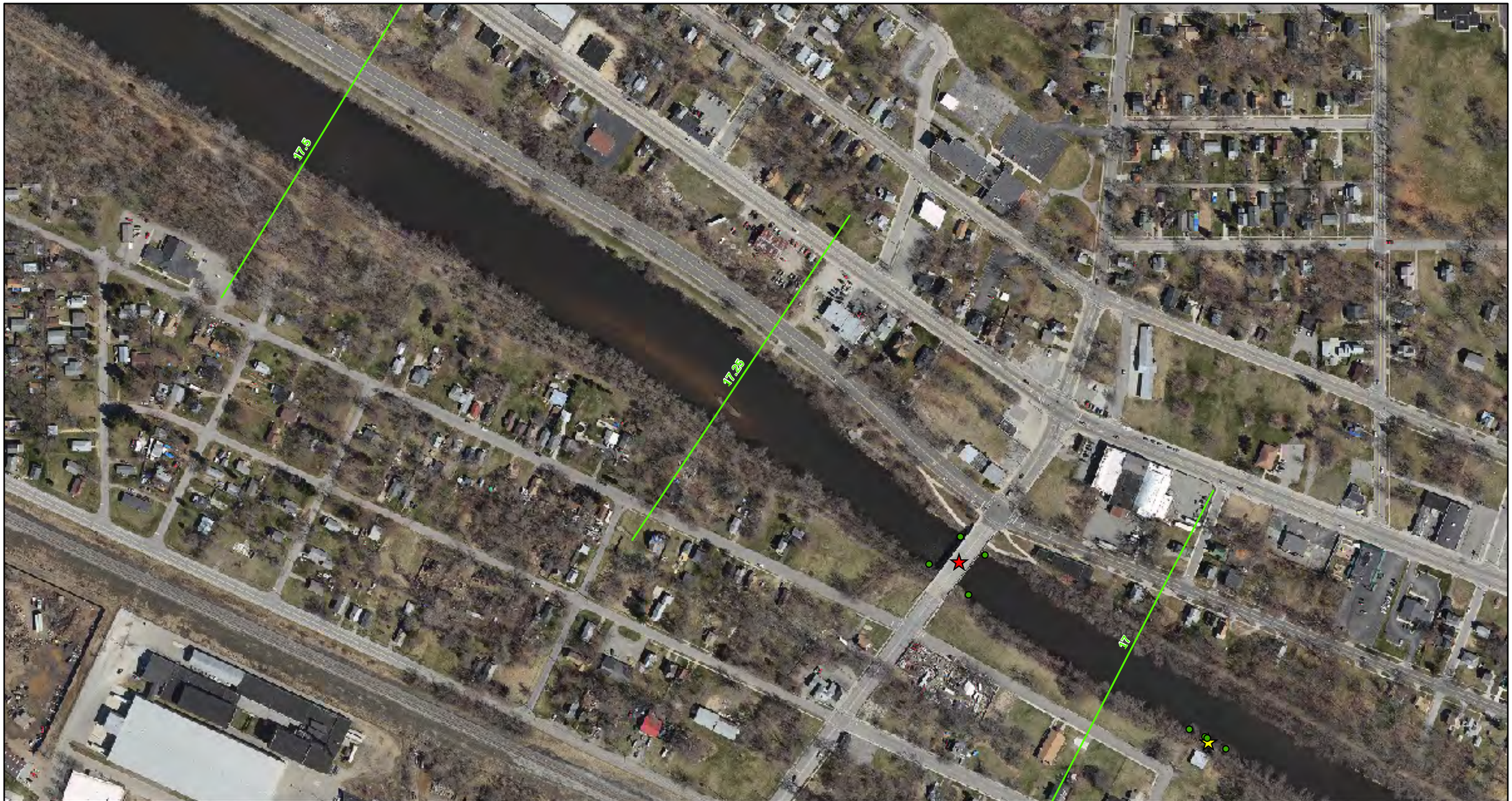
FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 16.30 - MP 16.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 5 - KZR Dam to MP 21.5.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 16.85 - MP 17.60

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 17.60 - MP 18.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 18.30 - MP 19.15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

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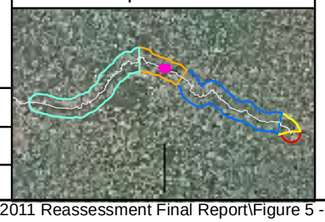
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 19.10 - MP 19.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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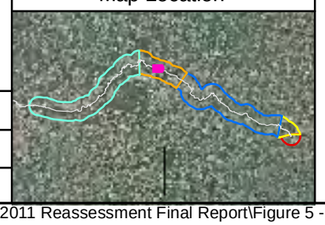
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 19.90 - MP 20.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

21.5R1
21.5 R1
21.4
21.44T
21.4
21.33T
Custer Dr Bridge SW
21.55 South
21.25 North
21.25
21.24T
21.11T
21
20.95T
20.9 South
20.81T
20.75
20.7 North

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas
Transect
Park/Launch Access Poling Areas
Bridge Access Poling Areas
Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 5: POLING ASSESSMENT RESULTS KALAMAZOO RIVER DAM TO MP 21.5

MP 20.70 - MP 21.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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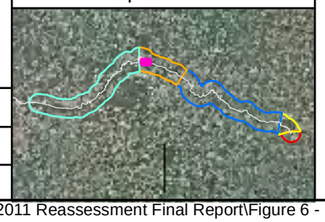
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 21.35 - MP 22.15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 6 - MP 21.5 to Railroad Bridge.mxd

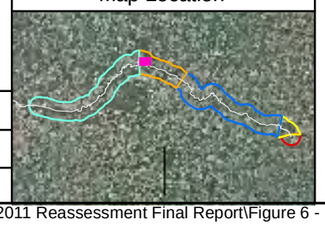
Aerial Photography Date: April 2011

22.75 North A
22.57RDB
22.75 North C
22.75 North
22.88T
22.75 North B
22.64T
22.5 West
22.75
22.5
22.42T
22.4 North
22.4 North
22.10RDB
22.33T
22.23RDB
22.25 North
22.21RDB
22.2 North
22.25
22.06RDB
22.2 North
22.15 South
22.0RDB

ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas
Transect
Park/Launch Access Poling Areas
Bridge Access Poling Areas
Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 22.15 - MP 22.90

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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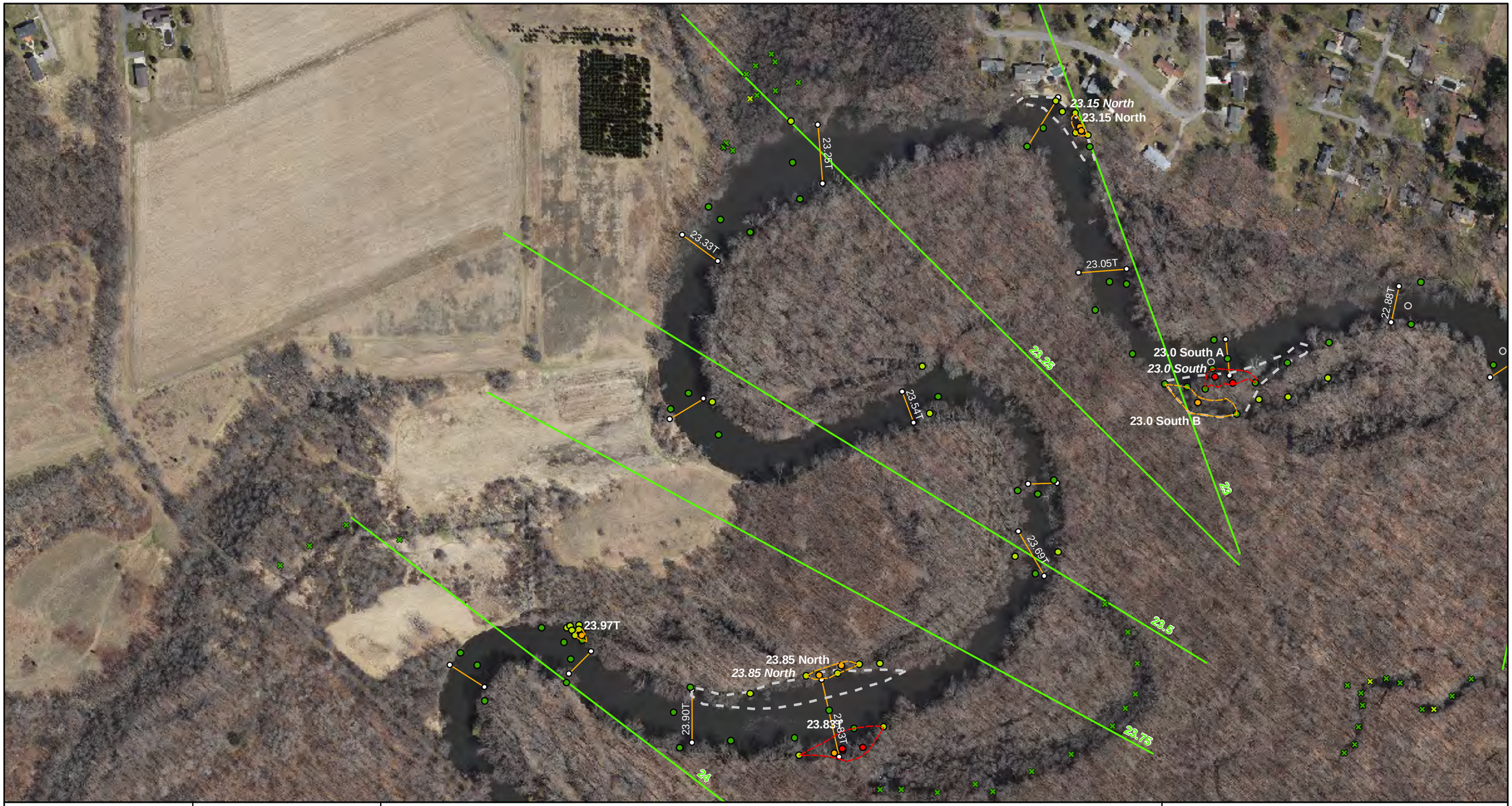
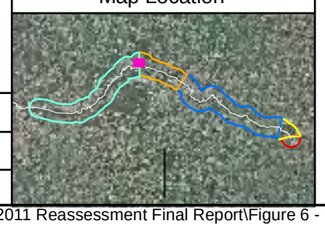
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 22.80 - MP 24.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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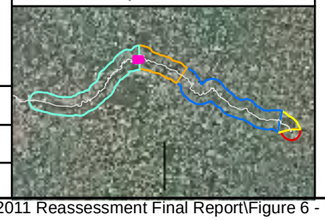
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 24.10 - MP 24.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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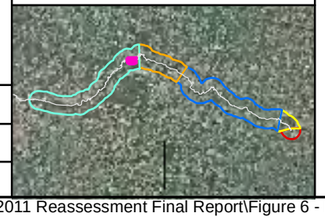
Aerial Photography Date: April 2011

25.65 North
26
25.75
25.41LDB C
25.41LDB A
25.41LDB B
25.47T
25.45RDB
25.5
25.36T
25.31T
25.25
24.99RDB
25.08RDB
24.99T
25.18LDB
25
24.75 North
24.92T
24.82T
24.82T

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 24.80 - MP 25.65

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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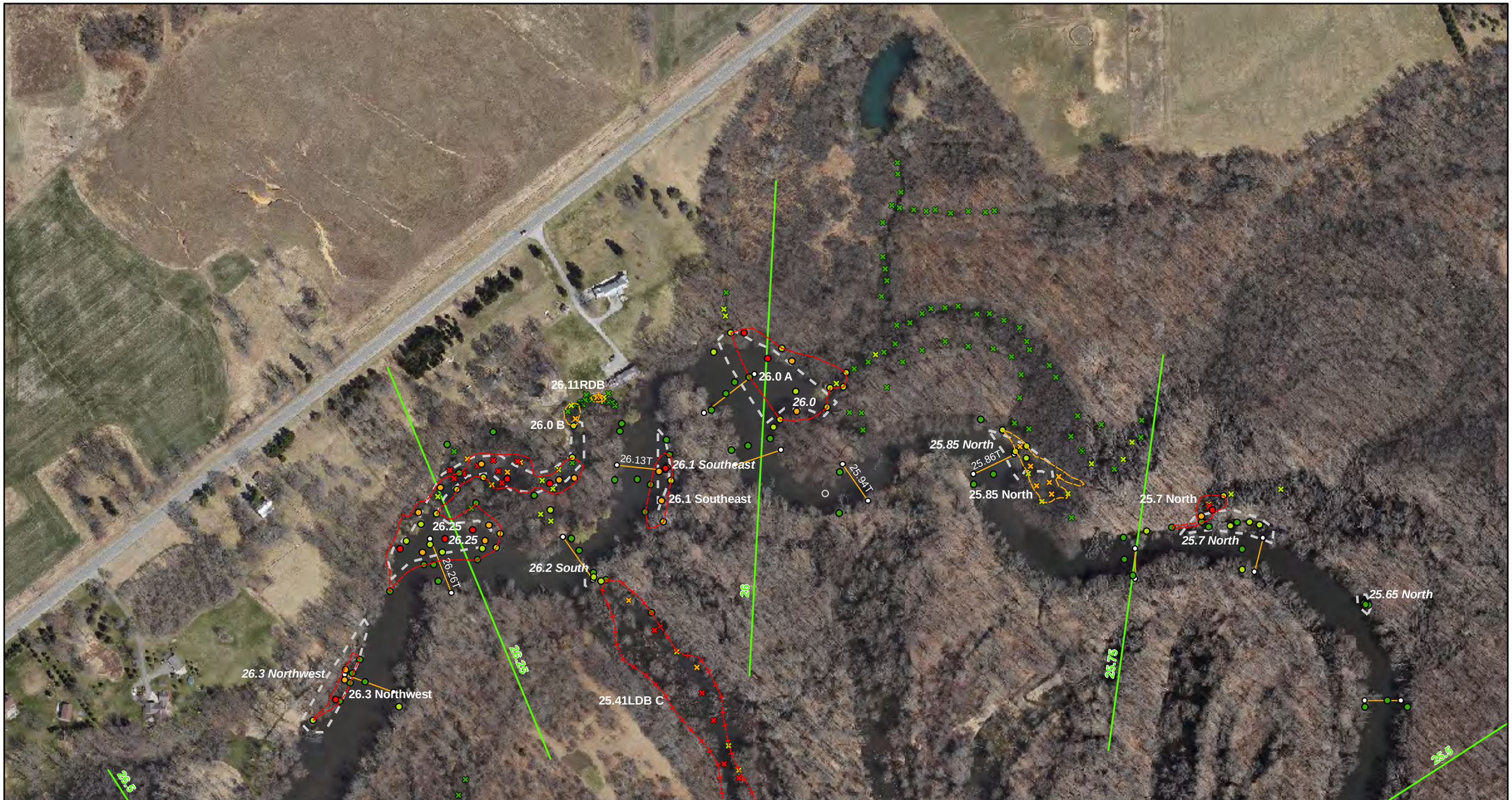
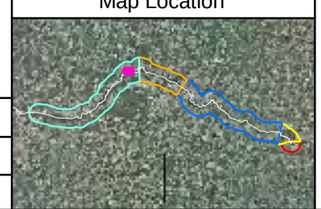
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/15/2011
Approved:	DBR 06/15/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 25.55 - MP 26.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 6 - MP 21.5 to Railroad Bridge.mxd

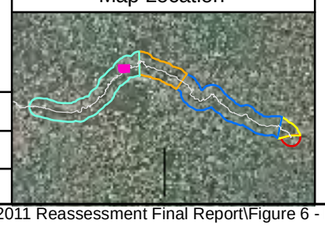
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 26.40 - MP 27.45

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

27.5 Southeast A
27.5 Southeast A
27.5 Northwest
27.5
27.5 Southeast B
27.5 Northwest
27.50T
27.50RDB
27.5 Southeast B
27.55 Northwest
27.58RDB
27.56T
27.66RDB
27.65 North
27.65 South
27.65 South
27.7 North
27.7 North
27.75
27.9
27.9
27.80T
27.85 North
27.98LDB
28
28.25 B
28.25 A
28.25
28.08T
28.12LDB B
28.15 South
28.15 South
28.12LDB C

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 27.45 - MP 28.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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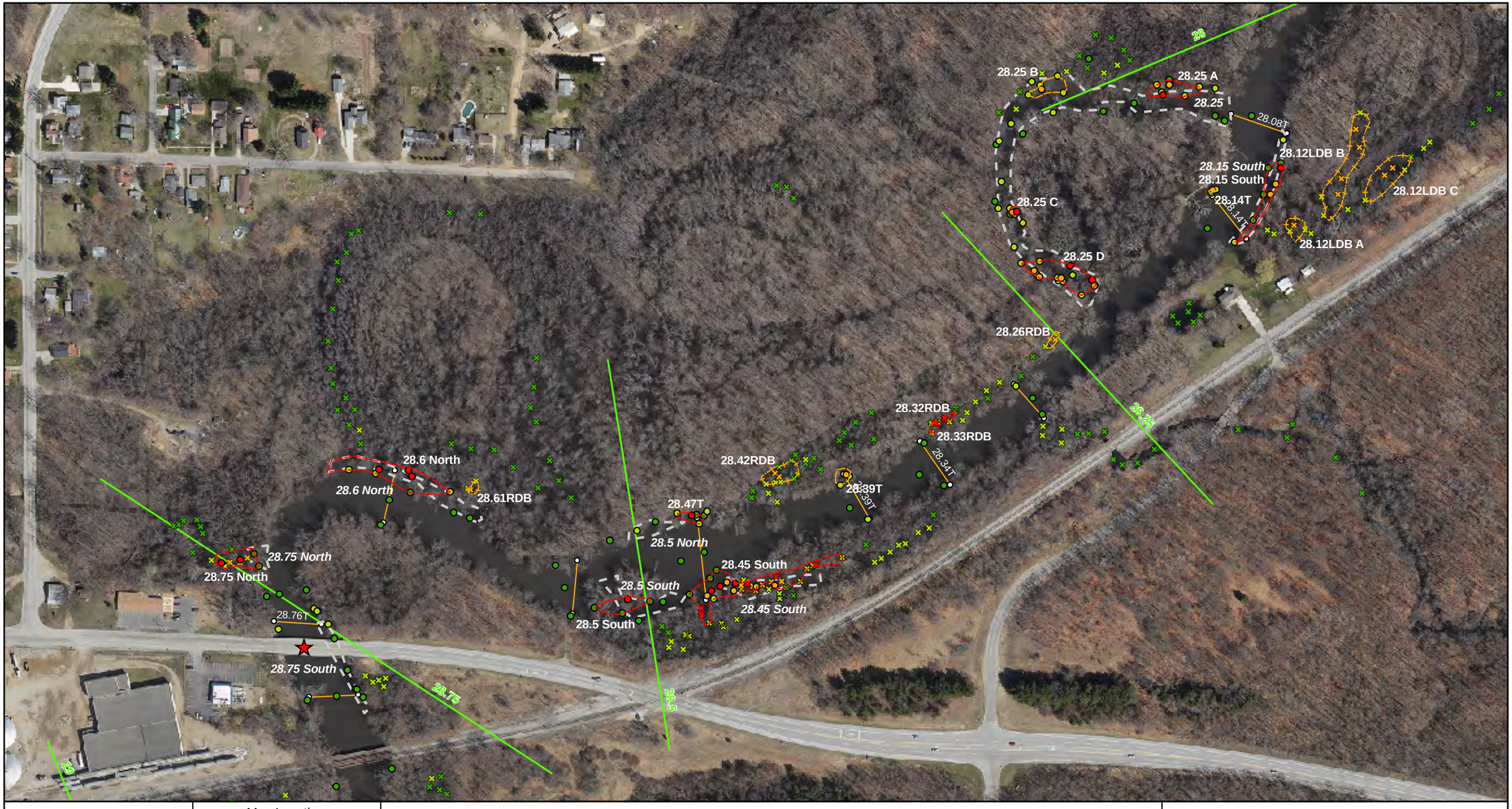
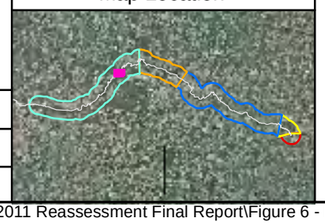
Aerial Photography Date: April 2011



Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

FIGURE 6: POLING ASSESSMENT RESULTS MP 21.5 TO RAILROAD BRIDGE

MP 28.05 - MP 28.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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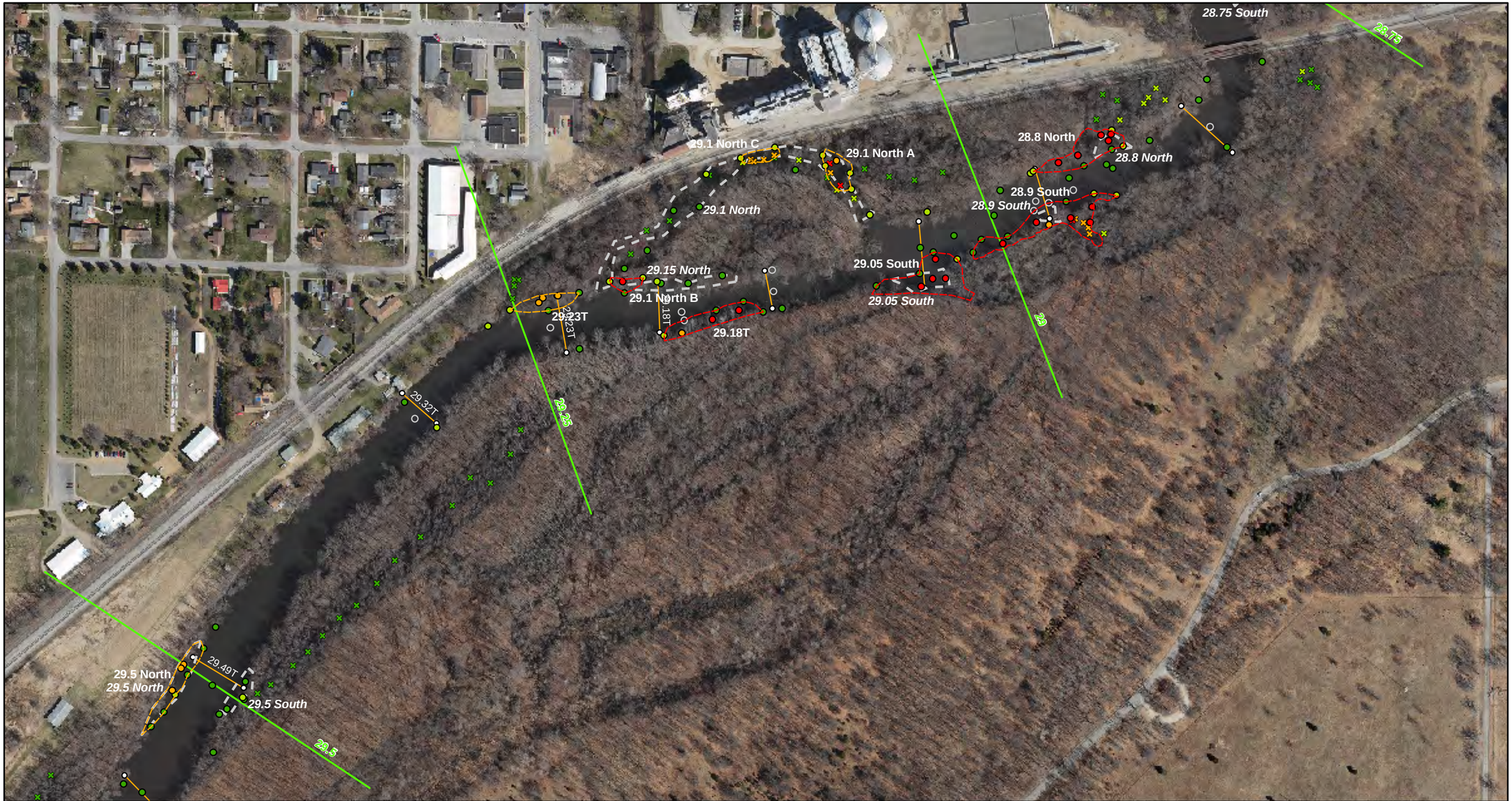
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 28.85 - MP29.55

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

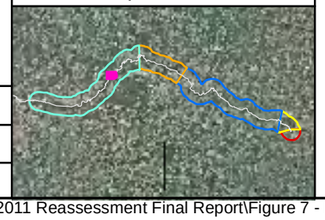
H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 7 - Railroad Bridge to MP 36.0.mxd

Aerial Photography Date: April 2011

29.5 North
29.5 North
29.49T
29.5 South
29.5
29.63T
29.71ROB
29.70T
29.75 North
29.75 North
29.79T
29.75
29.85T
29.90T
30.0
30.25
30

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas
Transect
Park/Launch Access Poling Areas
Bridge Access Poling Areas
Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

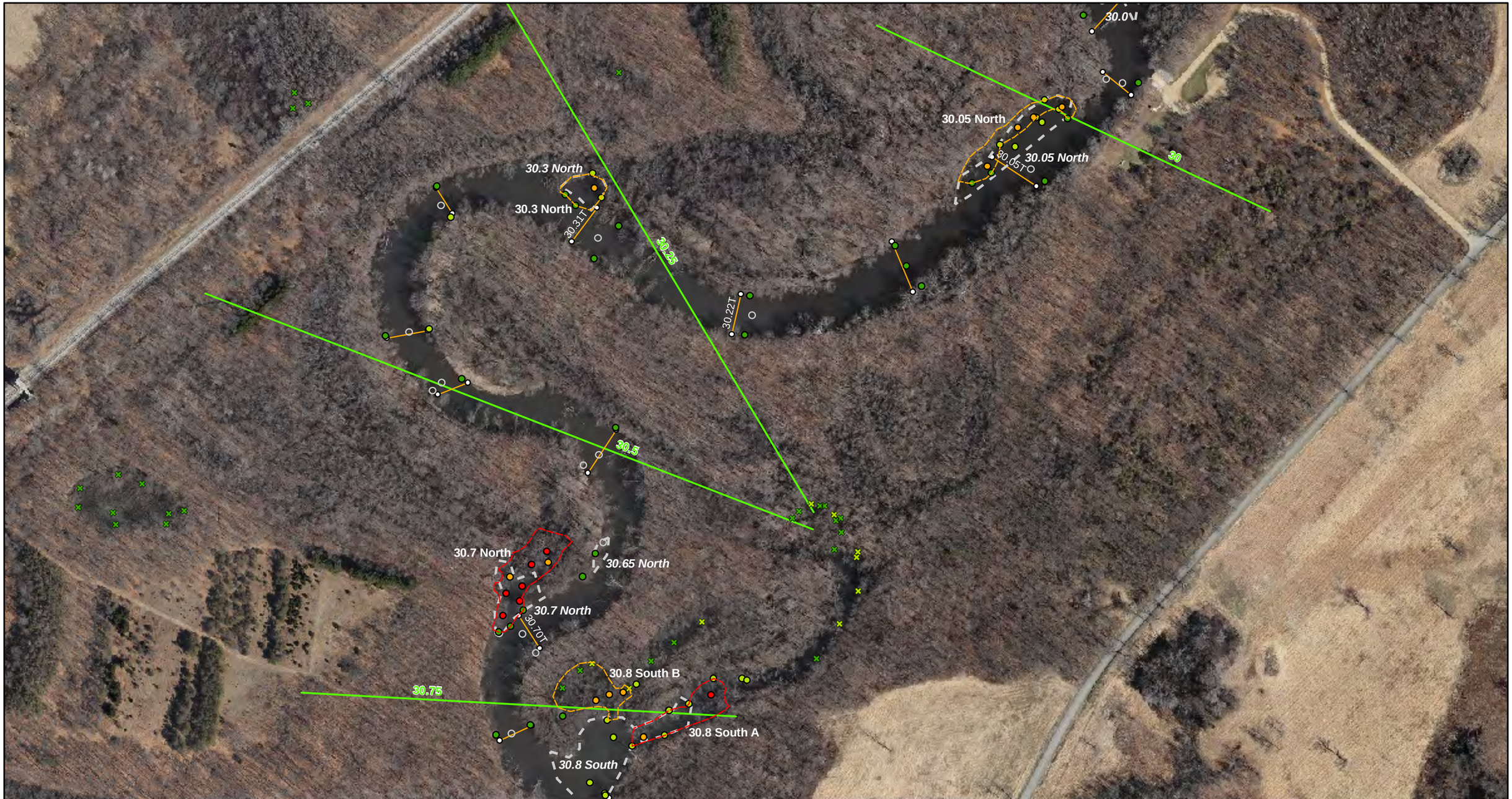
FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 29.50 - MP29.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 7 - Railroad Bridge to MP 36.0.mxd

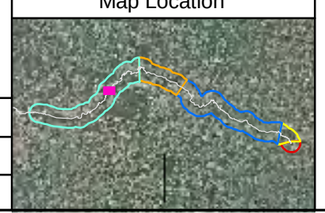
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 29.95 - MP 30.80

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

30.75
30.8 South B
30.8 South A
30.8 South
30.82T
30.89T A
30.89T B
31.0
31.0
30.98T
31
31.08T
31.25 North
31.26RDB
31.25 North
31.25RDB
31.25

ENBRIDGE

Drawn:	BRS 06/14/2011
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Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas
Transect
Park/Launch Access Poling Areas
Bridge Access Poling Areas
Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 30.75 - MP 31.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 31.25 - MP 31.70

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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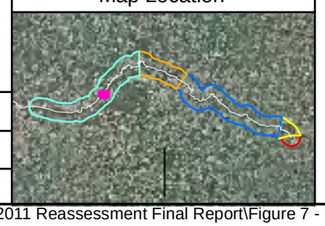
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 31.65 - MP 32.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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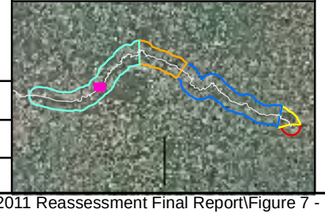
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/15/2011
Approved:	DBR 06/15/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 32.25 - MP 33.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011

33.10T
33.15T
33.0 B
33.0 B
33.25 A
33.21T
33.2 South
33.25 B
33.25
33.27T
33.2 South
33.25 C
33.25
33.5 North
33.5 South
33.5 South
33.55T
33.55T
33.5
33.65 North
33.65 North
33.63T
33.63T
33.75

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 33.10 - MP 33.70

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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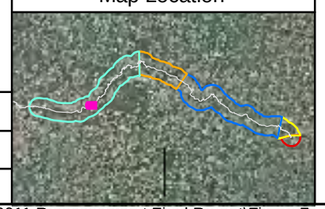
Aerial Photography Date: April 2011



Map Location



ENBRIDGE

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Project #:	106-4186	

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 33.70 - MP 34.70

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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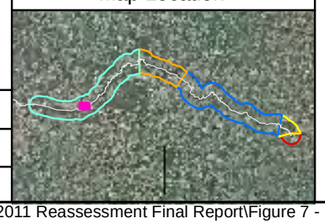
Aerial Photography Date: April 2011

35.3 North
35.3 North
35.34T
35.42T
35.48T
35.26T
35.6 Northwest A
35.55T
35.6 Northwest
35.5
35.25
35.6 Northwest B
35.62T
35.18T
35.19LDB
35.1 North
35.1 North
35.11T
35.08LDB
34.71T
34.75
34.75LDB
34.79T
34.87T
34.87T
34.93T
34.91LDB
34.93T
35.68T
35.6 Southeast A
35.6 Southeast A
35.75
35.73T
35.6 Southeast B
35.6 Southeast B

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

ENBRIDGE

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Project #:	106-4186	

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 34.70 - MP 35.75

ENBRIDGE LINE 6B MP 608
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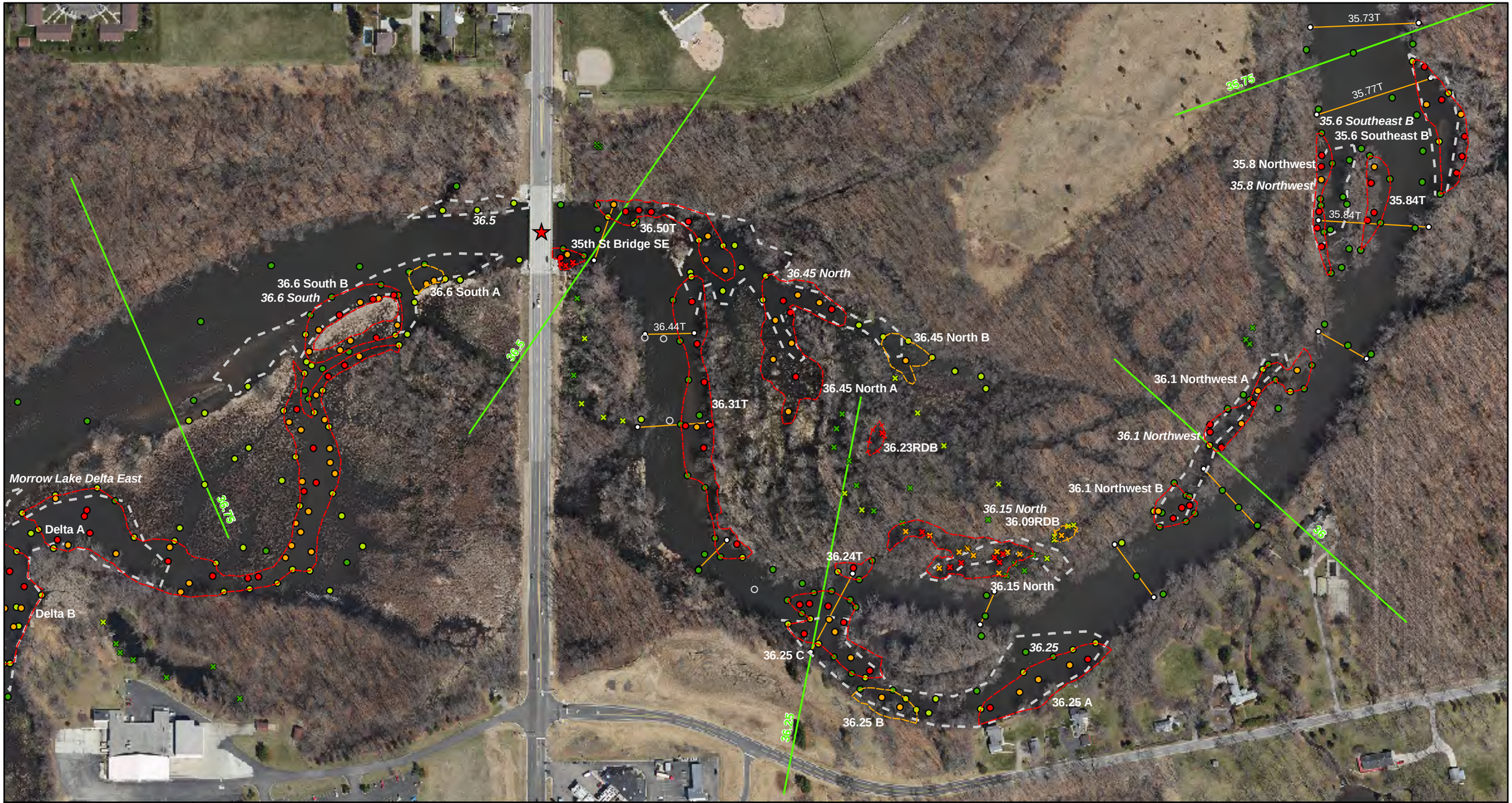
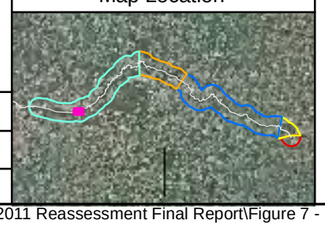


Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

ENBRIDGE

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Project #:	106-4186

FIGURE 7: POLING ASSESSMENT RESULTS RAILROAD BRIDGE TO MP 36.0

MP 35.75 - MP 36.80

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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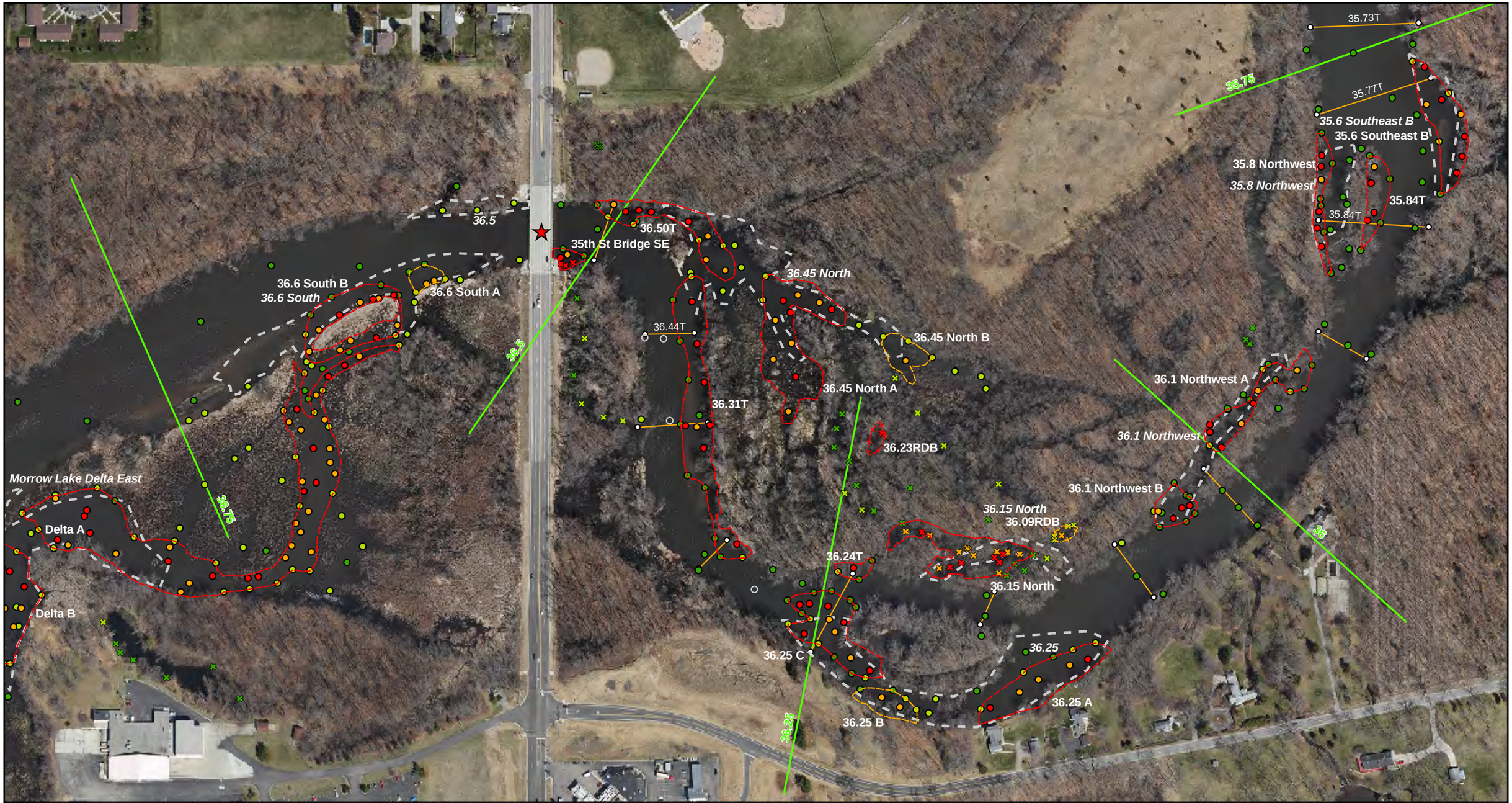
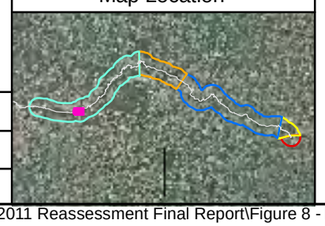
Aerial Photography Date: April 2011



Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

FIGURE 8: POLING ASSESSMENT RESULTS MP 36.0 TO ENTRANCE TO MORROW LAKE

MP 35.75 - MP 36.80

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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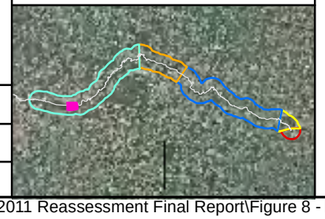
Aerial Photography Date: April 2011

37.75 North
37.5
37.25
36.8 North
37.5
Delta EE
Delta CC
Delta DD
Morrow Lake Delta West
Delta V
Delta W
Delta X
Delta T
Delta S
Delta U
Delta N
Delta M
Delta L
Delta K
Delta I
Delta J
Delta G
Delta F
Delta E
Delta D
Delta B
Delta A
Delta H
Delta C
Morrow Lake Delta East
Delta Q
Delta P
Delta R
Delta Y
Delta O
Delta Z
Delta BB
Morrow Lake Delta South
Delta AA

ENBRIDGE

Drawn:	BRS 06/14/2011
Approved:	DBR 06/14/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas
Transect
Park/Launch Access Poling Areas
Bridge Access Poling Areas
Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

FIGURE 8: POLING ASSESSMENT RESULTS MP 36.0 TO ENTRANCE TO MORROW LAKE

MP 36.80 - MP 37.55

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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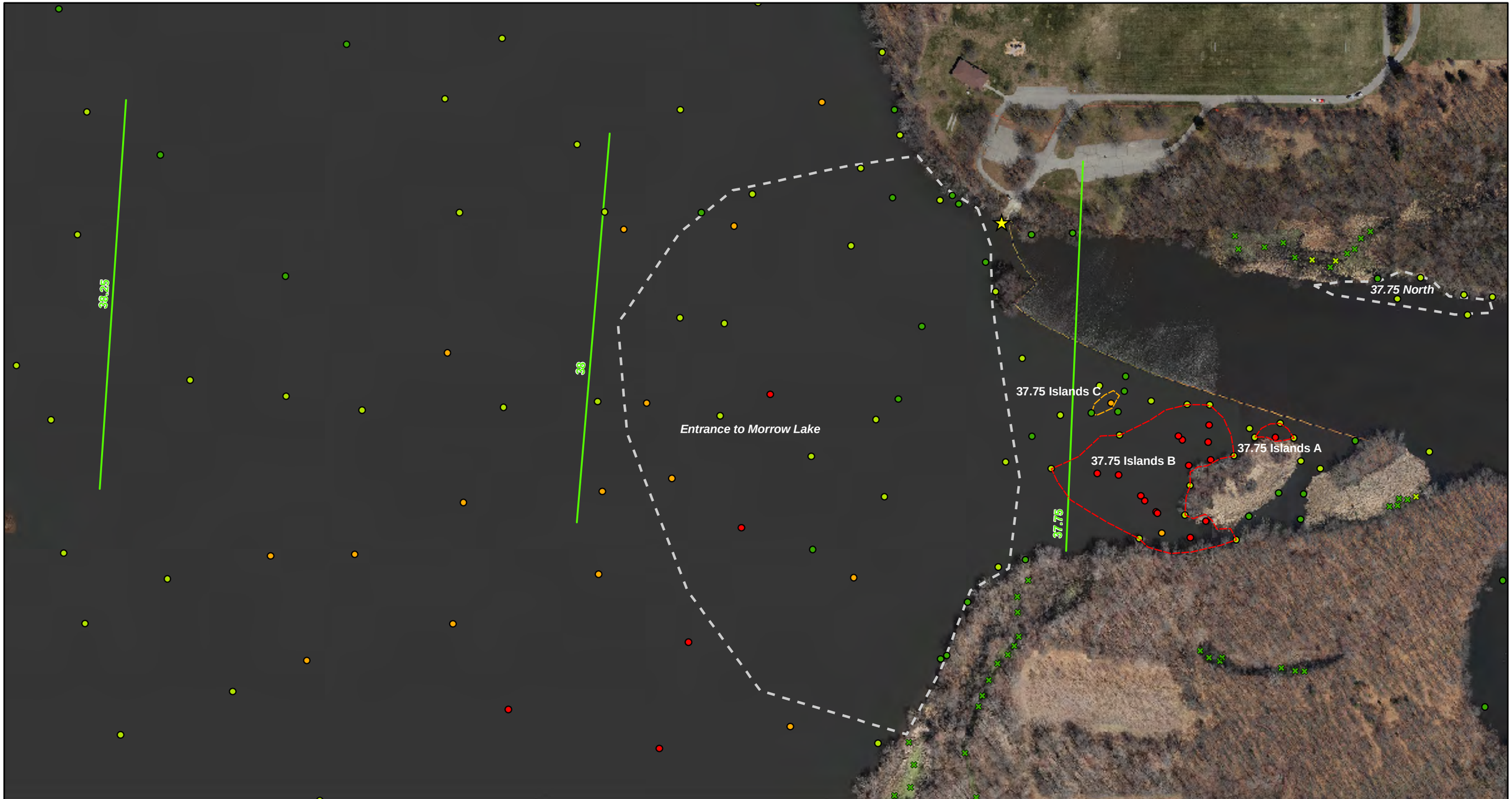
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/14/2011
Approved:	DBR	06/14/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

FIGURE 8: POLING ASSESSMENT RESULTS MP 36.0 TO ENTRANCE TO MORROW LAKE

MP 37.55 - MP 38.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



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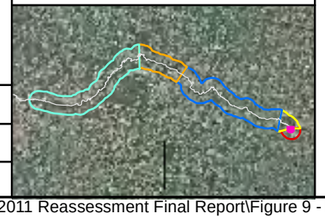
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 00.00 - MP 00.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

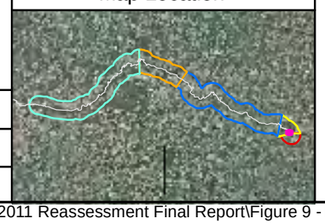
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 00.30 - MP 00.55

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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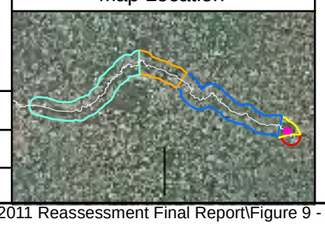
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 00.68 - MP 01.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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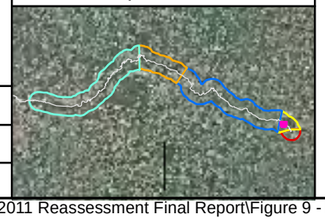
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 01.17 - MP 01.62

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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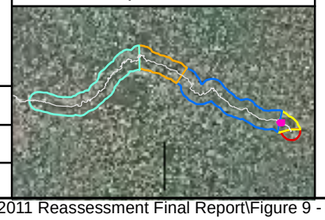
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 01.60 - MP 01.94

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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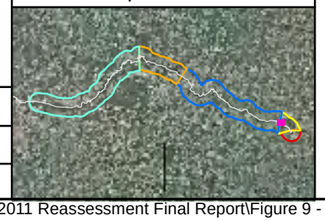
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 01.85 - MP 02.18

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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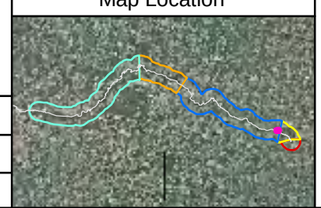
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 02.24 - MP 02.79

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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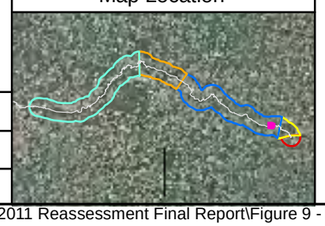
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 03.09 - MP 03.48

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

4.15 South B

0.35 acres

4.15 South A

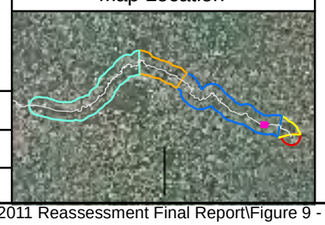
0.2 acres

4.25

ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300

Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 03.37 - MP 04.27

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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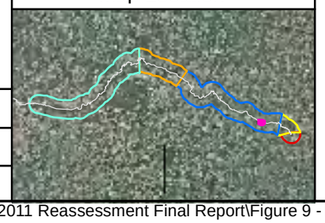
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 04.22 - MP 04.60

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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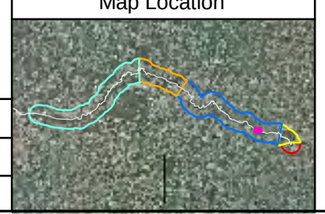
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 04.73 - MP 05.05

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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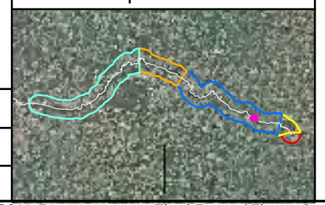
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 05.16 - MP 05.54

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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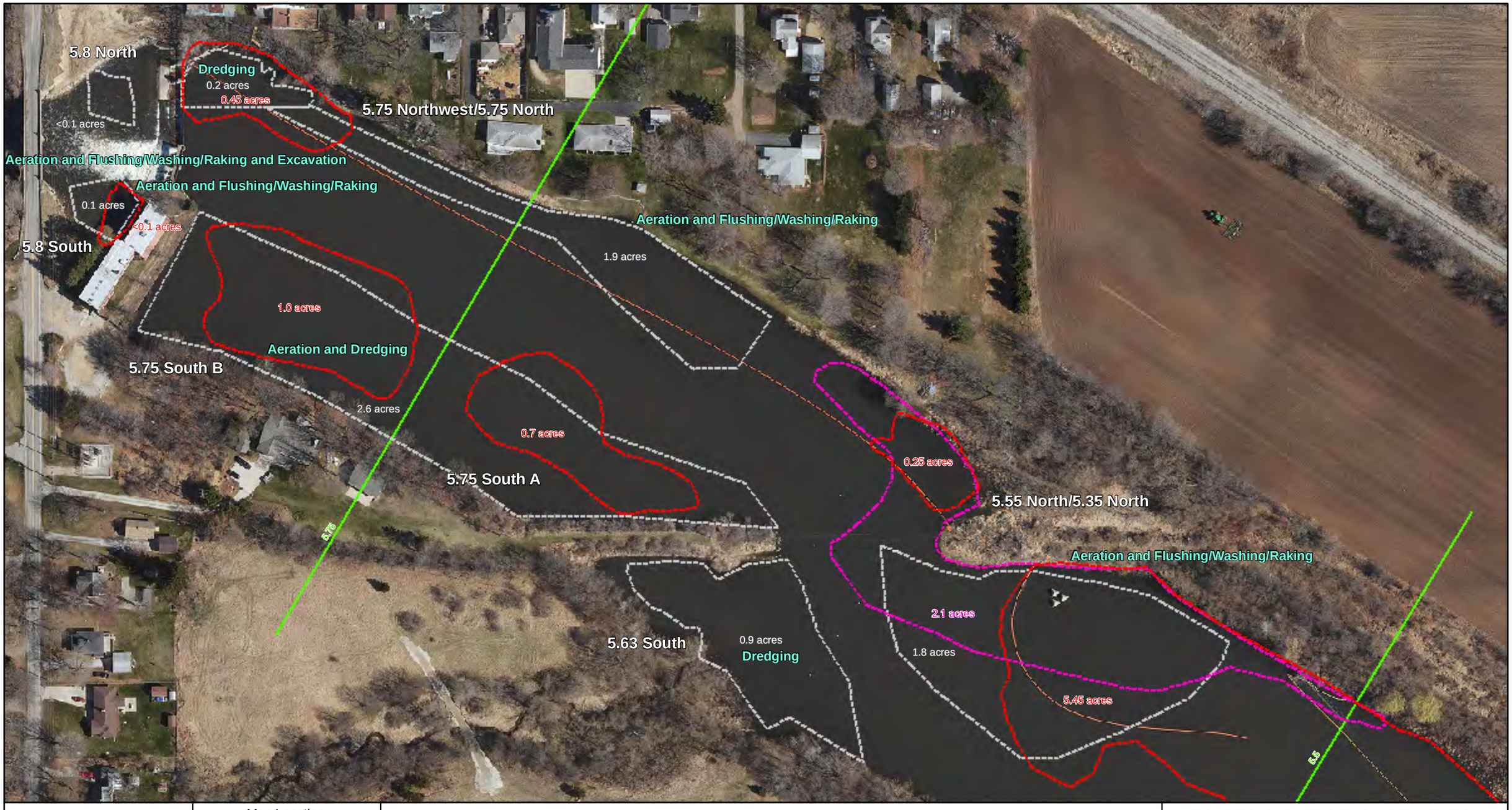
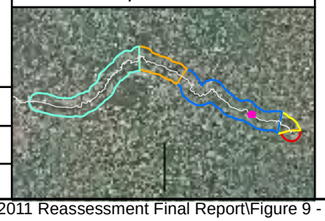
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 05.53 - MP 05.88

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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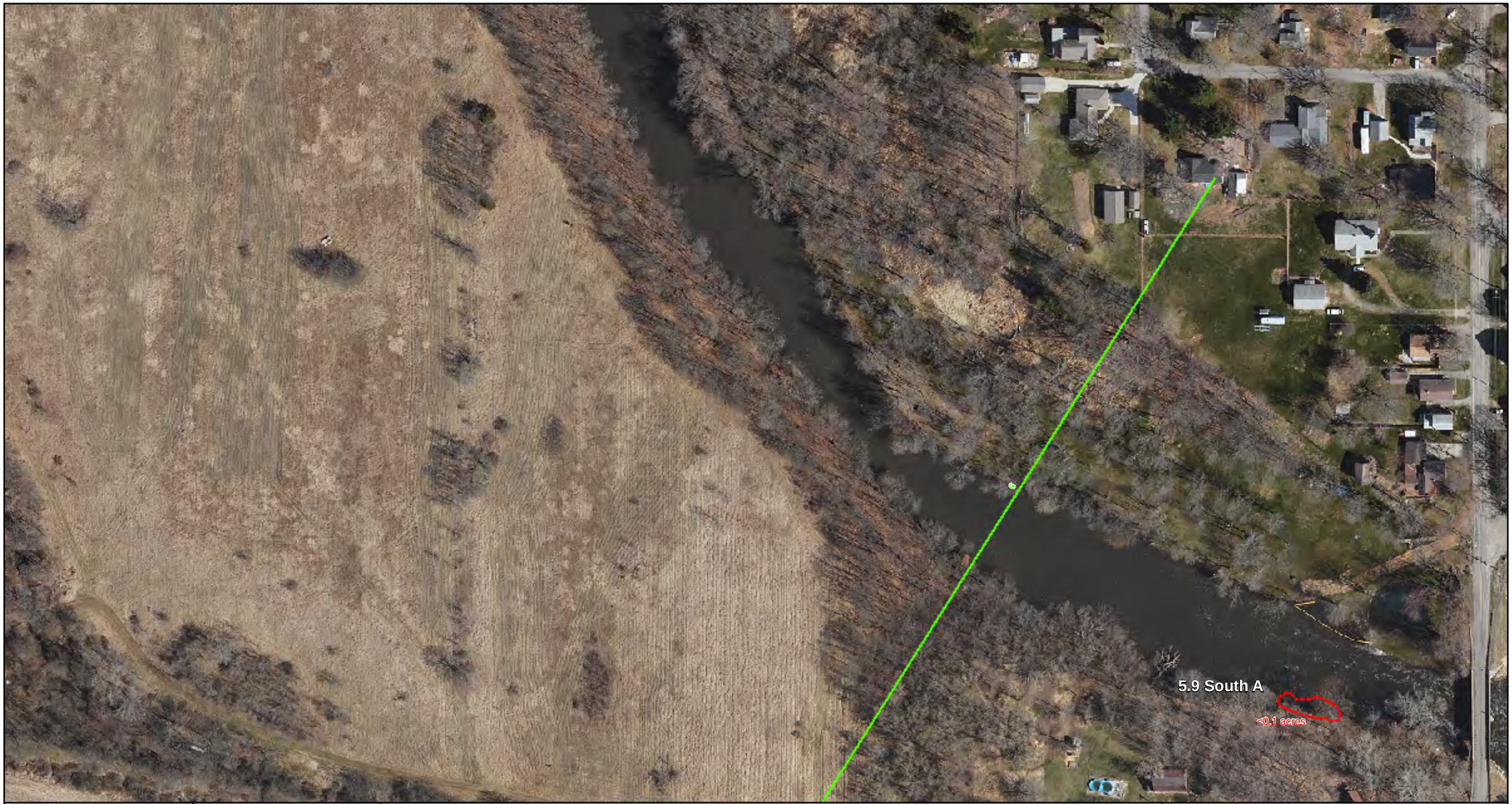
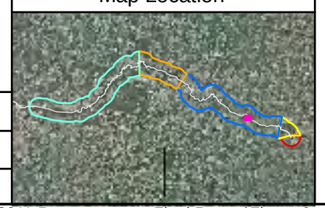
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 05.86 - MP 06.16

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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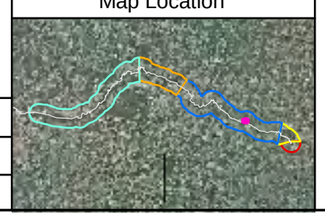
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 06.35 - MP 06.83

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 07.41 - MP 07.83

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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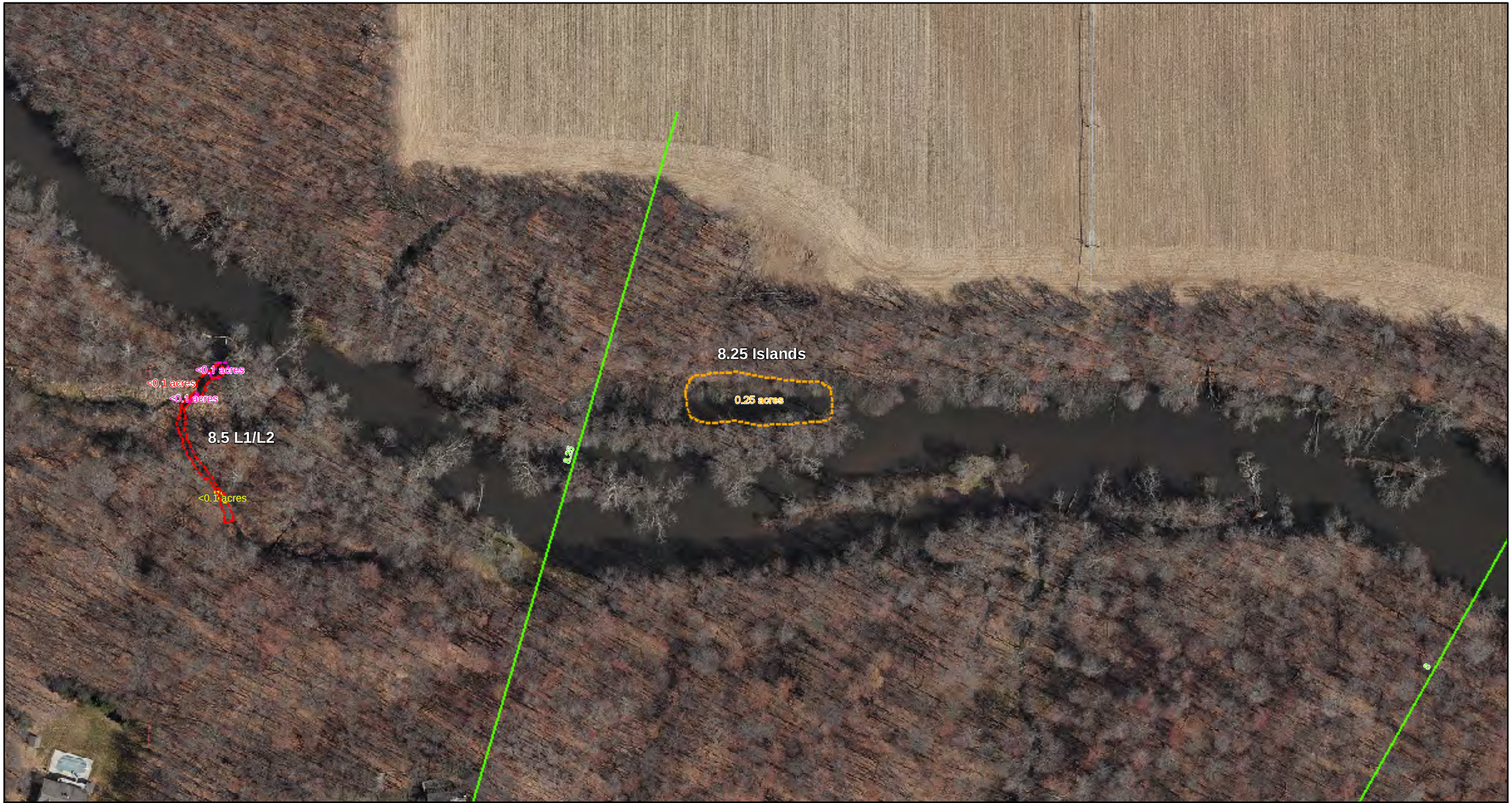
Aerial Photography Date: April 2011



Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 08.00 - MP 08.42

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

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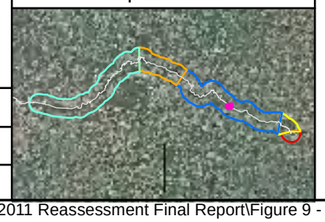
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 08.56 - MP 08.80

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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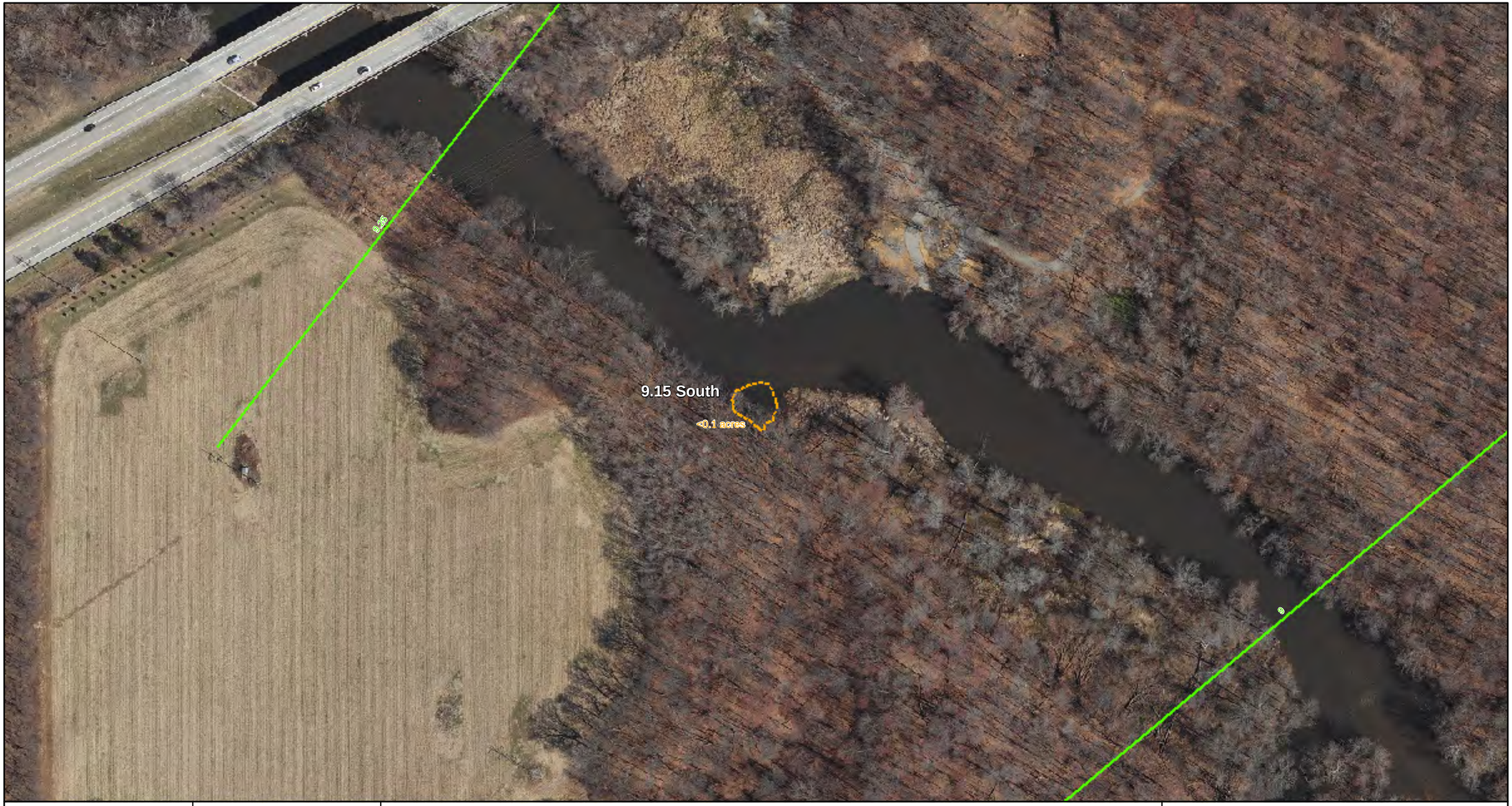
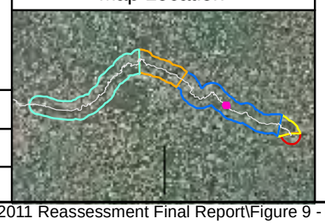
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 08.94 - MP 09.31

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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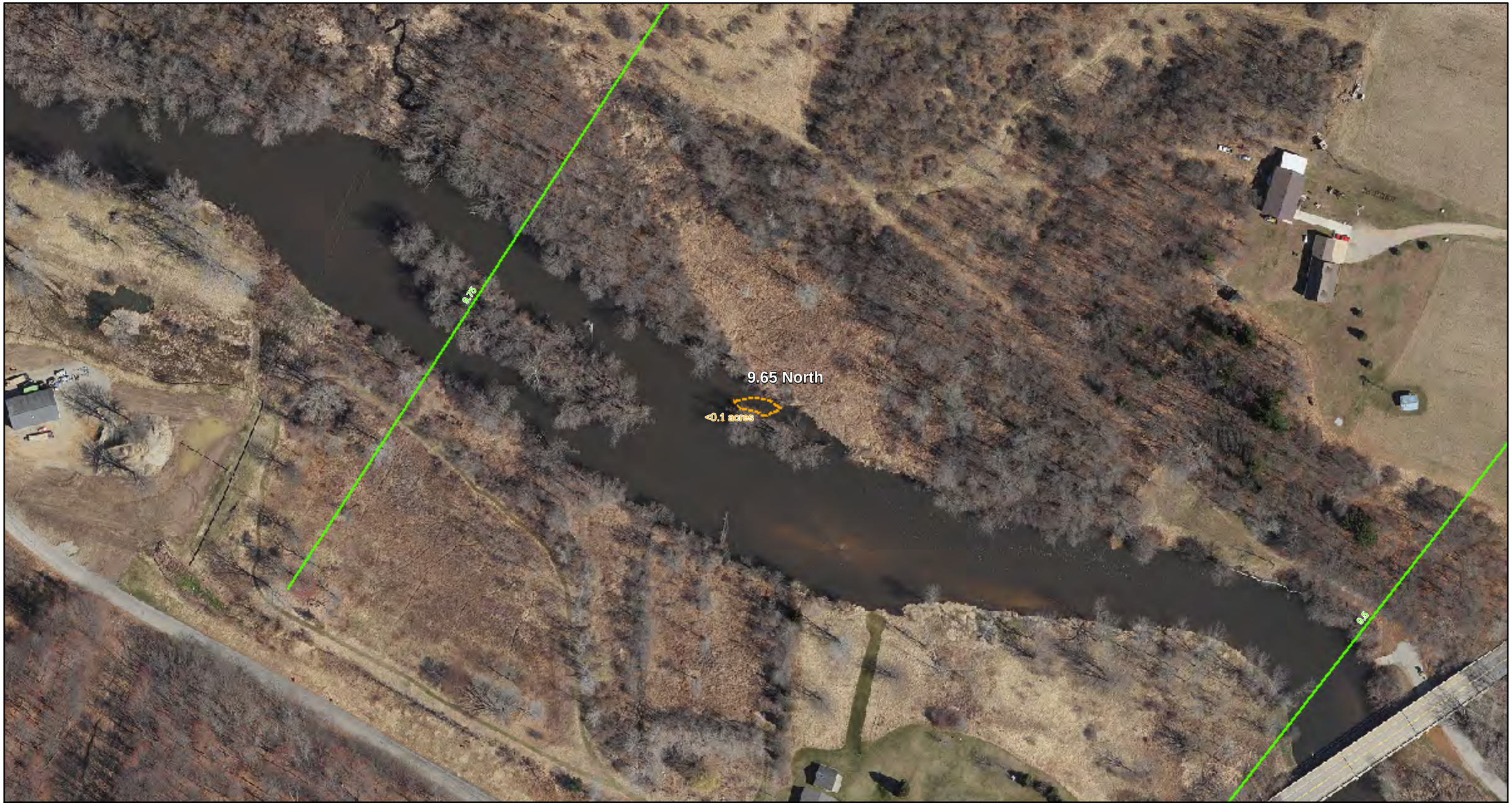
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 09.47 - MP 09.88

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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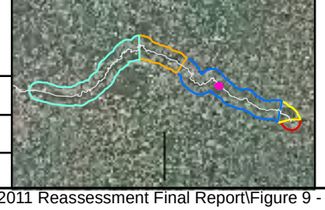
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 10.16 - MP 10.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 10.44 - MP 10.67

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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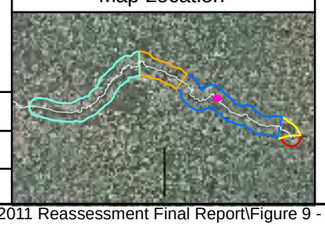
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 10.71 - MP 10.97

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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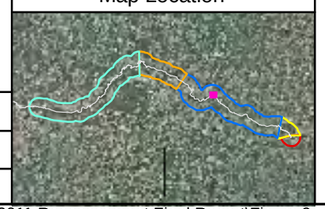
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300

Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 11.45 - MP 11.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 12.31 - MP 12.72

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

13.25 North

0.1 acres

13.25

0.25 acres

<0.1 acres

<0.1 acres

Aeration and Flushing/Washing/Raking

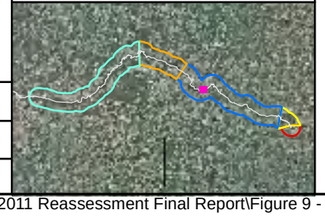
13.5

13.5 L1

ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300

Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 13.05 - MP 13.56

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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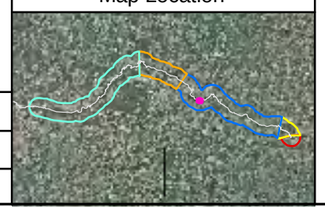
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 13.54 - MP 14.06

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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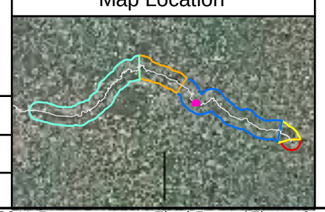
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 14.17 - MP 14.60

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Aerial Photography Date: April 2011



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Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 14.59 - MP 14.88

ENBRIDGE LINE 6B MP 608
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Aerial Photography Date: April 2011



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Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 14.76 - MP 15.11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 15.11 - MP 15.34

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Drawn:	BRS 6/1/2011
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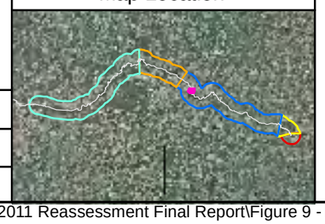
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 15.30 - MP 15.59

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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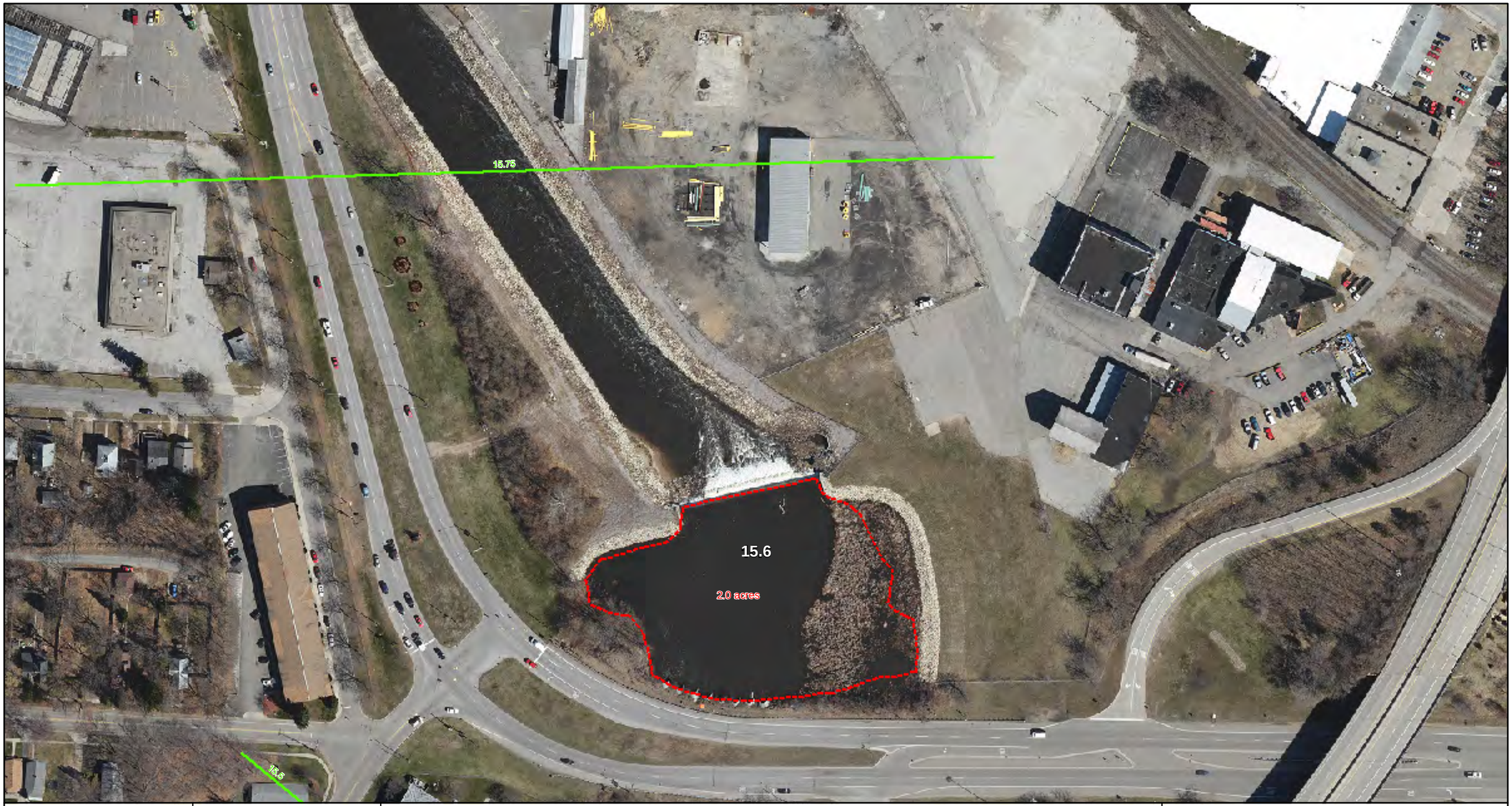

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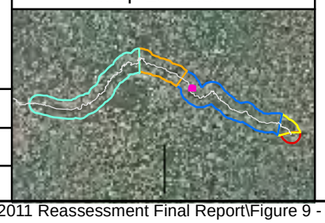
Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment
- 2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 15.56 - MP 15.80

ENBRIDGE LINE 6B MP 608
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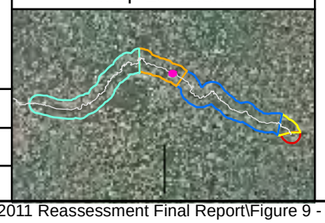
Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 18.31 - MP 18.69

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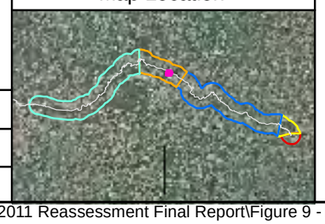
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 18.70 - MP 19.11

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Drawn:	BRS 6/1/2011
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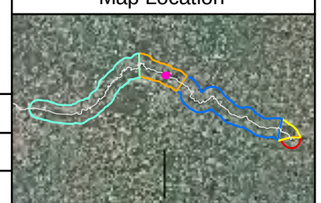
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 19.08 - MP 19.36

ENBRIDGE LINE 6B MP 608
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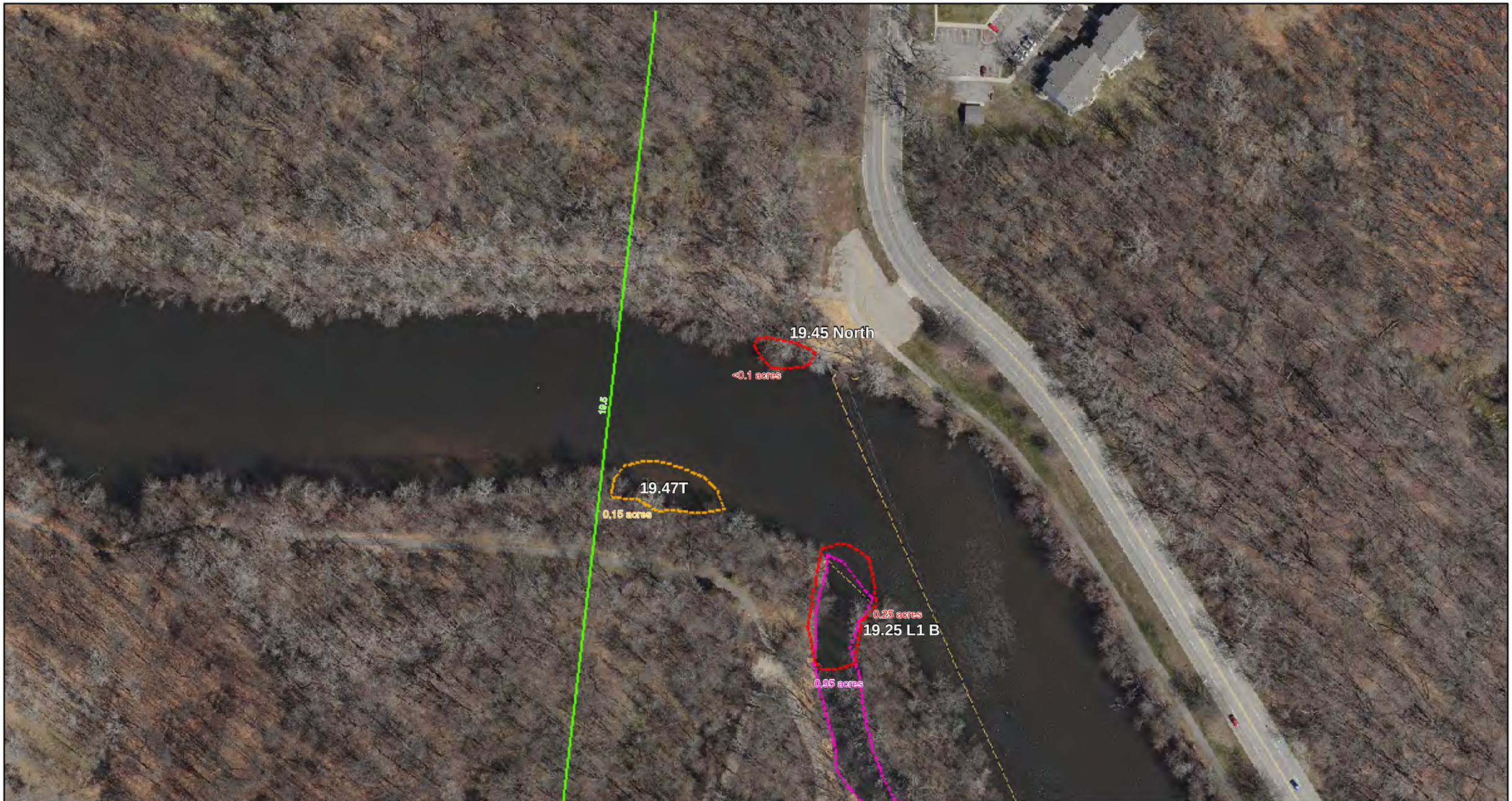

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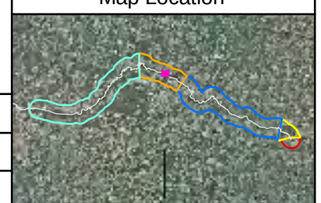
Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 19.33 - MP 19.65

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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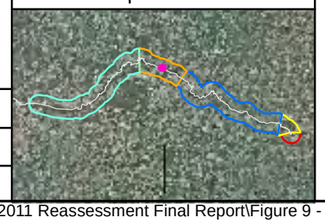
Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 19.61 - MP 20.01

ENBRIDGE LINE 6B MP 608
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Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 19.96 - MP 20.34

ENBRIDGE LINE 6B MP 608
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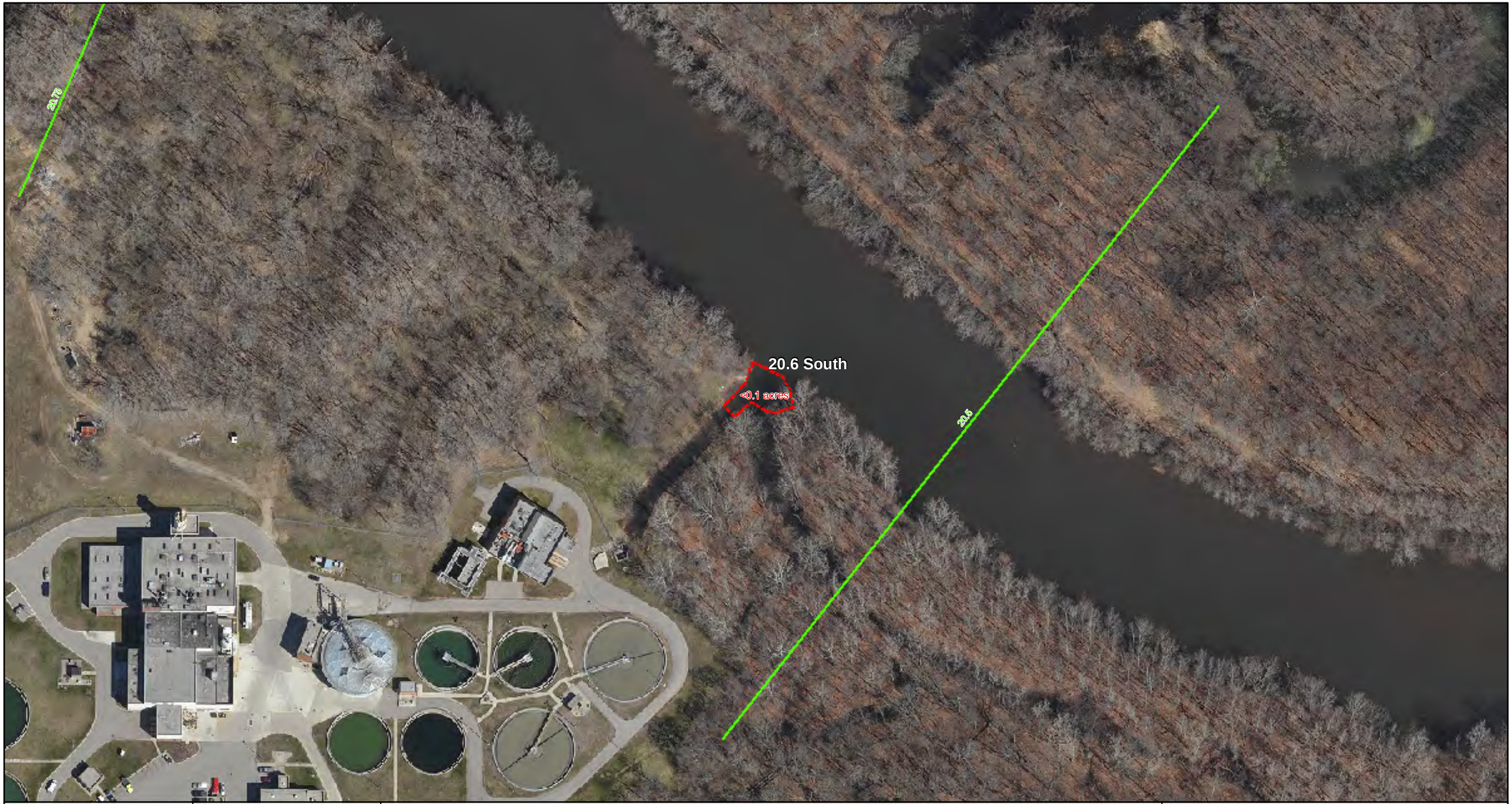

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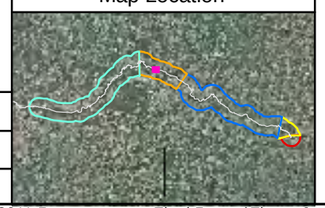
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 20.35 - MP 20.67

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011



Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 21.24 - MP 21.59

ENBRIDGE LINE 6B MP 608
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Aerial Photography Date: April 2011

22.2 North

0.4 acres

0.55 acres

22.15 South

22.0 South

0.2 acres

22

21.92T

0.15 acres

21.75

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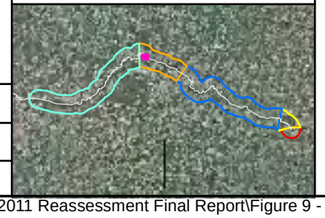
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300

Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 21.91 - MP 22.20

ENBRIDGE LINE 6B MP 608
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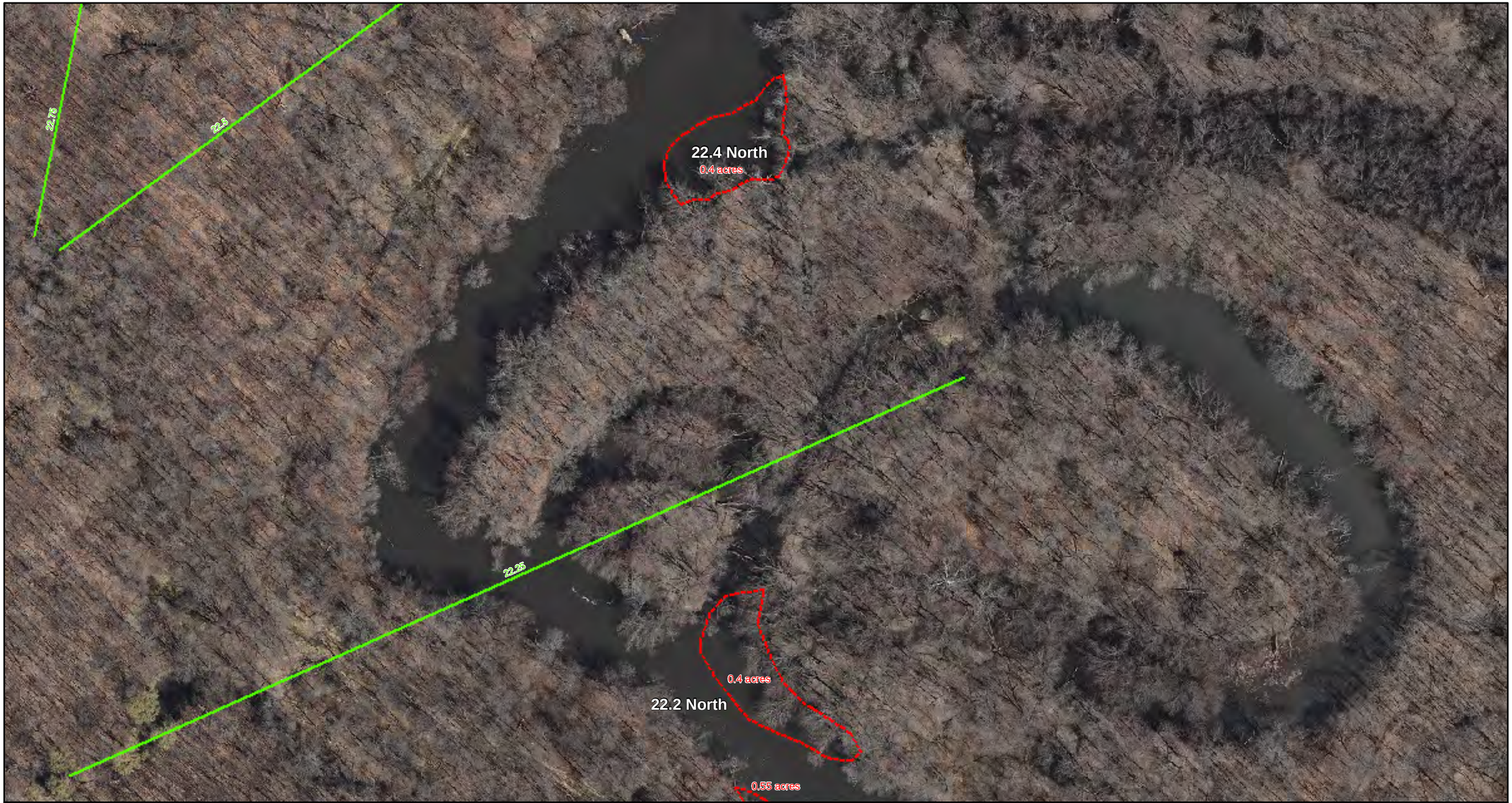

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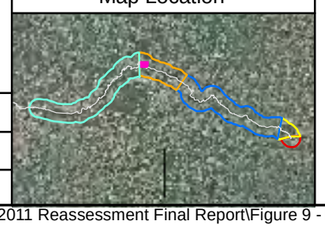
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 22.16 - MP 22.43

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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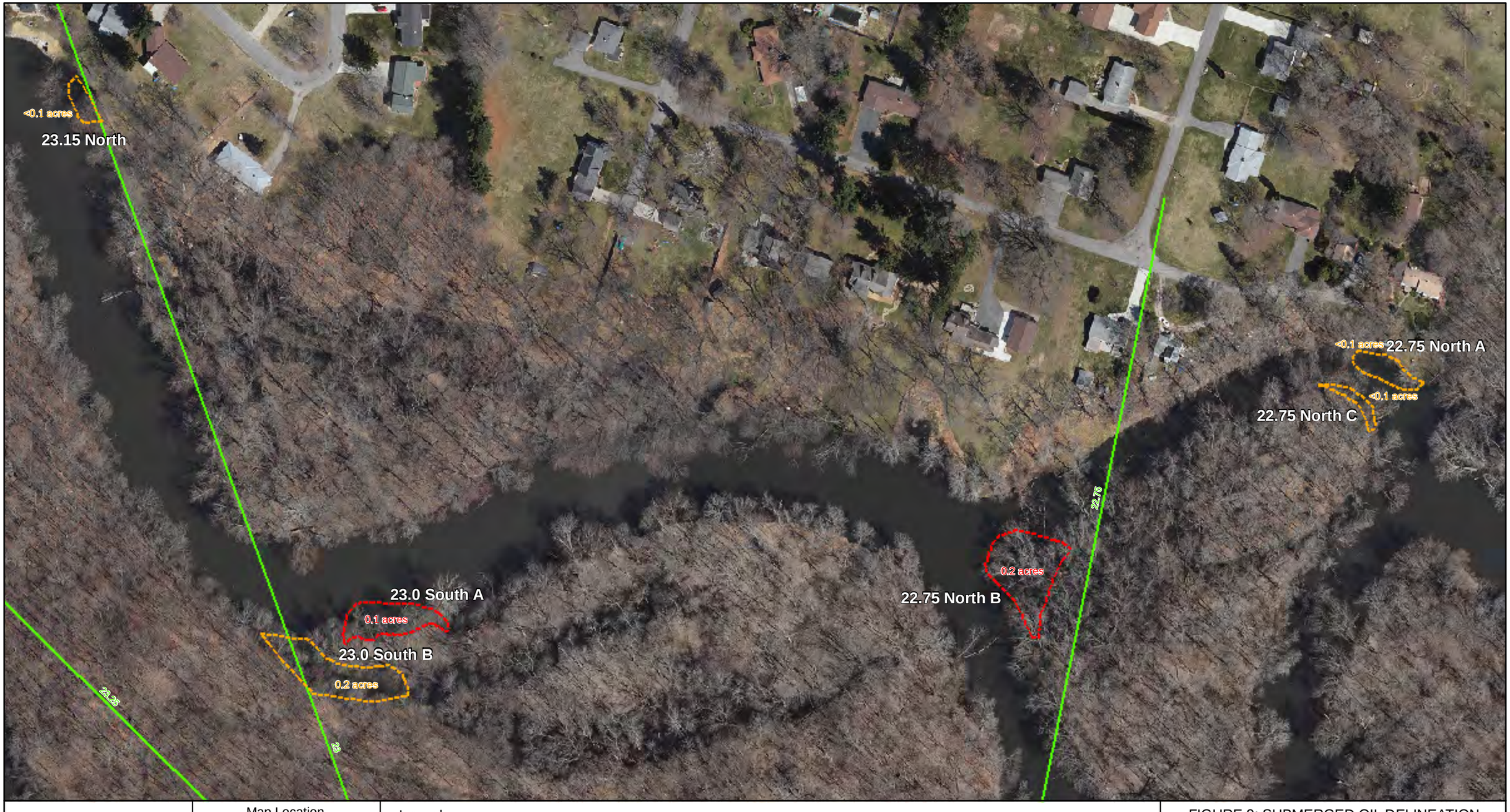
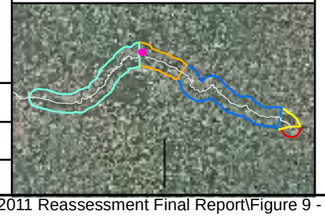


ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 22.57 - MP 23.13

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MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
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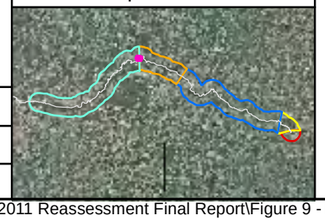
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 23.66 - MP 24.18

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 24.27 - MP 24.58

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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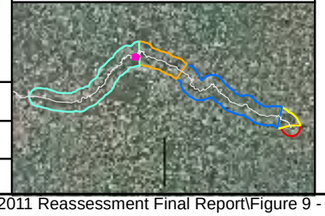
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 24.55 - MP 24.96

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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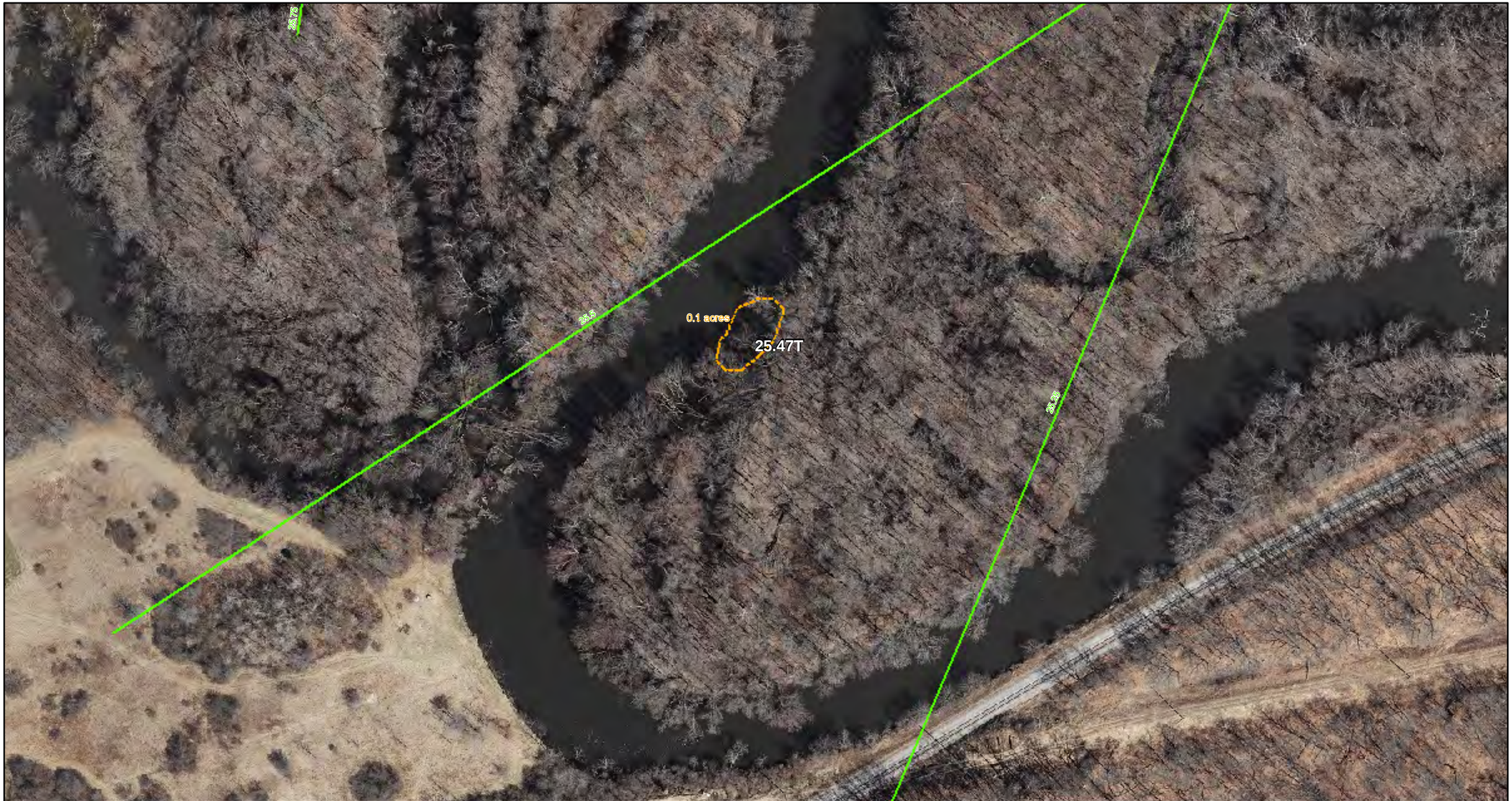
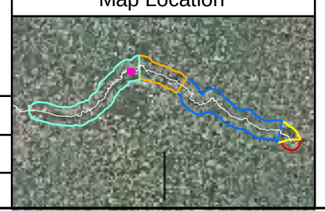


ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 25.07 - MP 25.56

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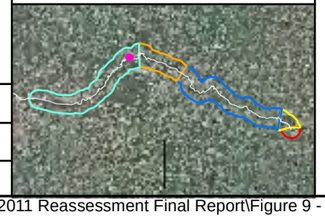
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 25.65 - MP 26.17

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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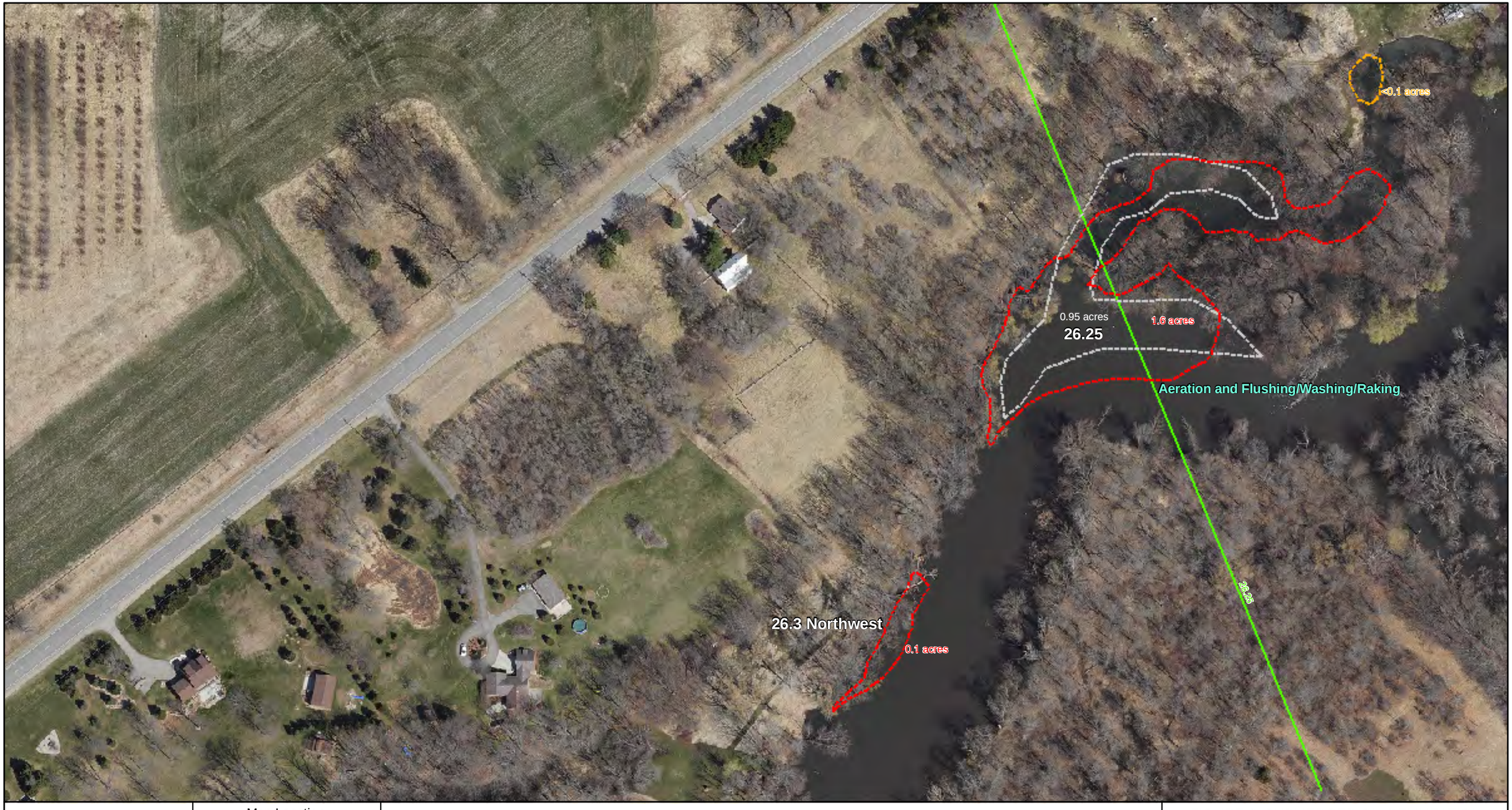
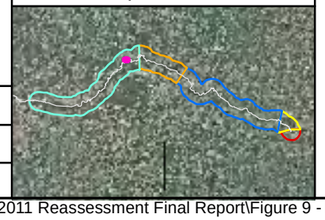
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 26.17 - MP 26.38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 26.40 - MP 26.90

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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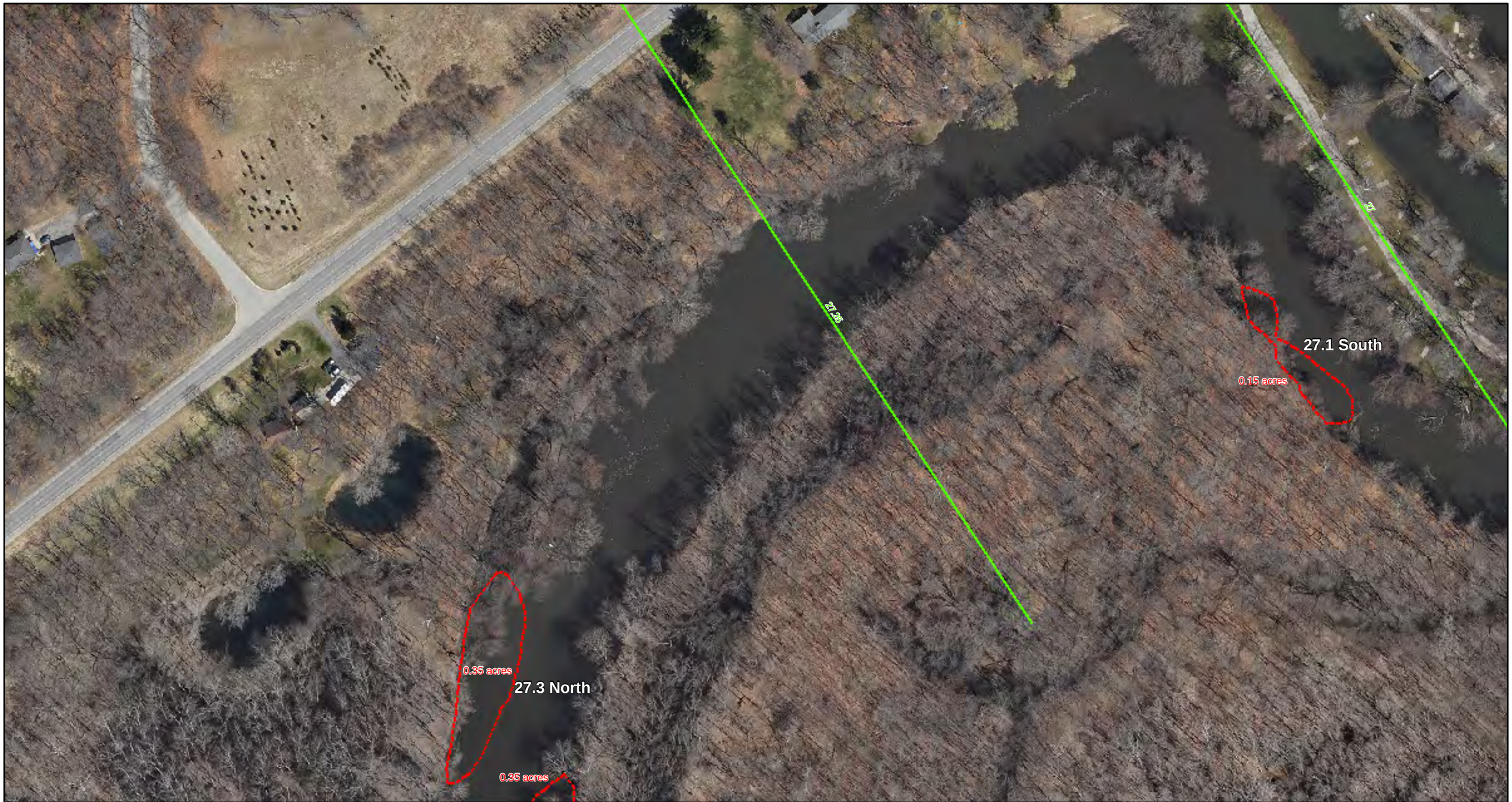
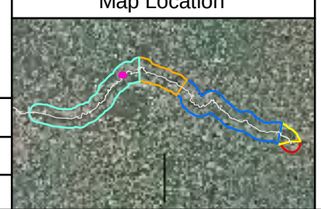
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 27.02 - MP 27.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011



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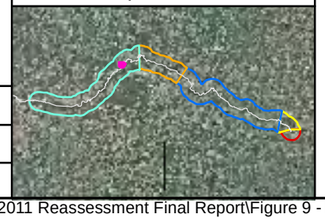
Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 27.39 - MP 27.60

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

27.65 South

<0.1 acres

0.2 acres

27.75

0.3 acres

27.9

0.25 acres

Aeration and Flushing/Washing/Raking

28

ENBRIDGE

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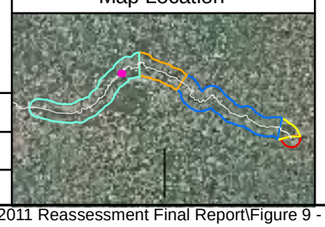
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300

Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 27.59 - MP 28.01

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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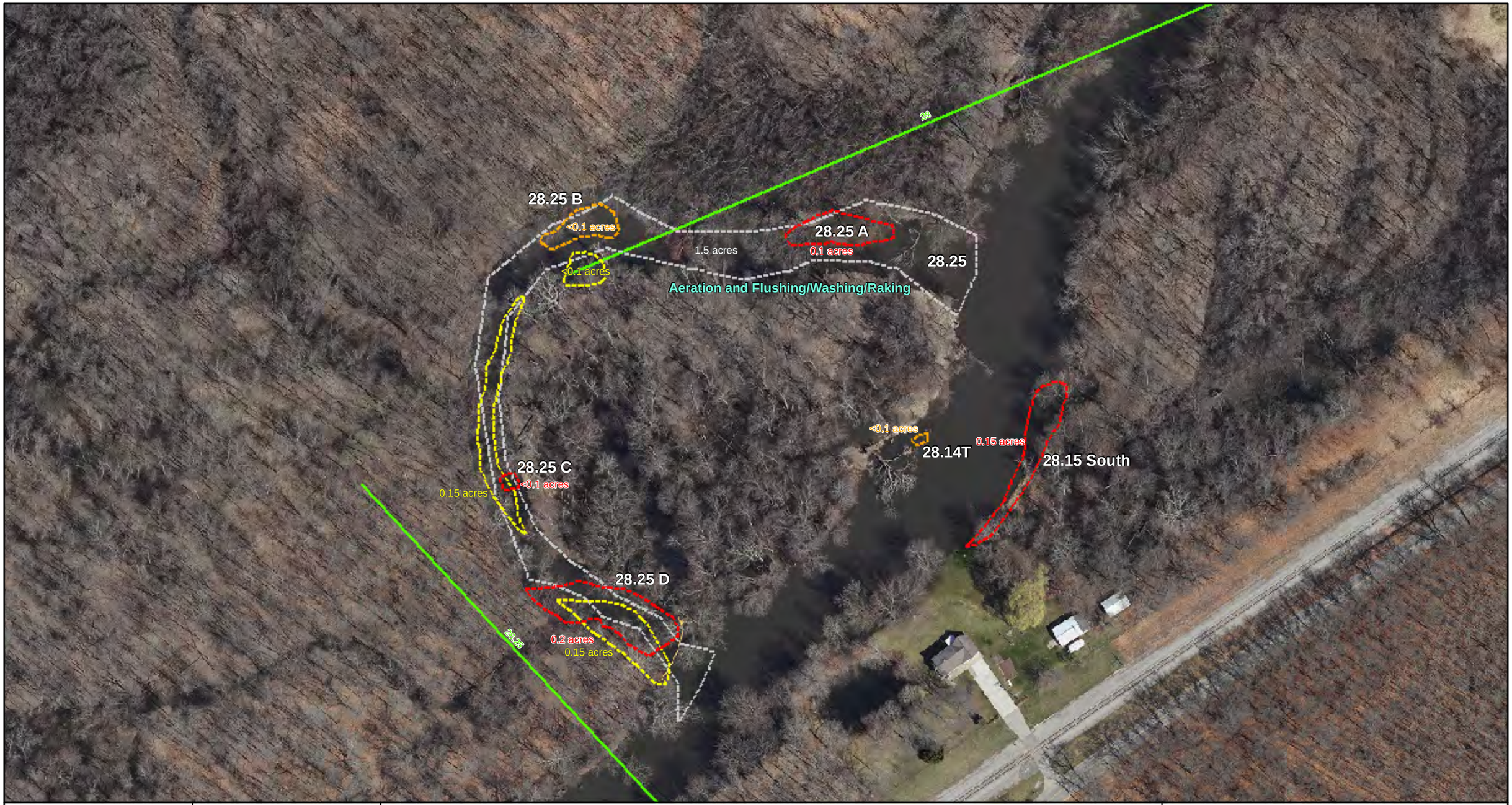
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 28.00 - MP 28.26

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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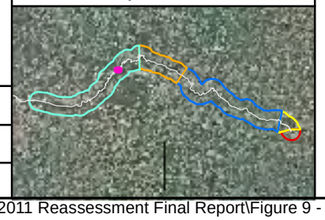
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 28.37 - MP 28.83

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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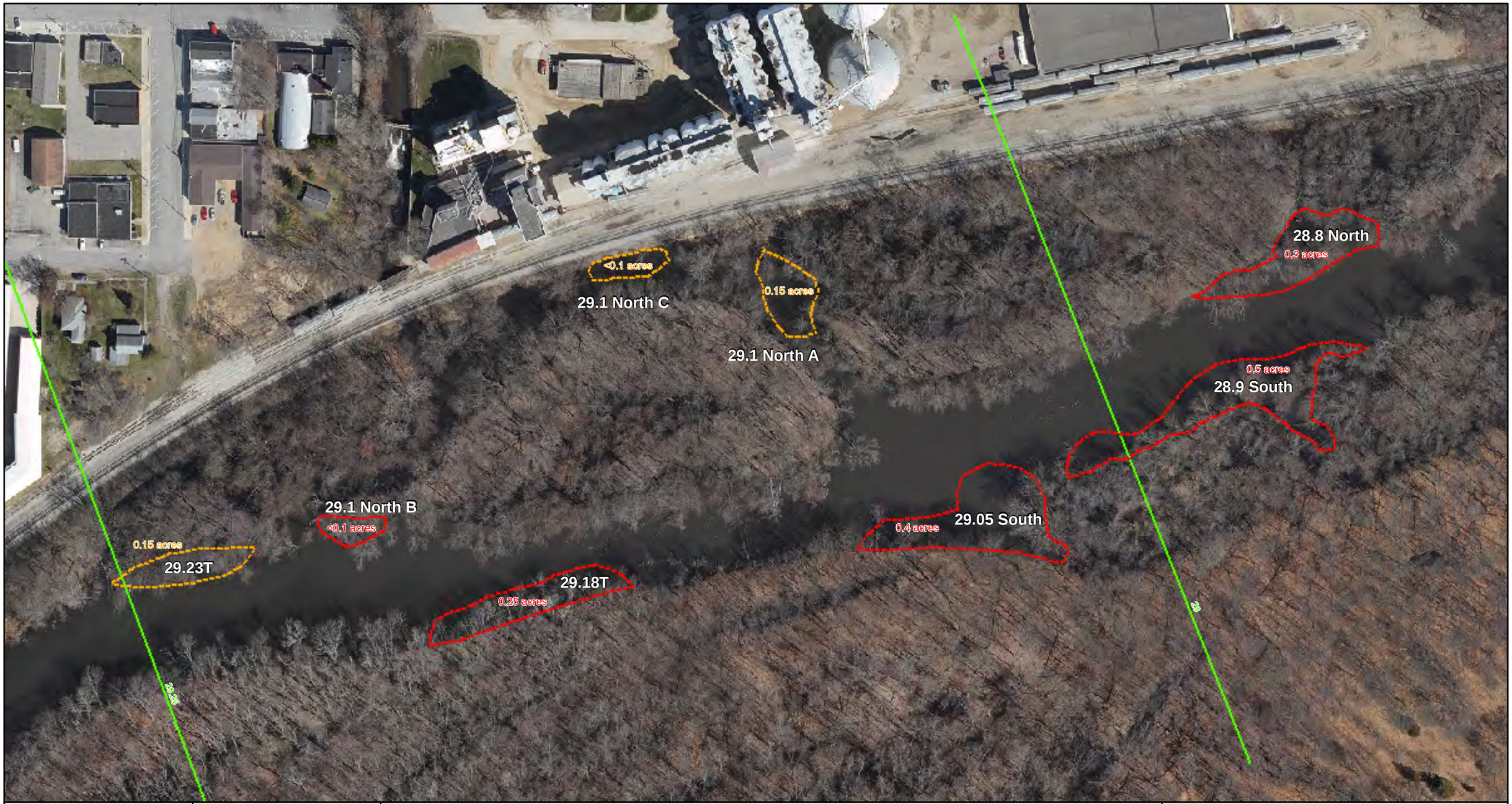
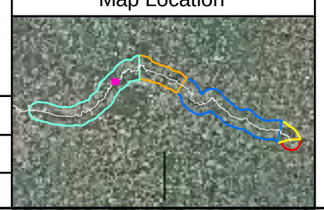
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 28.89 - MP 29.28

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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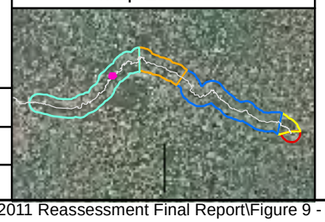
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 29.38 - MP 29.62

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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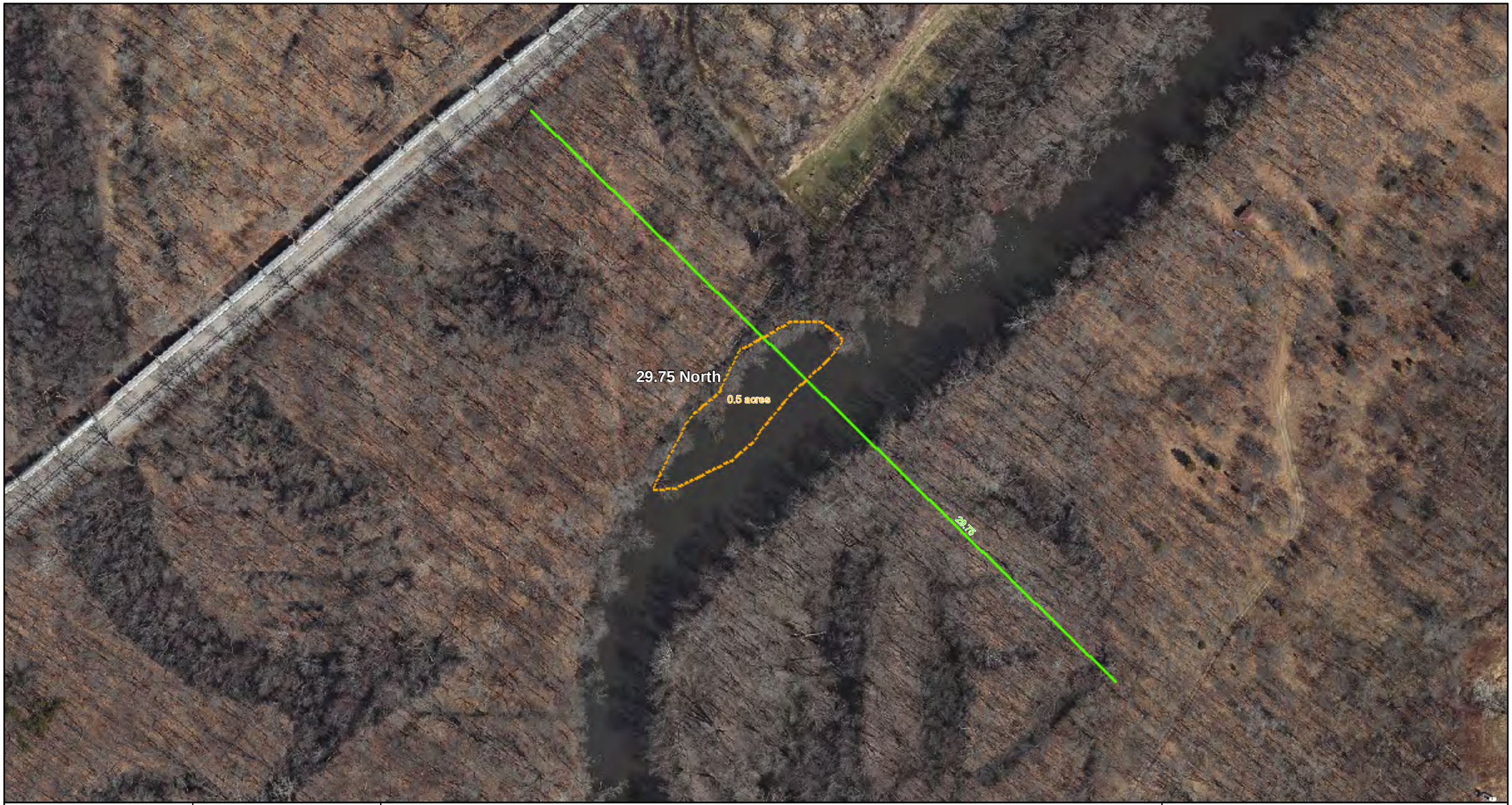
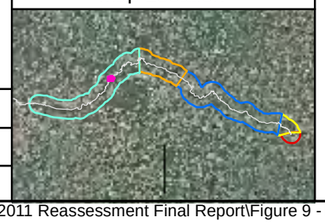


ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 29.61 - MP 29.87

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 29.89 - MP 30.35

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011



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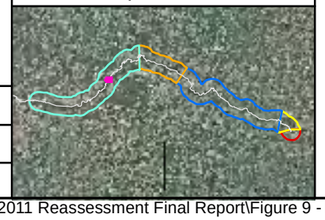
Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 30.57 - MP 30.81

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 30.81 - MP 31.07

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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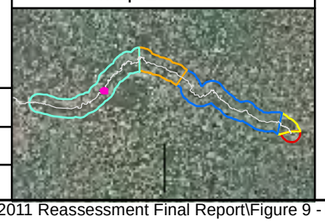
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 31.79 - MP 32.12

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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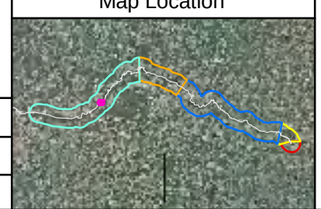
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 32.12 - MP 32.53

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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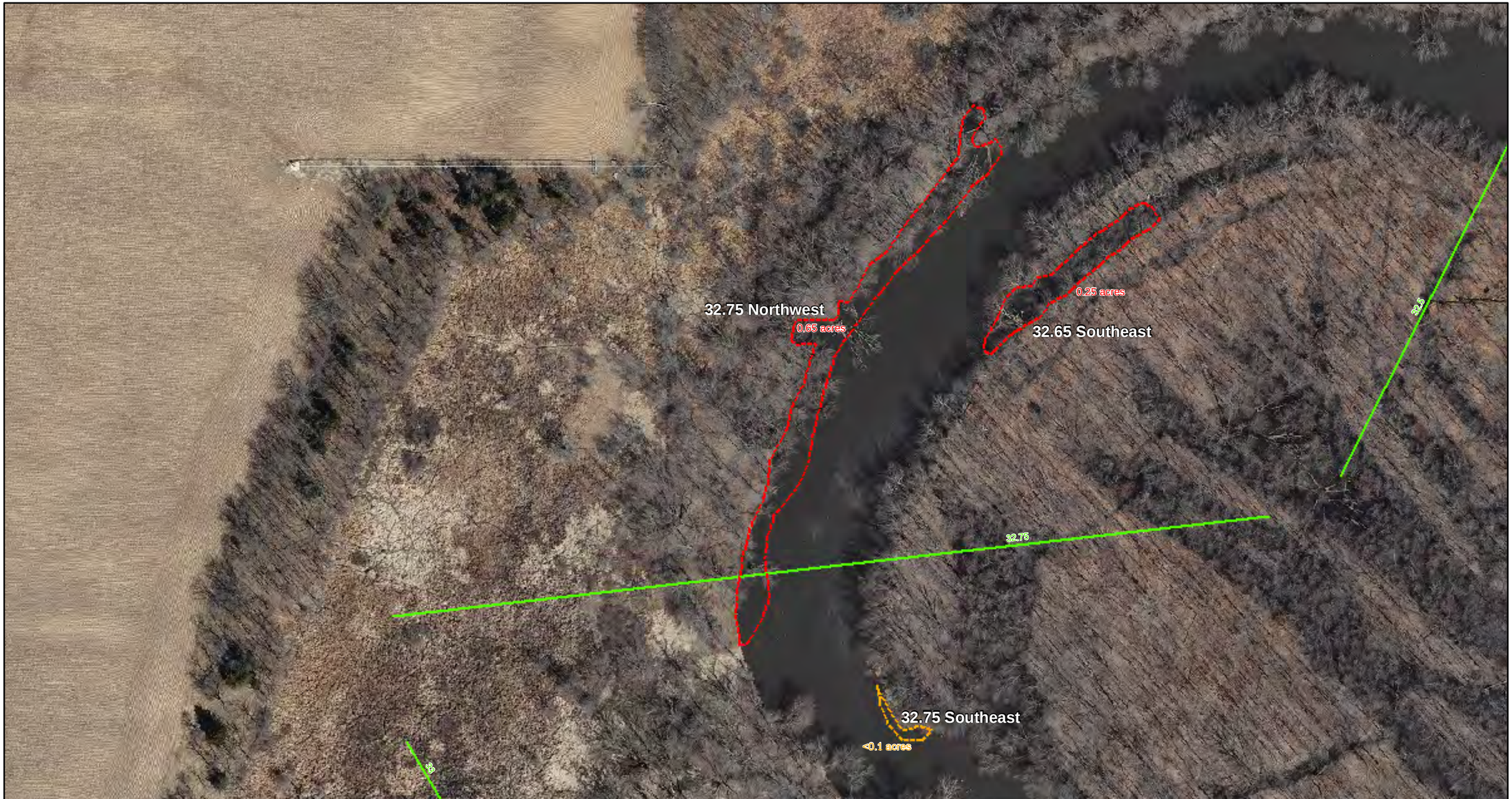

ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 32.51 - MP 32.83

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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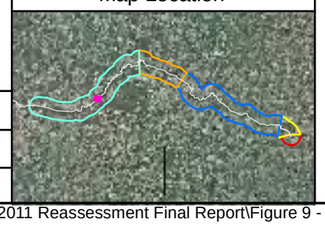
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 32.88 - MP 33.18

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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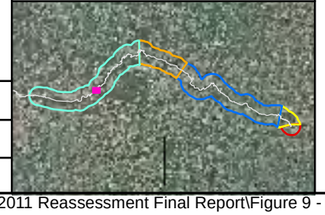
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment
- 2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 33.16 - MP 33.43

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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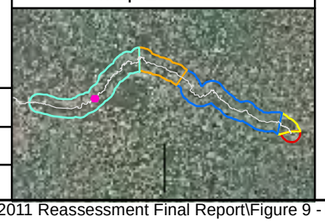
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 33.36 - MP 33.69

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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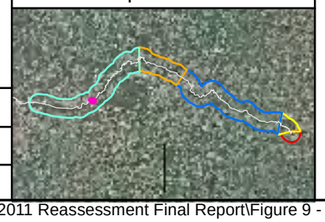
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 33.69 - MP 34.05

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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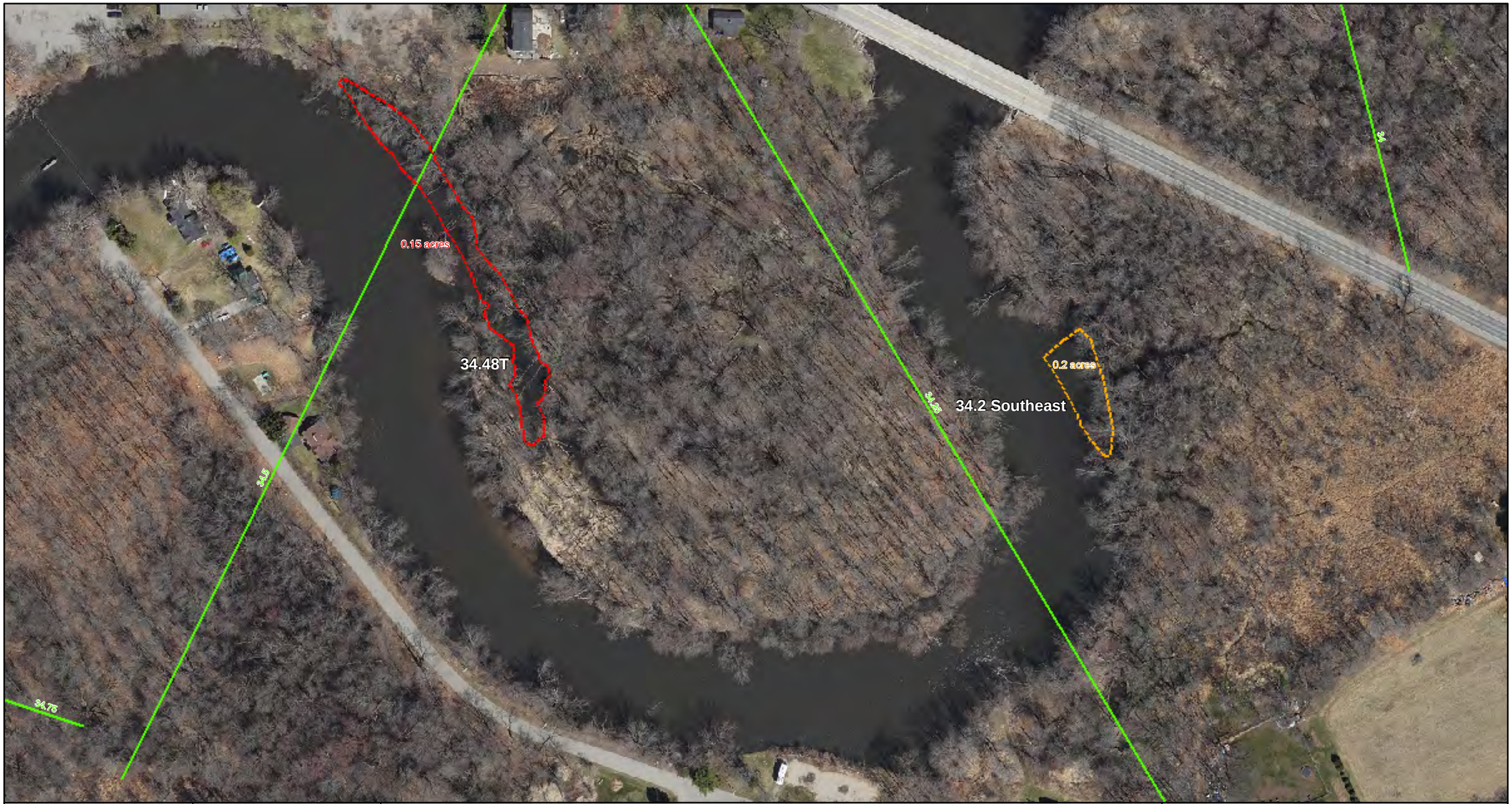
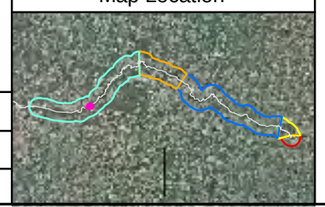
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 34.09 - MP 34.61

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

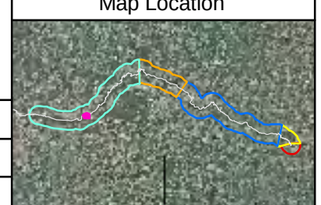
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 34.79 - MP 35.16

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

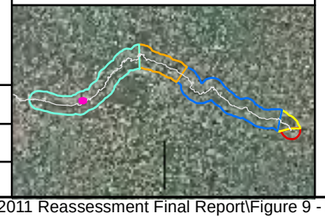
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 35.19 - MP 35.63

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

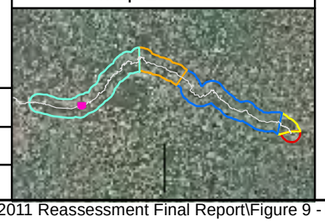
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 35.63 - MP 35.83

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

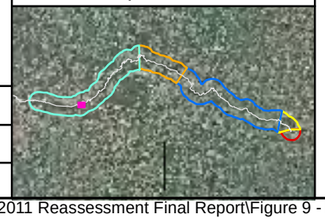
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 35.79 - MP 36.00

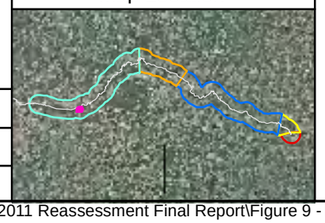
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

Aerial Photography Date: April 2011



Map Location



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

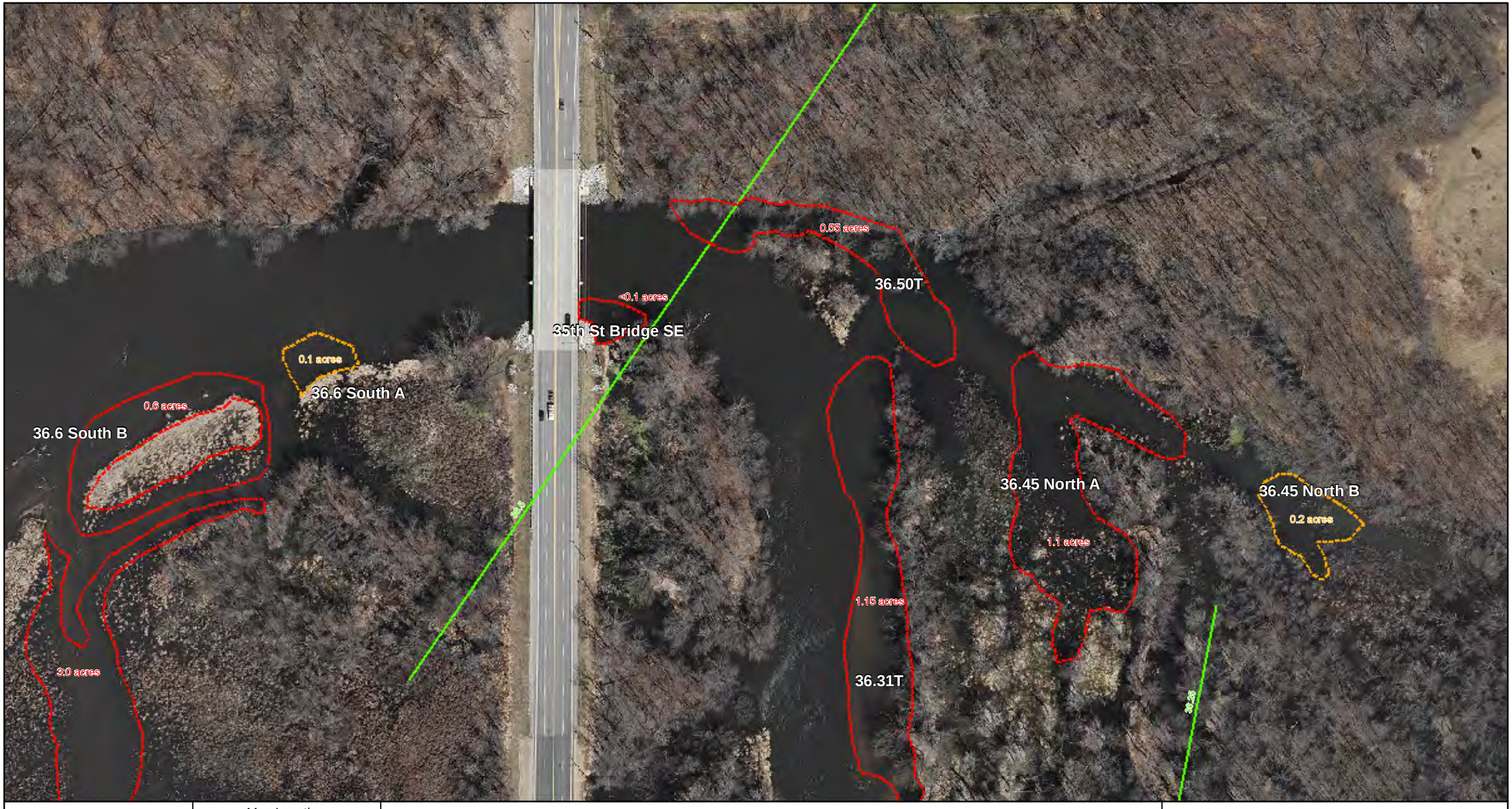
FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 35.96 - MP 36.39

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

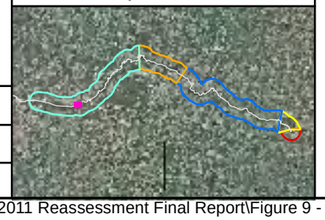
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 36.36 - MP 36.67

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 36.70 - MP 36.98

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

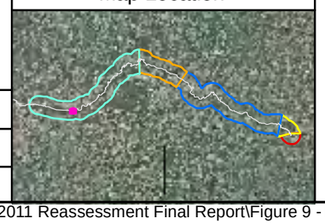
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 36.97 - MP 37.28

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

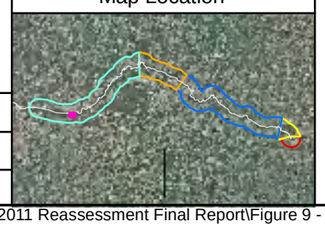
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

2010 Priority Sites

Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 36.99 - MP 37.35

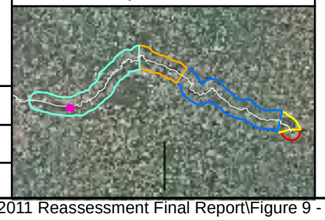
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

Aerial Photography Date: April 2011



Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 37.20 - MP 37.60

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

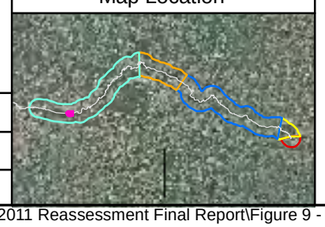
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 37.26 - MP 37.63

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

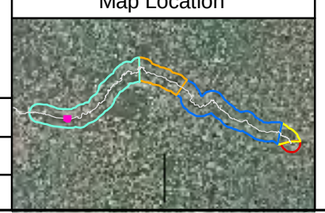
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 6/1/2011
Approved:	DBR 6/1/2011
Project #:	106-4186

Map Location



Legend

2011 Delineation Areas
- Heavy
- Moderate

O&M Delineation Areas
- Heavy
- Moderate

- 2010 Priority Sites
- Quarter Mile Grid Segment

2010 Recovery Method

N

0 75 150 300
Scale in Feet

FIGURE 9: SUBMERGED OIL DELINEATION
2010 TO 2011 COMPARISON

MP 37.51 - MP 37.88

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Report Maps\2011 Reassessment Final Report\Figure 9 - Delineation Area Comparison 2010-2011.mxd

Aerial Photography Date: April 2011

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Addendum to the Shoreline and Overbank Reassessment
MP 0.00 through MP 40.00
and
Submerged Oil Reassessment
MP 0.00 through MP 37.8
Report

(Binder 2 of 7)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: August 12, 2011

SORT Attachment A

Segment Summary
Segment Figures
YUMA Output Summary
Photo Logs
SORT Data Sign Off Documentation

Segment 0.00 – 0.25

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 0.00 to MP 0.25

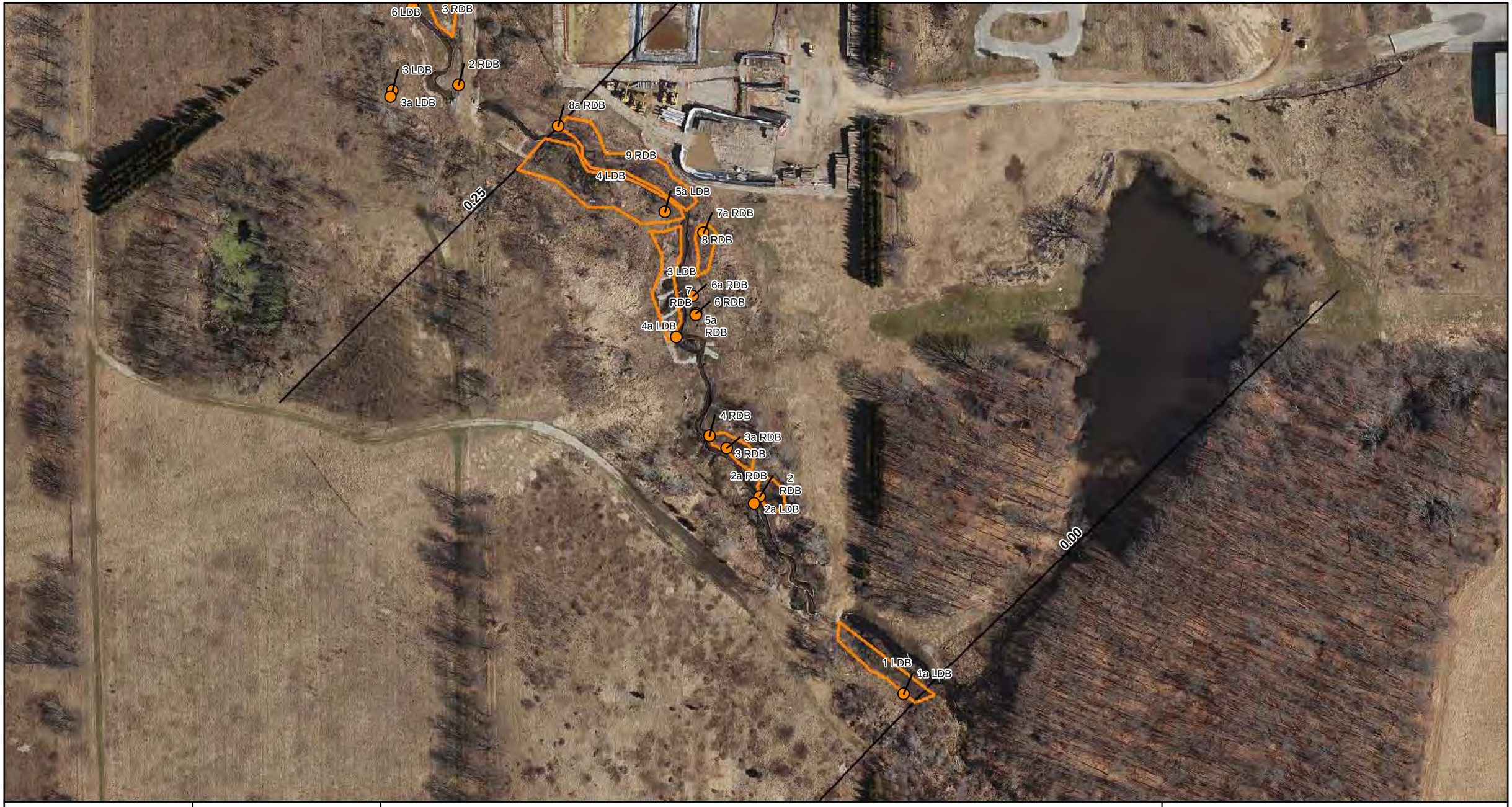
The LDB of segment 0.25 generally consists of a re-engineered emergent/herbaceous overbank with erosion control blankets (ECB) covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified four points and three polygons. A trace or sporadic occurrence of film on ponded water was identified at all locations.

The RDB of segment 0.25 also consists of re-engineered emergent/herbaceous overbank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified nine points and four polygons. A continuous occurrence of film on ponded water was identified at Point 4 RDB. A patchy occurrence of film on ponded water was identified at Point 6 RDB. Trace or sporadic occurrence of film on ponded water was identified at all other locations.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

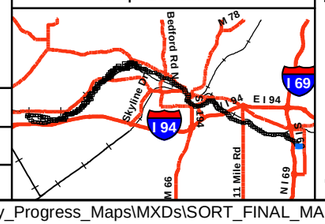
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP0.00-MP0.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 0.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		RSB; SHEEN IN POOLED WATER	Johnson, Rex
																					Conn, Chris
4/11/2011	13:08																	42.24151	-84.97337		Kytta, Ken
1a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		POLYGON FOR 0.25LDB1. ALL PARTIES INVOLVED WERE IN AGREEMENT THAT POLYGON HAD SIGNS OF OIL SHEEN. ENTIRE AREA COULD NOT BE OBSERVED DUE TO SOFT SINKING SOIL.	Wagner, Greg
																					Zimont, Ben
4/26/2011	10:18																	42.24155	-84.97335		Standen, John
2a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		POLYGON 0.25LDB2 FROM UPSTREAM STARTING POINT TO THIS POINT HAD NO SIGNS OF VISIBLE OIL SHEEN. THIS POINT IS THE FIRST SIGN OF VISIBLE OIL INSIDE THIS POLYGON.	Wagner, Greg
																					Zimont, Ben
4/26/2011	10:36																	42.24238	-84.97424		Standen, John
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		RSB; SHEEN IN POOLED WATER	Johnson, Rex
																					Conn, Chris
4/11/2011	14:00																	42.24297	-84.97477		Kytta, Ken

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 0.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		RSB; SHEEN IN POOLED WATER	Johnson, Rex / Conn, Chris
4/11/2011	14:25																	42.24371	-84.97538		Kytta, Ken
4a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		THIS POINT IS THE FIRST SIGN OF OIL FROM THE START OF THE UPSTREAM SIDE OF POLYGON 0.25LDB3. NO OTHER OIL OR SHEN OBSERVED IN THIS POLYGON TO THIS POINT.	Wagner, Greg / Zimont, Ben
4/26/2011	11:04																	42.24310	-84.97471		Standen, John
5a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		ALL PARTIES ARE IN AGREEMNT THAT OIL HAS BEEN OBSERVED IN POLYGON 0.25LDB4	Wagner, Greg / Zimont, Ben
4/26/2011	11:21																	42.24365	-84.97478		Standen, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 0.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		RESTORED CREEK BANK; SHEEN IN STANDING WATER	Johnson, Rex
																					Conn, Chris
4/11/2011	09:33																	42.24247	-84.97411		Kytta, Ken
2a	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		POLY 0025R2, SOME OF THE SHEEN DID MAKE DEFINED SWIRLING OF OIL SHEEN OVERALL JUST GREATER THAN 1% OF POLYGON	Childs, Jessica
																					Matthews, Rachel
4/26/2011	10:25																	42.24241	-84.97421		Juntilla, John
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		RESTORED STREAM BANK, SHEEN IN STANDING WATER	Johnson, Rex
																					Conn, Chris
4/11/2011	09:46																	42.24272	-84.97452		Kytta, Ken
3a	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		POLY 0025R3, MOSTLY ORGANIC SHEEN OBSERVED MORE THAN ONE FOOT FROM BANK, ABOUT 2% SHEEN WITH STRONG OIL CHARACTERISTICS	Childs, Jessica
																					Matthews, Rachel
4/26/2011	10:40																	42.24262	-84.97441		Juntilla, John
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	C	Low Vegetated Bank		RESTORED STREAM BANK; HEAVY SHEEN IN STANDING WATER	Johnson, Rex
																					Conn, Chris
4/11/2011	09:51																	42.24267	-84.97451		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Oil Distribution	Habitat		Comments	START
Mile Marker: 0.25																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems						MDEQ
Date	**Time**																		**Latitude**	**Longitude**		**Enbridge Team Lead**
5a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		S	Wetland-emergent/herbaceous		POINT 0025R6, JUST MORE THAN 1% SHEEN THAT SWIRLS AND STREAKS LIKE OIL SHEEN	Childs, Jessica
																						Matthews, Rachel
4/26/2011	11:03																		42.24320	-84.97460		Juntilla, John
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		P	Low Vegetated Bank		RESTORED STREAM BANK; SHEEN IN STANDING WATER	Johnson, Rex
																						Conn, Chris
4/11/2011	10:05																		42.24321	-84.97459		Kytta, Ken
6a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		S	Wetland-emergent/herbaceous		POINT 0025R7, JUST OVER 1% SHEEN THAT SWIRLS AND STREAKS LIKE OIL SHEEN	Childs, Jessica
																						Matthews, Rachel
4/26/2011	11:10																		42.24328	-84.97461		Juntilla, John
7	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		S	Low Vegetated Bank		RSB (RESTORED STREAM BANK); SHEEN	Johnson, Rex
																						Conn, Chris
4/11/2011	10:08																		42.24328	-84.97462		Kytta, Ken
7a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		S	Wetland-emergent/herbaceous		POLY 0025R8, SMALL AMOUNT OF SWIRLING AND STREAKING IN PLACES INSIDE POLYGON JUST MORE THAN 1%	Childs, Jessica
																						Matthews, Rachel
4/26/2011	11:22																		42.24356	-84.97455		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 0.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank	RSB; SHEEN
4/11/2011	10:21																	42.24354 / -84.97452	
8a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	POLY 0025R9, LESS THAN 1% SHEEN OBSERVED WITH SOME SWIRLING AND STRINGING
4/26/2011	12:14																	42.24402 / -84.97541	
9	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank	RSB; SHEEN IN STANDING WATER
4/11/2011	10:37																	42.24406 / -84.97532	

START	
MDEQ	
Enbridge Team Lead	
Johnson, Rex	
Conn, Chris	
Kytta, Ken	
Childs, Jessica	
Matthews, Rachel	
Juntilla, John	
Johnson, Rex	
Conn, Chris	
Kytta, Ken	

Photo Logs

Field Photographs MP 0.00 – MP 0.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 0.00 – MP 0.25

LDB Zone ID 1, Photo 003



LDB Zone ID 1a, Photo 1



Field Photographs MP 0.00 – MP 0.25

LDB Zone ID 1a, Photo 2



LDB Zone ID 2a, Photo 001



Field Photographs MP 0.00 – MP 0.25

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 0.00 – MP 0.25

LDB Zone ID 4, Photo 001

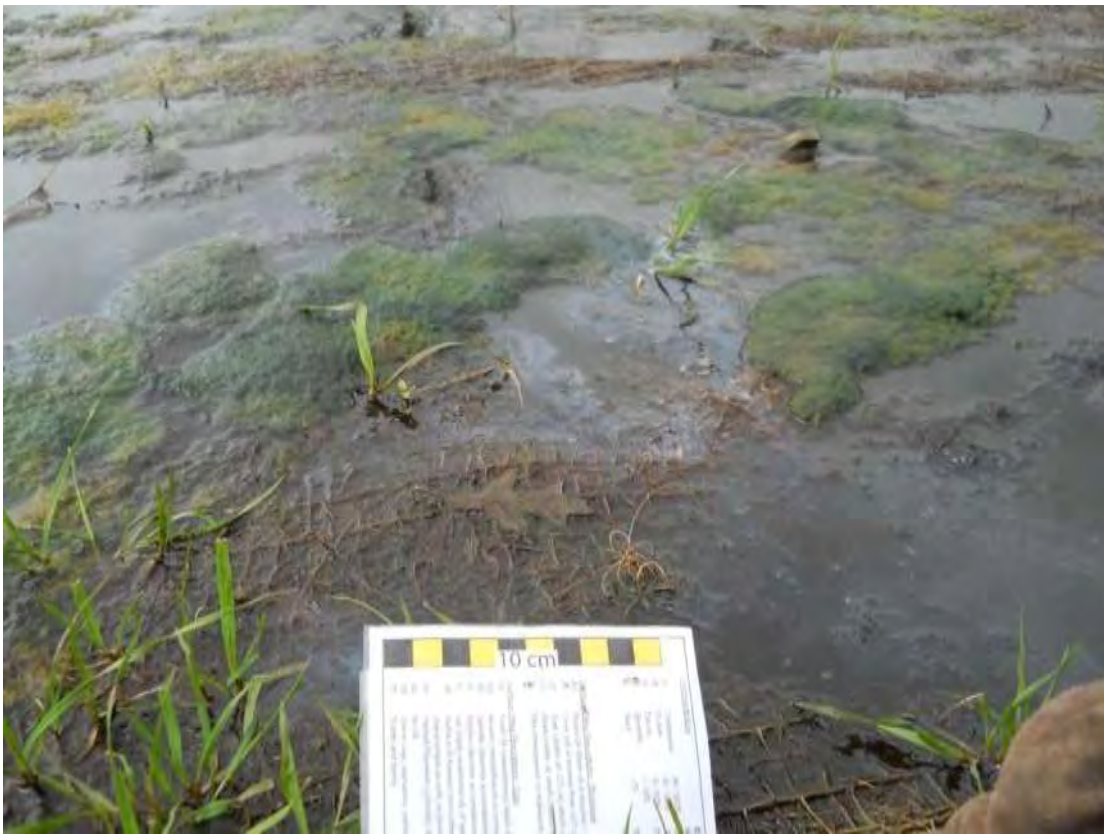


LDB Zone ID 4, Photo 002



Field Photographs MP 0.00 – MP 0.25

LDB Zone ID 4a, Photo 001



LDB Zone ID 5a, Photo 001



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002

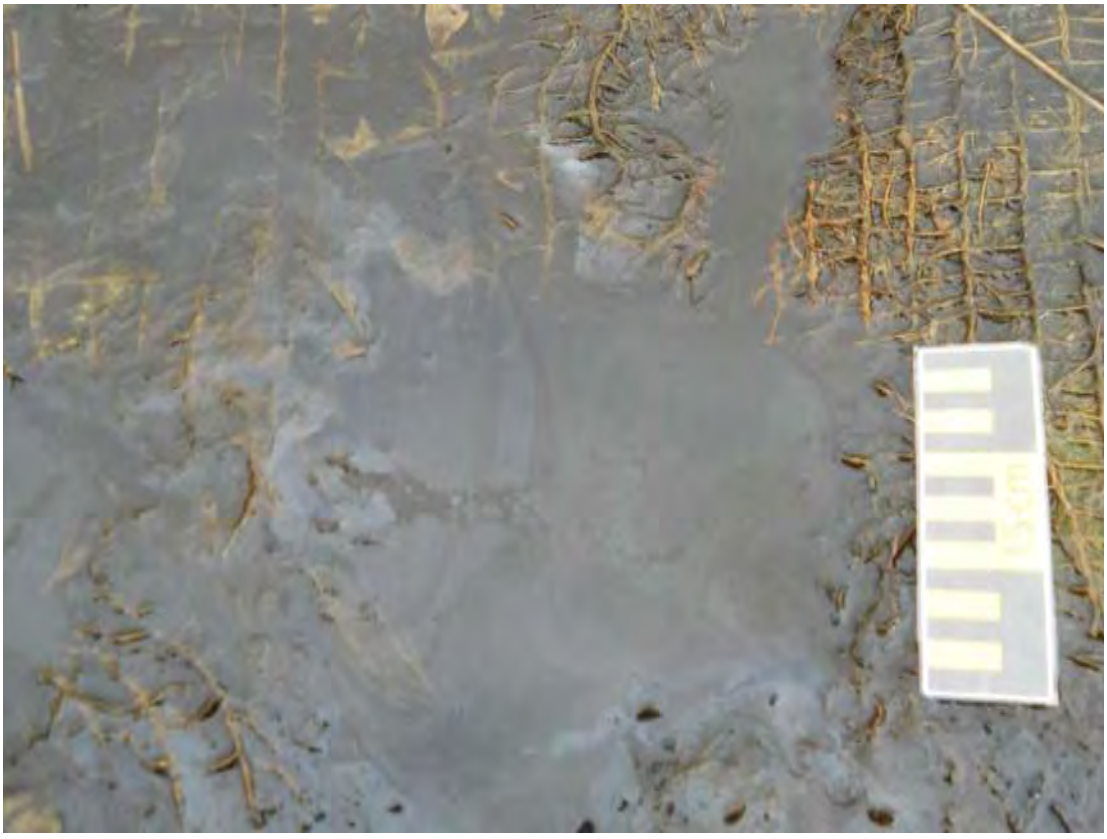


Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 2a, Photo 001



RDB Zone ID 2a, Photo 002



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 2a, Photo 003



RDB Zone ID 2a, Photo 004



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 3, Photo 003



RDB Zone ID 3a, Photo 001



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 3a, Photo 002



RDB Zone ID 3a, Photo 003



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 3a, Photo 004



RDB Zone ID 4, Photo 001



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 5a, Photo 001



RDB Zone ID 5a, Photo 002



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 6a, Photo 001



RDB Zone ID 6a, Photo 002



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 7, Photo 001



RDB Zone ID 7a, Photo 001



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 7a, Photo 002



RDB Zone ID 7a, Photo 003

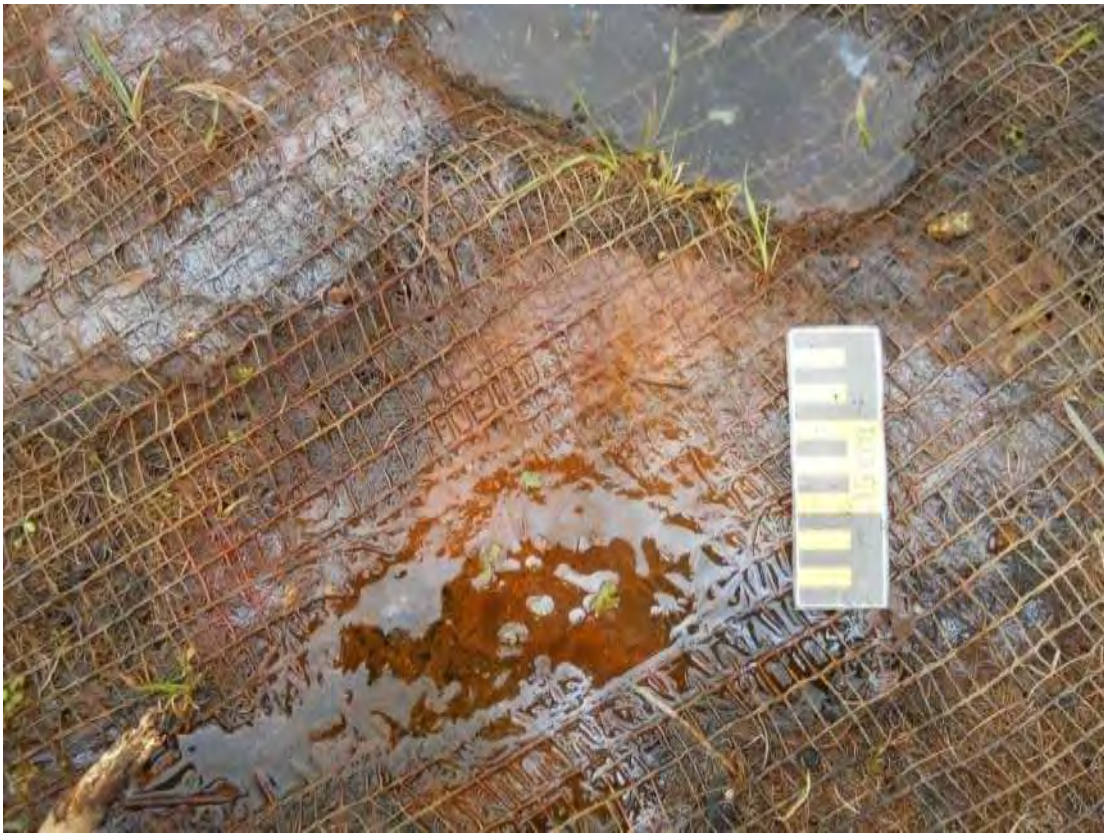


Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 7a, Photo 004

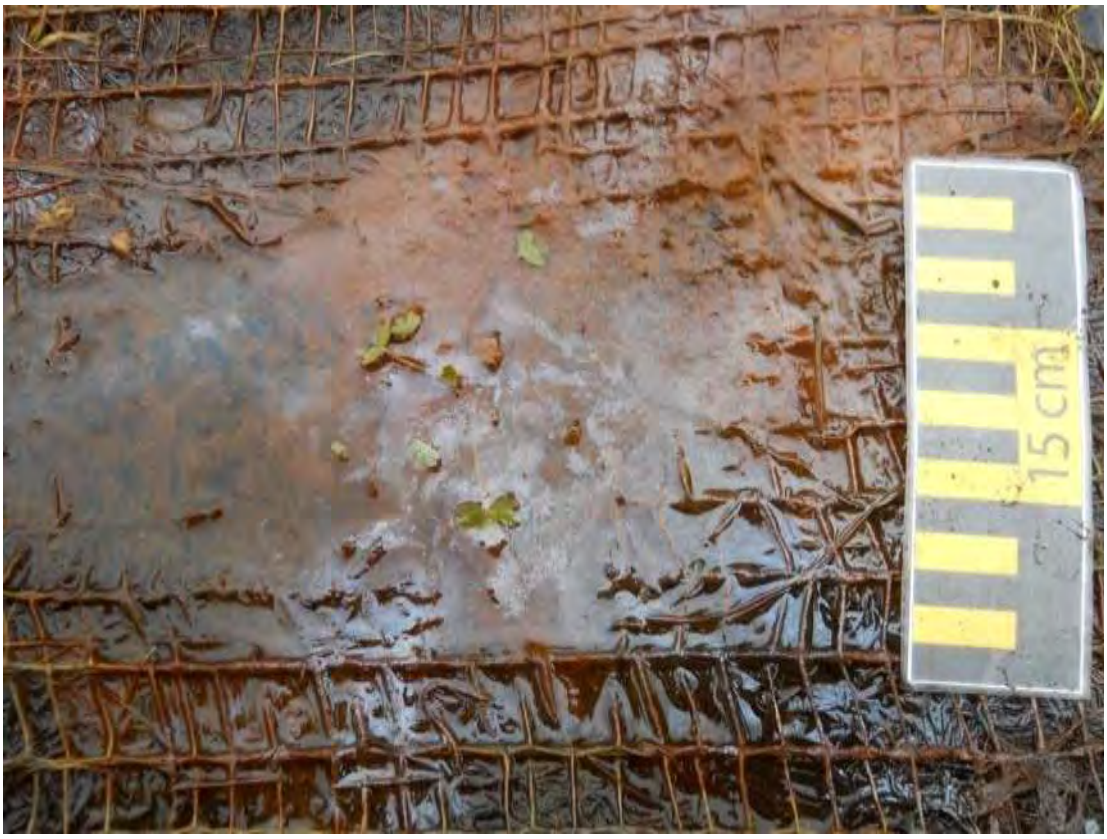


RDB Zone ID 7a, Photo 005



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 7a, Photo 006



RDB Zone ID 8, Photo 001



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 8, Photo 002



RDB Zone ID 8a, Photo 001

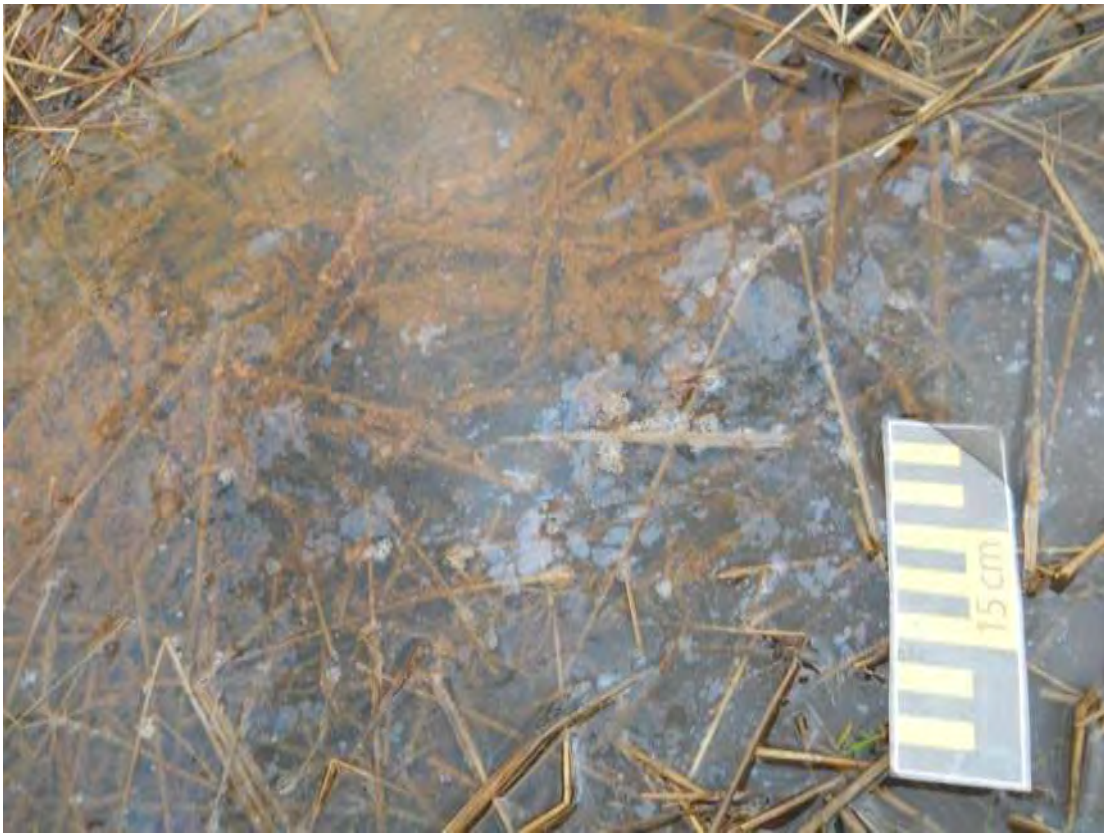


Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 8a, Photo 002



RDB Zone ID 8a, Photo 003



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 9, Photo 001



RDB Zone ID 9, Photo 002



Field Photographs MP 0.00 – MP 0.25

RDB Zone ID 9, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 0.0 to MP 0.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
~~Inundation Model~~	~~START~~		~~MDEQ~~		~~Enbridge~~

No inundation model for Talmadge Creek.

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 5/24/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 5/24/11 Date

Michelle DeLong — Printed Name

Enbridge — May 27/11 Date

Neil Reid — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0 to MP 0.25, Bank or Island: RIGHT (DESCENDING), Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/11/11 Date
REX JOHNSON	Printed Name	
[signature]	MDEQ	4/11/11 Date
Chris Conn	Printed Name	
[signature]	Enbridge	4/11/11 Date
KENNETH KYTTA	Printed Name	

DELINEATED ALL SHEENING AREAS: QUESTIONS ON SOME SHEENS ON ORGIN OF NATURE (ORGANIC VS PETROLEUM)

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.00 to MP 0.25 RDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/20/11 Date

Jessica Childs Printed Name

_____ MDEQ — 4-26-2011 Date

Rachel Mathews Printed Name

_____ Enbridge — 4-26-2011 Date

John W. Juntilla Printed Name

8 features revisited

6 features had oil identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0 to MP 0.25, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/11/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/11/11 — Date

Chris Conn — Printed Name

Kenneth Kytta — Enbridge — 4/11/11 — Date

Kenneth Kytta — Printed Name

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.00 to MP 0.25, Bank or Island: LDB; Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/26/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 4/26/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge — 4/26/11 Date

[signature] Printed Name

IDENTIFIED 4 POLYGONS IN SEGMENT. ALL CONTAINED TRACE AMOUNTS OF FILM.

Segment 0.25 – 0.50

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 0.25 to MP 0.50

The LDB of segment 0.50 consists of a re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified five points and one polygon. A trace or sporadic occurrence of film on ponded water was identified in Points 3 LDB, 3a LDB, 6 LDB and 8a LDB and Polygon 10 LDB. A coating of oil on the soil was identified at Point 9 LDB.

The RDB of segment 0.50 also consists of re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified three points and two polygons. A trace or sporadic occurrence of film on ponded water was identified at all locations.

A PI observation noted as an Unconfirmed Area of Interest was identified within one soil cell on the RDB.

The FLS did not detect any oil signatures in this segment.

The attachments provide additional details on this segment.

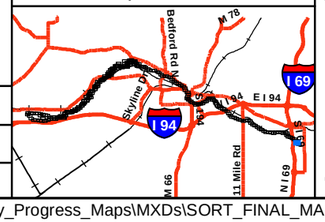
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP0.25-MP0.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 0.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
10	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		RSB; SHEEN IN POOLED WATER	Johnson, Rex
																					Conn, Chris
4/11/2011	17:02																	42.24626	-84.97761		Kytta, Ken
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		SMALL POOL WITH LIGHT SHEEN	Johnson, Rex
																					Conn, Chris
4/11/2011	15:40																	42.24417	-84.97639		Kytta, Ken
3a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		TRACE AMOUNT OF SHEEN FROM OIL. ALL PARTIES IN AGREEMENT. POINT IS FOR 0.50LDB3.	Wagner, Greg
																					Zimont, Ben
4/26/2011	13:16																	42.24415	-84.97640		Standen, John
6	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Other (comments)		SHEEN RELEASED FROM COCONUT LOG ON SHORE; EXTENDS ALONG SHORE	Johnson, Rex
																					Conn, Chris
4/11/2011	15:59																	42.24454	-84.97627		Kytta, Ken
8a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		TRACE OIL SHEEN WAS OBSERVED BY ALL PARTIES IN POLYGON 0.50LDB10.	Wagner, Greg
																					Zimont, Ben
4/26/2011	13:55																	42.24605	-84.97749		Standen, John

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character												
Mile Marker:	0.5																		
Source:	2011 Reassessment																		
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Comments	START
Date	Time																	Latitude / Longitude		MDEQ / Enbridge Team Lead
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank	SMALL OIL COAT ON SOIL	Johnson, Rex / Conn, Chris
4/11/2011	16:49																	42.24581 / -84.97734		Kytta, Ken

2011 Reassessment

Bank: RDB

Mile Marker: 0.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat: Latitude	Longitude	Comments	START: MDEQ / Enbridge Team Lead
2	Overbank	4/11/2011	10:59	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Low Vegetated Bank	42.24420 / -84.97600	RSB; SMALL AREA OF SHEEN	Johnson, Rex / Conn, Chris / Kytta, Ken
2a	Overbank	4/26/2011	12:51	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.24515 / -84.97642	POLY 0050R3, ONLY SMALL AMOUNTS OF TRACE OIL SHEEN NOTED IN POLYGON	Childs, Jessica / Matthews, Rachel / Juntilla, John
3	Overbank	4/11/2011	11:18	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank	42.24529 / -84.97659	RSB; SHEEN	Johnson, Rex / Conn, Chris / Kytta, Ken
3a	Overbank	4/26/2011	13:08	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.24594 / -84.97702	POLY 0050R4, LESS THAN 1% SHEEN WITH SOME STRINGING AS OIL SHEEN	Childs, Jessica / Matthews, Rachel / Juntilla, John
4	Overbank	4/11/2011	11:33	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank	42.24600 / -84.97718	RSB; SHEEN IN POOLED WATER	Johnson, Rex / Conn, Chris / Kytta, Ken

Photo Logs

Field Photographs MP 0.25 – MP 0.50

LDB Zone ID 3, Photo 001



LDB Zone ID 3a, Photo 001



Field Photographs MP 0.25 – MP 0.50

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 0.25 – MP 0.50

LDB Zone ID 8a, Photo 001



LDB Zone ID 9, Photo 001

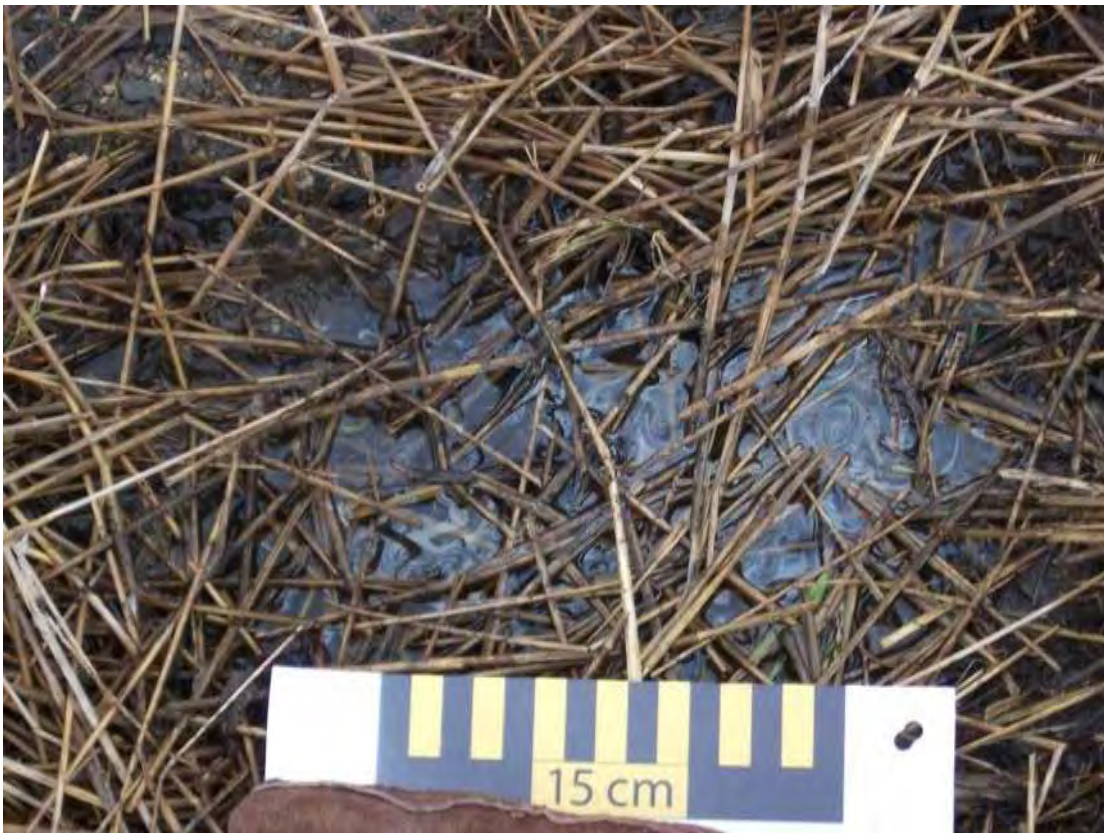


Field Photographs MP 0.25 – MP 0.50

LDB Zone ID 9, Photo 002



LDB Zone ID 10, Photo 001



Field Photographs MP 0.25 – MP 0.50

RDB Zone ID 2, Photo 001

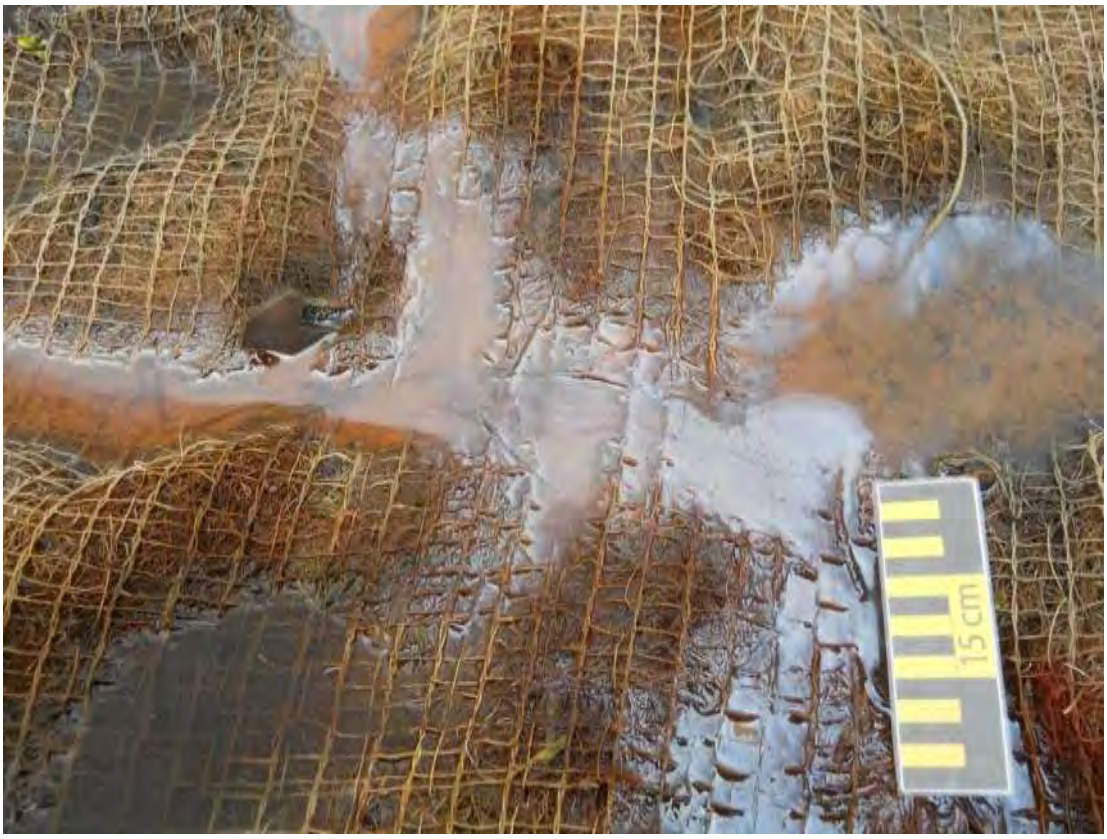


RDB Zone ID 2, Photo 002

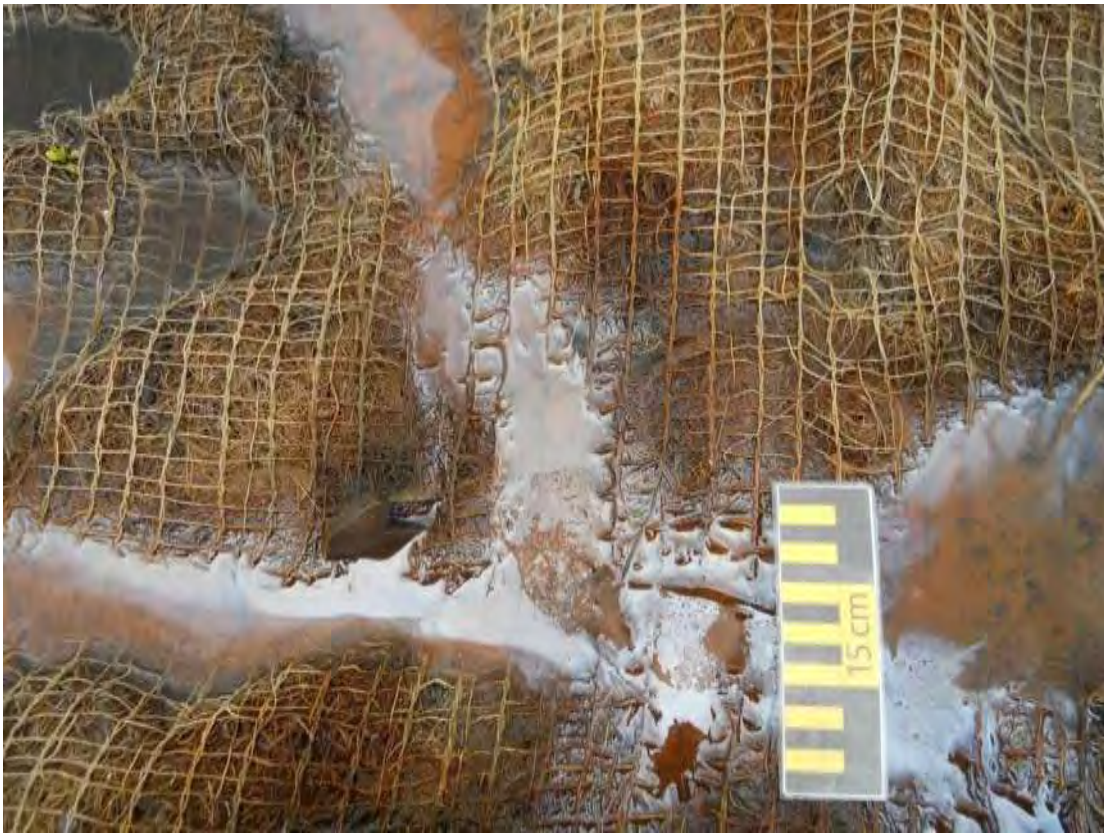


Field Photographs MP 0.25 – MP 0.50

RDB Zone ID 2a, Photo 001



RDB Zone ID 2a, Photo 002



Field Photographs MP 0.25 – MP 0.50

RDB Zone ID 2a, Photo 003



RDB Zone ID 2a, Photo 004



Field Photographs MP 0.25 – MP 0.50

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002

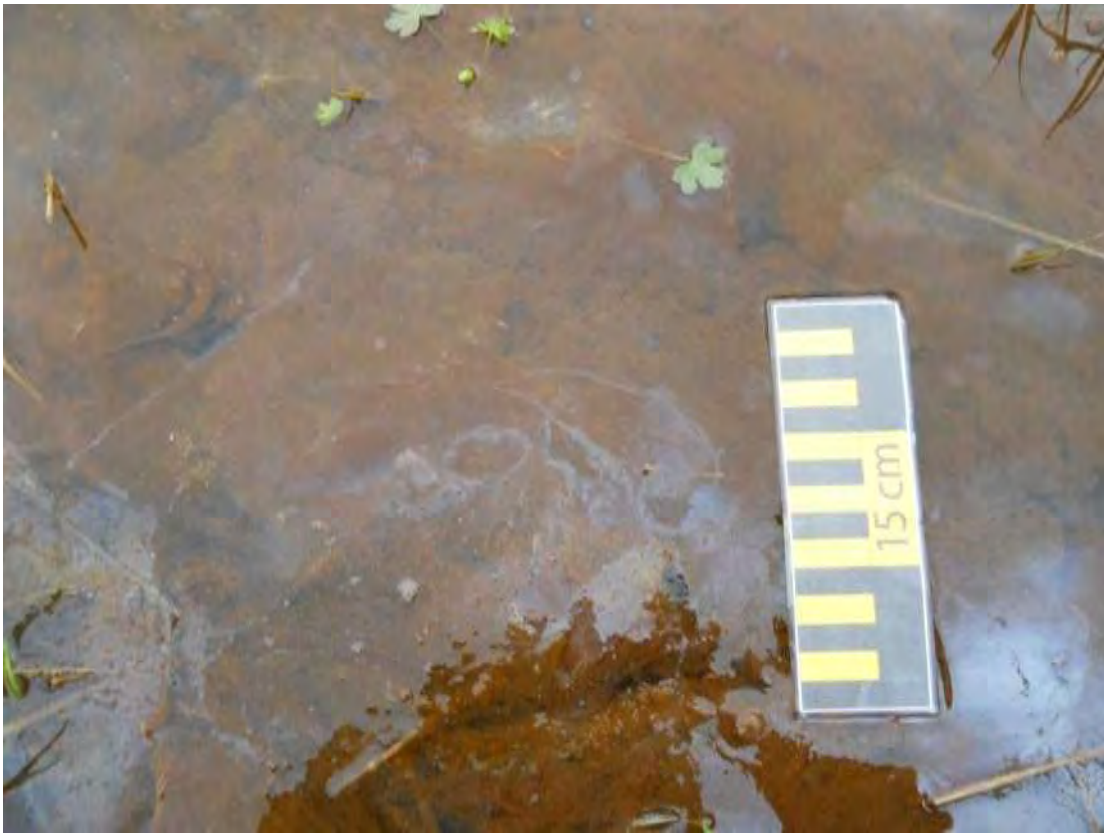


Field Photographs MP 0.25 – MP 0.50

RDB Zone ID 3a, Photo 001



RDB Zone ID 3a, Photo 002



Field Photographs MP 0.25 – MP 0.50

RDB Zone ID 3a, Photo 003



RDB Zone ID 3a, Photo 004



Field Photographs MP 0.25 – MP 0.50

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 0.25 to MP 0.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
~~Inundation Model~~	~~START~~		~~MDEQ~~		~~Enbridge~~

No new inundation model for Talmadge Creek.

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 5/24/11 Date

Michelle DeLong — Printed Name

Enbridge — May 24/11 Date

Neil Reid — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.25 to MP 0.50, Bank or Island: River, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/11/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/11/11 — Date

Chris Conn — Printed Name

KENNETH KYTTA — Enbridge — 4/11/11 — Date

Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.25 to MP 0.50 RDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/26/11 Date

Jessica Childs Printed Name

_____ MDEQ — 4-26-2011 Date

Rachel Matthews Printed Name

_____ Enbridge — 4-26-2011 Date

John V. Juntilla Printed Name

4 features revisited

2 features had oil identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.25 to MP 0.30, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/11/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/11/11 — Date

Chris Conn — Printed Name

Enbridge — 4/11/11 — Date

KENNETH KUTTA — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.25 to MP 0.50, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/26/2011 Date

Gregory D. Wagner Printed Name

_____ MDEQ — 4/26/11 Date

Ben A. Zimmer Printed Name

_____ Enbridge — 4/26/11 Date

Joseph Standen Printed Name

REASSESSED 4 POLYGONS AND 4 POINTS. CONFIRMED PETROLEUM FILM AT 1 POINT AND 1 POLYGON

Segment 0.50 – 0.75

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 0.50 to MP 0.75

The LDB of segment 0.75 generally consists of a re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified four points. A trace or sporadic occurrence of film on ponded water was identified in Points 1 LDB, 1a LDB, and 2 LDB with a patchy occurrence in Point 2a LDB.

The RDB of segment 0.75 also consists of re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified three points and three polygons. A trace or sporadic occurrence of film on ponded water was identified at all locations.

Two PI observations noted as Unconfirmed Areas of Interest were identified along the shoreline at Polygon 3 RDB.

The attachments provide additional details on this segment.

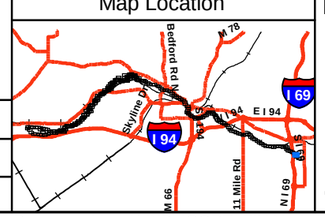
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP0.50-MP0.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 0.75																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN IN WETLAND POND	Johnson, Rex Conn, Chris
4/12/2011	10:11																	42.24886	-84.98044		Kytta, Ken
1a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		ALL PARTIES OBSERVED TRACE OIL SHEEN FOR POINT 0.75LDB1	Wagner, Greg Zimont, Ben
4/26/2011	14:26																	42.24884	-84.98038		Standen, John
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN IN POOLED WATER	Johnson, Rex Conn, Chris
4/12/2011	10:15																	42.24891	-84.98020		Kytta, Ken
2a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-emergent/herbaceous		ALL PARTIES OBSERVED TRACE OIL SHEEN FOR POINT 0.75LDB2	Wagner, Greg Zimont, Ben
4/26/2011	14:30																	42.24888	-84.98029		Standen, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 0.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		POLY 0075R2, TRACE AMOUNT OF SHEEN EXIBITING OIL TYPE CHARACTERISTICS	Childs, Jessica Matthews, Rachel
4/26/2011	13:48																	42.24707	-84.97759		Juntilla, John
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		SHEEN IN POOLED WATER; POSSIBLY ORGANIC SHEEN; SHEEN FROM COCONUT LOGS	Johnson, Rex Conn, Chris
4/12/2011	08:59																	42.24713	-84.97757		Kytta, Ken
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		SHEEN IN POOLED WATER	Johnson, Rex Conn, Chris
4/12/2011	09:17																	42.24781	-84.97800		Kytta, Ken
3a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		POLY 0075R3, TRACE AMOUNT OF SHEEN WITH OIL TYPE CHARACTERISTICS	Childs, Jessica Matthews, Rachel
4/26/2011	14:14																	42.24786	-84.97790		Juntilla, John
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank			Johnson, Rex Conn, Chris
4/12/2011	09:40																	42.24847	-84.97916		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 0.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
6a	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		POLY 0075R6, TRACE AMOUNT OF OIL SHEEN OBSERVED	**Enbridge Team Lead**
																					Childs, Jessica
																					Matthews, Rachel
4/26/2011	14:37																	42.24838	-84.97905		Juntilla, John

Photo Logs

Field Photographs MP 0.50 – 0.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 0.50 – 0.75

LDB Zone ID 1a, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 0.50 – 0.75

LDB Zone ID 2, Photo 002



LDB Zone ID 2a, Photo 001



Field Photographs MP 0.50 – 0.75

RDB Zone ID 1a, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 0.50 – 0.75

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 0.50 – 0.75

RDB Zone ID 3, Photo 002

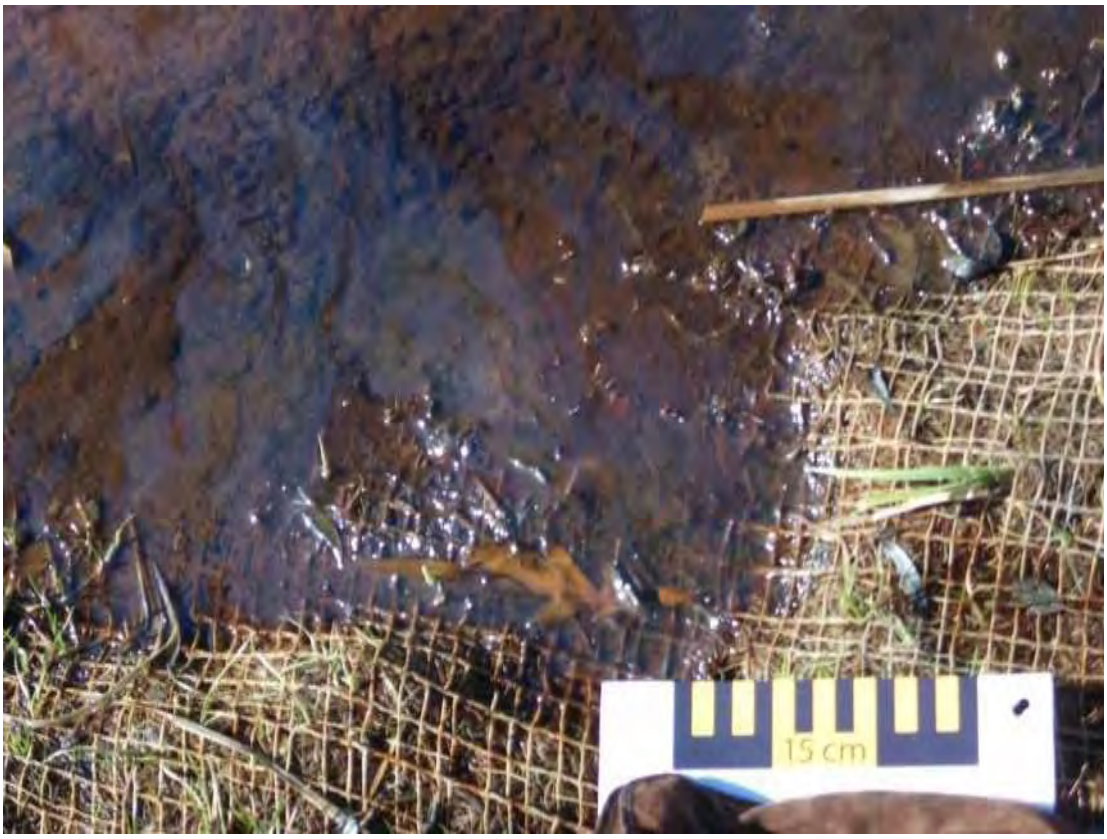


RDB Zone ID 3a, Photo 001

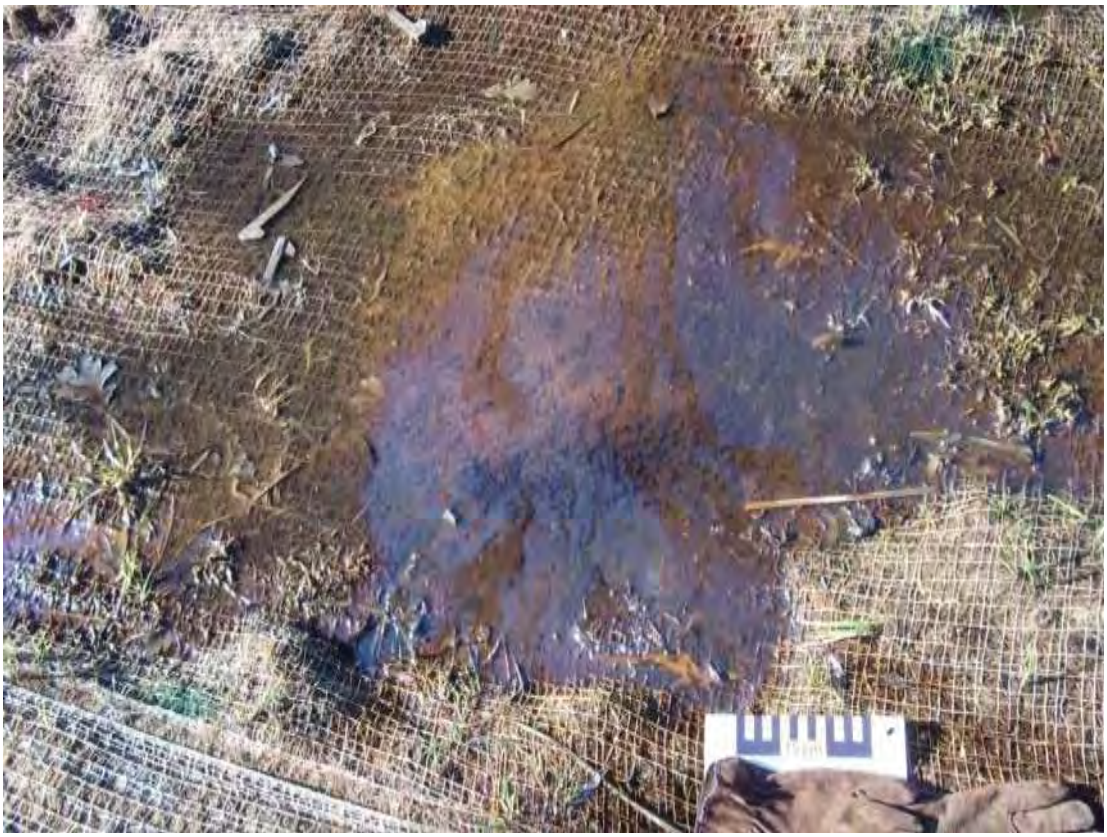


Field Photographs MP 0.50 – 0.75

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 0.50 – 0.75

RDB Zone ID 6a, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 0.5 to MP 0.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
~~Inundation Model~~	~~START~~		~~MDEQ~~		~~Enbridge~~

No new inundation model for Talmadge Creek

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 5/24/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 5/24/11 Date

Michelle DeLong — Printed Name

Enbridge — May 24/11 Date

Neil Reid — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.5 to MP 0.75, Bank or Island: RIGHT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson	START	4/12/11 Date
Rex Johnson	Printed Name	
	MDEQ	4/11/11 Date
Chris Cohen	Printed Name	
	Enbridge	4/12/11 Date
KEN KYTTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.50 to MP 0.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/20/11 Date

Jessica Childs Printed Name

[signature] MDEQ — 4-26-2011 Date

Rachel Matthews Printed Name

[signature] Enbridge — 4-26-2011 Date

John W. Juntilla Printed Name

6 features revisited

JWJ ~~3~~ 3 features had oil identified.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.50 to MP 0.75, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson START 4/12/11 Date

Rex Johnson Printed Name

MDEQ 4/12/11 Date

Chris Conn Printed Name

Enbridge 4/12/11 Date

KEN KYTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 6.50 to MP 6.75, Bank or Island: LOB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/26/2011 Date

Gregory D. Wagner Printed Name

_____ MDEQ 4/26/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 4/26/11 Date

Joseph Strawser Printed Name

REASSESSED TWO POINTS. CONFIRMED PETROLEUM FILM AT BOTH POINTS

Segment 0.75 – 1.00

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 0.75 to MP 1.00

The LDB of segment 1.00 generally consists of a re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment did not identify any evidence of surface oil in the LDB of this segment.

The RDB of segment 1.00 also consists of re-engineered low vegetated bank with ECB covering the overbank, emergent/herbaceous wetlands, and coir logs lining the shoreline along the segment. The reassessment identified three points and one polygon. A trace or sporadic occurrence of film on ponded water was identified at all locations.

Two PI observations noted as Unconfirmed Areas of Interest were identified approximately 275 feet and 400 feet upstream of MP 1.00.

The FLS did not detect any oil signatures in this segment.

The attachments provide additional details on this segment.

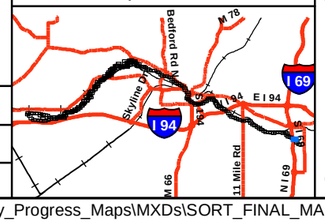
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP0.75-MP1.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 1																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Low Vegetated Bank		SECTION FREE OF OIL (1.00 LDB)	REX JOHNSON
																					CHRIS CONN
4/12/2011	14:34																	42.25084	-84.98416		KEN KYTTA

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 1																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN IN WETLAND	Johnson, Rex Conn, Chris
4/12/2011	12:42																	42.25100	-84.98186		Kytta, Ken
1a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		POLY 0100R4, MAINLY BIOLOGICAL SHEEN OBSERVED, POSIBLE COMBINATION WITH OIL SHEEN NOTED IN VARIOUS PLACES	Childs, Jessica Matthews, Rachel
4/26/2011	14:55																	42.24924	-84.98052		Juntilla, John
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		OIL SHEEN WHEN DISTURED IN SMALL POOL	Johnson, Rex Conn, Chris
4/12/2011	13:18																	42.25028	-84.98175		Kytta, Ken
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		SHEEN IN POOLED WATER	Johnson, Rex Conn, Chris
4/12/2011	13:43																	42.24902	-84.98035		Kytta, Ken

Photo Logs

Field Photographs MP 0.75 – MP 1.00

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 0.75 – MP 1.00

RDB Zone ID 1a, Photo 001

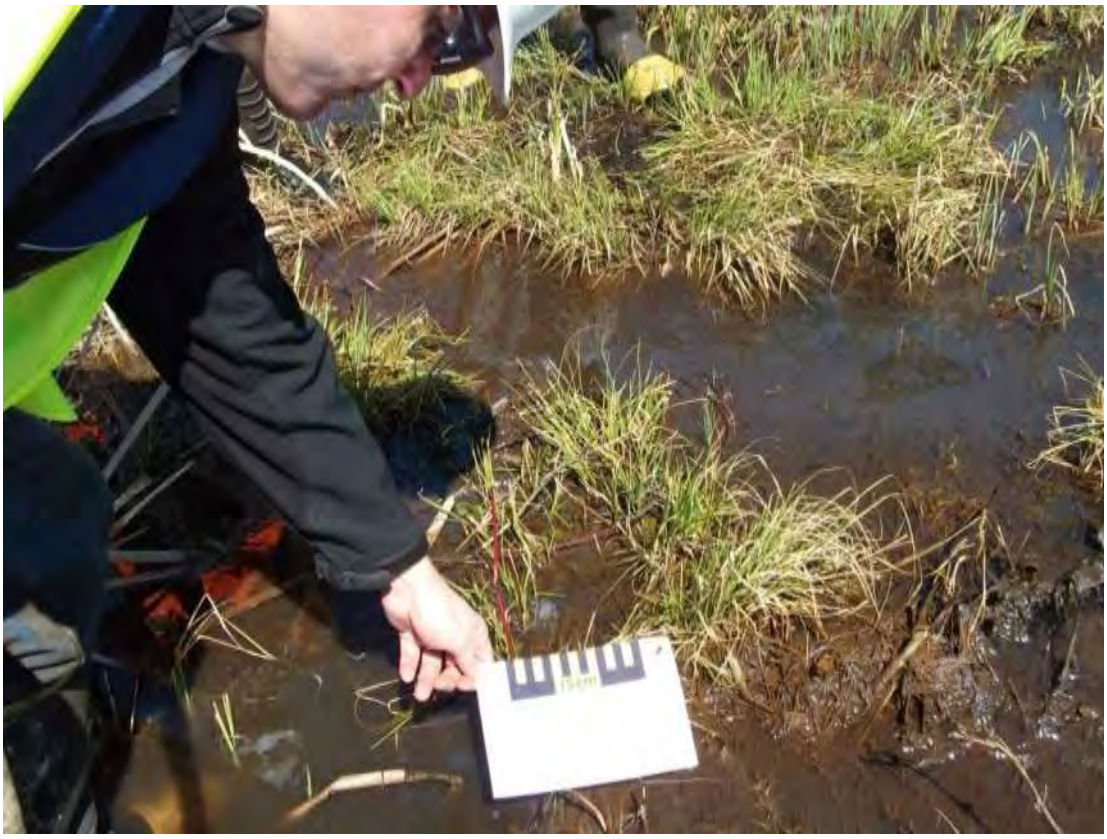


RDB Zone ID 3, Photo 001

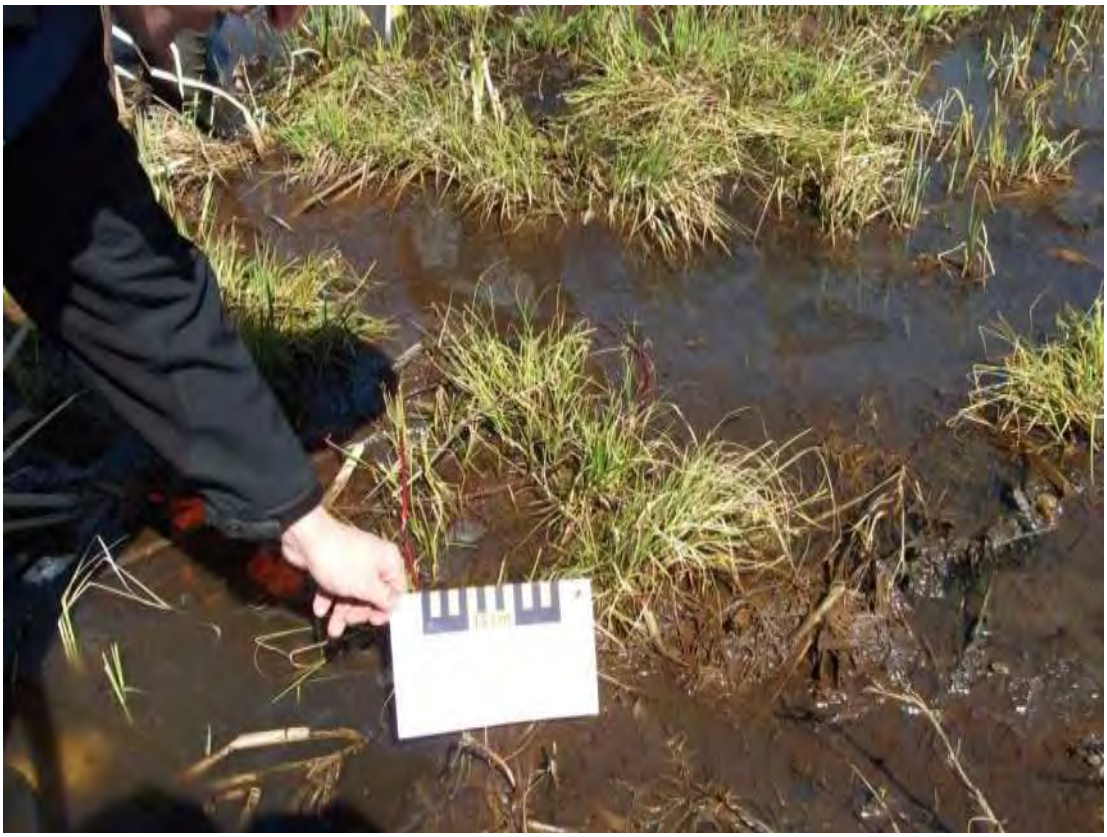


Field Photographs MP 0.75 – MP 1.00

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 0.75 to MP 1.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
~~Inundation Model~~	~~START~~		~~MDEQ~~		~~Enbridge~~

No new inundation model for Talmadge Creek.

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 5/24/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 5/24/11 Date

Michelle DeLong — Printed Name

Enbridge — May 24/11 Date

Neil Reid — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.75 to MP 1.06, Bank or Island: RIGHT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/12/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 4/12/11 — Date

Chris Conn — Printed Name

[signature] — Enbridge — 4/12/11 — Date

KEN KUTTA — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.75 to MP 1.00 RDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/20/11 Date

Jessica Childs Printed Name

_____ MDEQ — 4-26-2011 Date

Rachel Matthews Printed Name

_____ Enbridge — 4-26-2011 Date

John W. Juntilla Printed Name

2 features revisited

1 features had oil identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 0.75 to MP 1.00, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/12/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/12/11 — Date

Chris Conn — Printed Name

Ken Kytta — Enbridge — 4/12/11 — Date

Ken Kytta — Printed Name

Segment 1.00 – 1.25

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 1.00 to MP 1.25

The LDB of segment 1.25 generally consists of a re-engineered lawn with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified two points and three polygons. A trace or sporadic occurrence of film on ponded water was identified at all locations.

The RDB of segment 1.25 consists of re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified three points and two polygons. A trace or sporadic occurrence of film on ponded water was identified at Points 1a RDB, 2 RDB and 3 RDB and Polygon 1 RDB. An area of broken tar patties was identified at Polygon 4 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

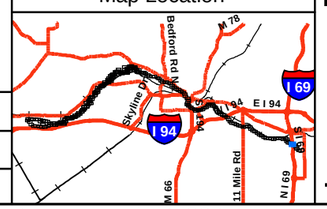
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP1.00-MP1.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 1.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	4/12/2011	14:55	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank	42.25142	-84.98509	SHEEN ALONG CREEK BANK	Johnson, Rex Conn, Chris Kytta, Ken
1a	Overbank	4/26/2011	15:18	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Lawn (maintained land)	42.25112	-84.98500	ALL PARTIE IN AGREEMENT POLYGON 1.25LDB3 HAS TRACE OIL WITH SPOTSCOF SHEEN IN MUD	Wagner, Greg Zimont, Ben Standen, John
2	Shoreline	4/12/2011	17:53	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank	42.25177	-84.98751	OIL SHEEN IN POOLED WATER NEAR BANK	Johnson, Rex Conn, Chris Kytta, Ken
2a	Overbank	4/26/2011	15:37	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Lawn (maintained land)	42.25140	-84.98505	ALL PARTIES AGREE THAT SHEEN IN POLYGON 1.25LDB1 WAS FROM OIL	Wagner, Greg Zimont, Ben Standen, John
3	Shoreline	4/12/2011	14:49	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank	42.25116	-84.98498	AREA OF SHEEN ALONG STREAM BANK *CHANGE ID TO 1.25L1a*	Johnson, Rex Conn, Chris Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 1.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		SHEEN IN WATER ALONG BANK	Johnson, Rex
																					Conn, Chris
4/12/2011	15:13																	42.25169	-84.98509		Kytta, Ken
1a	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		POLY 0125R1, OIL SHEEN OBSERVED IN WATER AND ON DIRT OUTSIDE OF SILT FENCE	Childs, Jessica
																					Matthews, Rachel
4/26/2011	15:38																	42.25108	-84.98475		Juntilla, John
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		SHEEN ALONG BANK	Johnson, Rex
																					Conn, Chris
4/12/2011	15:54																	42.25175	-84.98763		Kytta, Ken
3a	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		POINT 0125R2, OIL SHEEN ON WATER ON THE BANK SIDE OF THE SILT FENCE	Childs, Jessica
																					Matthews, Rachel
4/26/2011	16:53																	42.25175	-84.98763		Juntilla, John
4	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	B	Low Vegetated Bank		TAR PATTIES COATING SOIL NEAR CULVERT UNDER I-69	Johnson, Rex
																					Conn, Chris
4/12/2011	16:06																	42.25177	-84.98683		Kytta, Ken

Photo Logs

Field Photographs MP 1.00 – MP 1.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1a, Photo 001



Field Photographs MP 1.00 – MP 1.25

LDB Zone ID 2, Photo 001



LDB Zone ID 2a, Photo 001



Field Photographs MP 1.00 – MP 1.25

LDB Zone ID 3, Photo 001



RDB Zone ID 1, Photo 001

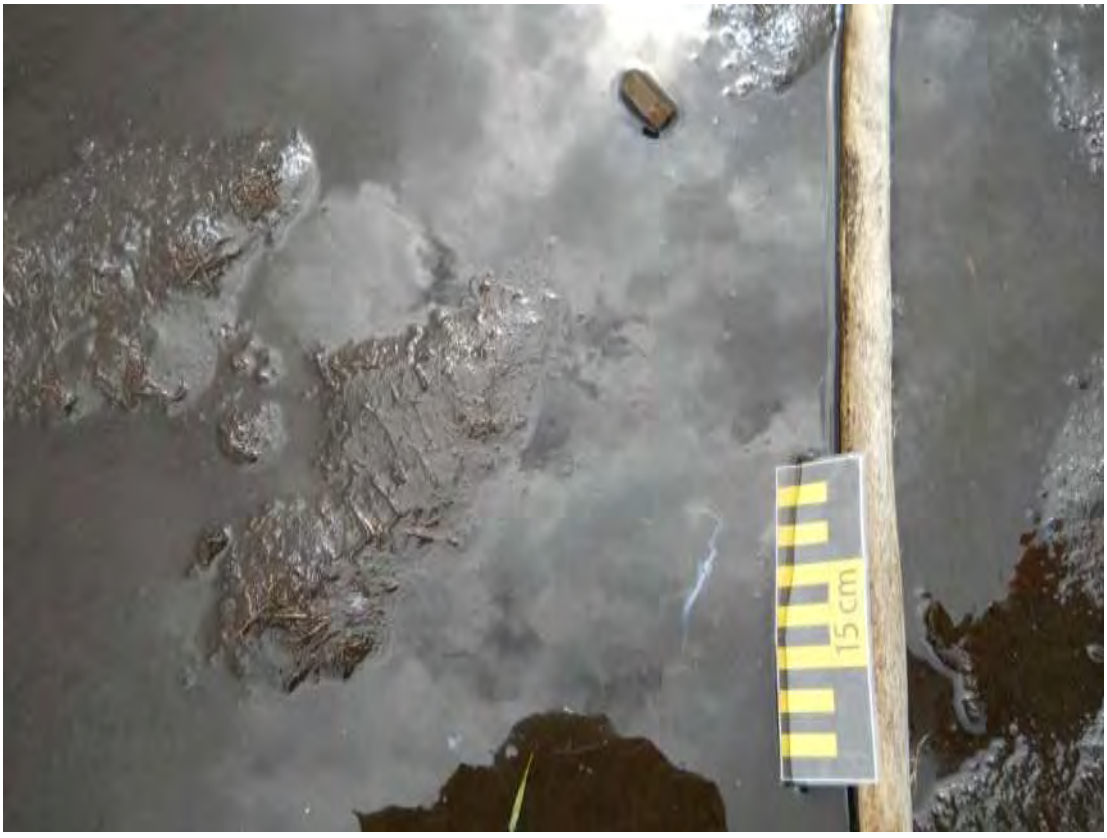


Field Photographs MP 1.00 – MP 1.25

RDB Zone ID 1, Photo 002



RDB Zone ID 1a, Photo 001



Field Photographs MP 1.00 – MP 1.25

RDB Zone ID 2, Photo 001



RDB Zone ID 3a, Photo 001



Field Photographs MP 1.00 – MP 1.25

RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 1.0 to MP 1.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	[initials]	Enbridge	[initials]
SOTF	START	[initials]	MDEQ	[initials]	Enbridge	[initials]
PI	START	[initials]	MDEQ	[initials]	Enbridge	[initials]
FLS	START	[initials]	MDEQ	[initials]	Enbridge	[initials]
~~Inundation Model~~	START		MDEQ		Enbridge	

No new inundation model for Talmadge Creek.

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 5/24/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 5/24/11 Date

Michelle DeLong — Printed Name

[signature] — Enbridge — May 24/11 Date

Neil Reid — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.00 to MP 1.25, Bank or Island: ~~Both~~, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/12/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/12/11 — Date

Chris Conn — Printed Name

Ken Kytta — Enbridge — 4/12/11 — Date

Ken Kytta — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.00 to MP 1.25 RDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/26/11 Date

Jessica Childs Printed Name

_____ MDEQ — 4-26-11 Date

Rachel Mathews Printed Name

_____ Enbridge — 4-26-2011 Date

John W. Juntilla Printed Name

3 features revisited

2 features had oil Identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.00 to MP 1.25, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/12/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/12/11 — Date

Chris Conn — Printed Name

Ken Kytta — Enbridge — 4/12/11 — Date

Ken Kytta — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.00 to MP 1.25, Bank or Island: LOB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/26/2011 Date

Gregory D. Wagner Printed Name

_____ MDEQ — 4/26/11 Date

Ben A. Zimont Printed Name

_____ Enbridge — 4/26/11 Date

Joseph Stalder Printed Name

REASSESSED 1 POINT AND 1 POLYGON. A PETROLEUM FILM WAS CONFIRMED AT BOTH AREAS.

Segment 1.25 – 1.50

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 1.25 to MP 1.50

The LDB of segment 1.50 generally consists of a re-engineered emergent/herbaceous overbank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment did not identify any evidence of surface oil in the LDB of this segment.

The RDB of segment 1.50 consists of re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified four points. A sporadic sheen on ponded water was observed at Points 1 RDB and 1a RDB; a man-made concrete structure with patchy staining was identified at Point 2 RDB; and tar patties and a sporadic cover of oil was observed on a tree root at Point 3 RDB. The second reassessment confirmed the presence of sporadic occurrences of oil sheen on ponded water at Point 1 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

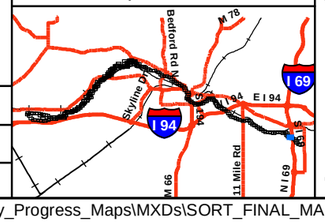
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP1.25-MP1.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											
Mile Marker: 1.5																		
Source: 2011 Reassessment																		
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-emergent/herbaceous

Date	**Time**	**Latitude**	**Longitude**	**Comments**	**START**
					MDEQ
4/26/2011	16:10	42.25255	-84.99016	ALL PARTIES IN AGREEMENT THAT SHEEN IN POINT 1.50LDB1 WAS BIOLOGICAL SHEEN. NO OIL PRESENT	**Enbridge Team Lead**
					Wagner, Greg
					Zimont, Ben
					Standen, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 1.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		SHEEN IN POOL NEAR BANK	Johnson, Rex
																					Conn, Chris
4/12/2011	17:01																	42.25184	-84.98887		Kytta, Ken
1a	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		POINT 0150R1, OIL SHEEN ON WATER ON THE BANK SIDE OF THE SILT FENCE	Childs, Jessica
																					Matthews, Rachel
4/26/2011	17:01																	42.25185	-84.98887		Juntilla, John
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	P	Man-Made Structure		OIL STAINED CONCRETE FROM HISTORIC STRUCTURE	Johnson, Rex
																					Conn, Chris
4/12/2011	17:10																	42.25221	-84.98975		Kytta, Ken
3	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	S	Low Vegetated Bank		SMALL TAR PATTIES AND STAINED ROOT	Johnson, Rex
																					Conn, Chris
4/12/2011	17:34																	42.25299	-84.99175		Kytta, Ken

Photo Logs

Field Photographs MP 1.25 – MP 1.50

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 1.25 – MP 1.50

RDB Zone ID 1a, Photo 001



RDB Zone ID 1a, Photo 002



Field Photographs MP 1.25 – MP 1.50

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 1.25 to MP 1.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	[initials]	Enbridge [initials]
SOTF	START	[initials]	MDEQ	[initials]	Enbridge [initials]
PI	START	[initials]	MDEQ	[initials]	Enbridge [initials]
FLS	START	[initials]	MDEQ	[initials]	Enbridge [initials]
~~Inundation Model~~	~~START~~		~~MDEQ~~		~~Enbridge~~

No new inundation model for Talmadge Creek.

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 5/24/2011 Date

John Powell Printed Name

[signature] MDEQ — 5/24/11 Date

Michelle Delong Printed Name

[signature] Enbridge — May 24/11 Date

Neil Reid Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.25 to MP 1.5, Bank or Island: Right, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/12/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/12/11 — Date

Chris Conn — Printed Name

Ken Kitta — Enbridge — 4/12/11 — Date

Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.25 to MP 1.50, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/26/11 Date

Jessica Childs Printed Name

_____ MDEQ — 4-26-2011 Date

Rachel Matthews Printed Name

_____ Enbridge — 4-26-2011 Date

John W. Juntilla Printed Name

1 feature revisited

1 feature had oil identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.25 to MP 1.50, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson START 4/12/11 Date

Rex Johnson Printed Name

MDEQ 4/12/11 Date

Chris Conn Printed Name

Enbridge 4/12/11 Date

KEN KATTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.25 to MP 1.50, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/26/2011 Date

Gregory D. Wagner Printed Name

_____ MDEQ — 4/26/11 Date

Ben A. Zimont Printed Name

_____ Enbridge — 4/26/11 Date

Joseph Standen Printed Name

REASSESSED ONE POINT AND NO PETROLEUM WAS OBSERVED.

Segment 1.50 – 1.75

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 1.50 to MP 1.75

The LDB of segment 1.75 generally consists of a combination of low vegetated bank and re-engineered emergent/herbaceous overbank with ECB covering the overbank and coir logs lining the shoreline along the segment. A pond is present within the LDB. The reassessment identified five points and two polygons. The reassessment identified two points (1 LDB and 2 LDB) were characterized as sporadic areas with tar coated branches, stems and debris. Patchy areas of tar covered and stained sticks and debris were observed at Polygon 5 LDB. Trace film on ponded water was identified as Points 2a LDB and 3a LDB, and Polygon 3 LDB. Sporadic film on ponded water was identified at Point 4 LDB.

Poling of the pond on the LDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 1.75 consists of re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. A pond is present within the RDB. The reassessment did not identify any evidence of surface oil in the RDB of this segment.

Poling of the pond on the RDB within this segment was completed at twelve locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

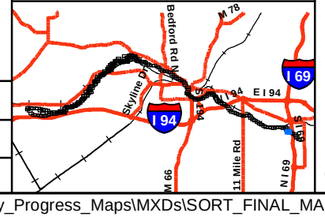
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP1.50-MP1.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 1.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	4/12/2011	18:39	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	S	Low Vegetated Bank	42.25281	-84.99206	TAR COATED DEBRIS/STICKS	Johnson, Rex Conn, Chris Kytta, Ken
2	Overbank	4/12/2011	18:44	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	S	Low Vegetated Bank	42.25285	-84.99214	TAR COATED STEMS/BRANCHES	Johnson, Rex Conn, Chris Kytta, Ken
2a	Overbank	4/26/2011	17:23	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.25373	-84.99554	ALL PARTIES IN AGREEMENT THAT SHEEN FROM POLYGON 1.75LDB2 IS FROM OIL	Wagner, Greg Zimont, Ben Standen, John
3	Overbank	4/13/2011	10:59	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.25356	-84.99551	SHEEN ON POOLED WATER	Johnson, Rex Conn, Chris Kytta, Ken
3a	Overbank	4/26/2011	17:30	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.25354	-84.99535	ALL PARTIES IN AGREEMENT THAT POINT 1.75LDB4 HAS OIL IN THE MUD WITH A BIOLOGICALSHEEN	Wagner, Greg Zimont, Ben Standen, John

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 1.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
4	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		SHEEN ON POOLED WATER NEAR BANK	Johnson, Rex
																					Conn, Chris
4/13/2011	11:02																	42.25360	-84.99529		Kytta, Ken
5	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	P	Low Vegetated Bank		TAR/OIL COVERED STICKS/DEBRIS	Johnson, Rex
																					Conn, Chris
4/13/2011	10:42																	42.25333	-84.99520		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 1.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Low Vegetated Bank		NO OIL IN SECTION; PORTION OF SECTION NOT REASSESSED DUE TO PROPERTY ACCESS ISSUES	**Enbridge Team Lead**
																					Johnson, Rex
																					Conn, Chris
4/15/2011	17:16																	42.25296	-84.99195		Kytta, Ken

Photo Logs

Field Photographs MP 1.50 – MP 1.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001

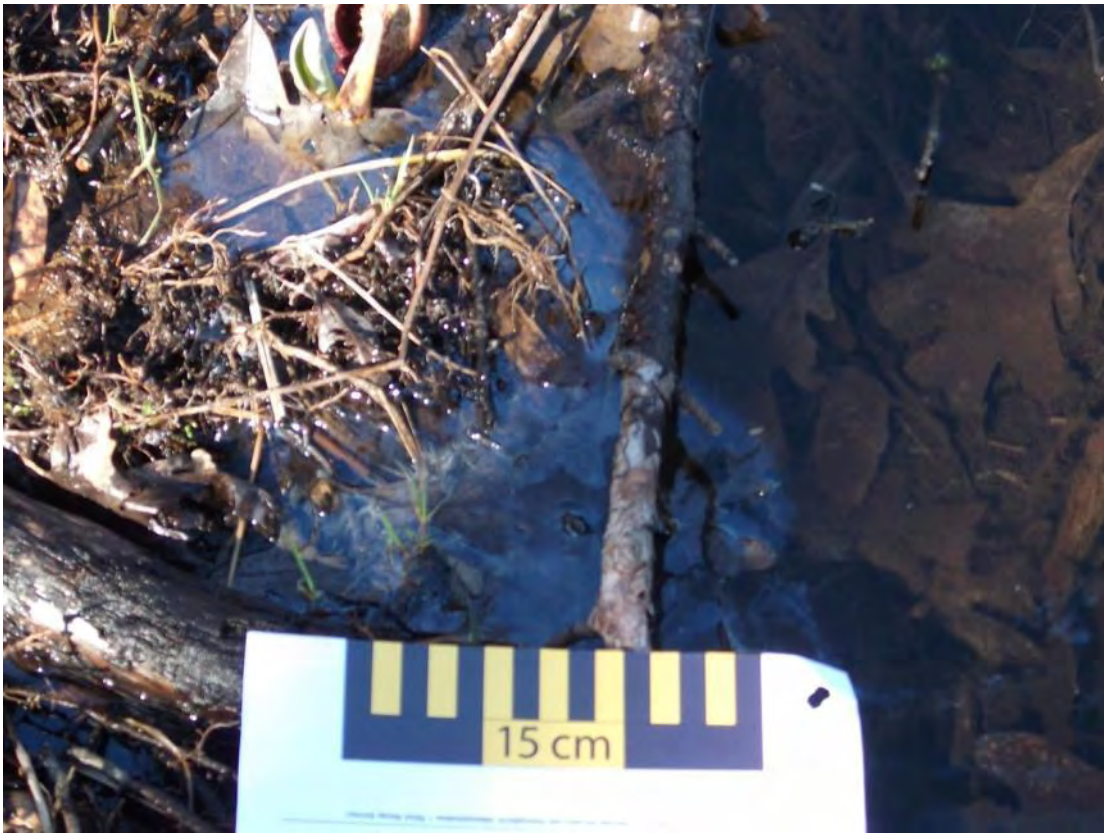


Field Photographs MP 1.50 – MP 1.75

LDB Zone ID 2a, Photo 001

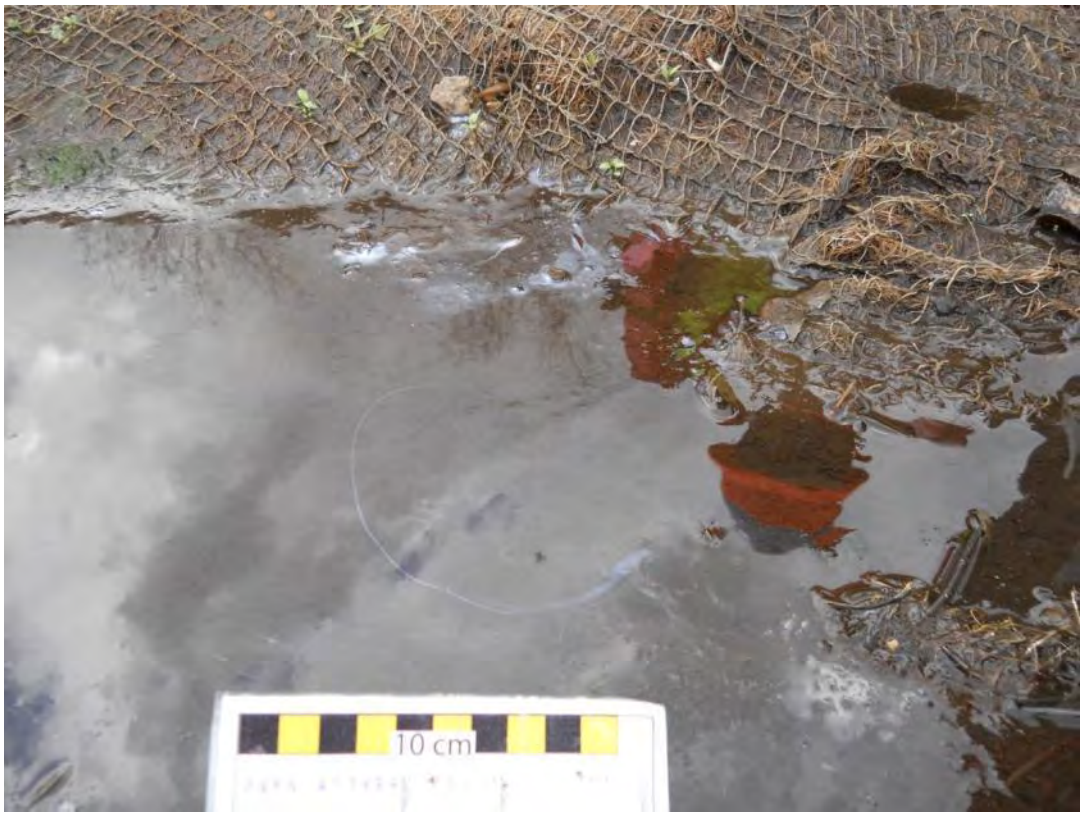


LDB Zone ID 3, Photo 001

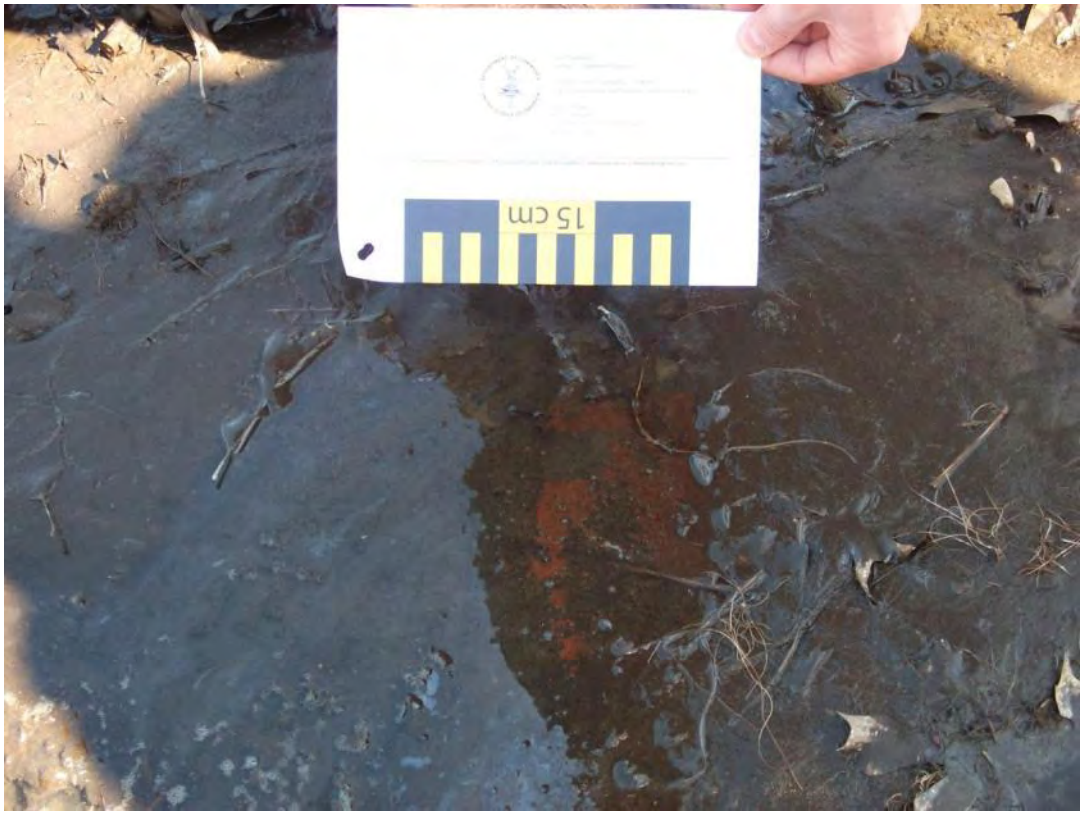


Field Photographs MP 1.50 – MP 1.75

LDB Zone ID 3a, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 1.50 – MP 1.75

LDB Zone ID 5, Photo 001



LDB Zone ID 5, Photo 002



Field Photographs MP 1.50 – MP 1.75

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 1.5 to MP 1.75, Segment Length: 0.25 mile

Property access issue within this ¼ mile segment.

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[ ]	MDEQ	[ ]	Enbridge [ ]
SOTF	START	[ ]	MDEQ	[ ]	Enbridge [ ]
PI	START	[ ]	MDEQ	[ ]	Enbridge [ ]
FLS	START	[ ]	MDEQ	[ ]	Enbridge [ ]
~~Inundation Model~~	~~START~~	[ ]	~~MDEQ~~	[ ]	~~Enbridge~~ [ ]

No new inundation model for Talmadge Creek.

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 5/24/2011 Date

John Powell — Printed Name

Michelle Delong — MDEQ — 5/24/11 Date

Michelle Delong — Printed Name

[signature] — Enbridge — May 24/11 Date

Neil Reid — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.
W/ EXCEPTION OF PARCEL TC-B-080.001 WHERE NO ACCESS WAS GRANTED

[signature]	START	4/13/11 Date
Rex Johnson	Printed Name	
[signature]	MDEQ	4/13/11 Date
Chris Conn	Printed Name	
[signature]	Enbridge	4/13/11 Date
KEN KYTTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Bank or Island: CDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/26/2011 Date

Gregory D. Wagner Printed Name

_____ MDEQ — 4/26/11 Date

Ben A. Zimont Printed Name

_____ Enbridge — 4/26/11 Date

Joseph Stadden Printed Name

REASSESSED 3 POINTS AND 1 POLYGON. IDENTIFIED FILM AT POLYGON AND ONE POINT

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Unique ID LDB Inner Water, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/7/11 — Date

Rex Johnson — Printed Name

MDEQ — 5/7/11 — Date

MATTHEW D WESENER — Printed Name

Enbridge/TT — 5/7/11 — Date

Craig A Wiemans — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Bank or Island: Right, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

W/ EXCEPTION OF PARCEL TC-B-080.001 WHERE NO ACCESS WAS GRANTED

Rex Johnson — START — 4/13/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 4/13/11 — Date

Chris Cowan — Printed Name

[signature] — Enbridge — 4/13/11 — Date

KEN KYTTA — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Bank or Island: RDB; Segment Length: 0.25 mile

* The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

W/ EXCEPTION OF PROPERTY TC-B-080.001 WITH NO PROPERTY ACCESS.

Rex Johnson — START — 4/15/11 — Date

Rex Johnson — Printed Name

Chris Cavin — MDEQ — 4/15/11 — Date

Chris Cavin — Printed Name

Ken Kytta — Enbridge — 4/15/11 — Date

Ken Kytta — Printed Name

* NO POINTS WERE RECORDED IN SEGMENT DURING ASSESSMENT. POINT WAS RECORDED ON 4/15/11.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Unique ID RDB PONDED WATER, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/7/11 — Date

Rex Johnson — Printed Name

MDEQ — 5/7/11 — Date

MATTHEW D WESENER — Printed Name

Enbridge/TT — 5/7/11 — Date

Craig A Wieman — Printed Name

CREATED POLYGON FOR PONDED WATER NOT PREVIOUSLY MARKED.

X:\2011_Reassessment\Sign-Off Sheets

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, ~~Bank or Island:~~ PROPERTY I.D. TC-B-080.00, ~~Segment Length: 0.25 mile~~

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been ~~adequately reassessed and areas requiring future consideration have been located and~~ documented by the SORT team. FROM THE PERIMETER OF THE PROPERTY SEE NOTES ON BACK OF SHEET AND YUMA TRACKLOG, POINTS, AND PICTURES

[signature] START — 5/11/11 Date

ERIK JANSEN Printed Name

[signature] MDEQ — 5/11/11 Date

MATT WESENER Printed Name

[signature] Enbridge — 5/11/11 Date

KEN KUTTA Printed Name

PERIMETER ASSESSMENT TC-B-080.00 5/11/11

1615 ARRIVE AT AJACENT PROPERTY TC-B-071

CIRCUMVENTED THE PROPERTY COUNTERCLOCKWISE.

CAUTION TAPE SPREAD ACROSS PROPERTY AT CREEK.

SIGNS AT PROPERTY BOUNDARY STATING!

POSTED
PRIVATE PROPERTY
HUNTING, FISHING, TRAPPING OR
TRESPASSING FOR ANY PURPOSE
IS STRICTLY ~~PROHIBITED~~ FORBIDDEN
VIOLATORS WILL BE PROSECUTED.

COCONUT MATTING ON BOTH SIDES OF CREEK ALONG WITH
COCONUT BOOM AT CREEK BANK.

CONDITIONS IN SEGMENT APPEAR SIMILAR TO
CONDITIONS UP AND DOWNSTREAM

PICTURES COLLECTED OF PROPERTY FROM UPSTREAM
AND DOWNSTREAM AND DOWNLOADED TO YUMA.

YUMA POINT COLLECTED W/ PICTURES.

SEE PHOTO OF SORBENT BOOM NEAR UPSTREAM PROPERTY BOUNDARY.

ANOTHER SORBENT BOOM IS LOCATED NEAR THE MIDDLE OF
THE PROPERTY SEGMENT.

BOOM NEAR PROPERTY BOUNDARY APPEARS TO BE HOLDING OIL MOUSSE.

HIGH BANK ON NORTH SIDE OF ~~OIL~~ PROPERTY

MIXTURE OF PINES AND ~~OAKWOOD~~ MIXED HARDWOODS ON SOUTH SIDE
OF PROPERTY.

1720 OFF SITE

team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Unique ID RDB Access Bank:____ and/or Island ____.
Segment Length: 0.25 mile

PROP ID. #: ROW-TC-B-080.001

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	05.24.11 Date
Tori Gomez	Printed Name	
[signature]	MDEQ	5/24/11 Date
MATT WESENER	Printed Name	
[signature]	Enbridge	5/24/11 Date
KEN KYTTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 1.50 to MP 1.75, Unique ID LOB Access, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

Prop ID.#: ROW-TC-B-080,001

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 05.24.11 Date

Tori Gomez Printed Name

_____ MDEQ 5/24/11 Date

MATT WESENER Printed Name

_____ Enbridge 5/24/11 Date

KEN KOHTA Printed Name

Segment 1.75 – 2.00

Talmadge Creek

The reassessment of Talmadge Creek was completed in two phases. The initial reassessment was completed and after reviewing the data it was determined that a portion of the data was in non-consensus regarding characterizing petroleum and biological sheen (noted as film (FL)) within the data. As a result, a second phase was completed to reassess those polygons and points in non-consensus. At those areas that both reassessment teams agreed with the petroleum sheen description, the polygon and point designations for both reassessment teams are provided on the segment map. In those areas where the reassessment teams provided different descriptions, only the second reassessment team's point designation is provided on the segment map. If oil was identified at a location by the first reassessment team but could not be documented during the second reassessment, it was considered as a "no oil" location and was not included on the segment map. Consequently, the numerical sequence between the initial and second reassessments will not be coincident.

MP 1.75 to MP 2.00

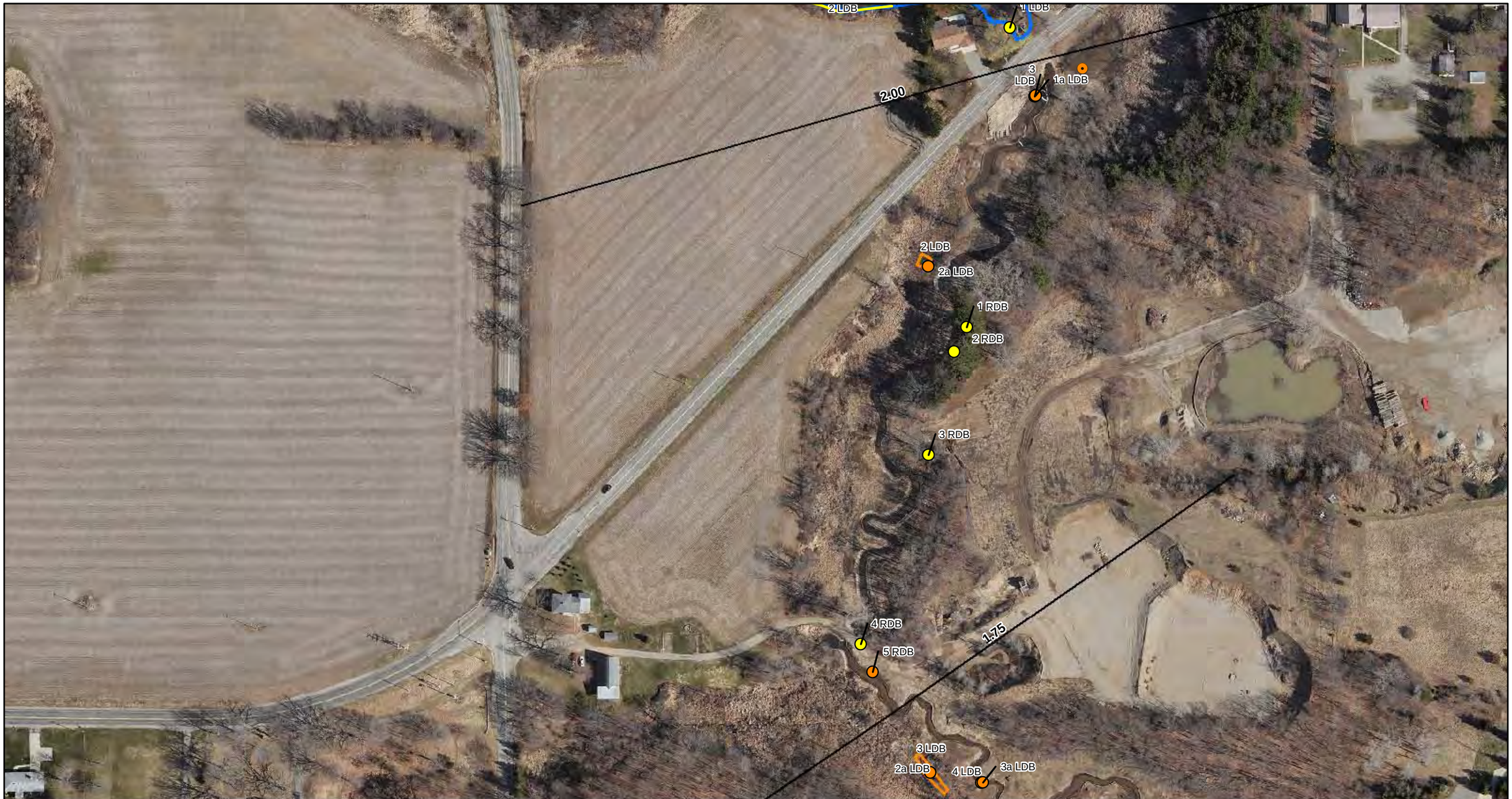
The LDB of segment 2.00 generally consists of a combination of sand and gravel shoreline and re-engineered emergent/herbaceous overbank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified three points and one polygon. A trace or sporadic occurrence of film on ponded water was identified at all locations.

The RDB of segment 2.00 consists of re-engineered low vegetated bank with ECB covering the overbank and coir logs lining the shoreline along the segment. The reassessment identified three points (1 RDB, 2 RDB and 3 RDB) with patchy to sporadic occurrences of tar on sticks, branches, a root and debris. A single tar patty was identified on a gravel road at Point 4 RDB and a small tar ball and oil sheen was identified at Point 5 RDB.

One PI observation was identified in this segment on the RDB near the MP 2.00 segment boundary. The observation was noted as a High Priority Area and corresponds to a known area of oil occurrence. The FLS did not detect any oil signatures within this segment.

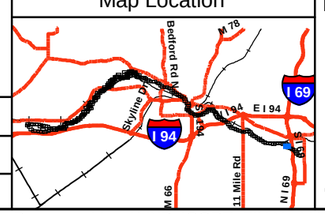
The attachments provide additional details on this segment.

Segment Figures



Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP1.75-MP2.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 2																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		ALL PARTIES IN AGREEMENTTHAT SHEEN IN POINT 2.00LDB3 WAS A MIX OF BIOLOGICAL AND OIL	Wagner, Greg Zimont, Ben
4/26/2011	16:56																	42.25661	-84.99506		Standen, John
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN ON POOLED WATER	Johnson, Rex Conn, Chris
4/13/2011	11:50																	42.25590	-84.99561		Kytta, Ken
2a	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		POLYGON 2.00LDB2 IS IN AGREEMENT WITH ALL PARTIES THAT SHEEN IS FROM OIL	Wagner, Greg Zimont, Ben
4/26/2011	17:06																	42.25588	-84.99559		Standen, John
3	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Sand-Gravel shoreline		SHEEN IN POOLED WATER	Johnson, Rex Conn, Chris
4/13/2011	11:58																	42.25660	-84.99500		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 2																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	P	Low Vegetated Bank		ONE OIL COATED ROOT	Johnson, Rex / Conn, Chris
4/13/2011	09:20																	42.25559	-84.99540		Kytta, Ken
2	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	P	Low Vegetated Bank		OIL COVERED STICKS/BRANCHES ON HIGH BANK	Johnson, Rex / Conn, Chris
4/13/2011	09:27																	42.25549	-84.99547		Kytta, Ken
3	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		OIL COATED AND STAINED DEBRIS	Johnson, Rex / Conn, Chris
4/13/2011	09:41																	42.25503	-84.99562		Kytta, Ken
4	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	B	Other (comments)		SMALL TAR PATTY ON GRAVEL ROAD	Johnson, Rex / Conn, Chris
4/13/2011	09:54																	42.25420	-84.99601		Kytta, Ken
5	Shoreline	☐	☐	☑	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		SMALL TAR BALL ON BANK	Johnson, Rex / Conn, Chris
4/13/2011	09:59																	42.25408	-84.99594		Kytta, Ken

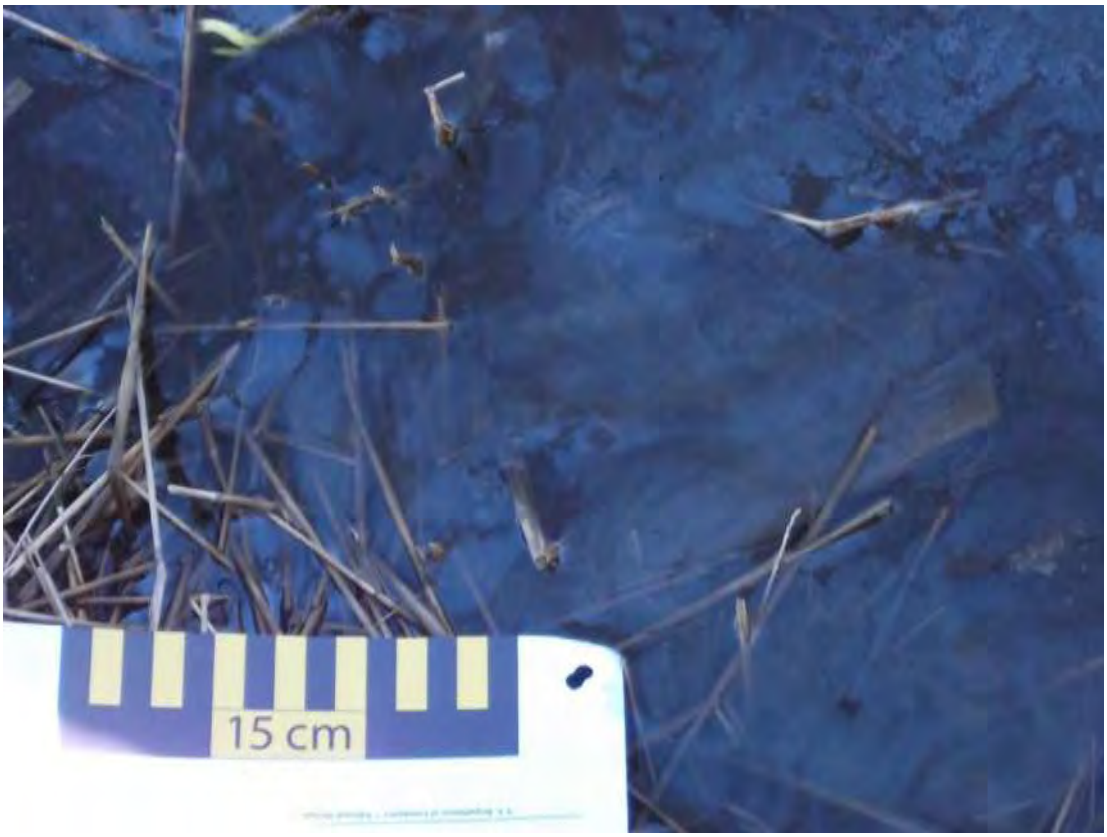
Photo Logs

Field Photographs MP 1.75 – MP 2.00

LDB Zone ID 1a, Photo 001



LDB Zone ID 2, Photo 001

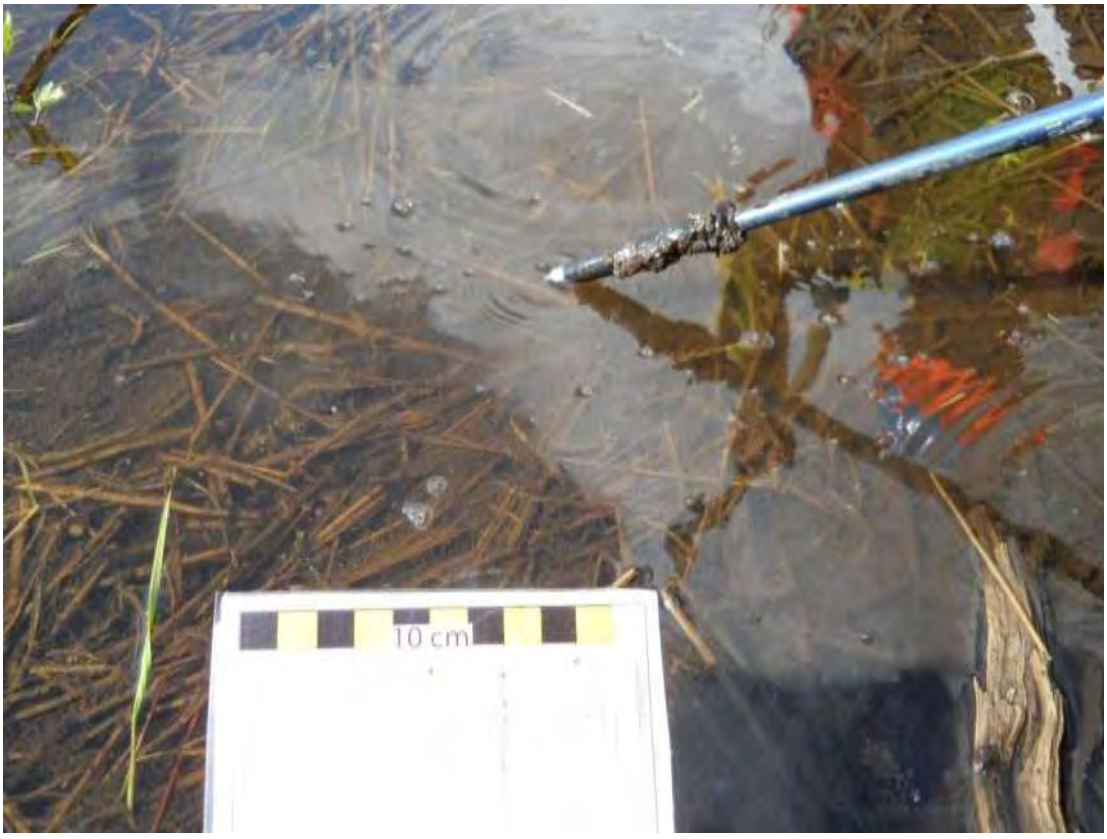


Field Photographs MP 1.75 – MP 2.00

LDB Zone ID 2, Photo 002



LDB Zone ID 2a, Photo 001

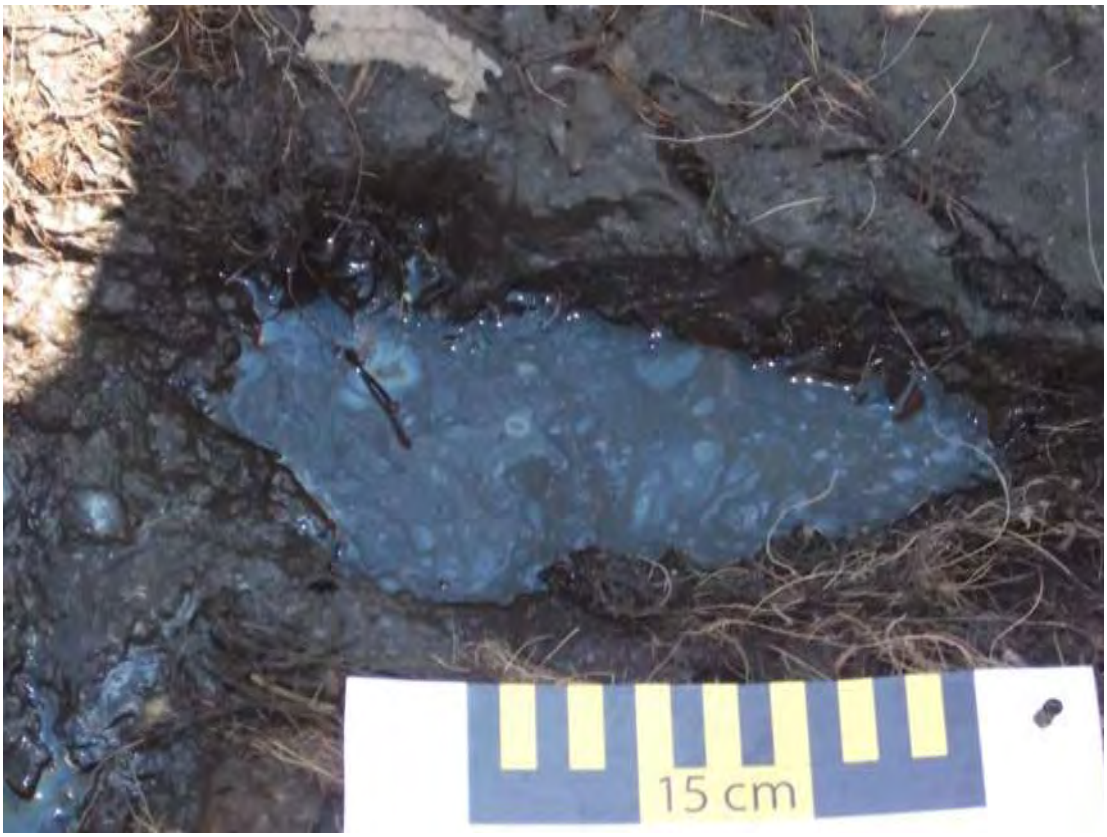


Field Photographs MP 1.75 – MP 2.00

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 1.75 – MP 2.00

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 1.75 – MP 2.00

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 1.75 – MP 2.00

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 1.75 – MP 2.00

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 1.75 – MP 2.00

RDB Zone ID 5, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 1.75 to MP 2.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
~~Inundation Model~~	~~START~~		~~MDEQ~~		~~Enbridge~~

No new inundation model for Talmadge Creek.

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 5/24/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 5/24/11 Date

Michelle DeLong — Printed Name

Enbridge — May 24/11 Date

Neil Reid — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.75 to MP 2.00, Bank or Island: RIGHT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson	START	4/13/11 Date
Rex Johnson	Printed Name	
Chris Conn	MDEQ	4/13/11 Date
Chris Conn	Printed Name	
KEN KOTTA	Enbridge	4/13/11 Date
KEN KOTTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.75 to MP 2.00, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/13/11 Date
Rex Johnson	Printed Name	
[signature]	MDEQ	4/13/11 Date
Chris Conn	Printed Name	
[signature]	Enbridge	4/13/11 Date
KEN KITTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1.75 to MP 2.00, Bank or Island: OOB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/26/2011 Date

Gregory D. Wagner Printed Name

_____ MDEQ 4/26/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 4/26/11 Date

Joseph Standen Printed Name

REASSESSED 2 POINTS AND 1 POLYGON. PETROLEUM ~~SHEEN~~ IDENTIFIED AT ONE POINT AND ONE POLYGON. FILM

Segment 2.00 – 2.25

MP 2.00 to MP 2.25

The LDB of segment 2.25 generally includes a small reach of Talmadge Creek, it's confluence with the Kalamazoo River, and approximately 1,200 feet along the Kalamazoo River. The LDB of Talmadge Creek is described as maintained lawn. In general, the LDB along the Kalamazoo River originates as a low vegetated bank and emergent/herbaceous wetland along the shoreline to a scrub-shrub wetland and forested wetland swamp in the overbank. A back channel is present in the overbank. The reassessment identified two points on Talmadge Creek, and two points, four polygons, and one linear transect on the Kalamazoo River. Sporadic staining was identified on the Talmadge Creek at Points 1 LDB and 9 LDB and on trunks and stems approximately 300 feet along the Kalamazoo River at Linear Transect 2 LDB. A film was identified at Point 4 LDB. The polygons ranged in size from small areas (Polygon 8 LDB) to large areas (Polygon 5 LBD), which is approximately one-third the length of the segment. The oil thickness ranged from staining on trunks and stems at Polygon 6 LDB to asphalt pavement, staining on trunks and stems and oil sheen on ponded water at Polygon 5 LDB.

Poling of the back channel on the LDB within this segment was completed at eight locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 2.25 consists of a forested wetland swamp habitat. The reassessment identified two points with trace amounts of oil coated and stained trunks (Points 1 RDB and 2 RDB).

One island is located within segment 2.25 consisting of a forested wetland swamp habitat. One small area of oil staining was identified on trunks and stems at Point 1 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

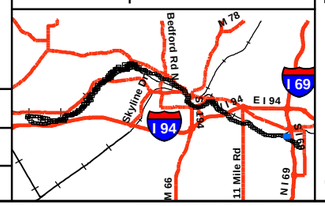
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP2.00-MP2.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 2.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
				Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ
																							Enbridge Team Lead
1	Overbank			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Lawn (maintained land)		2 LARGE WILLOW TREES	Graan, Tom
																							Flickinger, Brian
4/11/2011		09:39																		42.25691	-84.99516		Senn, Derreck
10	Overbank			☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		film mixture of biological and petroleum	Graan, Tom
																							Goddard, Matt
5/19/2011		09:32																		42.25759	-84.99437		Neumeier, Laura
2	Shoreline			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank		SPORADIC STAINS ON LIMBS	Graan, Tom
																							Flickinger, Brian
4/11/2011		09:55																		42.25715	-84.99682		Senn, Derreck
4	Shoreline			☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-emergent/herbaceous		LESS THAN 1 SQ FT HOLE W/ SHEEN	Graan, Tom
																							Flickinger, Brian
4/11/2011		10:14																		42.25720	-84.99697		Senn, Derreck
5	Shoreline and Overbank			☐	☑	☐	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☑	B	Wetland-emergent/herbaceous		SHEEN ON PONDED WATER, MIXTURE OF SURFACE OIL RESIDUE AND ASPHALT PAVEMENT ON GROUND	Graan, Tom
																							Flickinger, Brian
4/11/2011		10:34																		42.25743	-84.99755		Senn, Derreck

2011 Reassessment

Bank: LDB

Mile Marker: 2.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	P	Wetland-scrub/shrub		DISCUSSION POSSIBLY 1-10%, EXTENDS BEYONDS INUNDATION LINE BY AS MUCH AS 40 FT	Graan, Tom
																					Flickinger, Brian
4/11/2011	11:00																	42.25747	-84.99798		Senn, Derreck
7	Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Graan, Tom
																					Flickinger, Brian
4/11/2011	11:16																	42.25835	-84.99842		Senn, Derreck
8	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	P	Wetland-scrub/shrub			Graan, Tom
																					Flickinger, Brian
4/11/2011	11:28																	42.25853	-84.99908		Senn, Derreck
9	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Lawn (maintained land)			Graan, Tom
																					Goddard, Matt
5/19/2011	08:54																	42.25705	-84.99520		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 2.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Kane, Sean / Zimont, Ben
4/11/2011	11:13																	42.25781	-84.99733		Neumeier, Laura
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		staining on tree	Kane, Sean / Zimont, Ben
4/11/2011	11:26																	42.25784	-84.99739		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character														
Mile Marker: 2.25																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Kane, Sean
																					Zimont, Ben
4/13/2011	08:11																	42.25728	-84.99584		Neumeier, Laura

Photo Logs

Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 5, Photo 002



LDB Zone ID 5, Photo 003



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 5, Photo 004



LDB Zone ID 5, Photo 005



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 6, Photo 001



LDB Zone ID 7, Photo 001



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 7, Photo 002



LDB Zone ID 7, Photo 003

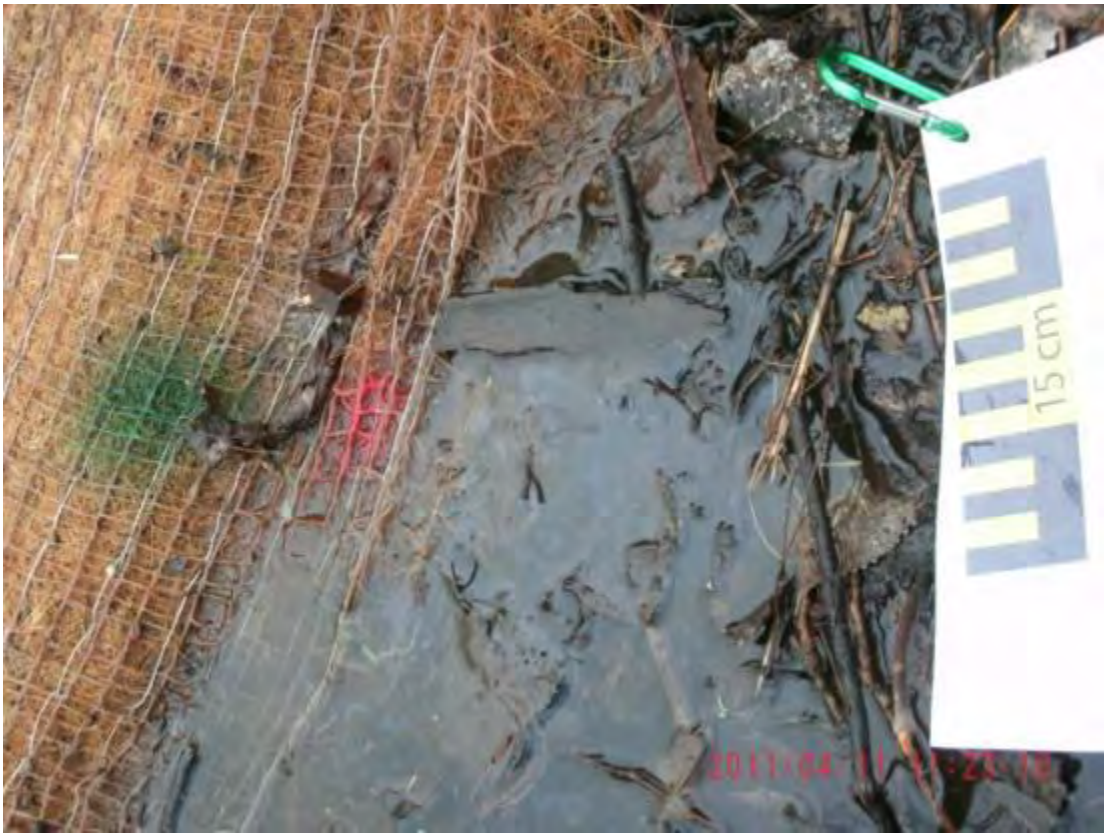


Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 7, Photo 004



LDB Zone ID 7, Photo 005



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 8, Photo 001



LDB Zone ID 8, Photo 002



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 9, Photo 001



LDB Zone ID 10, Photo 001



Field Photographs MP 2.0 – MP 2.25

LDB Zone ID 10, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 2.0 – MP 2.25

RDB Zone ID 2, Photo 001



I Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 2.0 to MP 2.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MP	Enbridge	DB

Action Items

Action Item Description	Date Resolved
SORT Survey required upstream at confluence LDB	May 20/11

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2 to MP 2.25, Bank or Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/11/11 Date

Sean Kane Printed Name

[signature] MDEQ 4/11/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge 4/11/11 Date

Laura Neumeier Printed Name

[signature] MDEQ 4/11/11

William Keiper

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 2.00 to MP 2.25, Unique ID DB1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/5/11 Date

Erik Howes Printed Name

_____ MDEQ 6/5/11 Date

Matt Wesener Printed Name

_____ Enbridge 6/5/11 Date

Ken Kytta Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

* Start at A Drive Culvert

Segment ID: From MP 2.0* to MP 2.25, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Gram — START — 4/11/07 — Date

THOMAS GRAM — Printed Name

[signature] — MDEQ — 4/11/11 — Date

Brian Flickinger / MATTHEW D WESENER — Printed Name

[signature] — Enbridge — 4/11/11 — Date

Derek Senn — Printed Name

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 2.00 to MP 2.25, Unique ID LDB DD, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/19/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5/19/11 — Date

Matt Goddard — Printed Name

[signature] — Enbridge — 5/19/2011 — Date

Laura Neumeier — Printed Name

Strike points and SORT points collected by YUMA

1 Point

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.0 to MP 2.25, Bank or Island: Island* only, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Sean Kane — START — 4-13-11 — Date

S-K — Printed Name

Ben A. Zimont — MDEQ — 4/13/11 4/13/11 — Date

William Kaiper — Printed Name

Laura Neumeier — Enbridge — 4/13/11 — Date

Laura Neumeier — Printed Name

* 1 Island

Segment 2.25 – 2.50

MP 2.25 to MP 2.50

The LDB of segment 2.50 is a point bar that is characterized as an emergent/herbaceous wetland with a small area of forested wetland swamp along the shoreline that transitions to a scrub-shrub habitat in the overbank. The reassessment identified two points (Point 7 LDB and Point 8 LDB) with sporadic distribution of stained trunks and stems, and oil sheen at Point 7 LDB. The reassessment identified five relatively large polygons and two smaller polygons. Broken cover, coating and staining were identified on trunks and stems within Polygons 1 LDB and 2 LDB. Tar, fresh oil, and oil film on ponded water were identified in both of these polygons. Surface oil residue was also identified in Polygon 2 LDB as well as a petroleum odor. Polygons 3 LDB and 4 LDB, located within Polygon 2 LDB, were noted as having a continuous cover of surface oil residue. Polygon 5 LDB was noted as having a patchy distribution of coated and stained vegetation and an oil film on ponded water. Polygon 9 LDB was similar, except with a patchy distribution with fresh oil film and surface oil residue also present. Polygon 6 LDB was a haul road with sporadic occurrences of fresh oil film on ponded water.

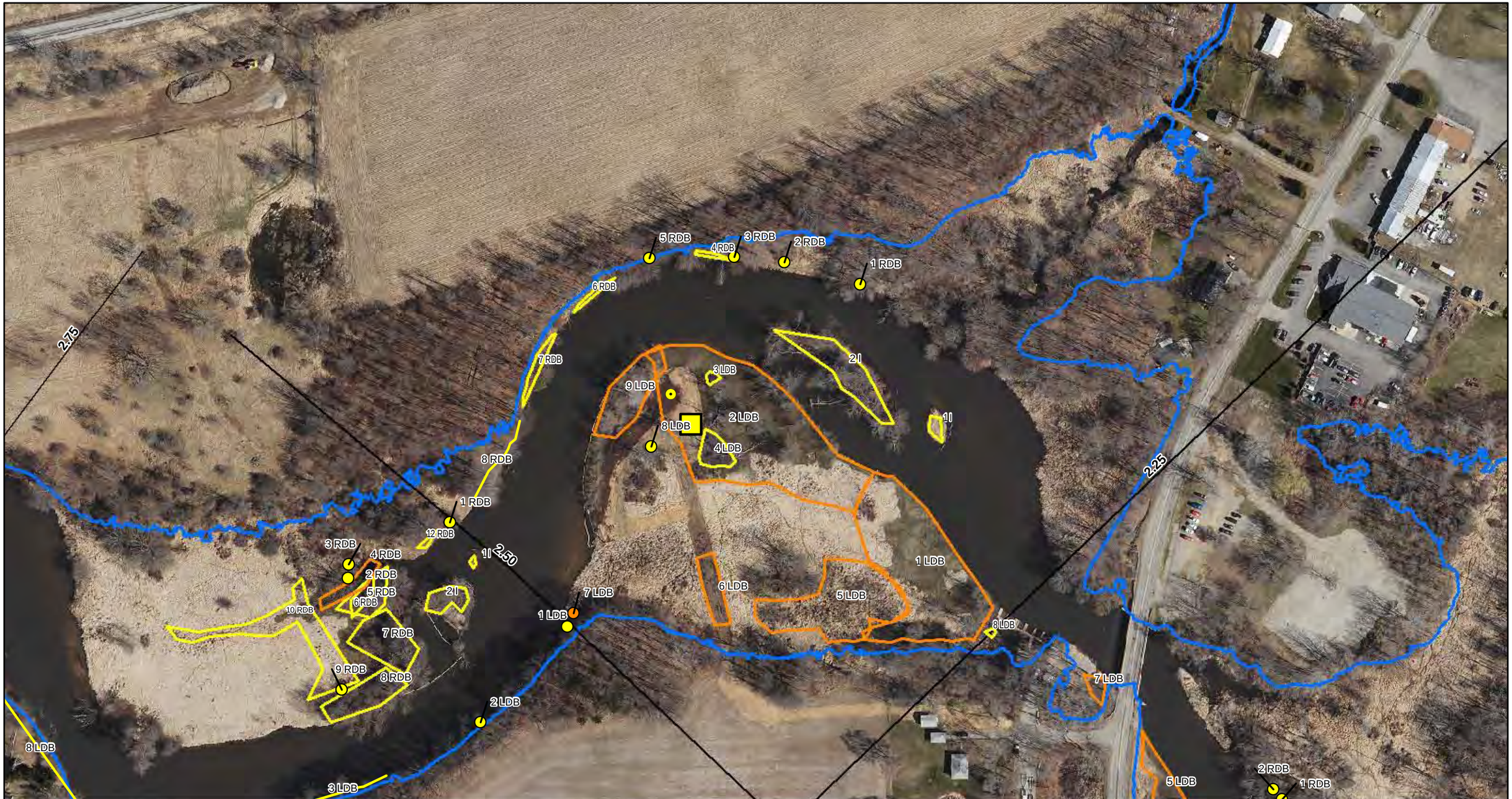
The RDB of segment 2.50 is characterized as a forested wetland swamp, emergent/herbaceous wetland, and low vegetated bank along the shoreline that transitions to scrub-shrub and emergent/herbaceous wetlands in the overbank. The reassessment identified four points, three polygons, and one linear transect. Traces of coated debris and vegetation and trace tar on the ground surface were identified at all locations.

Two islands are located within segment 2.50 consisting of an emergent/herbaceous wetland habitat. A continuous oil coat on debris and/or trunks and stems with an oil residue on the ground surface was identified at Polygon 1 I. A patchy distribution of coated and stained trunks and stems and patties were identified within Polygon 2 I on the second island.

The FLS data identified a suspected oil signature within Polygon 2 LDB and within close proximity to 4 LDB. A PI observation noted as Inconclusive was also identified on the LDB within Polygon 2 LDB in relatively close proximity to the FLS location.

The attachments provide additional details on this segment.

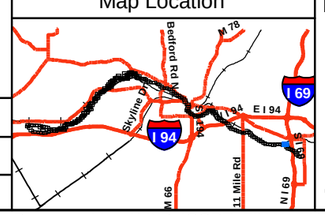
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP2.25-MP2.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 2.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☑	B	Wetland-emergent/herbaceous			Thomas Graan Brian Flickinger
4/11/2011	12:37																	42.25861	-84.99929		Derreck Senn
2	Shoreline and Overbank	☐	☑	☑	☑	☑	☑	☐	☐	☐	☑	☑	☐	☐	☐	☑	B	Wetland-emergent/herbaceous		ODOR SCATTERED TREES AND SHRUBS	Thomas Graan Brian Flickinger
4/11/2011	13:50																	42.25967	-85.00079		Derreck Senn
3	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	C	Wetland-emergent/herbaceous		LESS WEATHERED OIL	Thomas Graan Brian Flickinger
4/11/2011	14:01																	42.25966	-85.00074		Derreck Senn
4	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	C	Wetland-emergent/herbaceous		LESS WEATHERED OIL	Thomas Graan Brian Flickinger
4/11/2011	14:08																	42.25941	-85.00075		Derreck Senn
5	Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	P	Wetland-scrub/shrub			Thomas Graan Brian Flickinger
4/11/2011	14:24																	42.25873	-85.00064		Derreck Senn

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 2.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Overbank	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Other (comments)		HAUL ROAD	Thomas Graan / Brian Flickinger
4/11/2011	14:33																	42.25866	-85.00065		Derreck Senn
7	Shoreline	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous			Thomas Graan / Brian Flickinger
4/11/2011	14:44																	42.25860	-85.00153		Derreck Senn
8	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-scrub/shrub			Thomas Graan / Brian Flickinger
4/11/2011	15:11																	42.25933	-85.00107		Derreck Senn
9	Shoreline and Overbank	☐	☑	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Thomas Graan / Brian Flickinger
4/11/2011	15:21																	42.25963	-85.00119		Derreck Senn

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 2.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Kane, Sean / Zimont, Ben
4/11/2011	13:56																	42.26004	-84.99985		Neumeier, Laura
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous		tree branch 2-inch diameter	Kane, Sean / Zimont, Ben
4/11/2011	14:10																	42.26014	-85.00030		Neumeier, Laura
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		possible from oily rope	Kane, Sean / Zimont, Ben
4/11/2011	14:18																	42.26017	-85.00058		Neumeier, Laura
4	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		coating on vegetation	Kane, Sean / Zimont, Ben
4/11/2011	14:26																	42.26018	-85.00083		Neumeier, Laura
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Low Vegetated Bank			Kane, Sean / Zimont, Ben
4/11/2011	14:36																	42.26015	-85.00109		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 2.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub			Kane, Sean / Zimont, Ben
4/11/2011	14:51																	42.25992	-85.00154		Neumeier, Laura
7	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		coating on vertical vegetation and debris	Kane, Sean / Zimont, Ben
4/11/2011	15:13																	42.25943	-85.00186		Neumeier, Laura
8	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		coating on vegetation and debris	Kane, Sean / Zimont, Ben
4/11/2011	15:29																	42.25907	-85.00216		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character									Oil Distribution	Habitat		Comments	START
Mile Marker: 2.5																				
Source: 2011 Reassessment																				MDEQ
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					
Date	**Time**																**Latitude**	**Longitude**		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	C	Wetland-emergent/herbaceous			Sean Kane
																				Ben Zimont
4/12/2011	08:18																	42.25938	-84.99938		Laura Neumeier
2	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	P	Wetland-emergent/herbaceous		wetland emergent and forest mix vegetation staining 8% tar patties 10 to 20%	Sean Kane
																					Ben Zimont
4/12/2011	08:40																	42.25974	-85.00005		Laura Neumeier

Photo Logs

Field Photographs MP 2.25 – MP 2.50

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 2.25 – MP 2.50

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002

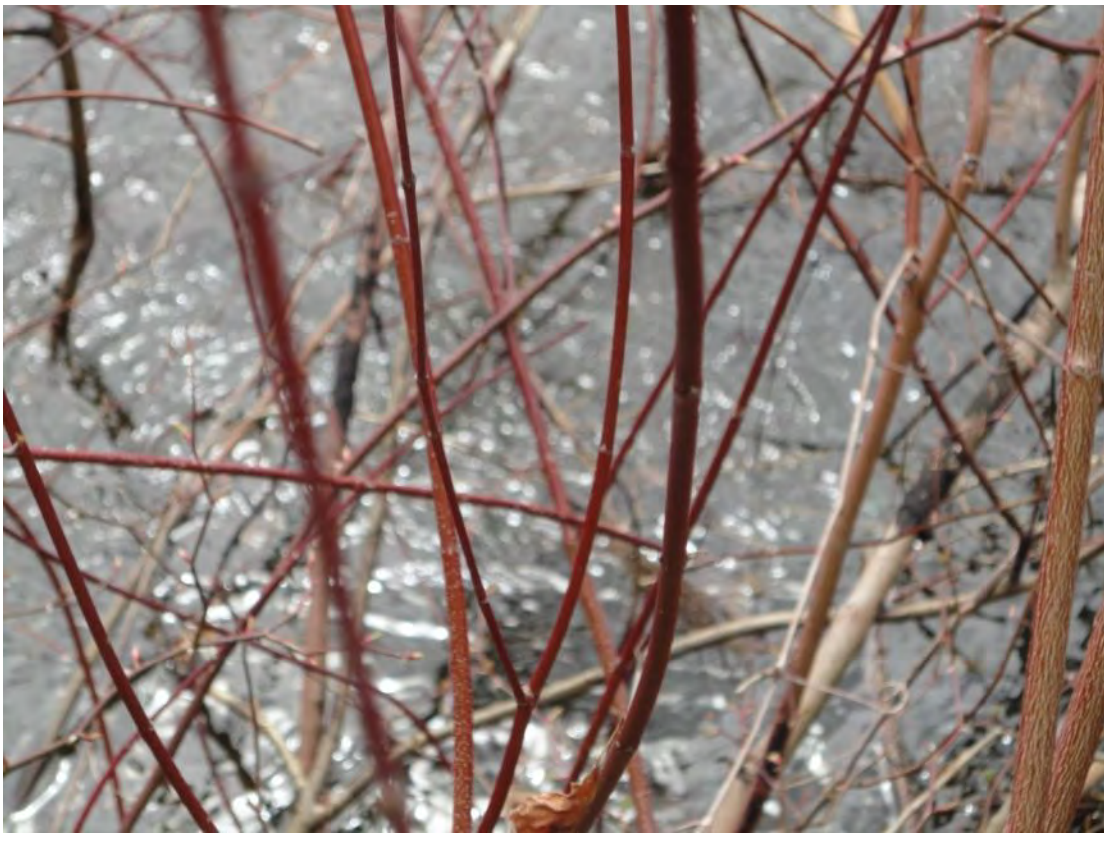


Field Photographs MP 2.25 – MP 2.50

I Zone ID 2, Photo 003



RDB Zone ID 1, Photo 001



Field Photographs MP 2.25 – MP 2.50

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 2.25 – MP 2.50

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 2.25 – MP 2.50

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 2.25 – MP 2.50

RDB Zone ID 7, Photo 002



RDB Zone ID 8, Photo 001



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 1, Photo 005



LDB Zone ID 1, Photo 006



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 1, Photo 007



LDB Zone ID 2, Photo 001



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 2, Photo 004



LDB Zone ID 2, Photo 005



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 7, Photo 001



LDB Zone ID 8, Photo 001



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 9, Photo 001



LDB Zone ID 9, Photo 002



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 9, Photo 003



LDB Zone ID 9, Photo 004



Field Photographs MP 2.25 – MP 2.50

LDB Zone ID 9, Photo 005



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 2.25 to MP 2.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MCD	Enbridge	

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.25 to MP 2.5, Bank or Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4-11-11 Date

Sean Kane Printed Name

_____ 4/11/11

Ben A. Zimont MDEQ _____ Date

_____ Printed Name

_____ Enbridge 4/11/11 Date

Laura Neumeier Printed Name

_____ mDEQ 4/11/11

William Keiper

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.25 to MP 2.5, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graham — START — 4/11/11 — Date

THOMAS P. GRAHAM — Printed Name

Brian Flickinger / [signature] — MDEQ — 4/11/11 — Date

[signature] / MATTHEW D WESENER — Printed Name

[signature] — Enbridge — 4/11/11 — Date

Derek Senn — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.25 to MP 2.5, Bank or (Island): Islands* only Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-12-11 Date
[signature]	Printed Name	
[signature]	MDEQ	4/12/11 Date
William Keiper	Printed Name	4/12/11
[signature]	Enbridge	4/12/11 Date
Laura Neumeier	Printed Name	

*2 islands reassessed.

Segment 2.50 – 2.75

MP 2.50 to MP 2.75

The LDB of segment 2.75 generally consists of a low vegetated bank along the shoreline. The reassessment identified five points, one polygon, and three linear transects. A sporadic to broken coverage of stained trunks and stems was identified at seven locations (Points 1 LDB, 2 LDB, 4 LDB, and 5 LDB, Polygon 9 LDB, and Linear Transects 3 LDB and 8 LDB). Surface oil residue was identified within Points 5 LDB and 10 LDB, Polygon 9 LDB, and Linear Transect 6 LDB. The FLS data identified a suspected oil signature on the LDB near Point 5 LDB.

The RDB of segment 2.75 is a point bar that generally consists of a relatively large expanse of scrub-shrub wetland and forested wetland swamp habitat. The reassessment identified five points and seven polygons. The shoreline and overbank had trace distribution of oil coating and stain on vegetation and trace to patchy tar on the ground surface. Patchy surface oil residue was also observed at Polygon 7 RDB, and broken amounts of sheen were observed within a depression in Polygon 4 RDB.

Two islands are located within segment 2.75. The reassessment identified one polygon (1 I) on the smaller of the two islands which has an emergent/herbaceous wetland habitat. The reassessment identified one polygon (2 I) on the larger island which is characterized as a forested wetland swamp. A patchy distribution of tar patties and stained or covered vegetation was identified on both islands.

No PI observations were noted.

The attachments provide additional details on this segment.

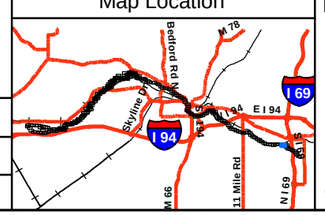
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP2.50-MP2.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 2.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank			Thomas Graan
																					Brian Flickinger
4/11/2011	15:43																	42.25853	-85.00156		Derreck Senn
10	Shoreline	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Sand-Gravel shoreline			Thomas Graan
																					Brian Flickinger
4/11/2011	16:56																	42.25860	-85.00515		Derreck Senn
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank		SMALL CLUSTER OVERHANGING TREES	Thomas Graan
																					Brian Flickinger
4/11/2011	15:48																	42.25810	-85.00207		Derreck Senn
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank			Thomas Graan
																					Brian Flickinger
4/11/2011	16:01																	42.25769	-85.00330		Derreck Senn
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank			Thomas Graan
																					Brian Flickinger
4/11/2011	16:07																	42.25764	-85.00351		Derreck Senn

2011 Reassessment

Bank: LDB

Mile Marker: 2.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
5	Shoreline	4/11/2011	16:11	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Low Vegetated Bank	42.25757	-85.00404		Thomas Graan / Brian Flickinger / Derreck Senn
6	Shoreline	4/11/2011	16:18	☐	☐	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Man-Made Structure	42.25772	-85.00442		Thomas Graan / Brian Flickinger / Derreck Senn
8	Shoreline	4/11/2011	16:32	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank	42.25838	-85.00505		Thomas Graan / Brian Flickinger / Derreck Senn
9	Shoreline	4/11/2011	16:38	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	B	Sand-Gravel shoreline	42.25839	-85.00511	ODOR	Thomas Graan / Brian Flickinger / Derreck Senn

2011 Reassessment

Bank: RDB

Mile Marker: 2.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	4/11/2011	15:47	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub	42.25900	-85.00226		Kane, Sean Zimont, Ben Neumeier, Laura
10	Overbank	4/12/2011	09:45	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous	42.25853	-85.00393	under grass	Kane, Sean Zimont, Ben Neumeier, Laura
11	Shoreline	4/12/2011	10:10	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank	42.25921	-85.00498		Kane, Sean Zimont, Ben Neumeier, Laura
12	Shoreline and Overbank	4/11/2011	15:56	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub	42.25888	-85.00240		Kane, Sean Zimont, Ben Neumeier, Laura
2	Overbank	4/11/2011	16:10	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub	42.25877	-85.00284		Kane, Sean Zimont, Ben Neumeier, Laura

2011 Reassessment

Bank: RDB

Mile Marker: 2.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
3	Overbank	4/11/2011	16:20	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub	42.25881	-85.00285	3-inch long by 0.5 cm stick?	Kane, Sean / Zimont, Ben / Neumeier, Laura
4	Overbank	4/11/2011	16:26	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-scrub/shrub	42.25880	-85.00267	possible sheen only shows up when someone walks through depression	Kane, Sean / Zimont, Ben / Neumeier, Laura
5	Overbank	4/11/2011	16:49	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-scrub/shrub	42.25875	-85.00270		Kane, Sean / Zimont, Ben / Neumeier, Laura
6	Overbank	4/11/2011	16:56	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	P	Wetland-scrub/shrub	42.25869	-85.00271	15% distribution ap or pt? mostly 1 ft by 1 ft	Kane, Sean / Zimont, Ben / Neumeier, Laura
7	Overbank	4/11/2011	17:14	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	P	Wetland-swamp (forested)	42.25841	-85.00261	staining on vegetation 1 to 10% - ST Coats 1 to 10% - ct and sr cover - patties 1 to 10 % -cv and Pt Collectively 15%To 20%	Kane, Sean / Zimont, Ben / Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 2.75																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
8	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Kane, Sean
																					Zimont, Ben
4/11/2011	17:41																	42.25828	-85.00299		Neumeier, Laura
9	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Kane, Sean
																					Zimont, Ben
4/11/2011	17:48																	42.25825	-85.00289		Neumeier, Laura

2011 Reassessment

Bank: I	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 2.75																				
Source: 2011 Reassessment																				MDEQ
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Latitude**	**Longitude**		**Enbridge Team Lead**
Date / **Time**																				
1 Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	P	Wetland-emergent/herbaceous		tar patties staining on debris	Sean Kane
																				Ben Zimont
4/12/2011 09:02																	42.25882	-85.00210		Laura Neumeier
2 Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)		tar patties < 20 % vegetation staining 1 to 10 %	Sean Kane
																				Ben Zimont
4/12/2011 09:16																	42.25864	-85.00225		Laura Neumeier

Photo Logs

Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 4, Photo 002



RDB Zone ID 5, Photo 001



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 7, Photo 003



RDB Zone ID 7, Photo 004



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 8, Photo 001



RDB Zone ID 8, Photo 002



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 9, Photo 001



RDB Zone ID 10, Photo 001



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 10, Photo 002



RDB Zone ID 10, Photo 003



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 10, Photo 004



RDB Zone ID 11, Photo 001



Field Photographs MP 2.50 – MP 2.75

RDB Zone ID 12, Photo 001



LDB Zone ID 1, Photo 001



Field Photographs MP 2.50 – MP 2.75

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 2.50 – MP 2.75

LDB Zone ID 3, Photo 002



LDB Zone ID 3, Photo 003



Field Photographs MP 2.50 – MP 2.75

LDB Zone ID 3, Photo 004



LDB Zone ID 4, Photo 001



Field Photographs MP 2.50 – MP 2.75

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 2.50 – MP 2.75

LDB Zone ID 6, Photo 002



LDB Zone ID 6, Photo 003



Field Photographs MP 2.50 – MP 2.75

LDB Zone ID 8, Photo 001



LDB Zone ID 9, Photo 001



Field Photographs MP 2.50 – MP 2.75

LDB Zone ID 9, Photo 002



LDB Zone ID 10, Photo 001



Field Photographs MP 2.50 – MP 2.75

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 2.50 – MP 2.75

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 2.5 to MP 2.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MRD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle Delong	MDEQ	6/6/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.58 to MP 2.75 Bank or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/11/11	Date
Thomas P. Grant	Printed Name		
[signature]	MDEQ	4/11/11	Date
Matthew D. Wesener / Brian Flickinger	Printed Name		
[signature]	Enbridge	4/11/11	Date
Derek Senn	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.5 to MP 2.75, Bank ~~or~~ and Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Sean Kane	START	4-12-11	Date
Sean Kane	Printed Name		
Ben A. Zimont	MDEQ	4/12/11 4/12/11	Date
William Keiper	Printed Name		
Laura Neumeier	Enbridge	4/12/11	Date
Laura Neumeier	Printed Name		

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 2.50 (160K) to MP 2.75 (160K), Unique ID RDB4, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	05.27.11 Date
Tori Gomez	Printed Name	
_____	MDEQ	5/27/11 Date
MATT WESENER	Printed Name	
_____	Enbridge	5/27/11 Date
KEN KUTTA	Printed Name	

Segment 2.75 – 3.00

MP 2.75 to MP 3.00

The LDB of segment 3.00 generally consists of a relatively steep vegetated bank and emergent/herbaceous wetland habitats. The reassessment identified six polygons and one linear transect. Sporadic and patchy oil staining and coating was observed on vegetation and rip rap throughout these areas. Surface oil residue was also noted at Polygons 2 LDB, 5 LDB and 7 LDB, as was fresh oil/film in Polygon 4 LDB.

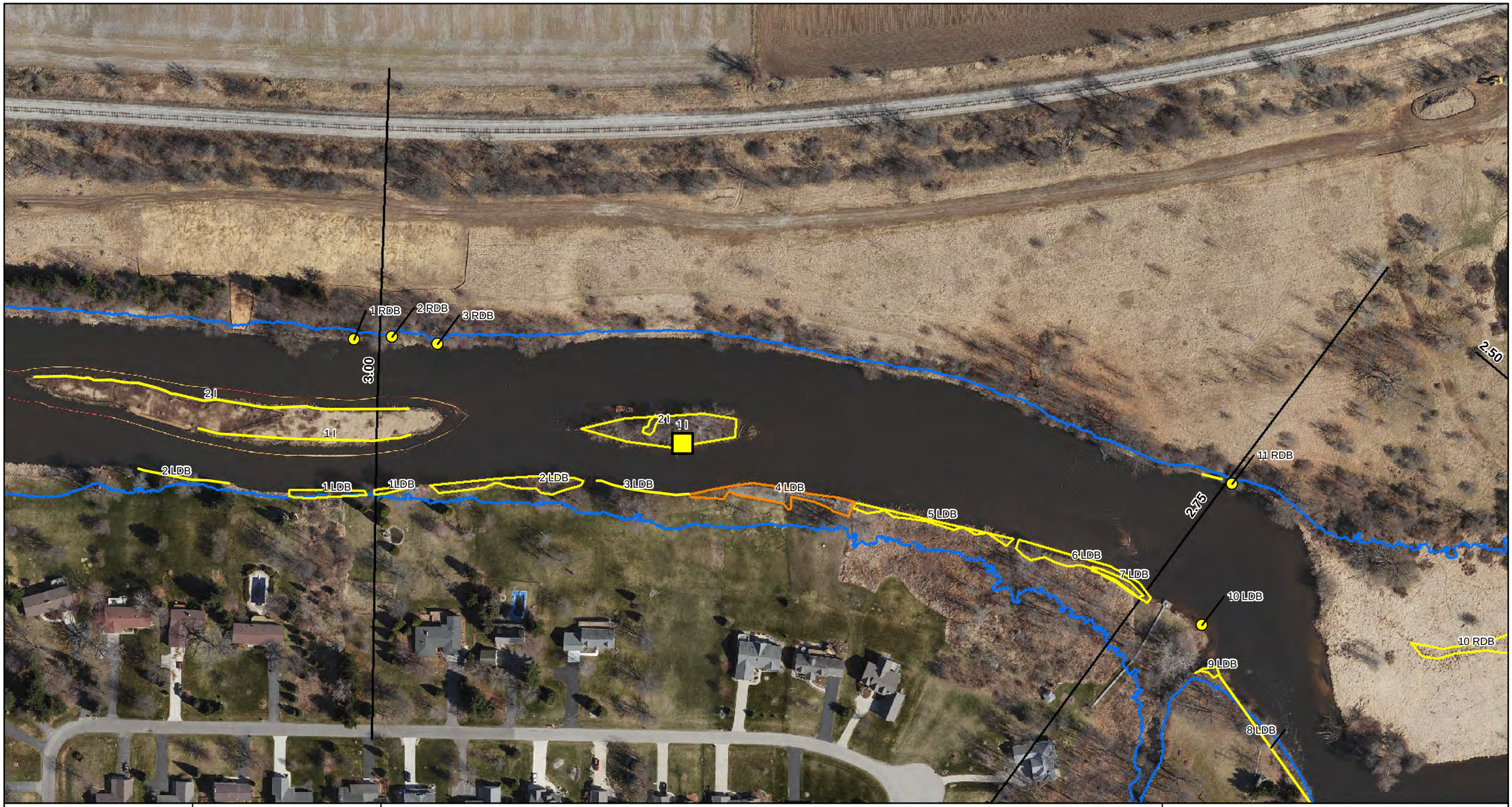
The RDB of segment 3.00 consists of low vegetated bank and emergent/herbaceous wetland. The reassessment identified two points and one linear transect. Traces of oil were documented at all three areas consisting of oil coating on debris and/or trunks and stems.

One island is located within segment 3.00 that consists of forested wetland swamp habitat. In general, the island is covered with a patchy distribution of surface oil residue and patties on the ground surface and oil coating and stain on trunks and stems. A nearly continuous cover of asphalt pavement was observed within a small area (2 I) on the island. FLS data also detected a suspected oil signature on the island within Polygon 1 I.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

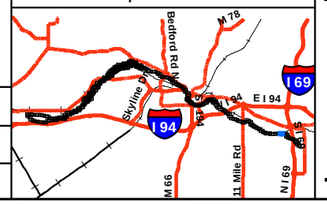
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP2.75-MP3.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character																
Mile Marker: 3																							
Source: 2011 Reassessment																							
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**		
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**		
																					Enbridge Team Lead		
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank		SOME ROCKS HAVE TAR COAT	Thomas Graan		
																					Brian Flickinger		
4/11/2011	17:30																	42.25918	-85.00983		Derreck Senn		
2	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	P	Wetland-emergent/herbaceous			Thomas Graan		
																					Brian Flickinger		
4/11/2011	17:40																	42.25919	-85.00879		Derreck Senn		
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Rip Rap			Thomas Graan		
																					Brian Flickinger		
4/11/2011	17:47																	42.25915	-85.00818		Derreck Senn		
4	Shoreline and Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☑	☑	☐	☐	☐	☑	S	Rip Rap			Thomas Graan		
																					Brian Flickinger		
4/11/2011	17:56																	42.25913	-85.00724		Derreck Senn		
5	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☑	☐	☐	☐	☑	S	Wetland-emergent/herbaceous		POLYGON EXTENDS TO RIVERS EDGE	Thomas Graan		
																					Brian Flickinger		
4/11/2011	18:06																	42.25897	-85.00628		Derreck Senn		

2011 Reassessment

| Bank: LDB | | Oil Thickness | | | | | Oil Character | | | | |

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 3																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous			Sean Kane Ben Zimont
4/12/2011	10:23																	42.25926	-85.00515		Laura Neumeier
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank			Sean Kane Ben Zimont
4/12/2011	11:10																	42.25983	-85.00994		Laura Neumeier
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Sean Kane Ben Zimont
4/12/2011	11:22																	42.25980	-85.00967		Laura Neumeier

2011 Reassessment

Bank: I	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 3																				
Source: 2011 Reassessment																				
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date / **Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1 Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	P	Wetland-swamp (forested)		staining on vegetation 1% surface residue (mainly on south end of island) 11 to 20% tar patties 1 to 10%	Sean Kane Ben Zimont
4/12/2011 10:40																	42.25938	-85.00813		Laura Neumeier
2 Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	C	Wetland-swamp (forested)			Sean Kane Ben Zimont
4/12/2011 10:59																	42.25949	-85.00837		Laura Neumeier

Photo Logs

Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 2, Photo 004



LDB Zone ID 2, Photo 005



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 4, Photo 003



LDB Zone ID 4, Photo 004



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 4, Photo 005



LDB Zone ID 4, Photo 006



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 4, Photo 007



LDB Zone ID 5, Photo 001



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 5, Photo 002



LDB Zone ID 5, Photo 003



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 5, Photo 004



LDB Zone ID 5, Photo 005



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 6, Photo 001



LDB Zone ID 7, Photo 001



Field Photographs MP 2.75 – MP 3.00

LDB Zone ID 7, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 2.75 – MP 3.00

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 2.75 – MP 3.00

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 2.75 – MP 3.00

I Zone ID 1, Photo 003



I Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 2.75 to MP 3.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MCD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.75 to MP 3.0, Bank ~~or~~ and Island: RB*, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-12-11 Date
Jeremy Hance	Printed Name	
[signature]		4-12-11
William Keiper	MDEQ	4/12/11 Date
[signature]		
Ben A. Zimont	Printed Name	
[signature]	Enbridge	4/12/11 Date
Laura Neumeier	Printed Name	

* 1 island

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2.75 to MP 3.0, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Grant — START — 4/11/11 — Date

THOMAS P. GRANT — Printed Name

Matthew Dow / Brian Flickinger — MDEQ — 4/11/11 — Date

MATTHEW D WASCHER / Brian Flickinger — Printed Name

[signature] — Enbridge — 4/11/11 — Date

Derek Senn — Printed Name

Segment 3.00 – 3.25

MP 3.00 to MP 3.25

The LDB of segment 3.25 generally consists of rip rap and scrub-shrub wetland habitat. The reassessment identified one point, four polygons, and one linear transect. Trace oil staining and coating was identified on the rip rap in Polygons 1 LDB and 2 LDB. Trunks and stems, coated and stained, with traces of oil were also observed in 2 LDB. Trunks and stems within the scrub-shrub habitat in Polygon 6 LDB were stained and coated with a sporadic to broken distribution of oil. Surface oil residue was identified on the ground surface in Polygons 4 LDB, 5 LDB and 6 LDB, and petroleum odors were noted at Polygon 4 LDB which is partially within Polygon 5 LDB.

The RDB of segment 3.25 consists of a low vegetated bank that transitions downstream to emergent/herbaceous and scrub-shrub wetland habitats. The reassessment identified three points, one polygon, and three linear transects. Trunks and stems along the shoreline were coated and stained with traces of oil. Surface oil residue was noted on the ground surface in Linear Transect 4 RDB and Point 3 RDB. Trace patties were identified at Point 6 RDB and a film of oil on ponded water was observed at trace occurrences in Polygon 7 RDB.

One island is located within segment 3.25 that consists of an emergent/herbaceous wetland habitat along the shoreline and within the overbank. The ground surfaces along the shorelines on both sides of the island were covered with a sporadic distribution of patties and the trunks and stems were coated and covered with oil.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

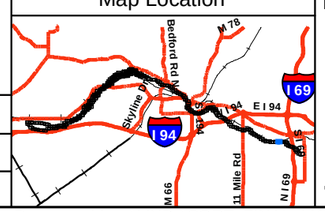
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP3.00-MP3.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 3.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Rip Rap			Graan, Tom
																					Flickinger, Brian
4/12/2011	08:33																	42.25913	-85.01055		Senn, Derek
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Rip Rap			Graan, Tom
																					Flickinger, Brian
4/12/2011	08:47																	42.25924	-85.01143		Senn, Derek
3	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-scrub/shrub			Graan, Tom
																					Flickinger, Brian
4/12/2011	08:57																	42.25925	-85.01288		Senn, Derek
4	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	B	Wetland-scrub/shrub		ODOR	Graan, Tom
																					Flickinger, Brian
4/12/2011	09:08																	42.25927	-85.01383		Senn, Derek
5	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-scrub/shrub			Graan, Tom
																					Flickinger, Brian
4/12/2011	09:18																	42.25931	-85.01414		Senn, Derek

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	3.25																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	P	Wetland-scrub/shrub			Graan, Tom
																					Flickinger, Brian
4/12/2011	09:24																	42.25934	-85.01453		Senn, Derek

2011 Reassessment

Bank: RDB

Mile Marker: 3.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
		Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank		on debris	Sean Kane
																					Ben Zimont
4/12/2011	13:35																	42.25982	-85.01017		Laura Neumeier
2	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous		from polyline to river	Sean Kane
																					Ben Zimont
4/12/2011	13:51																	42.25997	-85.01310		Laura Neumeier
3	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-scrub/shrub		several spots in 1 meter almost fresh ?	Sean Kane
																					Ben Zimont
4/12/2011	13:54																	42.25994	-85.01310		Laura Neumeier
4	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-scrub/shrub		covering on vegetation staining on trees	Sean Kane
																					Ben Zimont
4/12/2011	14:21																	42.25995	-85.01381		Laura Neumeier
5	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous			Sean Kane
																					Ben Zimont
4/12/2011	14:29																	42.25991	-85.01398		Laura Neumeier

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 3.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Sean Kane
																					Ben Zimont
4/12/2011	14:34																	42.25990	-85.01426		Laura Neumeier
7	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		agency walked through and possible small sheen	Sean Kane
																					Ben Zimont
4/12/2011	14:38																	42.25998	-85.01439		Laura Neumeier

2011 Reassessment

Bank: I	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 3.25																				
Source: 2011 Reassessment																				
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date / **Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1 Shoreline and Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	S	Wetland-emergent/herbaceous		tar patties <1% vegetation covering - 1 to 2% each node represents oil observation represents 3 to 5 foot polyline	Sean Kane Ben Zimont Laura Neumeier
4/12/2011 12:52																	42.25942	-85.01109		
2 Shoreline and Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	S	Wetland-emergent/herbaceous		polyline represents about 3 to 5 feet tar patties 1 to 10 % vegetation covering <1% surface residue <1%	Sean Kane Ben Zimont Laura Neumeier
4/12/2011 13:16																	42.25959	-85.01195		

Photo Logs

Field Photographs MP 3.00 – MP 3.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 3.00 – MP 3.25

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 3.00 – MP 3.25

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 3.00 – MP 3.25

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 3.00 – MP 3.25

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 3.00 – MP 3.25

LDB Zone ID 6, Photo 003



RDB Zone ID 1, Photo 001



Field Photographs MP 3.00 – MP 3.25

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 3.00 – MP 3.25

RDB Zone ID 4, Photo 001

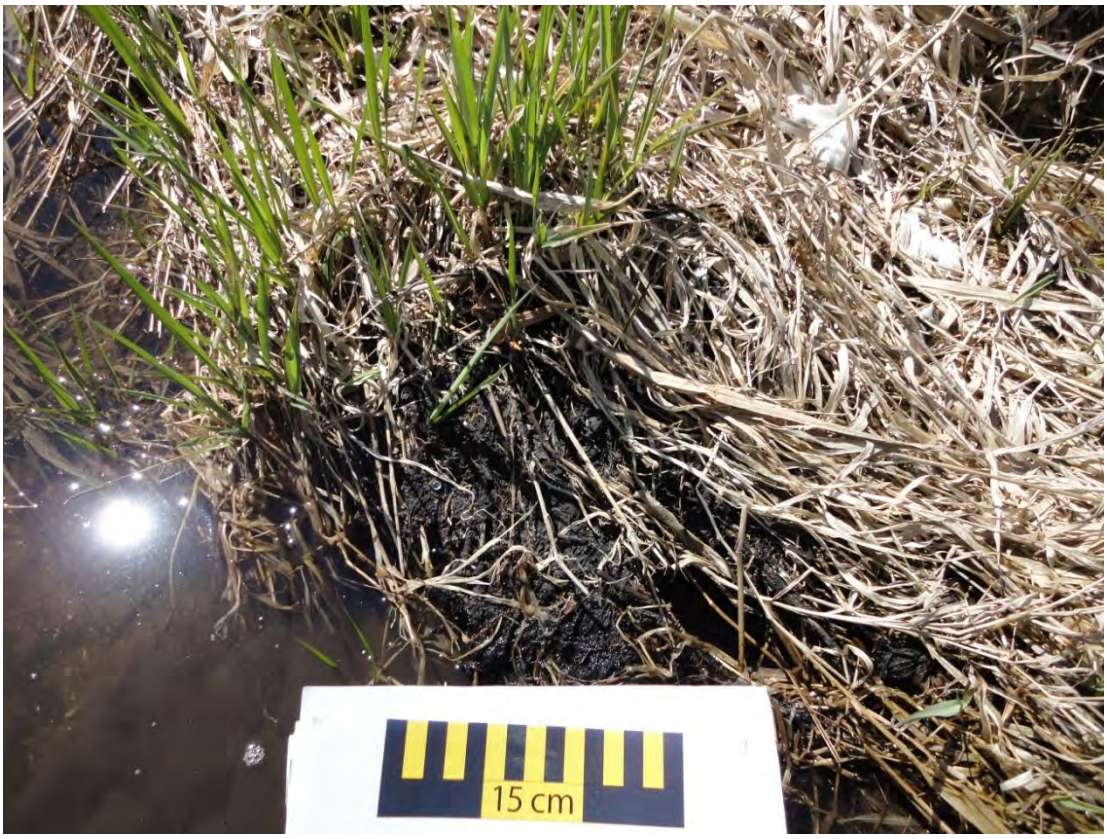


RDB Zone ID 4, Photo 002



Field Photographs MP 3.00 – MP 3.25

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 3.00 – MP 3.25

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 3.00 – MP 3.25

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 3.00 – MP 3.25

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs MP 3.00 – MP 3.25

I Zone ID 2, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 3.0 to MP 3.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MCD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JD Powell	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
Dave Barchan	Enbridge	6/6/2011 Date
Dave Barchan	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3.0 to MP 3.25, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Gramm — START — 4/12/11 — Date

THOMAS P. GRAMM — Printed Name

B. Flicking/RD/Matthew D Wesener — MDEQ — 4/12/11 — Date

Brian Flicking/RD/MATTHEW D WESENER — Printed Name

Enbridge — 4/12/11 — Date

Derek Senn — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3.0 to MP 3.25, Bank ~~of~~ 2nd Island: *RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-12-11 Date
[signature]	Printed Name	
[signature]	MDEQ	4-12-11 Date
[signature]	Printed Name	4/12/11
[signature]	Enbridge	4/12/11 Date
Laura Nevmeier	Printed Name	

*Island A

Segment 3.25 – 3.50

MP 3.25 to MP 3.50

The LDB of segment 3.50 generally consists of low vegetated bank and sand-gravel shore line that transitions downstream to an emergent/herbaceous wetland along the shoreline. The reassessment identified one polygon and two linear transects. Trunks and stems throughout all the areas were sporadically coated and stained with tar. A sporadic distribution of surface oil residue and/or tar was identified at all three locations.

The RDB of segment 3.50 consists of scrub-shrub wetlands along the shoreline and within the overbank. The reassessment identified one point and one linear transect. A trace distribution of patties was observed on the ground surface at Linear Transect 2 RDB, in addition to traces of stained to covered oil on trunks and stems. Trunks and stems were also coated with traces of oil at Point 1 RDB.

One island is located within segment 3.50, in very close proximity to the RDB, and is almost two-thirds the length of the segment. The island consists of emergent/herbaceous and scrub-shrub wetlands. The reassessment identified two points, two polygons, and three linear transects. In general, traces of oil coated and stained debris, trunks and stems were identified at all locations. FLS data detected two oil signatures near Linear Transect 3 I and a third oil signature near Polygon 7 I. A suspected oil signature was also located near Polygon 7 I. A second suspected oil signature was located towards the center of the island. One PI observation noted as Inconclusive was identified on the island near Linear Transect 1 I.

The attachments provide additional details on this segment.

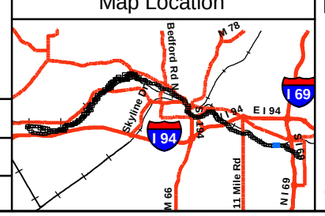
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP3.25-MP3.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 3.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	S	Wetland-emergent/herbaceous			Graan, Tom Flickinger, Brian
4/12/2011	10:57																	42.25880	-85.01953		Senn, Derek
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Low Vegetated Bank			Graan, Tom Flickinger, Brian
4/12/2011	10:17																	42.25939	-85.01580		Senn, Derek
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	S	Sand-Gravel shoreline			Graan, Tom Flickinger, Brian
4/12/2011	10:35																	42.25930	-85.01774		Senn, Derek

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character									Oil Distribution	Habitat		Comments	START
Mile Marker: 3.5																				MDEQ
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems				
Date	**Time**																**Latitude**	**Longitude**		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		Sean Kane
																				Ben Zimont
4/12/2011	15:42																	42.25974	-85.01885	Laura Neumeier
2	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub	coating on vegetation tar patties stain on vegetation from point to river - < 1 meter	Sean Kane
																				Ben Zimont
4/12/2011	15:58																	42.25938	-85.01983	Laura Neumeier

2011 Reassessment

Bank: I

Mile Marker: 3.5

Source: 2011 Reassessment

Oil Zone ID / Date	Feature / Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat: Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous		from polyline to shore - <1 meter	Sean Kane
																					Ben Zimont
4/12/2011	16:12																	42.25975	-85.01786		Laura Neumeier
2	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous		from polyline to river <1 m	Sean Kane
																					Ben Zimont
4/12/2011	16:32																	42.25970	-85.01693		Laura Neumeier
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Sean Kane
																					Ben Zimont
4/12/2011	16:43																	42.25970	-85.01657		Laura Neumeier
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Sean Kane
																					Ben Zimont
4/12/2011	16:51																	42.25970	-85.01650		Laura Neumeier
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-scrub/shrub		possible floating tarball in water?	Sean Kane
																					Ben Zimont
4/12/2011	17:03																	42.26011	-85.01641		Laura Neumeier

2011 Reassessment

| Bank: I | | Oil Thickness | | | | | Oil Character | | | | |

Photo Logs

Field Photographs MP 3.25– MP 3.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 3.25– MP 3.50

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 3.25– MP 3.50

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 3.25– MP 3.50

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 3.25– MP 3.50

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs MP 3.25– MP 3.50

I Zone ID 3, Photo 001



I Zone ID 4, Photo 001



Field Photographs MP 3.25– MP 3.50

I Zone ID 5, Photo 001



I Zone ID 6, Photo 001



Field Photographs MP 3.25– MP 3.50

I Zone ID 7, Photo 001



I Zone ID 7, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 3.25 to MP 3.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MP	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
Steve Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3.25 to MP 3.50 (, Bank or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graham — START — 4/12/11 — Date

THOMAS P GRAHAM — Printed Name

MDEQ — 4/12/11 — Date

MATT WESCHKE / Brian Flickinger RD — Printed Name

Enbridge — 4/12/11 — Date

Derek Senn — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3.25 to MP 3.5, Bank ~~or~~ and Island: * RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Sean Hawe	START	4-12-11 Date
S-H	Printed Name	
Ben A. Zimont	MDEQ	4/12/11 Date
William Kasper	Printed Name	4/12/11
Laura Neumeier	Enbridge	4/12/11 Date
Laura Neumeier	Printed Name	

* Island 3.25R1 and small island to west

Please note waterway between Island 3.25R1 and right bank was not assessed. However, some indications of sheen and tar patches were noted in waterway. Agree BZ

Segment 3.50 – 3.75

MP 3.50 to MP 3.75

The LDB of segment 3.75 generally consists of emergent/herbaceous and scrub-shrub wetlands that transition downstream to a low vegetated bank. The reassessment identified three points, two polygons, and one linear transect. In general, trunks and stems were stained or coated with traces to sporadic distributions of oil. A continuous surface oil residue covered the ground surface at Point 6 LDB, and a film was observed at Point 1 LDB and Polygon 2 LDB.

The RDB of segment 3.75 consists of a low vegetated bank which transitions downstream to scrub-shrub wetlands and then to emergent/herbaceous wetlands. The reassessment identified two polygons and three linear transects. Patchy distributions of patties and asphalt pavement were observed at Polygon 1 RDB. A trace distribution of patties was also noted at Linear Transect 2 RDB. Trunks and stems coated or stained with traces of oil were identified in the other locations.

Three islands consisting of emergent/herbaceous or scrub-shrub wetland habitats are located within segment 3.75. The reassessment identified one polygon (1 I) on the most upstream island, and one polygon (4 I) on the most downstream island. Two points (2 I and 3 I) were identified on the middle island. A patchy distribution of patties and surface oil residue was observed on the ground surface within Polygon 1 I. The conditions observed within Polygon 4 I were similar except the distribution was sporadic. In addition, trunks and stems were sporadically stained to covered in oil. Trace patties and tar balls were also observed on the ground surface of the middle island at Points 2 I and 3 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

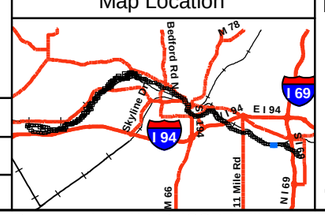
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP3.50-MP3.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 3.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank			☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous			Graan, Tom Flickinger, Brian
		4/12/2011	11:17																		42.25868	-85.01998		Senn, Derek
2	Shoreline and Overbank			☐	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous			Graan, Tom Flickinger, Brian
		4/12/2011	11:25																		42.25856	-85.02036		Senn, Derek
3	Overbank			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			4 TREES	Graan, Tom Flickinger, Brian
		4/12/2011	11:29																		42.25850	-85.02061		Senn, Derek
4	Overbank			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	P	Wetland-emergent/herbaceous			Graan, Tom Flickinger, Brian
		4/12/2011	11:55																		42.25801	-85.02290		Senn, Derek
5	Shoreline			☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	S	Low Vegetated Bank			Graan, Tom Flickinger, Brian
		4/12/2011	12:12																		42.25796	-85.02434		Senn, Derek

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	3.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	C	Low Vegetated Bank			Graan, Tom
																					Flickinger, Brian
4/12/2011	12:15																	42.25796	-85.02431		Senn, Derek

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution				
Mile Marker: 3.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	P	Wetland-emergent/herbaceous		possible sheen on upstream left bank	Kane, Sean / Zimont, Ben
4/13/2011	10:58																	42.25881	-85.01989		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub			Kane, Sean / Zimont, Ben
4/13/2011	11:11																	42.25860	-85.02080		Neumeier, Laura
3	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub			Kane, Sean / Zimont, Ben
4/13/2011	11:13																	42.25850	-85.02104		Neumeier, Laura
4	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	S	Wetland-emergent/herbaceous		tar patties and coating and staining on vegetation staining some shrubs	Kane, Sean / Zimont, Ben
4/13/2011	11:26																	42.25828	-85.02405		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 3.75																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
1	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	P	Low Vegetated Bank			Kane, Sean	
																					Zimont, Ben	
4/13/2011	09:05																	42.25940	-85.01987		Neumeier, Laura	
2	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Kane, Sean	
																					Zimont, Ben	
4/13/2011	09:39																	42.25867	-85.02425		Neumeier, Laura	
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean	
																					Zimont, Ben	
4/13/2011	10:07																	42.25864	-85.02345		Neumeier, Laura	
4	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean	
																					Zimont, Ben	
4/13/2011	10:52																	42.25904	-85.02106		Neumeier, Laura	
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous		zone 3	Kane, Sean	
																					Zimont, Ben	
4/13/2011	09:57																	42.25863	-85.02369		Neumeier, Laura	

Photo Logs

Field Photographs MP 3.50 – MP 3.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 3.50 – MP 3.75

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 3.50 – MP 3.75

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 3.50 – MP 3.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 3.50 – MP 3.75

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 3.50 – MP 3.75

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 3.50 – MP 3.75

RDB Zone ID 3, Photo 003



RDB Zone ID 4, Photo 001



Field Photographs MP 3.50 – MP 3.75

RDB Zone ID 5, Photo 001



I Zone ID 1, Photo 001



Field Photographs MP 3.50 – MP 3.75

I Zone ID 1, Photo 002



I Zone ID 2, Photo 001



Field Photographs MP 3.50 – MP 3.75

I Zone ID 3, Photo 001



I Zone ID 4, Photo 001



Field Photographs MP 3.50 – MP 3.75

I Zone ID 4, Photo 002



I Zone ID 4, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 3.5 to MP 3.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	MR
SOTF	START		MDEQ		Enbridge	MR
PI	START		MDEQ		Enbridge	MR
FLS	START		MDEQ		Enbridge	MR
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
Jim Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barkham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3.50 to MP 3.75, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/12/11 — Date

THOMAS P. GRAAN — Printed Name

MDEQ — 4/12/11 — Date

MATTHEW D WESSNER / Brian Flicky RP — Printed Name

Enbridge — 4/12/11 — Date

Derek Senn — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3.5 to MP 3.75, Bank ~~or~~ and Island: *RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Sean Kane — START — 4-13-11 — Date

Sean Kane — Printed Name

Benj A. Zimont — MDEQ — 4/13/11 — Date

William Keiper — Printed Name

Laura Neumeier — Enbridge — 4/13/2011 — Date

Laura Neumeier — Printed Name

*3 islands → 1 island-polygon
1 island - 2 points
1 island - polygon

Right Bank → 3 poly-lines
2 polygons

Segment 3.75 – 4.00

MP 3.75 to MP 4.00

The LDB of segment 4.00 consists predominantly of low vegetated bank with an area of forested wetland swamp along the shoreline. The reassessment identified two points and three linear transects. In general, trace to sporadic occurrences of surface oil residue was present on the ground surface at all locations. Traces of stained and coated debris were also present along Linear Transect 5 LDB.

The RDB of segment 4.00 consists predominantly of scrub-shrub wetlands and an area of emergent/herbaceous wetlands. The reassessment identified one point, one polygon, and four linear transects. Traces of oil stained or coated on trunks and stems were identified at all locations. Traces of patties or tar balls were observed in Polygon 2 RDB and Linear Transects 4 RDB, 5 RDB, and 6 RDB. The FLS data detected an oil signature near Polygon 2 RDB and Linear Transect 3 RDB.

No PI observations were noted in the segment.

The attachments provide additional details on this segment.

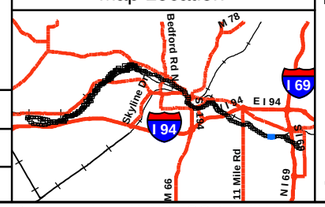
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP3.75-MP4.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 4																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		steep bank	Macus Muccianti / Chris Bauer
4/11/2011	10:13																	42.25796	-85.02496		Hans Wronka
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Low Vegetated Bank		debris	Macus Muccianti / Chris Bauer
4/11/2011	10:25																	42.25802	-85.02546		Hans Wronka
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		debris	Macus Muccianti / Chris Bauer
4/11/2011	10:30																	42.25802	-85.02579		Hans Wronka
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		debris and vegetation	Macus Muccianti / Chris Bauer
4/11/2011	10:41																	42.25805	-85.02644		Hans Wronka
5	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank			Macus Muccianti / Chris Bauer
4/11/2011	11:03																	42.25875	-85.02911		Hans Wronka

2011 Reassessment

Bank: RDB

Mile Marker: 4

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character											Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous			Kane, Sean
																					Zimont, Ben
4/13/2011	12:23																	42.25870	-85.02524		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		?? in spots	Kane, Sean
																					Zimont, Ben
4/13/2011	12:35																	42.25871	-85.02541		Neumeier, Laura
3	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean
																					Zimont, Ben
4/13/2011	12:51																	42.25874	-85.02644		Neumeier, Laura
4	Shoreline	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean
																					Zimont, Ben
4/13/2011	13:00																	42.25881	-85.02698		Neumeier, Laura
5	Shoreline and Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean
																					Zimont, Ben
4/13/2011	13:21																	42.25906	-85.02814		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 4																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
6	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean
																					Zimont, Ben
4/13/2011	13:31																	42.25935	-85.02866		Neumeier, Laura

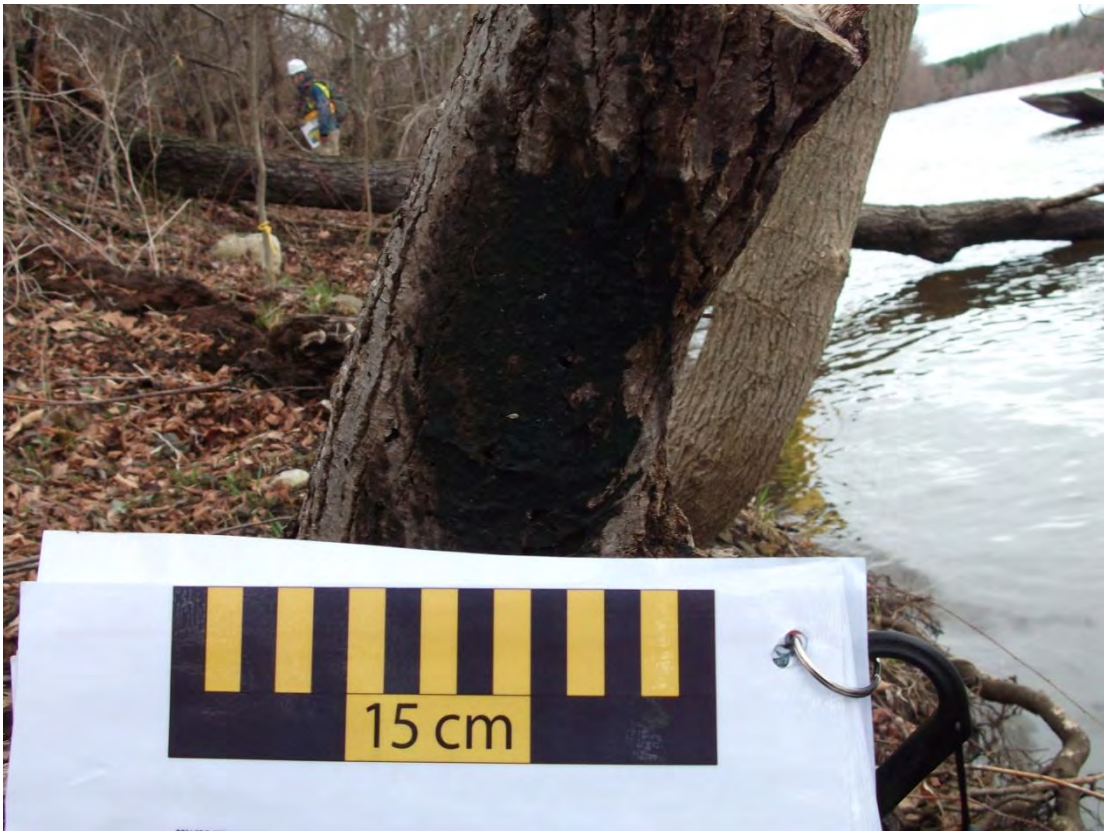
Photo Logs

Field Photographs MP 3.75 – MP 4.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 3.75 – MP 4.00

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 3.75 – MP 4.00

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 3.75 – MP 4.00

LDB Zone ID 5, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 3.75 – MP 4.00

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 3.75 – MP 4.00

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 3.75 – MP 4.00

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 3.75 – MP 4.00

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 3.75 to MP 4.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 — Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/6/11 — Date

Michelle DeLong — Printed Name

Enbridge — 6/6/2011 — Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Left Bank

Segment ID: From MP 3.75 to MP 4.0, Bank or Island: bank, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/11/11 Date

Marcus Mucciarini Printed Name

Chris Bauer MDEQ 4/11/11 Date

Chris Bauer Printed Name

James Gamble 4-11-11

James Gamble

[signature] Enbridge 4-11-11 Date

Hans Wienken Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3.75 to MP 4.0, (Bank) or Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-13-11 Date
Scott Kane	Printed Name	
[signature]		4-13-11
William Keiper	MDEQ	4/13/11 Date
Ben A. Zimont	Printed Name	
[signature]	Enbridge	4/13/2011 Date
Laura Neumeier	Printed Name	

6 zone ID's for RB
- 5 polylines
- 1 polygon

Segment 4.00 – 4.25

MP 4.00 to MP 4.25

The LDB of segment 4.25 consists of a low vegetated bank along the entire length of the segment. The reassessment identified one linear transect. The shoreline was characterized as having traces of stained and coated debris with surface oil residue on the ground surface in this area.

The RDB of segment 4.25 consists of scrub-shrub and emergent/herbaceous wetlands that transition to low vegetated bank approximately halfway down the segment. The reassessment identified one point and two linear transects. Traces of oil coated trunks and stems were present in Linear Transects 1 RDB and 3 RDB. A trace amount of patties was identified at Point 2 RDB.

One island is located within segment 4.25 that consists of an emergent/herbaceous wetland. The entire island has a patchy distribution of oil film on ponded water and surface oil residue on the ground surface (Polygon 1 I). Two PI observations noted as High Priority Areas were identified on the island; one on the east end of the island and a second noted at the west end of the island was located in the Kalamazoo River.

The FLS did not identify any oil signatures within this segment.

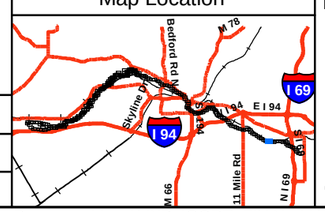
The attachments provide additional details on this segment.

Segment Figures



Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP4.00-MP4.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 4.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Wetland-emergent/herbaceous		E Island	Macus Muccianti
																					Chris Bauer
4/11/2011	11:56																	42.25985	-85.03055		Hans Wronka

Enbridge Team Lead

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	4.25																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank		visual from bank and boat	Macus Muccianti
																					Chris Bauer
4/11/2011	11:48																	42.25908	-85.02924		Hans Wronka

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 4.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		debris on shoreline	Kane, Sean
																					Zimont, Ben
4/13/2011	13:55																	42.25979	-85.02979		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Kane, Sean
																					Zimont, Ben
4/13/2011	14:09																	42.26028	-85.03100		Neumeier, Laura
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		observation at nodes	Kane, Sean
																					Zimont, Ben
4/13/2011	14:40																	42.26027	-85.03135		Neumeier, Laura

Photo Logs

Field Photographs MP 4.00 – MP 4.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 4.00 – MP 4.25

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 4.00 – MP 4.25

LDB Zone ID 1, Photo 005



RDB Zone ID 1, Photo 001



Field Photographs MP 4.00 – MP 4.25

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 4.00 – MP 4.25

RDB Zone ID 3, Photo 001



I Zone ID 1, Photo 001 Team 3



Field Photographs MP 4.00 – MP 4.25

I Zone ID 1, Photo 002 Team 3



I Zone ID 1, Photo 001 Team 4



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 4.0 to MP 4.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/6/11 Date

Michelle DeLong — Printed Name

Dave Barcham — Enbridge — 6/6/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Left Bank

Segment ID: From MP 4.0 to MP 4.25, Bank or Island: Both, Segment Length: 0.25 mile

Island E

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/11/11 Date

MARIUS MUCCIANTI Printed Name

[signature] MDEQ — 4/11/11 Date

Chris Bauer Printed Name

James Gamble 4-11-11

James Gamble

[signature] Enbridge — 4-11-11 Date

Hans Wranka Printed Name

Note: Island E was largely submerged and we were not able to traverse the island by foot. There was discussion regarding how to describe the island as the vegetation that was visible appeared ~~to cover~~ "broken to continuously covered" in Matt Gamble's (MDEQ's) opinion.

Also a portion of the shoreline along this segment included tract KS-C-112 which is off limits to land access. The Team consensus was that evaluation along the shore by boat was sufficient.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 4.0 to MP 4.25, Unique ID LDB E, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START _____ 5/6/11 Date

THOMAS P. GRAAN _____ Printed Name

Kat Fairchild _____ MDEQ _____ 5-6-11 Date

Kathleen Fairchild _____ Printed Name

Laura Neumeier _____ Enbridge _____ 5/6/11 Date

Laura Neumeier _____ Printed Name

1 polyline captured by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 4.0 to MP 4.25, Bank ~~or~~ and Island: *RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-13-11 Date
Sean Kane	Printed Name	
[signature]		4-13-11
William Keiper	MDEQ	4/13/11 Date
[signature] Ben A. Zimont	Printed Name	
[signature]	Enbridge	4/13/2011 Date
Laura Neumeier	Printed Name	

*1 Island - 1 polygon (reassess @ lower river levels)

RB - 3 zones recorded

Segment 4.25 – 4.50

MP 4.25 to MP 4.50

The LDB of segment 4.50 consists of a low vegetated bank which transitions downstream to a scrub-shrub wetland habitat. The reassessment identified one point, three polygons and two linear transects. A trace to patchy distribution of stained and coated debris was observed along the shoreline and overbank areas as well as patties and surface oil residue on the ground surface. Traces of oil staining and coatings were identified on trunks and stems, and sheens were identified on ponded water. The FLS observed two oil signatures near Polygon 3 LDB and a suspected oil signature in close proximity to Point 7 LDB. One PI observation noted as Inconclusive was identified along Linear Transect 1 LDB within the river.

The RDB of segment 4.50 consists of a low vegetated bank. The reassessment identified traces of oil within one linear transect (1 RDB) that extends along almost the entire segment. Oil thicknesses ranged from staining to coating on debris, trunks and stems. In addition, patties were observed on the ground surface and tar was identified on rocks along the shoreline.

One island is located within segment 4.50 that consists of an emergent/herbaceous wetland habitat. The entire island has traces of oil film on ponded water and surface oil residue on the ground surface.

The attachments provide additional details on this segment.

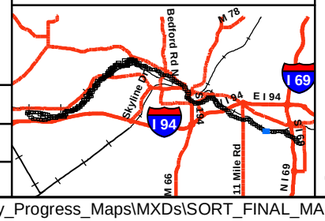
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP4.25-MP4.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character															
Mile Marker: 4.5																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	P	Low Vegetated Bank		observation from boat	Muccianti, Marcus	
																					Bauer, Chris	
4/11/2011	13:28																	42.25997	-85.03934		Wronka, Hans	
2	Shoreline and Overbank	☐	☐	☐	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Wetland-emergent/herbaceous		water is significantly higher than bank location on map. polygon extends into the river and to 4.50 boundary	Muccianti, Marcus	
																					Bauer, Chris	
4/11/2011	14:06																	42.25982	-85.03810		Wronka, Hans	
3	Shoreline and Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-scrub/shrub			Graan, Tom	
																					Fairchild, Katie	
5/6/2011	12:14																	42.25981	-85.03704		Neumeier, Laura	
4	Shoreline and Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)			Graan, Tom	
																					Fairchild, Katie	
5/6/2011	12:58																	42.25955	-85.03541		Neumeier, Laura	
6	Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-emergent/herbaceous		TAR COATED/STAINED STEMS; SHEEN ON POOLED WATER	Hadwin, Eric	
																					Wesener, Matt	
5/12/2011	09:49																	42.25984	-85.03612		Kytta, Ken	

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 4.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
7	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-emergent/herbaceous		TAR COATED/STAINED STEMS AND BRANCHES; SHOULD BE LABELLED 4.5 LDB 2	**Enbridge Team Lead**
																					Hadwin, Eric
																					Wesener, Matt
5/12/2011	10:19																	42.25961	-85.03571		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 4.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		tar on rocks observation at nodes	**Enbridge Team Lead** Kane, Sean Zimont, Ben
4/13/2011	16:10																	42.26055	-85.03829		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character													
Mile Marker: 4.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		high water level	Macus Muccianti
																					Chris Bauer
4/11/2011	13:15																	42.26029	-85.03488		Hans Wronka

Photo Logs

Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001

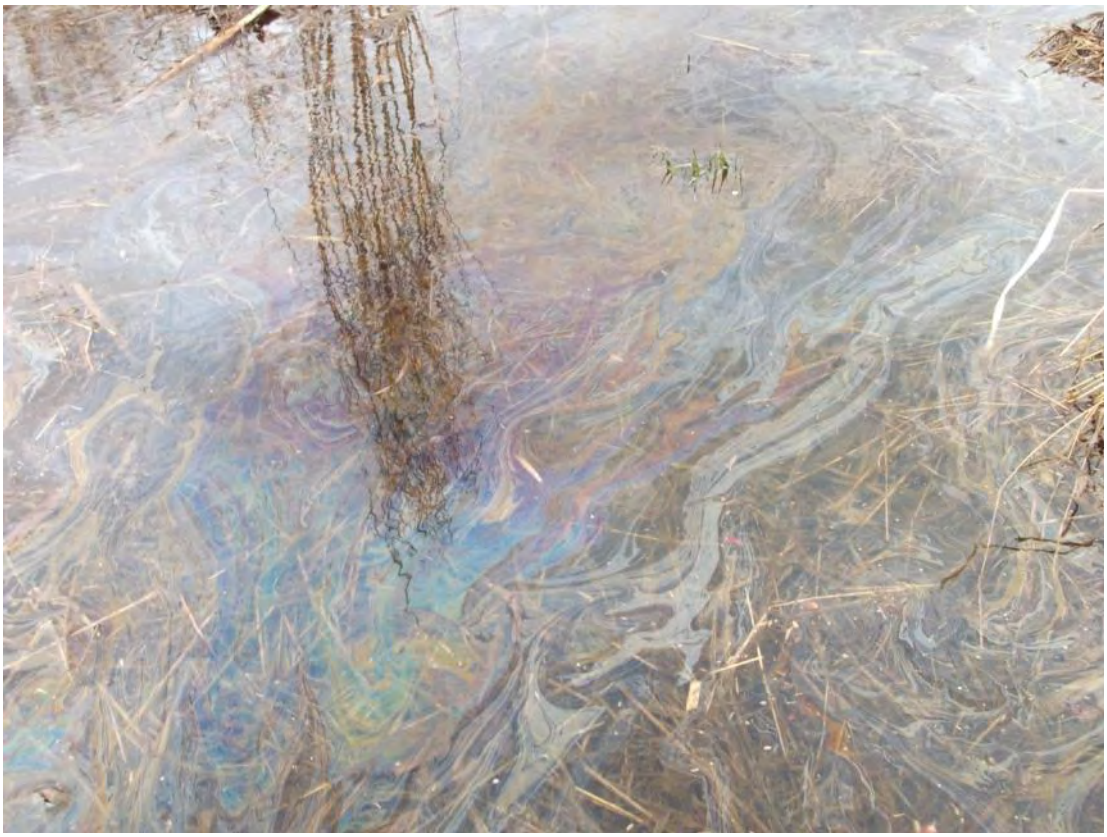


Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 3, Photo 005



LDB Zone ID 3, Photo 006



Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002



Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 4, Photo 003

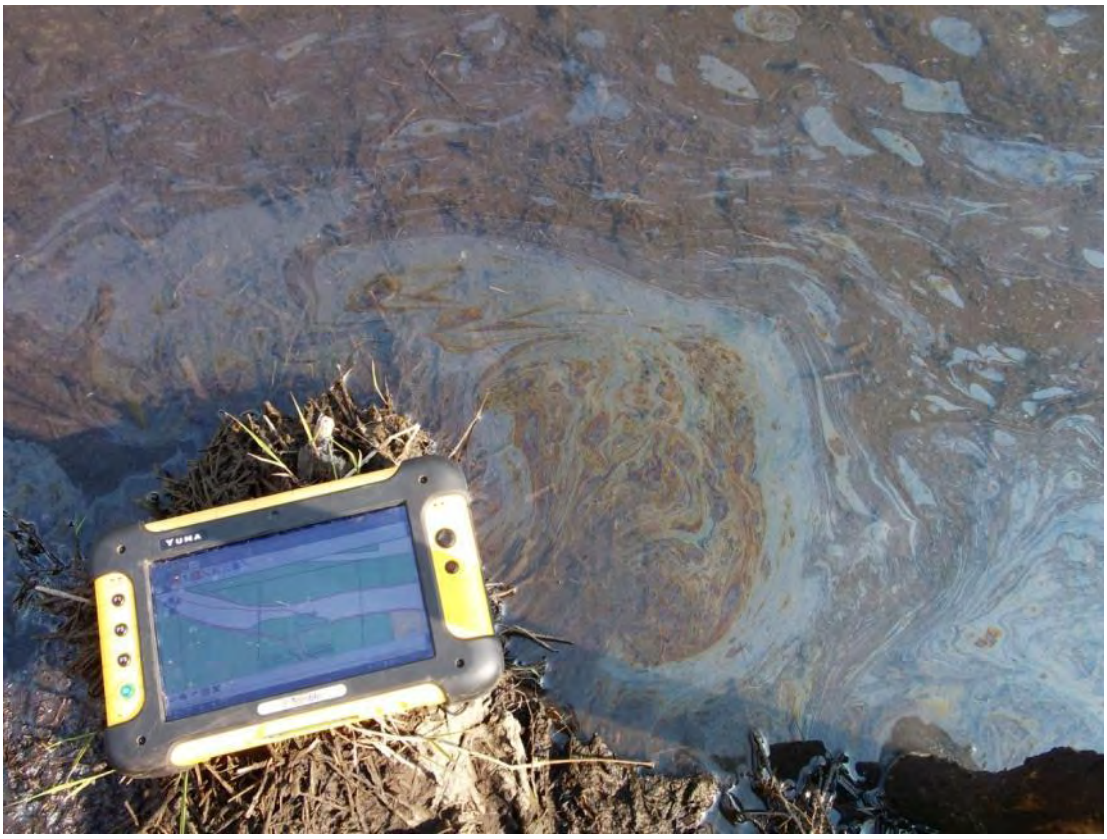


LDB Zone ID 6, Photo 001



Field Photographs MP 4.25 – MP 4.50

LDB Zone ID 6, Photo 002



LDB Zone ID 7, Photo 001



Field Photographs MP 4.25 – MP 4.50

I Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 4.25 – MP 4.50

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 4.25 – MP 4.50

RDB Zone ID 1, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 4.25 to MP 4.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Left Bank

Segment ID: From MP 4.25 to MP 4.5, Bank or Island: Both, Segment Length: 0.25 mile

Island F

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/11/11 Date
Marcus Marchand	Printed Name	
[signature]	MDEQ	4-11-11 Date
James Gamble	Printed Name	4-11-11
Chris Bauer [signature]	Enbridge	4-11-11 Date
Hans Wronten	Printed Name	

Note Island "F" was largely submerged and we were not able to traverse the island by foot. There was discussion regarding how to describe the island, as the vegetation that was visible appeared "broken to continuously covered" in Matt Gamble's (MDEQ's) opinion.

Also, a portion of this shoreline along this segment included tract KS-C-112 which is off limits to land access. the team consensus was that evaluation along the shore by boat was sufficient

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 4.25 to MP 4.50, Unique ID LDB E, Bank LDB* and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/6/11 — Date

THOMAS P. GRAAN — Printed Name

Kathleen Fairchild — MDEQ — 5-6-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/6/11 — Date

Laura Neumeier — Printed Name

Polled within segment and two SORT zones captured by YUMA.

* 1 new polygon created for area that will dry out.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 4.25 to MP 4.50, Unique ID LOB 46, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/12/11 Date

ERIC HAWN Printed Name

_____ MDEQ 5/12/11 Date

MATT WESSNER Printed Name

_____ Enbridge 5/12/11 Date

KEN KUTTA Printed Name

_____ Tetra Tech 5/12/2011

Craig A Wieman

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 4.25 to MP 4.5, Bank ~~or~~ and Island: *RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4-13-11 Date

Sean Kane Printed Name

[signature] Ben A. Zimont MDEQ — 4/13/11 Date

[signature] William Keiper Printed Name — 4/13/11

[signature] Enbridge — 4/13/2011 Date

Laura Neumeier Printed Name

* 1 Island (primarily submerged) - 1 polygon (reassess at lower river level)

RB - 1 zone (1 poly-line)

Segment 4.50 – 4.75

MP 4.50 to MP 4.75

The LDB of segment 4.75 consists of an emergent/herbaceous wetland habitat which transitions downstream to a steep vegetated bank. The reassessment identified two linear transects that extend along most of the shoreline. Traces of coated debris and surface oil residue were observed on the ground surface in the wetlands at Linear Transect 1 LDB. Patchy occurrences of surface oil residue on the ground surface were located along the embankment at Linear Transect 2 LDB. One PI observation noted as a High Priority Area was identified near the eastern end of Linear Transect 2 LDB.

The RDB of segment 4.75 consists of scrub-shrub and emergent/herbaceous wetland habitats. The reassessment identified three linear transects. Traces of stained and coated debris, trunks and stems were observed at Linear Transect 1 RBD. Traces of coated oil on trunks and stems were observed at Linear Transects 2 RDB and 3 RDB.

The FLS did not detect any oil signatures in this segment.

The attachments provide additional details on this segment.

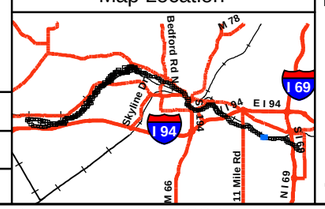
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP4.50-MP4.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 4.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-emergent/herbaceous		debris along cut edge. high water	Macus Muccianti
																					Chris Bauer
4/11/2011	14:21																	42.25993	-85.03928		Hans Wronka
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Other (comments)		Steep wooded embankment with boulders and gravel	Macus Muccianti
																					Chris Bauer
4/11/2011	14:42																	0.00000	0.00000		Hans Wronka

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 4.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		observation at nodes	Kane, Sean Zimont, Ben
4/13/2011	16:34																	42.26106	-85.03982		Neumeier, Laura
2	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous		observation at nodes	Kane, Sean Zimont, Ben
4/13/2011	16:42																	42.26144	-85.04079		Neumeier, Laura
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		observation at nodes	Kane, Sean Zimont, Ben
4/13/2011	17:03																	42.26211	-85.04241		Neumeier, Laura

Photo Logs

Field Photographs MP 4.50 – MP 4.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 4.50 – MP 4.75

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 4.50 – MP 4.75

LDB Zone ID 2, Photo 004



RDB Zone ID 1, Photo 001



Field Photographs MP 4.50 – MP 4.75

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 4.5 to MP 4.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 (Date)

John Powell — Printed Name

Michelle Delong — MDEQ — 6/6/11 — Date

Michelle Delong — Printed Name

Dave Barcham — Enbridge — 6/6/2011 — Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 4.5 Left Bank to MP 4.75 (Bank) or Island: Bank, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

START — Date 4/11/11

Printed Name

MDEQ — Date 4-11-11 (4-11-11)

Printed Name

Enbridge — Date 4/11/11 KN

Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 4.5 to MP 4.75, Bank ~~or Island~~: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-13-11 Date
Jason Hane	Printed Name	
[signature]	MDEQ	4/13/11 Date
William Kuiper	Printed Name	4/13/11
[signature]	Enbridge	4/13/2011 Date
Laura Neumeier	Printed Name	

3 zones captured by YUMA

Segment 4.75 – 5.00

MP 4.75 to MP 5.00

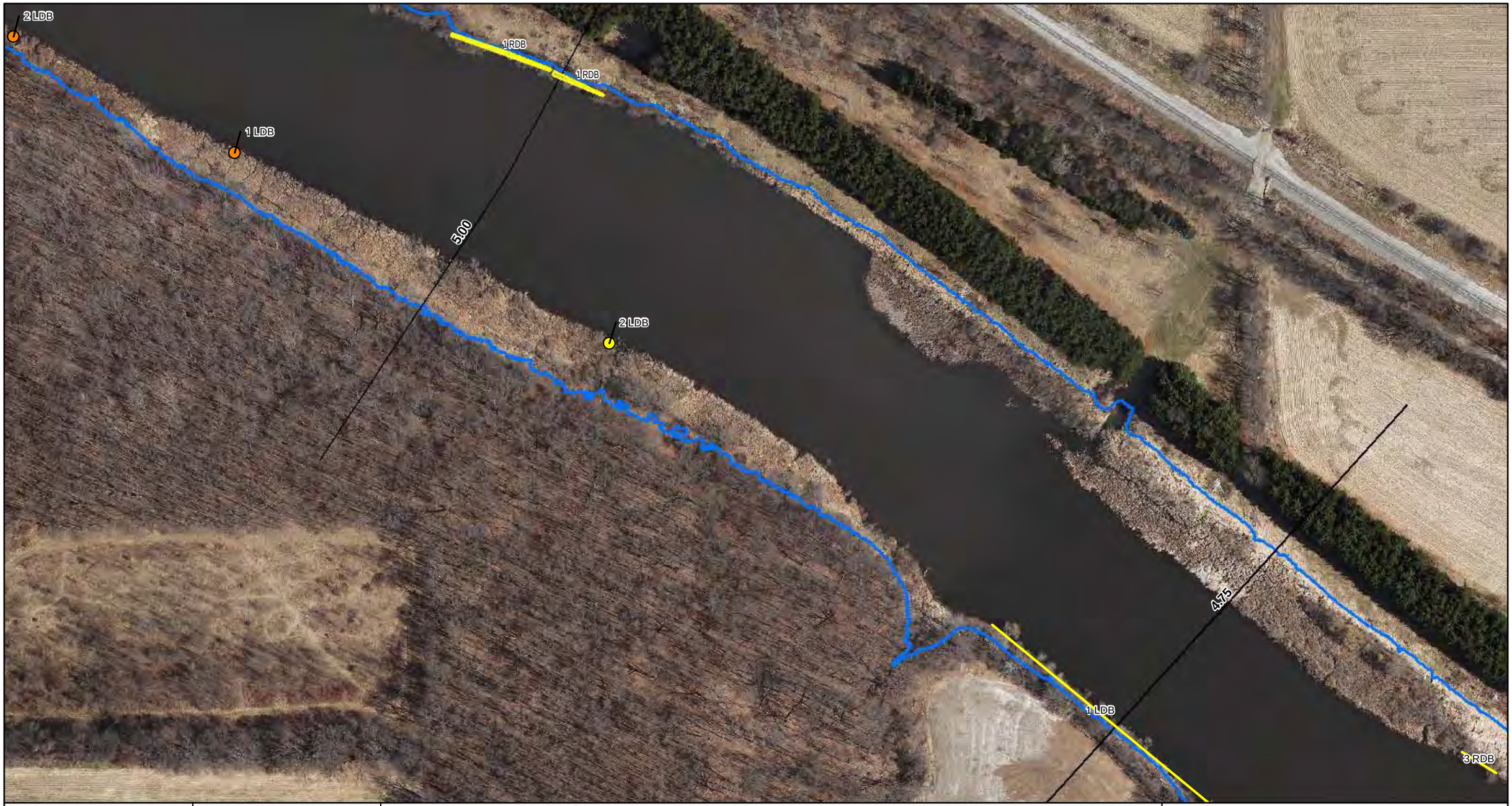
The LDB of segment 5.00 consists of a steep wooded embankment with boulders which transitions downstream to a scrub-shrub wetland. The reassessment identified one point and one linear transect. A patchy surface oil residue was observed on the ground surface along Linear Transect 1 LDB, and a trace oil surface residue was observed on the ground surface at Point 2 LDB.

The RDB of segment 5.00 consists of scrub-shrub wetland along the shoreline. The reassessment identified one polygon (1 RDB) that was characterized as having traces of staining on trunks and stems.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

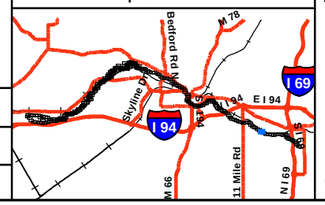
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP4.75-MP5.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Other (comments)		steep wooded embankment with boulders	Macus Muccianti
																					Chris Bauer
4/11/2011	14:58																	42.26209	-85.04421		Hans Wronka
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub			Macus Muccianti
																					Chris Bauer
4/11/2011	15:17																	42.26330	-85.04621		Hans Wronka

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		photo facing se	Shauna Ross
																					Sara VanDelfzijl
4/11/2011	10:59																	42.26450	-85.04654		Mike VanLoan

Photo Logs

Field Photographs MP 4.75 – MP 5.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 4.75 – MP 5.00

LDB Zone ID 2, Photo 001



RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 4.75 to MP 5.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011	Date
John Powell	Printed Name		
Michelle DeLong	MDEQ	6/6/11	Date
Michelle DeLong	Printed Name		
	Enbridge	6/6/2011	Date
Dave Barcham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Left Bank

Segment ID: From MP 4.75 to MP 5.0, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/11/11 Date

Marcus Muchland Printed Name

Chris Bauer MDEQ 4-11-11 Date

Chris Bauer Printed Name

James Gamble 4-11-11

James Gamble

[signature] Enbridge 4-11-11 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 4.75 to MP 5.0, (Bank) or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/11/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ — 4/11/11 Date

SARAH VANDECZIJL Printed Name

_____ Enbridge — 4-11-2011 Date

Michael Van Laan Printed Name

Segment 5.00 – 5.25

MP 5.00 to MP 5.25

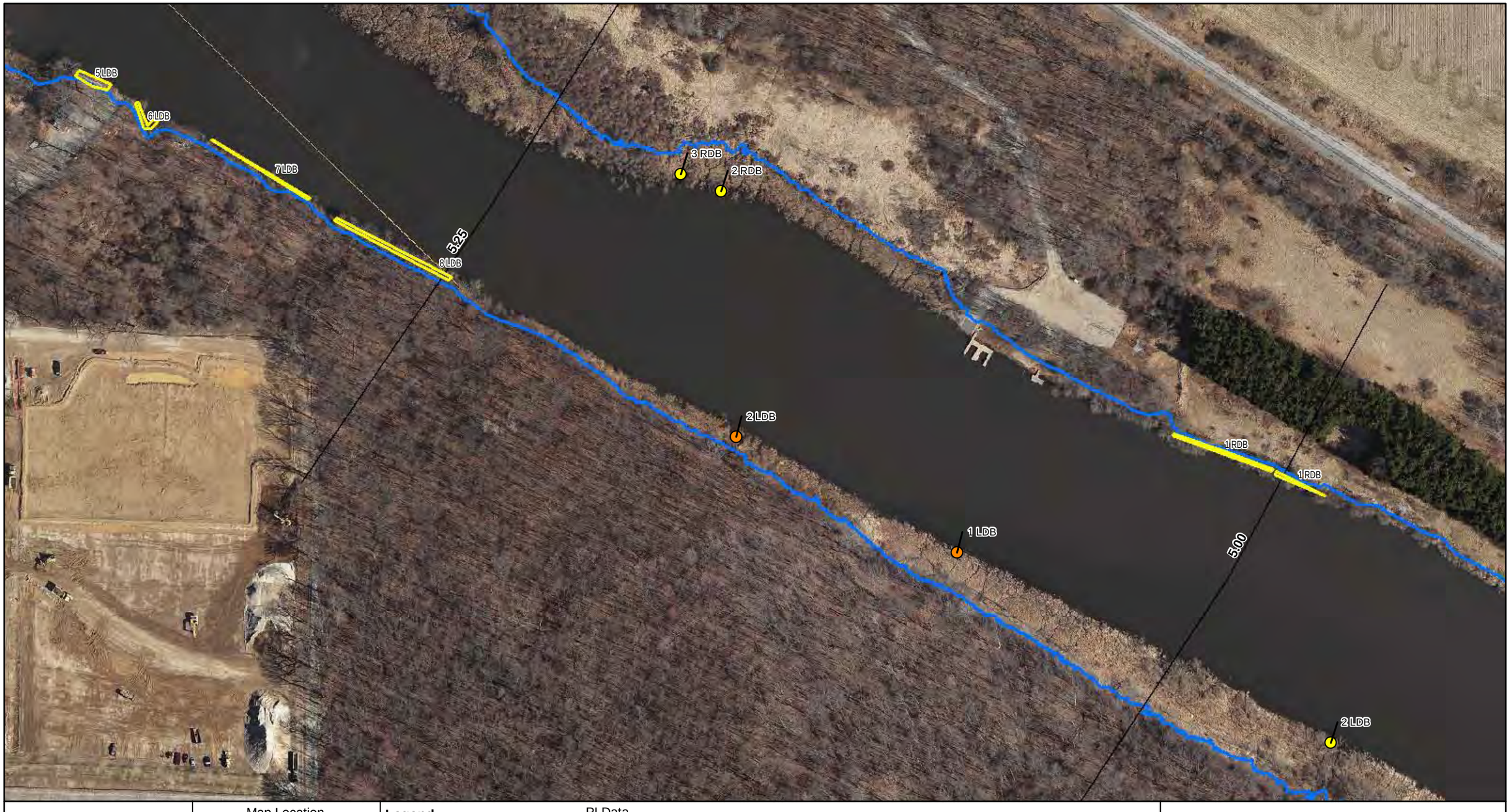
The LDB of segment 5.25 consists of an emergent/herbaceous wetland along the shoreline. The reassessment identified two points. Trace or sporadic occurrences of film on ponded water and surface oil residue on the ground surface were identified at both locations.

The RDB of segment 5.25 consists of scrub-shrub wetland along the shoreline. The reassessment identified two points and one polygon. Traces of oil stained rocks and/or trunks and stems were identified throughout Polygon 1 RDB. Patchy oil or tar coatings on trunks and stems and/or debris were identified at Points 2 RDB and 3 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP5.00-MP5.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 5.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-emergent/herbaceous	
4/11/2011	15:41																	42.26413 / -85.04842	
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Other (comments)	pocket inlet
4/11/2011	15:47																	42.26462 / -85.04973	

START	
MDEQ	
Enbridge Team Lead	
Macus Muccianti	
Chris Bauer	
Hans Wronka	
Macus Muccianti	
Chris Bauer	
Hans Wronka	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 5.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		rock and tree stump staining	Shauna Ross / Sara VanDelfzijl
4/11/2011	11:17																	42.26465	-85.04715		Mike VanLoan
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	P	Wetland-scrub/shrub			Shauna Ross / Sara VanDelfzijl
4/11/2011	12:03																	42.26571	-85.04983		Mike VanLoan
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	P	Wetland-scrub/shrub			Shauna Ross / Sara VanDelfzijl
4/11/2011	12:17																	42.26578	-85.05007		Mike VanLoan

Photo Logs

Field Photographs MP 5.00 – MP 5.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 5.00 – MP 5.25

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 5.00 – MP 5.25

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 5.00 – MP 5.25

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 5.0 to MP 5.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011	Date
John Powell	Printed Name		
Michelle Delong	MDEQ	6/6/11	Date
Michelle Delong	Printed Name		
	Enbridge	6/6/2011	Date
Dave Bareham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.0 to MP 5.25, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna M Ross — START — 4/11/2011 — Date

Shawna Marie Ross — Printed Name

[signature] — MDEQ — 4/11/11 — Date

SARAH VANDERZIJL — Printed Name

[signature] — Enbridge — 4-11-2011 — Date

Michael Van Loan — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Left Bank

Segment ID: From MP 5.0 to MP 5.25, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/11/11	Date
Marcus Muccianti	Printed Name		
James Gamble	MDEQ	4-11-11	Date
James Gamble	Printed Name	4-11-11	
Chris Bauer Chris Bauer			
[signature]	Enbridge	4-11-11	Date
Hans Wronker	Printed Name		

Segment 5.25 – 5.50

MP 5.25 to MP 5.50

The LDB of segment 5.50 consists of various habitats that include: rip rap, scrub-shrub wetland, low vegetated bank and recently regarded bank. The reassessment identified one point and seven polygons. In general, traces to broken occurrences of oil stained or coated rip rap were observed at Point 1 LDB and Polygons 2 LDB, 6 LDB and 7 LDB. Patties also covered a portion of Polygon 2 LDB. Patchy asphalt pavement was observed at Polygons 3 LDB and 5 LDB. In general, traces of oil stained trunks and stems were observed within the scrub-shrub wetlands and low vegetated bank.

The RDB of segment 5.50 consists of scrub-shrub wetland along the shoreline. The reassessment identified one point. A sporadic distribution of stained trunks and stems was identified at this point.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

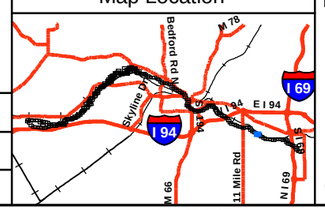
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP5.25-MP5.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 5.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	4/11/2011	16:06	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	B	Rip Rap	42.26687	-85.05512		Shauna Ross / Sara VanDelfzijl / Mike VanLoan
2	Shoreline	4/11/2011	16:16	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	S	Rip Rap	42.26672	-85.05479	one heavier cover in middle of area	Shauna Ross / Sara VanDelfzijl / Mike VanLoan
3	Shoreline	4/11/2011	16:43	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	P	Wetland-scrub/shrub	42.26644	-85.05419		Shauna Ross / Sara VanDelfzijl / Mike VanLoan
4	Shoreline	4/11/2011	16:53	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub	42.26639	-85.05411		Shauna Ross / Sara VanDelfzijl / Mike VanLoan
5	Overbank	4/11/2011	17:07	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	P	Other (comments)	42.26614	-85.05349	recently regraded bank	Shauna Ross / Sara VanDelfzijl / Mike VanLoan

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 5.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Rip Rap			Shauna Ross
																					Sara VanDelfzijl
4/11/2011	17:16																	42.26597	-85.05327		Mike VanLoan
7	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap			Shauna Ross
																					Sara VanDelfzijl
4/11/2011	17:30																	42.26566	-85.05225		Mike VanLoan
8	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			shauna ross
																					Sara VanDelfzijl
4/11/2011	17:42																	42.26532	-85.05142		Mike VanLoan

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 5.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-scrub/shrub			**Enbridge Team Lead**
																					Ross, Shauna
																					VanDelfzijl, Sarah
4/13/2011	16:32																	42.26689	-85.05287		VanLoan, Mike

Photo Logs

Field Photographs MP 5.25 – MP 5.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 5.25 – MP 5.50

LDB Zone ID 2, Photo 002



LDB Zone ID 3, Photo 001



Field Photographs MP 5.25 – MP 5.50

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 5.25 – MP 5.50

LDB Zone ID 5, Photo 002



LDB Zone ID 6, Photo 001



Field Photographs MP 5.25 – MP 5.50

LDB Zone ID 6, Photo 002



LDB Zone ID 7, Photo 001



Field Photographs MP 5.25 – MP 5.50

LDB Zone ID 8, Photo 001



RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 5.25 to MP 5.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011	Date
John Powell	Printed Name		
Michelle DeLong	MDEQ	6/6/11	Date
Michelle DeLong	Printed Name		
	Enbridge	6/6/2011	Date
Dave Barcham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.25 to MP 5.5, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/11/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ — 4/11/11 Date

Sarah VanDeHey Printed Name

_____ Enbridge — 4-11-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.25 to MP 5.5, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/14/2011 — Date

Shawna Marie Ross — Printed Name

Sarah VanDeLeuzl — MDEQ — 4/11/11 — Date

SARAH VANDELEUZL — Printed Name

Michael Van Loan — Enbridge — 4-11-2011 — Date

Michael Van Loan — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.25 to MP 5.5, (Bank) or Island:_____, Segment Length: 0.25 mile

RDB

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/13/2011 — Date

Shawna Marie Ross — Printed Name

Chris Vendkamp for Sarah VanDeWiele — MDEQ — 4/13/11 — Date

Chris Vendkamp for Sarah VanDeWiele — Printed Name

Neil Reid — Enbridge — 4/13/11 — Date

Neil Reid for Mike VanLoan. — Printed Name

Segment 5. 50 – 5.75

MP 5.50 to MP 5.75

The LDB of segment 5.75 consists of scrub-shrub wetland. The reassessment identified one point and two polygons. In general, traces of oil stained trunks and branches were identified at Polygons 1 LDB and 2 LDB. Stained woody debris that was previously cut and stockpiled was identified at Point 3 LDB.

The RDB of segment 5.75 consists of scrub-shrub wetland. The reassessment identified one point where a trace distribution of tar balls was identified. The FLS detected an oil signature approximately 300 ft upstream and east of Point 1 RDB. The SORT program did not identify surface oiling at this location.

No PI observations were noted within this segment.

The attachments provide additional details on this segment.

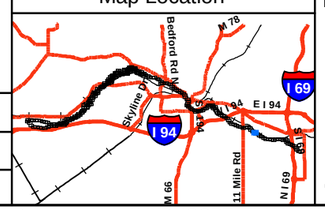
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP5.50-MP5.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 5.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Shauna Ross
																					Sara VanDelfzijl
4/11/2011	15:32																	42.26759	-85.05687		Mike VanLoan
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Shauna Ross
																					Sara VanDelfzijl
4/11/2011	16:00																	42.26711	-85.05594		Mike VanLoan
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub		Woody debris previously cut and left on the shoreline	Shauna Ross
																					Sara VanDelfzijl
4/11/2011	15:18																	42.26791	-85.05765		Mike VanLoan

2011 Reassessment

Bank:	RDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	5.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub			Ross, Shauna
																					VanDelfzijl, Sarah
4/11/2011	13:29																	42.26871	-85.05687		VanLoan, Mike

Photo Logs

Field Photographs MP 5.50 – MP 5.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 5.50 – MP 5.75

LDB Zone ID 2, Photo 002



LDB Zone ID 3, Photo 001



Field Photographs MP 5.50 – MP 5.75

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 5.5 to MP 5.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
Dave Bol	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.5 to MP 5.75, Bank or Island: LDR, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross START — 4/11/2011 Date

Shawna Marie Ross Printed Name

Sarah VanBeek MDEQ — 4/11/11 Date

Sarah VanBeek Printed Name

Enbridge — 4-11-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.5 to MP 5.75, (Bank) or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/11/2011 — Date

Shawna Marie Ross — Printed Name

Sarah VanDeWeijl — MDEQ — 4/11/11 — Date

SARAH VANDEWEIJL — Printed Name

Michael Van Loan — Enbridge — 4-11-2011 — Date

Michael Van Loan — Printed Name

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 5.50 to MP 5.75, Unique ID RDB1 (5.75), Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	05.27.11 Date
Tori Gomez	Printed Name	
_____	MDEQ	5/27/11 Date
MATT WESCNER	Printed Name	
_____	Enbridge	5/27/11 Date
KEN KYTTA	Printed Name	

Segment 5. 75 – 6.00

MP 5.75 to MP 6.00

The LDB of segment 6.00 consists of scrub-shrub wetland and rip rap on either side of roadway that bisects the river and transitions to forested wetland swamp towards the end of the segment. The reassessment identified one point, four polygons, and one linear transect. In general, trace to patchy staining was present on trunks and stems in all the areas. Sporadic surface oil residue was identified at Polygons 3 LDB and 5 LDB and Linear Transect 6 LDB. A patchy distribution of patties was also observed along Linear Transect 6 LDB.

Poling of the river and over bank on the LDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

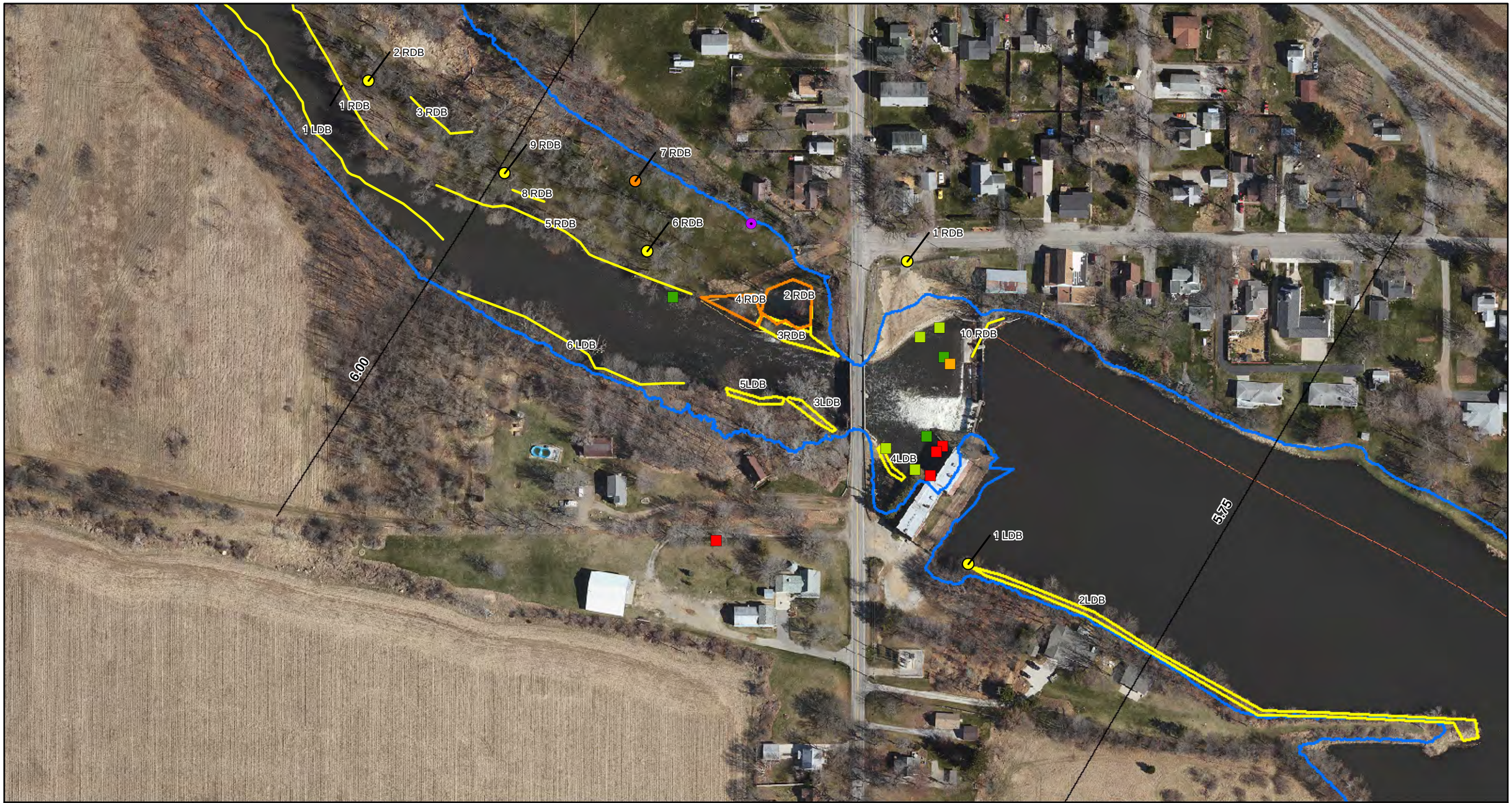
The RDB of segment 6.00 consists of various habitats including emergent/herbaceous wetland, low vegetated bank, and maintained lawn. The reassessment identified four points, three polygons, and three linear transects. Because of proximity to the dam, observations of Linear Transect 10 RDB had to be made with binoculars from a boat. Traces of coatings and stains were observed on trunks and stems at Linear Transect 10 RDB. In general, trunks and stems were stained or coated with traces of oil along the shoreline and trace to sporadic occurrences of patties were documented in the overbank. One PI observation, noted as an Unconfirmed Area of Interest was located within the RDB.

Poling of the river and over bank on the RDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment.

The attachments provide additional details on this segment.

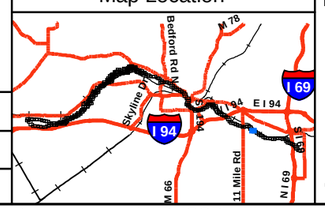
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP5.75-MP6.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character																
Mile Marker: 6																							
Source: 2011 Reassessment																							
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**		
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**		
																					Enbridge Team Lead		
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Ross, Shauna		
																					VanDelfzijl, Sarah		
4/11/2011	14:39																	42.26934	-85.06082		VanLoan, Mike		
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		AREA IS MOSTLY LIGHT STAINING ON ROCKS	Ross, Shauna		
																					VanDelfzijl, Sarah		
4/11/2011	15:00																	42.26930	-85.06071		VanLoan, Mike		
3	Shoreline	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Rip Rap			Ross, Shauna		
																					VanDelfzijl, Sarah		
4/12/2011	18:34																	42.27006	-85.06182		VanLoan, Mike		
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Rip Rap			Ross, Shauna		
																					VanDelfzijl, Sarah		
4/12/2011	18:11																	42.26979	-85.06133		VanLoan, Mike		
5	Shoreline	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-scrub/shrub			Ross, Shauna		
																					VanDelfzijl, Sarah		
4/12/2011	18:27																	42.27005	-85.06205		VanLoan, Mike		

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 6																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
6	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	P	Wetland-swamp (forested)		11 to 15%	Graan, Tom
																					Fairchild, Katie
5/4/2011	17:34																	42.27054	-85.06391		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 6																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		fence in area no access 90% looks restored	Kane, Sean Zimont, Ben
4/14/2011	08:47																	42.27066	-85.06120		Neumeier, Laura
10	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		observation from boat at nearest safety point used binoculars	Eric Hadwin Clampitt, Chris
5/7/2011	18:10																	42.27004	-85.05995		Neumeier, Laura
2	Overbank	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Other (comments)		pond or low area with water cover on rocks sheen on water questionable product?	Kane, Sean Zimont, Ben
4/14/2011	09:01																	42.27038	-85.06189		Neumeier, Laura
3	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	S	Lawn (maintained land)		coating on rocks staining on vegetation tar patties	Kane, Sean Zimont, Ben
4/14/2011	09:15																	42.27029	-85.06187		Neumeier, Laura
4	Shoreline and Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	T	Wetland-emergent/herbaceous			Kane, Sean Zimont, Ben
4/14/2011	09:32																	42.27051	-85.06244		Neumeier, Laura

2011 Reassessment

Bank: RDB

Mile Marker: 6

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
		Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
5	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	09:51																	42.27097	-85.06390		Neumeier, Laura
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	10:02																	42.27071	-85.06272		Neumeier, Laura
7	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	10:04																	42.27101	-85.06278		Neumeier, Laura
8	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	10:09																	42.27101	-85.06354		Neumeier, Laura
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	10:11																	42.27104	-85.06357		Neumeier, Laura

Photo Logs

Field Photographs MP 5.75 – MP 6.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 5.75 – MP 6.00

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 5.75 – MP 6.00

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 5.75 – MP 6.00

LDB Zone ID 6, Photo 002



LDB Zone ID 6, Photo 003



Field Photographs MP 5.75 – MP 6.00

LDB Zone ID 6, Photo 004



LDB Zone ID 6, Photo 005



Field Photographs MP 5.75 – MP 6.00

LDB Zone ID 6, Photo 006



RDB Zone ID 1, Photo 001



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 2, Photo 003



RDB Zone ID 3, Photo 001



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 3, Photo 002



RDB Zone ID 3, Photo 003



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 3, Photo 004



RDB Zone ID 4, Photo 001



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 4, Photo 004



RDB Zone ID 4, Photo 005



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 8, Photo 001



RDB Zone ID 9, Photo 001



Field Photographs MP 5.75 – MP 6.00

RDB Zone ID 10, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 5.75 to MP 6.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	GAB	Enbridge [signature]
SOTF	START	[signature]	MDEQ	GAB	Enbridge [signature]
PI	START	[signature]	MDEQ	GAB	Enbridge [signature]
FLS	START	[signature]	MDEQ	GAB	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	[signature]	Enbridge DB

Action Items

	Action Item Description	Date Resolved
①	Follow-up with poling to understand why red delineation polygon on LDT below datum	May 23/11
②	Assess KR4 PI observation RDR MP 5.75-6	May 23/11

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/6/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.75 to MP 6* (Above Coreaco Dam), Bank or Island: LPB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/11/2011 Date
Shawna Marie Ross	Printed Name	
[signature]	MDEQ	4/11/11 Date
Sarah VanDeHey	Printed Name	
[signature]	Enbridge	4-11-2011 Date
Michael Van Loan	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 5.75 to MP 6.0, (Bank) or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Li Ross _____ START _____ 4/12/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ _____ 4/12/11 Date

SARAH VANDELEZIJL Printed Name

_____ Enbridge _____ 4-12-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 5.75 to MP 6.0, Unique ID LDB Access, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START _____ 5/4/11 Date

THOMAS P. GRAAN _____ Printed Name

Kat Fairchild _____ MDEQ _____ 5-4-11 Date

Kathleen Fairchild _____ Printed Name

Laura Neumeier _____ Enbridge _____ 5/4/11 Date

Laura Neumeier _____ Printed Name

1 polyline captured by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP Cerecco Dam to MP 6.0, Bank or Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-14-11	Date
Sean Kane	Printed Name		
[signature] Ben A. Zimont	MDEQ	4/14/11 4/14/11	Date
[signature] William Keiper	Printed Name		
[signature]	Enbridge	4/14/2011	Date
Laura Neumeier	Printed Name		

9 zones captured by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 5.75 to MP 6.0, Unique ID 5.8 LDB South, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/16/11 Date

Thomas P. Graan — Printed Name

Kathleen Fairchild — MDEQ — 5-16-11 Date

Kathleen Fairchild — Printed Name

Don DeWitt — Enbridge — 5/16/11 Date

Don DeWitt — Printed Name

Strikepoints collected by YUMA

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 5.75 to MP 6.0, Unique ID RDB HH, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan ____ START ____ 5/20/2011 Date

THOMAS P. GRAAN ____ Printed Name

Matt Goddard ____ MDEQ ____ 5/20/11 Date

M. Goddard ____ Printed Name

Laura Neumeier ____ Enbridge ____ 5/20/2011 Date

Laura Neumeier ____ Printed Name

"No oil" SORT point collected by YUMA

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 5.75 to MP 6.0, Unique ID 5.80 RDB North, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/20/11 — Date

THOMAS P. GRAAN — Printed Name

Matt Goddard — MDEQ — 5/20/11 — Date

Matt Goddard — Printed Name

Dan DeWitt — Enbridge — 5/20/11 — Date

Dan DeWitt — Printed Name

No data collected in this polygon. Rapid water conditions do not allow for poling safely at this location. Boat captain made this call for safety reasons - would require 3 anchors in white water to pole adequately at this time.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 5.75 to MP 6.0, Unique ID 5.80 RDB North, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START 5/21/11 Date

THOMAS P. GRAAN Printed Name

Matt Goddard MDEQ 5/21/11 Date

Matt Goddard Printed Name

Don DeWitt Enbridge 5/21/11 Date

Don DeWitt Printed Name

Strike Points collected by YUMA

Segment 6.00 – 6.25

MP 6.00 to MP 6.25

The LDB of segment 6.25 consists of forested wetland swamp. The reassessment identified one long linear transect along the shoreline. The shoreline was assessed from the boat because of no access to the property. In general, a sporadic distribution of coated and stained trunks and stems was observed as well as patties on the ground surface.

The RDB of segment 6.25 consists of maintained land (lawn) that transitions downstream to forested swamp and then to scrub-shrub wetlands. The reassessment identified two points, one polygon, and five linear transects. In general, a trace distribution of coated and stained debris, trunks and stems was observed in the maintained land areas. Patties were also present near the shoreline of the lawns. Traces of coated and stained trunks and stems were also observed in the wetland habitats. A sporadic distribution of patties was identified at Polygon 7 RDB and a possible sheen was identified at Linear Transect 8 RDB. The FLS detected two oil signatures on the overbank east of Linear Transect 4 RDB. One oil signature is in close proximity to Linear Transect 4 RDB and may be comparable. However, the SORT program did not identify surface oiling in this area of the segment

No PI observations were noted in this segment.

The attachments provide additional details on this segment.

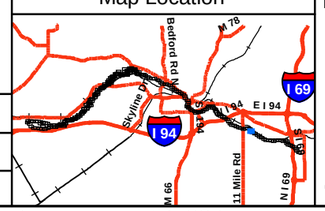
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP6.00-MP6.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 6.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	10:38																	42.27207	-85.06501		Neumeier, Laura
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	10:54																	42.27144	-85.06438		Neumeier, Laura
3	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Lawn (maintained land)			Kane, Sean
																					Zimont, Ben
4/14/2011	11:08																	42.27140	-85.06428		Neumeier, Laura
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Kane, Sean
																					Zimont, Ben
4/14/2011	11:30																	42.27288	-85.06559		Neumeier, Laura
5	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		0.1 by 0.1 mostly 1 observation at 1 meter x 1 meter observation at nodes	Kane, Sean
																					Zimont, Ben
4/14/2011	12:43																	42.27294	-85.06562		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 6.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-scrub/shrub			Kane, Sean
																					Zimont, Ben
4/14/2011	13:01																	42.27323	-85.06564		Neumeier, Laura
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-scrub/shrub		looks like haul road	Kane, Sean
																					Zimont, Ben
4/14/2011	13:06																	42.27327	-85.06580		Neumeier, Laura
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub		possible sheen?	Kane, Sean
																					Zimont, Ben
4/14/2011	13:25																	42.27381	-85.06554		Neumeier, Laura

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 6.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Latitude**	**Longitude**		**Enbridge Team Lead**
Date	**Time**																				
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)		assessed from boat due to no access	Graan, Tom
																					Fairchild, Katie
5/4/2011																		42.27200	-85.06600		Neumeier, Laura

Photo Logs

Field Photographs MP 6.00 – MP 6.25

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 6.00 – MP 6.25

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 6.00 – MP 6.25

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 6.00 – MP 6.25

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 6.00 – MP 6.25

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 6.00 – MP 6.25

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 6.00 – MP 6.25

RDB Zone ID 8, Photo 001



LDB Zone ID 1, Photo 001



Field Photographs MP 6.00 – MP 6.25

LDB Zone ID 1, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 6.0 to MP 6.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 6.0 to MP 6.25, Bank or Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-14-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	4/14/11 Date
William Keiper	Printed Name	
[signature]	Enbridge	4/14/11 Date
Laura Neumeier	Printed Name	

8 zones designated on YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 6.0 to MP 6.25, Unique ID LDB. Access, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START 5/4/11 Date

THOMAS P. GRAAN Printed Name

Kathleen Fairchild MDEQ 5-4-11 Date

Kathleen Fairchild Printed Name

Laura Neumeier Enbridge 5/4/2011 Date

Laura Neumeier Printed Name

Zone captured by YUMA

Segment 6.25 – 6.50

MP 6.25 to MP 6.50

The LDB of segment 6.50 consists of forested wetland swamp which transitions to an emergent/herbaceous wetland near the downstream end of the segment. The reassessment identified one point, two polygons, and four linear transects. The shoreline was assessed by boat. In general, traces to sporadic distributions of oil covered to stained debris, trunks and stems were observed along the shoreline. Traces of tar balls were also observed on the ground surface at Linear Transects 2 LDB and 4 LDB, and patties were observed at Polygon 5 LDB. A trace of oil film on ponded water was observed at Polygon 7 LDB, while sporadic occurrences were observed at Point 3 LDB.

Poling of a back channel on the LDB within this segment was completed at one location to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 6.50 consists mainly of forested wetland swamp with low vegetated bank and scrub-shrub wetland habitats towards the downstream portion of the section. The reassessment identified one point, six polygons, and four linear transects. In general, trace distributions of tar patties were observed along the shoreline in the first half of the segment. Trace to sporadic distributions of oil covered to stained debris, trunks and stems were identified at all locations.

Two islands are located within segment 6.50 that consist of forested wetland swamps. A sporadic distribution of patties was observed on both islands. Oil thicknesses on trunks and stems ranged from cover to coating, and oil distribution ranged from trace to sporadic in all locations. Surface oil residue was also observed on the ground surface at Polygon 1 I and the FLS data identified a suspected oil signature in the area of Polygon 1 I.

No PI observations were noted in this segment.

The attachments provide additional details on this segment.

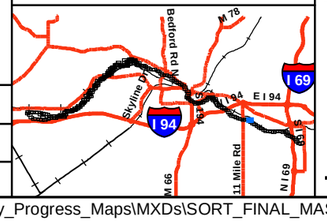
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP6.25-MP6.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 6.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		assessed shoreline from boat due to no access did not assess inland due to no access	Graan, Tom / Fairchild, Katie
5/4/2011	15:12																	42.27347	-85.06664		Neumeier, Laura
2	Shoreline	☐	☑	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		5 observation	Eric Hadwin / Clampitt, Chris
5/7/2011	11:15																	42.27572	-85.06779		Neumeier, Laura
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		film? saw wet area outside In. line	Eric Hadwin / Clampitt, Chris
5/7/2011	11:36																	42.27592	-85.06875		Neumeier, Laura
4	Shoreline	☐	☑	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Eric Hadwin / Clampitt, Chris
5/7/2011	13:01																	42.27461	-85.06749		Neumeier, Laura
5	Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Eric Hadwin / Clampitt, Chris
5/7/2011	13:08																	42.27459	-85.06747		Neumeier, Laura

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 6.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Eric Hadwin
																					Clampitt, Chris
5/7/2011	13:23																	42.27360	-85.06682		Neumeier, Laura
7	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		drying channel	Eric Hadwin
																					Clampitt, Chris
5/7/2011	10:58																	42.27644	-85.06847		Neumeier, Laura

2011 Reassessment

Bank: RDB

Mile Marker: 6.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		mostly tree stain tar patties on upstream side of polygon vegetation coating on shoreline	Kane, Sean Zimont, Ben
4/14/2011	14:04																	42.27426	-85.06620		Neumeier, Laura
10	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Kane, Sean Zimont, Ben
4/14/2011	17:08																	42.27675	-85.06786		Neumeier, Laura
11	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean Zimont, Ben
4/14/2011	17:36																	42.27687	-85.06821		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		tar patties on upstream side mostly staining on trees some coating on shoreline	Kane, Sean Zimont, Ben
4/14/2011	14:19																	42.27429	-85.06628		Neumeier, Laura
3	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		tar patties within 15 ft of shoreline	Kane, Sean Zimont, Ben
4/14/2011	14:37																	42.27469	-85.06649		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 6.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
4	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Kane, Sean / Zimont, Ben
4/14/2011	14:54																	42.27506 / -85.06662		Neumeier, Laura
5	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☑	☑	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)	only 1 tar patties, 1 tar ball, 1 oil residue, 1 film all in one area east area	Kane, Sean / Zimont, Ben
4/14/2011	15:16																	42.27519 / -85.06715		Neumeier, Laura
6	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Kane, Sean / Zimont, Ben
4/14/2011	15:39																	42.27528 / -85.06727		Neumeier, Laura
7	Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Kane, Sean / Zimont, Ben
4/14/2011	15:50																	42.27579 / -85.06700		Neumeier, Laura
8	Shoreline and Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	tar patties on shoreline	Kane, Sean / Zimont, Ben
4/14/2011	16:14																	42.27610 / -85.06727		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 6.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
9	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Kane, Sean
																					Zimont, Ben
4/14/2011	16:50																	42.27638	-85.06754		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 6.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)	mostly tar patties with some staining on trees	Kane, Sean Zimont, Ben
4/14/2011	17:54																	42.27427 / -85.06665		Neumeier, Laura
2	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	observation at nodes some questionable	Kane, Sean Zimont, Ben
4/14/2011	18:08																	42.27449 / -85.06687		Neumeier, Laura
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Kane, Sean Zimont, Ben
4/14/2011	18:19																	42.27474 / -85.06698		Neumeier, Laura
4	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		Kane, Sean Zimont, Ben
4/14/2011	18:34																	42.27370 / -85.06628		Neumeier, Laura

Photo Logs

Field Photographs MP 6.25 – MP 6.50

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 6.25 – MP 6.50

I Zone ID 1, Photo 003



I Zone ID 2, Photo 001



Field Photographs MP 6.25 – MP 6.50

I Zone ID 2, Photo 002



I Zone ID 3, Photo 001



Field Photographs MP 6.25 – MP 6.50

I Zone ID 4, Photo 001



I Zone ID 4, Photo 002



Field Photographs MP 6.25 – MP 6.50

I Zone ID 4, Photo 003



I Zone ID 4, Photo 004



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 1, Photo 003



RDB Zone ID 1, Photo 004



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 3, Photo 003



RDB Zone ID 3, Photo 004



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 5, Photo 003



RDB Zone ID 5, Photo 004



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 5, Photo 005



RDB Zone ID 5, Photo 006



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 7, Photo 002



RDB Zone ID 8, Photo 001



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 8, Photo 002



RDB Zone ID 8, Photo 003



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 9, Photo 001



RDB Zone ID 10, Photo 001



Field Photographs MP 6.25 – MP 6.50

RDB Zone ID 11, Photo 001



LDB Zone ID 1, Photo 001



Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 1, Photo 002



LDB Zone ID 1, Photo 003



Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 1, Photo 004



LDB Zone ID 2, Photo 001



Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 2, Photo 002

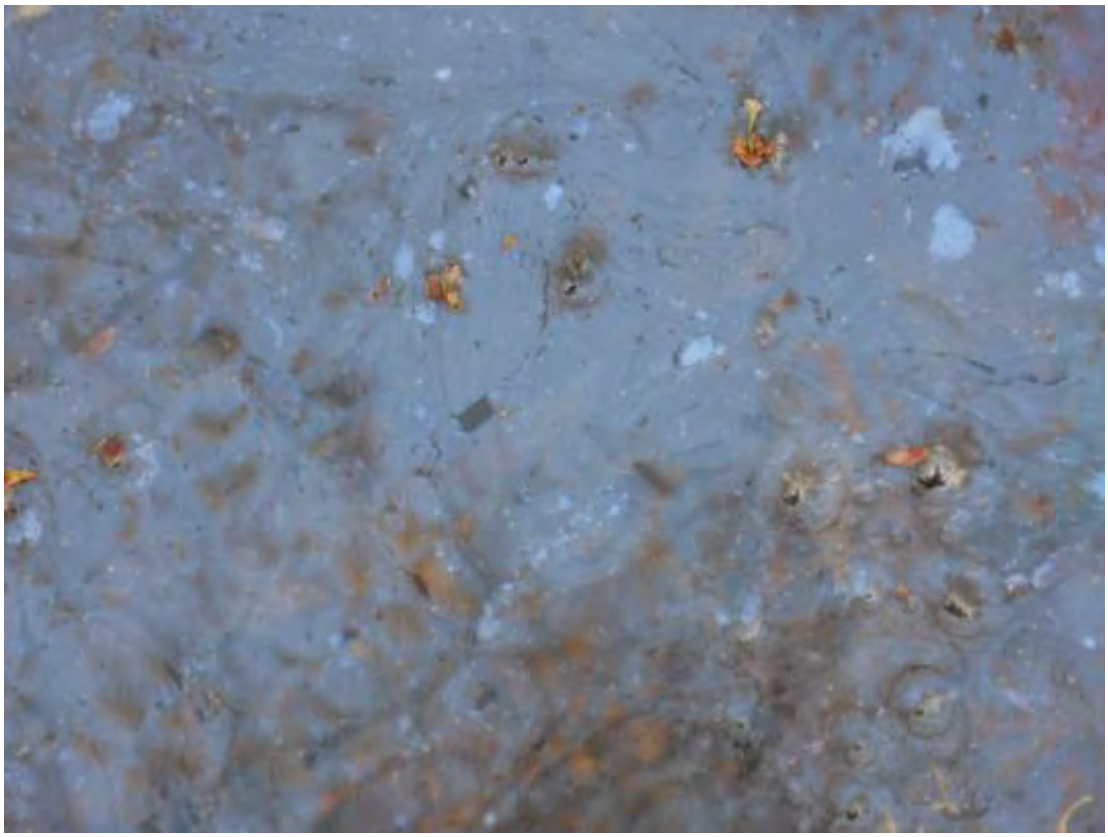


LDB Zone ID 3, Photo 001



Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 3, Photo 002



LDB Zone ID 4, Photo 001

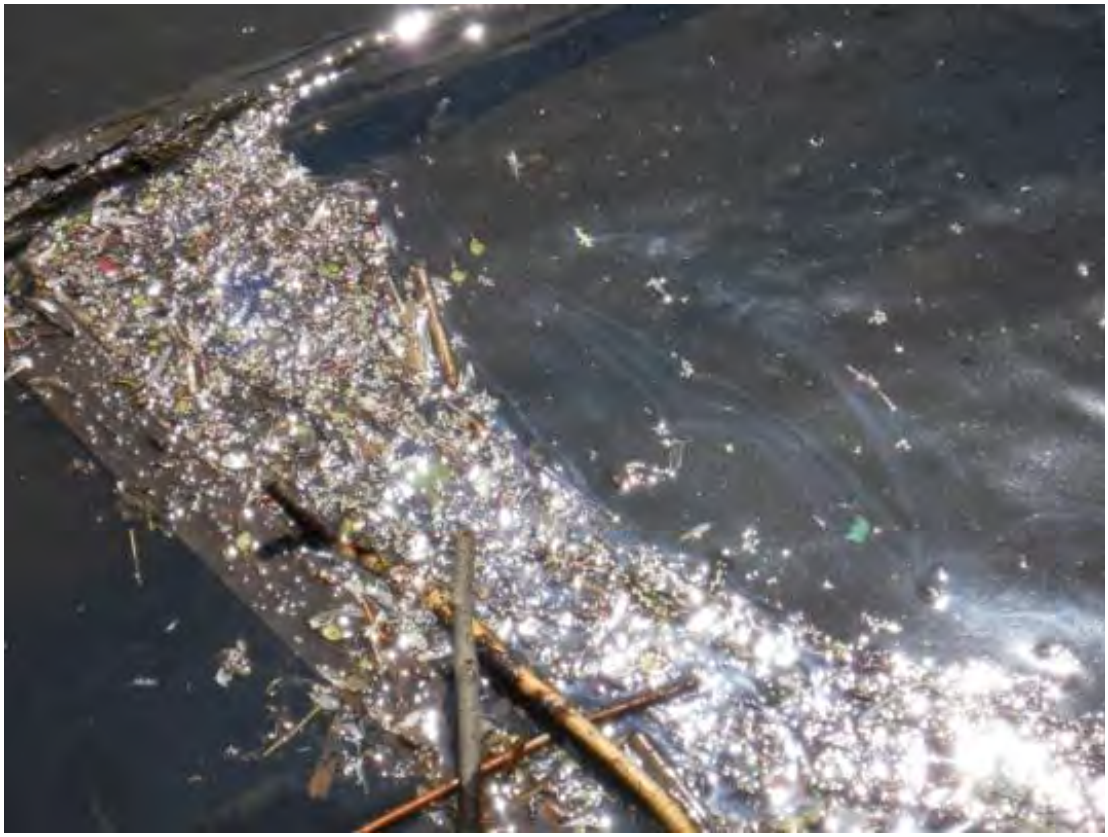


Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 4, Photo 002



LDB Zone ID 4, Photo 003



Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 4, Photo 004



LDB Zone ID 5, Photo 001



Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 5, Photo 002



LDB Zone ID 6, Photo 001



Field Photographs MP 6.25 – MP 6.50

LDB Zone ID 7, Photo 001



LDB Zone ID 7, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 6.25 to MP 6.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ		Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

Michelle DeLong — MDEQ — 6/7/11 Date

Michelle DeLong Printed Name

Enbridge — 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 6.25 to MP 6.5, Bank ~~or~~ and Island: * RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

S~X~	START	4-14-11 Date
Sean Kane	Printed Name	
Ben A. Zimont	MDEQ	4/14/11 Date
William Kelper	Printed Name	4/14/11
Laura Neumeier	Enbridge	4/14/2011 Date
Laura Neumeier	Printed Name	

11 zones captured on RB

* 2 Islands → 1 - 1 zone
1 - 3 zones

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 6.25 to MP 6.50, Unique ID CDB1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. TRACK LOG WAS SPOTTY DUE TO THICK VEGETATION, TEAM'S OPINION WAS THAT POLYGON WAS COVERED WELL.

_____ START 6/5/11 Date

ERIK HAUWIN Printed Name

_____ MDEQ 6/5/11 Date

MATT WESENER Printed Name

_____ Enbridge 6/5/11 Date

KEN KYTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 6.25 to MP 6.50, Unique ID UB2, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 6/5/11 Date

Erik Hansen Printed Name

_____ MDEQ — 6/5/11 Date

MATT WESENER Printed Name

_____ Enbridge — 6/5/11 Date

KEN KYTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 6.25 to MP 6.50, Unique ID R081, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/5/11 Date

Erik Hansen Printed Name

_____ MDEQ 6/5/11 Date

MATT WESENER Printed Name

_____ Enbridge 6/5/11 Date

KEN KUTTA Printed Name

Segment 6.50 – 6.75

MP 6.50 to MP 6.75

The LDB of segment 6.75 consists of forested wetland swamp along the shoreline and within the overbank. A back channel is present in the overbank. The reassessment identified two points and three linear transects. In general, the linear transects had trace distributions of oil covered to stained debris and/or trunks and stems observed along the shoreline. Traces of patties were also observed on the ground surface at Linear Transect 3 LDB. A trace occurrence of film on ponded water was identified at Points 4 LDB and 6 LDB.

Poling of the back channel on the LDB within this segment was completed at ten locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 6.75 consists of a low vegetated bank that transitions downstream to emergent/herbaceous and scrub-shrub wetlands towards the end of the section. A back channel is present in the overbank. The reassessment identified five linear transects. In general, trace distributions of oil covered to stained debris and/or trunks and stems were observed along the shoreline and overbank. Traces of surface oil residue coatings were observed on rocks in Linear Transects 1 RDB and 5 RDB. A trace distribution of tar patties was also identified in Linear Transect 5 RDB.

Poling of the back channel on the RDB within this segment was completed at one location to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One island located within segment 6.75 consists of scrub-shrub wetland. A sporadic distribution of patties was identified on the ground surface on the island. An area of surface oil residue was observed on the south shoreline. Debris and trunks and stems were sporadically covered to stained with oil throughout Polygon 1 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP6.50-MP6.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 6.75																				
Source: 2011 Reassessment																				
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date / **Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1 Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		faint tree staining 4 points (observations at nodes) shoreline observation from boat due to no access inland not assessed due to no access	Graan, Tom Fairchild, Katie
5/4/2011 14:52																	42.27660	-85.06856		Neumeier, Laura
2 Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Eric Hadwin Clampitt, Chris
5/7/2011 10:40																	42.27649	-85.06890		Neumeier, Laura
3 Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		6 pt on polyline eric hadwin was	Eric Hadwin Clampitt, Chris
5/7/2011 09:59																	42.27609	-85.07305		Neumeier, Laura
4 Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		possible petroleum sheen onztagnent water. photos under general, time 1105 hrs	Johnson, Rex Strouse, Dana
6/5/2011 11:06																	42.27604	-85.07198		Hehir, Nate
6 Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		possible petroleum sheen	Johnson, Rex Strouse, Dana
6/5/2011 12:07																	42.27614	-85.07245		Hehir, Nate

2011 Reassessment

Bank: RDB

Mile Marker: 6.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat: Latitude	Longitude	Comments	START: MDEQ / Enbridge Team Lead
1	Shoreline			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Low Vegetated Bank		coating on rocks, and vegetation	Kane, Sean Zimont, Ben
4/15/2011		08:48																		42.27723	-85.07035		Neumeier, Laura
2	Shoreline			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		R2	Kane, Sean Zimont, Ben
4/15/2011		09:29																		42.27704	-85.07222		Neumeier, Laura
3	Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous			Kane, Sean Zimont, Ben
4/15/2011		09:48																		42.27703	-85.07237		Neumeier, Laura
4	Shoreline and Overbank			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Kane, Sean Zimont, Ben
4/15/2011		09:53																		42.27705	-85.07264		Neumeier, Laura
5	Shoreline and Overbank			☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	T	Wetland-scrub/shrub		covering on rock	Kane, Sean Zimont, Ben
4/15/2011		10:07																		42.27678	-85.07367		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character														
Mile Marker: 6.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	S	Wetland-scrub/shrub		mix of shrubs and herbaceous staining on vegetation and tsr patties	Kane, Sean
																					Zimont, Ben
4/15/2011	10:19																	42.27646	-85.07291	1 surface residue on south shoreline (left shoreline)	Neumeier, Laura

Photo Logs

Field Photographs MP 6.50 – MP 6.75

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 6.50 – MP 6.75

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 6.50 – MP 6.75

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 6.50 – MP 6.75

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 6.50 – MP 6.75

RDB Zone ID 5, Photo 002



RDB Zone ID 5, Photo 003



Field Photographs MP 6.50 – MP 6.75

RDB Zone ID 5, Photo 004



I Zone ID 1, Photo 001



Field Photographs MP 6.50 – MP 6.75

I Zone ID 1, Photo 002



I Zone ID 1, Photo 003



Field Photographs MP 6.50 – MP 6.75

I Zone ID 1, Photo 004



LDB Zone ID 1, Photo 001



Field Photographs MP 6.50 – MP 6.75

LDB Zone ID 1, Photo 002



LDB Zone ID 2, Photo 001



Field Photographs MP 6.50 – MP 6.75

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 6.50 – MP 6.75

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 6.50 – MP 6.75

LDB Zone ID 4, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 6.50 – MP 6.75

LDB Zone ID 6, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 6.5 to MP 6.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ	MD	Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

_____ START 6/7/2011 Date

ISAAC ABOUHAFIA Printed Name

Michelle DeLong MDEQ 6/7/11 Date

Michelle DeLong Printed Name

_____ Enbridge 6/7/2011 Date

Dave Barham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 6.5 to MP 6.75, Bank ~~or~~ and Island: * RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-15-11	Date
Sean Kane	Printed Name		
[signature]		4/15/11	
William Keiper	MDEQ	4/15/11	Date
[signature]	Printed Name		
[signature]	Enbridge	4/15/11	Date
Laura Neumeier	Printed Name		

5 zones on RB captured by YUMA

1 Island - one zone on island

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 6.50 to MP 6.75, Unique ID LDB 1 & LDB 2, Bank: LDB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START — 6/05/11 Date

Rex Johnson Printed Name

Dana Strouse MDEQ — 6/5/11 Date

Dana Strouse Printed Name

Enbridge — 6/5/11 Date

Nate Hehir Printed Name

- Assessed LDB1 & LDB 2

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 6.50 to MP 6.75, Unique ID RDB 1, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 6/05/11 Date

Rex Johnson Printed Name

Dana Strouse MDEQ 6/5/11 Date

Dana Strouse Printed Name

Nate Hehir Enbridge 6/5/11 Date

Nate Hehir Printed Name

- Completed one poling point

Segment 6.75 – 7.00

MP 6.75 to MP 7.00

The LDB of segment 7.00 consists of forested wetland swamp which transitions to a low vegetated bank at the downstream end of the segment. The reassessment identified one point, three polygons, and two linear transects. In general, traces to sporadic distributions of surface oil residue were observed on the ground surface on the shoreline and overbank areas. A film on ponded water was observed at Point 6 LDB and Polygon 1 LDB.

The RDB of segment 7.00 consists of a low vegetated bank. The reassessment identified four linear transects. In general, trace distributions of oil covered to stained debris, trunks and stems were observed along the shoreline. A trace distribution of tar patties was also identified in Linear Transect 1 RDB.

Three islands are located within segment 7.00 that consist of a combination scrub-shrub, emergent/herbaceous, and forested swamp wetlands. The reassessment identified one point, one polygon and two linear transects on the large, eastern-most island; one polygon on the downstream western-most island; and one polygon on the small, middle island. In general, a trace to broken distribution of covered to stained debris, trunks and stems were identified on the large island. A trace distribution of patties was identified on the island with a broken distribution at Point 3 I. A sporadic distribution of tar balls and surface oil residue on the ground surface was observed on the western-most island, as well as coating and staining on debris, trunks and stems. Most of the oiling was along the shoreline. Trace distributions of patties on the ground surface and coating to staining on debris, trunks and stems was noted on the small middle island.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

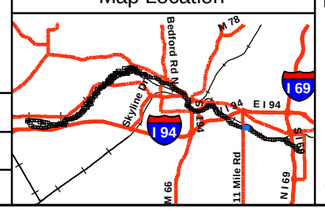
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP6.75-MP7.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 7																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Macus Muccianti / Chris Bauer
4/11/2011	17:20																	42.27579 / -85.07353		Hans Wronka
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	trees along waters edge	Macus Muccianti / Chris Bauer
4/11/2011	17:33																	42.27498 / -85.07443		Hans Wronka
3	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub		Macus Muccianti / Chris Bauer
4/11/2011	17:39																	42.27487 / -85.07482		Hans Wronka
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Macus Muccianti / Chris Bauer
4/11/2011	17:50																	42.27489 / -85.07618		Hans Wronka
5	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Low Vegetated Bank		Macus Muccianti / Chris Bauer
4/11/2011	17:55																	42.27485 / -85.07648		Hans Wronka

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 7																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
6	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		film/sheen on stream	Johnson, Rex
																					Strouse, Dana
6/5/2011	13:15																	42.27433	-85.07588		Hehir, Nate

2011 Reassessment

Bank: RDB

Mile Marker: 7

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
1	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Kane, Sean
																					Zimont, Ben
4/15/2011	12:21																	42.27606	-85.07473		Neumeier, Laura
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		rock coating?	Kane, Sean
																					Zimont, Ben
4/15/2011	12:36																	42.27574	-85.07590		Neumeier, Laura
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Kane, Sean
																					Zimont, Ben
4/15/2011	13:29																	42.27543	-85.07744		Neumeier, Laura
4	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		mostly on debris hanging over water	Kane, Sean
																					Zimont, Ben
4/15/2011	13:51																	42.27582	-85.07431		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character													
Mile Marker: 7																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub			Kane, Sean / Zimont, Ben
4/15/2011	14:12																	42.27562	-85.07377		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Kane, Sean / Zimont, Ben
4/15/2011	14:35																	42.27507	-85.07510		Neumeier, Laura
3	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	B	Wetland-swamp (forested)			Kane, Sean / Zimont, Ben
4/15/2011	14:39																	42.27507	-85.07510		Neumeier, Laura
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		observation at nodes	Kane, Sean / Zimont, Ben
4/15/2011	14:59																	42.27575	-85.07457		Neumeier, Laura

2011 Reassessment

Bank: I	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 7																				
Source: 2011 Reassessment																				
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date / **Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
5 / Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		continue of points on different day (R5?) majority on downstream side surface oil residue and tar balls on shoreline and trace (suspect ?)	Kane, Sean Clampitt, Chris
4/19/2011 09:24																	42.27514	-85.07699		Neumeier, Laura
6 / Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous		continue pt R6?	Kane, Sean Clampitt, Chris
4/19/2011 09:44																	42.27518	-85.07622		Neumeier, Laura

Photo Logs

Field Photographs MP 6.75 – MP 7.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 6.75 – MP 7.00

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 6.75 – MP 7.00

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002



Field Photographs MP 6.75 – MP 7.00

LDB Zone ID 5, Photo 001



LDB Zone ID 5, Photo 002

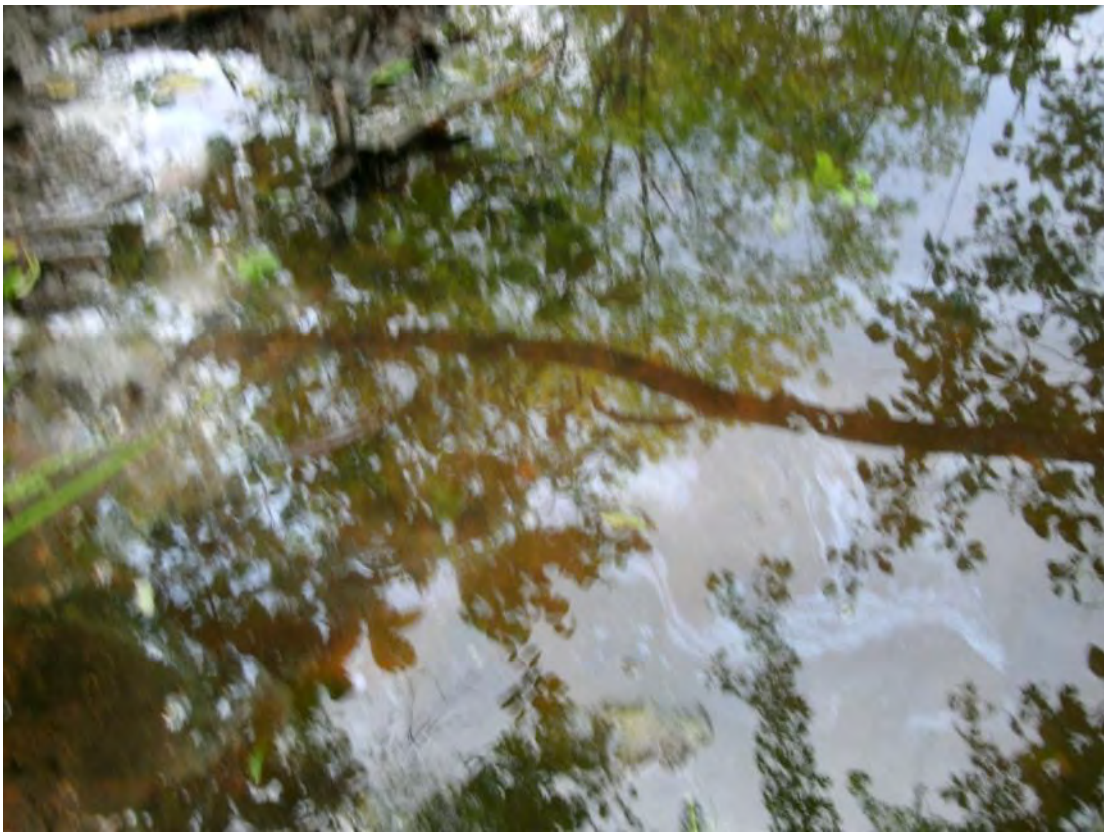


Field Photographs MP 6.75 – MP 7.00

LDB Zone ID 5, Photo 003



LDB Zone ID 6, Photo 001



Field Photographs MP 6.75 – MP 7.00

LDB Zone ID 6, Photo 002



LDB Zone ID 6, Photo 003



Field Photographs MP 6.75 – MP 7.00

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 6.75 – MP 7.00

I Zone ID 1, Photo 003



I Zone ID 1, Photo 004



Field Photographs MP 6.75 – MP 7.00

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs MP 6.75 – MP 7.00

I Zone ID 2, Photo 003



I Zone ID 3, Photo 001



Field Photographs MP 6.75 – MP 7.00

I Zone ID 4, Photo 001



I Zone ID 5, Photo 001



Field Photographs MP 6.75 – MP 7.00

I Zone ID 5, Photo 002



I Zone ID 5, Photo 003



Field Photographs MP 6.75 – MP 7.00

I Zone ID 5, Photo 004



I Zone ID 5, Photo 005



Field Photographs MP 6.75 – MP 7.00

I Zone ID 6, Photo 001



I Zone ID 6, Photo 002



Field Photographs MP 6.75 – MP 7.00

I Zone ID 6, Photo 003



RDB Zone ID 1, Photo 001



Field Photographs MP 6.75 – MP 7.00

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 6.75 – MP 7.00

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 6.75 – MP 7.00

RDB Zone ID 2, Photo 003



RDB Zone ID 3, Photo 001



Field Photographs MP 6.75 – MP 7.00

RDB Zone ID 3, Photo 002



RDB Zone ID 3, Photo 003



Field Photographs MP 6.75 – MP 7.00

RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 6.75 to MP 7.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ		Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

MDEQ — 6/7/11 Date

Michelle DeLong Printed Name

Enbridge — 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Left Bank
Segment ID: From MP 6.75 to MP 7.0, Bank or Island: Bank, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/11/11 Date

Marcus Mulliana Printed Name

Chris Bauer MDEQ 4-11-11 Date

Chris Bauer Printed Name

[signature] 4-11-11

[signature] Enbridge 4-11-11 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 6.75 to MP 7.00, Unique ID LDB 1, Bank: LDB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson _____ START _____ 6/05/11 Date

Rex Johnson _____ Printed Name

Dana Stroven _____ MDEQ _____ 6/5/11 Date

Dana Stroven _____ Printed Name

_____ Enbridge _____ 6/5/11 Date

Nate Hehir _____ Printed Name

- Area assessed was heavily vegetated.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 6.75 to MP 7.0, Bank ~~or~~ and Island: *RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-15-11	Date
Sean Kane	Printed Name		
[signature]	MDEQ	4/15/11	Date
Ben A. Zimont		4/15/11	
William Keiper	Printed Name		
[signature]	Enbridge	4/15/2011	Date
Laura Neumeier	Printed Name		

*2 Islands, but most downriver island in segment not completed as part of this "Sign-Off Sheet"

4 zones on RB captured by YUMA

4 zones on Island " " "

YUMA7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 6.75 to MP 7.0, Bank or Island: Island only*, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Sean Hawe — START — 4-19-11 — Date

Printed Name

MDEQ — 4/19/11 — Date

Christopher Clamplit — Printed Name

Enbridge — 4/19/11 — Date

Laura Neumeier — Printed Name

*2 islands in downriver end of 6.75 - 7.0
1 zone on each island captured by YUMA

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Addendum to the Shoreline and Overbank Reassessment
MP 0.00 through MP 40.00
and
Submerged Oil Reassessment
MP 0.00 through MP 37.8
Report

(Binder 3 of 7)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: August 12, 2011

Segment 7.00 – 7.25

MP 7.00 to MP 7.25

The LDB of segment 7.25 is bisected by 11-Mile Road and consists of various habitats including scrub-shrub, emergent/herbaceous wetland, low vegetated bank, and sand-gravel shoreline. The reassessment identified two points, four polygons, and two linear transects. In general, trace to sporadic occurrences of surface oil residue and coated to stained debris were identified east of 11-Mile Road. Patchy and broken occurrences of surface oil residue, patties and asphalt pavement were observed west and downstream of 11-Mile Road along the shoreline and overbank. A mixed film of petroleum and biological sheen was observed on ponded water in Polygon 8 LDB. One PI observation noted as a High Priority Area was identified within Polygon 8 LDB, which was characterized as an area with a combination of biological and petroleum film on ponded water. A second PI observation noted as an Unconfirmed Area of Interest was identified within a pond located south of Polygon 3 LDB.

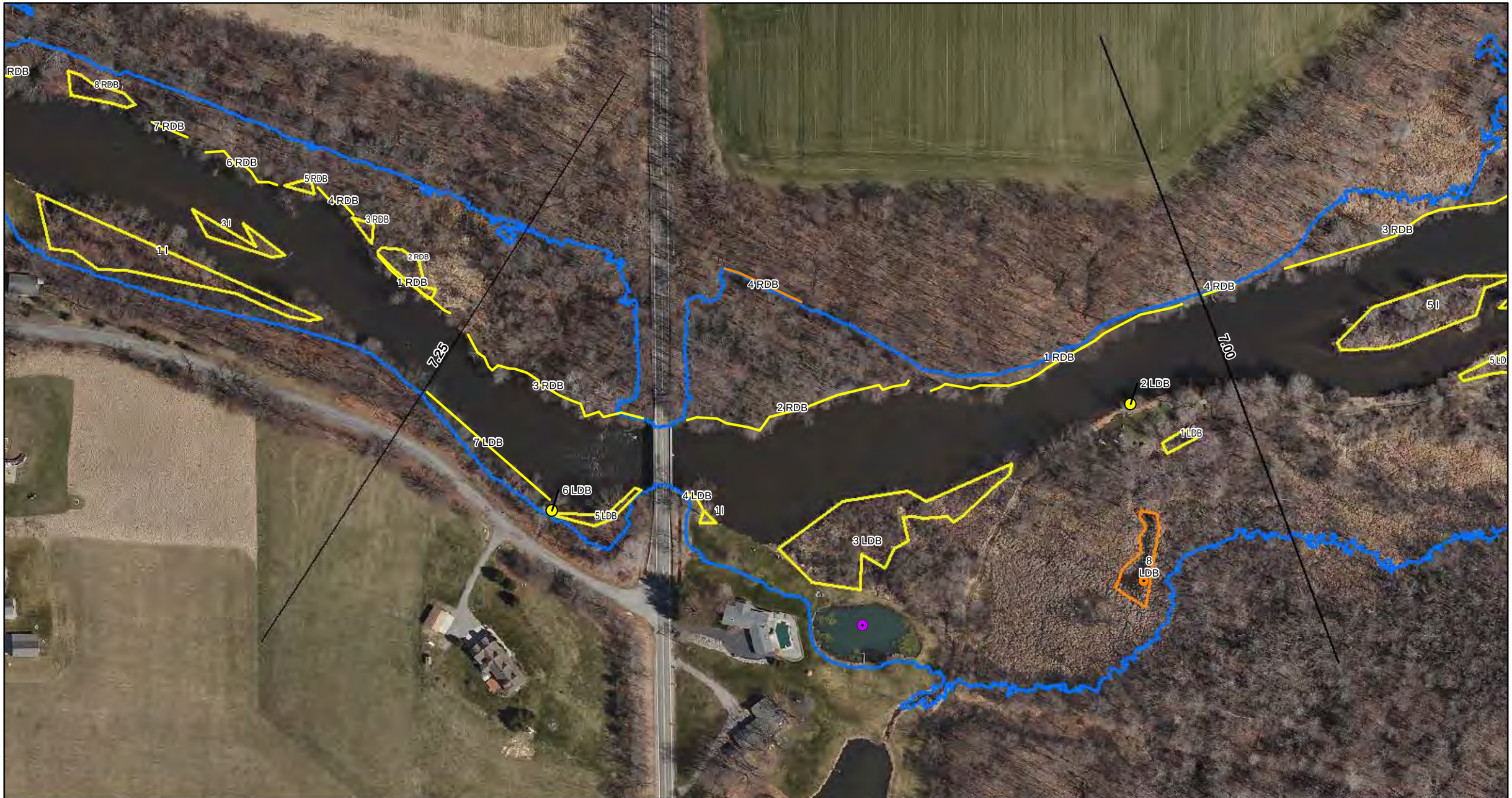
The RDB of segment 7.25 is bisected by 11-Mile Road and consists of forested wetland swamp. The reassessment identified four linear transects. In general, trace and sporadic distributions of oil covered and stained rocks, debris, trunks and stems were identified along the shoreline and overbank. Traces of surface oil residue and patties were identified in Linear Transects 2 RDB and 3 RDB, respectively. A sheen (film) was observed on ponded water along Linear Transect 4 RDB.

One island is located within segment 7.25, adjacent to the LDB, which consists of a low vegetated bank. Patchy occurrences of tar patties and surface oil residue were identified on the ground surface.

The FLS did not detect any oil signatures in this segment.

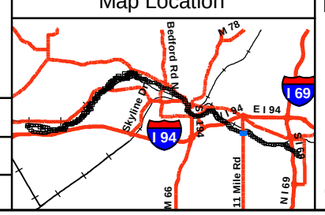
The attachments provide additional details on this segment.

Segment Figures



Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP7.00-MP7.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 7.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	4/12/2011	08:59	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-scrub/shrub	42.27461	-85.07812	stained trees	Muccianti, Marcus Bauer, Chris Wronka, Hans
2	Shoreline	4/12/2011	09:08	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Low Vegetated Bank	42.27471	-85.07843	tree	Muccianti, Marcus Bauer, Chris Wronka, Hans
3	Shoreline and Overbank	4/12/2011	09:57	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	S	Wetland-scrub/shrub	42.27415	-85.08043	small tar patties near waters edge	Muccianti, Marcus Bauer, Chris Wronka, Hans
4	Shoreline	4/12/2011	10:55	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank	42.27426	-85.08098		Muccianti, Marcus Bauer, Chris Wronka, Hans
5	Shoreline and Overbank	4/12/2011	11:11	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	P	Low Vegetated Bank	42.27419	-85.08167	tar patties along rivers edge	Muccianti, Marcus Bauer, Chris Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 7.25																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
6	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	B	Sand-Gravel shoreline			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	11:21																	42.27421	-85.08185		Wronka, Hans
7	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☑	☑	☑	☑	☐	☐	☐	B	Low Vegetated Bank		observations from boat. steep embankment	Muccianti, Marcus
																					Bauer, Chris
4/12/2011	11:32																	42.27429	-85.08186		Wronka, Hans
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-emergent/herbaceous		mix of oil and biological sheen on water	Graan, Tom
																					Goddard, Matt
5/19/2011	12:57																	42.27392	-85.07833		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 7.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		coating on rocks observation at nodes	Kane, Sean Clampitt, Chris
4/19/2011	10:23																	42.27478	-85.07961		Neumeier, Laura
2	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)		surface residue ? staining on rocks observation at nodes	Kane, Sean Clampitt, Chris
4/19/2011	10:51																	42.27466	-85.08098		Neumeier, Laura
3	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		rock staining tar patties <1%	Kane, Sean Clampitt, Chris
4/19/2011	11:28																	42.27504	-85.08230		Neumeier, Laura
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		temp flooded area, north end of poly; expected to dry. Sheen observed	Johnson, Rex Strouse, Dana
6/6/2011	10:27																	42.27459	-85.08075		Hehir, Nate

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 7.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	P	Low Vegetated Bank			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	10:46																	42.27423	-85.08095		Wronka, Hans

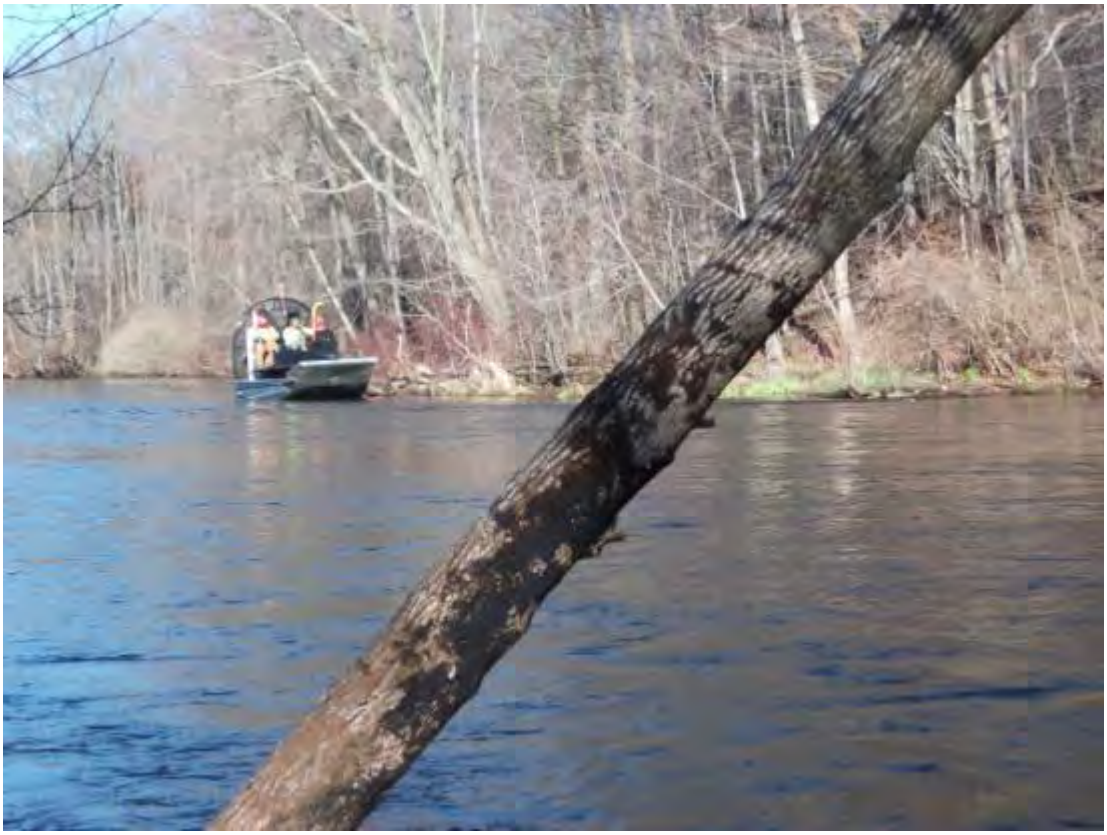
Photo Logs

Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 3, Photo 005



LDB Zone ID 4, Photo 001



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 4, Photo 002



LDB Zone ID 4, Photo 003



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 6, Photo 002



LDB Zone ID 6, Photo 003



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 6, Photo 004



LDB Zone ID 6, Photo 005



Field Photographs MP 7.00 – MP 7.25

LDB Zone ID 7, Photo 001



LDB Zone ID 8, Photo 001



Field Photographs MP 7.00 – MP 7.25

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 7.00 – MP 7.25

RDB Zone ID 1, Photo 003



RDB Zone ID 1, Photo 004



Field Photographs MP 7.00 – MP 7.25

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 7.00 – MP 7.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 7.00 – MP 7.25

RDB Zone ID 3, Photo 003



RDB Zone ID 3, Photo 004



Field Photographs MP 7.00 – MP 7.25

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 7.00 – MP 7.25

RDB Zone ID 4, Photo 003



RDB Zone ID 4, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 7.0 to MP 7.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved
Strike team to visit KP38 (PI observation point) on LDB 7.0 - 7.25 potential sheen in small pond.	May 20/11

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.0 to MP 7.25 LDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/12/11 Date

Marcus Mucciarti Printed Name

[signature] MDEQ 4-12-11 Date

James Gamble Printed Name 4-12-11

Chris Bauer
Chris Bauer

[signature] Enbridge 4-12-11 Date

Hans Wronka Printed Name

Note: The final ~300 feet of of embankment (downstream) was too steep to access on foot. The team evaluated the shoreline from the boat and made periodic approaches up to the shoreline to verify areas.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 7.00 to MP 7.25, Unique ID EE LDB, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Crain _____ START 5/19/11 Date

THOMAS P. CRAIN _____ Printed Name

_____ MDEQ 5/19/11 Date

Matt Goddard _____ Printed Name

_____ Enbridge 5/19/2011 Date

Laura Neumeier _____ Printed Name

SORT polygon collected by YUMA.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.0 to MP 7.25 (Bank) or Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-19-11 Date
Sean Hanse	Printed Name	
[signature]	MDEQ	4/19/11 Date
Christopher Clampit	Printed Name	
[signature]	Enbridge	4/19/11 Date
Laura Newmeir	Printed Name	

3 zones collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

Team 2

SIGN-OFF SHEET

Segment ID: From MP 7.00 to MP 7.25, Unique ID RDB1 + RDB2, Bank: RDB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/06/11 Date

Rex Johnson Printed Name

_____ MDEQ 6/6/11 Date

Dana Strause Printed Name

_____ Enbridge 6/6/11 Date

Nate Hehr Printed Name

- Area assessed was heavily vegetated.
- Assessed two features 7.25 RDB1 and 7.25 RDB2

Segment 7.25 – 7.50

MP 7.25 to MP 7.50

The LDB of segment 7.50 consists of forested wetland swamp and emergent/herbaceous wetland. The reassessment identified one point and two polygons. In general, traces of surface oil residue were identified at all locations.

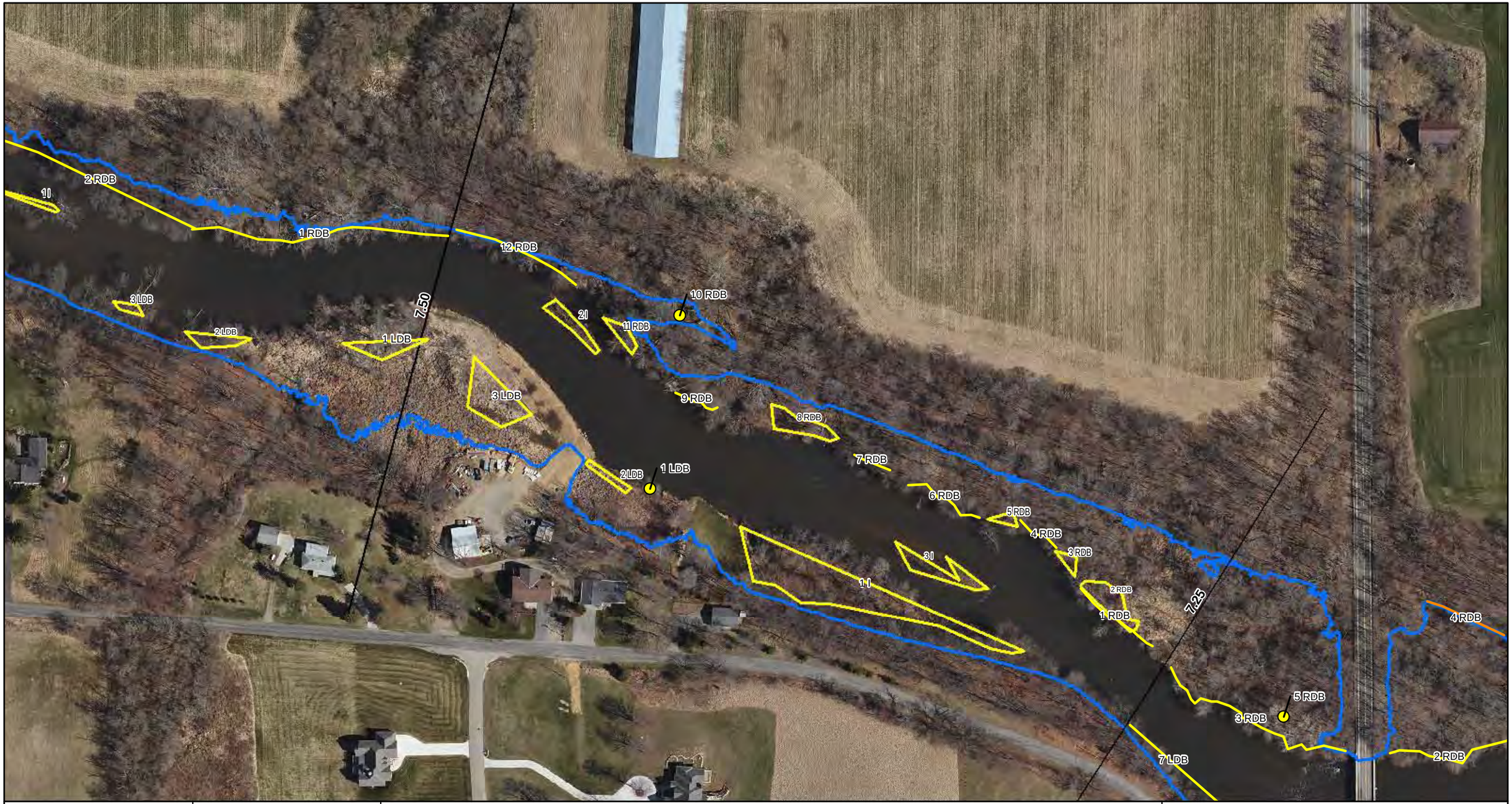
The RDB of segment 7.50 consists mainly of forested wetland swamp with a small area of scrub-shrub wetland at the beginning of the segment. The reassessment identified one point, five polygons, and six linear transects. In general, trace and sporadic distributions of oil coated and stained debris and/or trunks and stems were identified along the shoreline and overbank throughout the segment. Traces of patties were identified on the ground surface at Polygons 2 RDB and 11 RDB and Linear Transects 1 RDB, 4 RDB and 9 RDB. A trace of surface oil residue was identified in Polygon 8 RDB.

Three islands are located within segment 7.50. The largest of the three islands consists of forested wetland swamp and the other two islands consist of emergent/herbaceous wetland. The reassessment identified Polygon 1 I on the large island situated next to the LDB; Polygon 2 I located on the island next to the RDB; and Polygon 3 I close to the middle of the river. Trace patties and surface oil residue were observed at Polygon 1 I, and a patchy distribution of patties was observed at Polygons 2 I and 3 I. All the trunks were either stained or coated with oil in Polygon 1 I and a patchy distribution of trunks and stems were coated with oil in Polygon 2 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

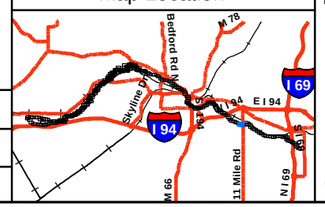
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP7.25-MP7.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 7.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	
4/12/2011	13:28																	42.27559	-85.08490

Comments	**START**
	MDEQ
all trees are stained. tar patties intermittently located. polygon extends to waters edge	**Enbridge Team Lead**
	Muccanti, Marcus
	Bauer, Chris
	Wronka, Hans

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 7.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	P	Wetland-emergent/herbaceous			Kane, Sean
																					Clampitt, Chris
4/19/2011	15:17																	42.27654	-85.08597		Neumeier, Laura
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	P	Wetland-emergent/herbaceous		rain	Kane, Sean
																					Clampitt, Chris
4/19/2011	15:42																	42.27550	-85.08393		Neumeier, Laura

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 7.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	13:38																	42.27576	-85.08543		Wronka, Hans
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	13:46																	42.27590	-85.08578		Wronka, Hans
3	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	14:02																	42.27603	-85.08631		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 7.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub		observation at nodes	Kane, Sean / Clampitt, Chris
4/19/2011	12:25																	42.27534	-85.08288		Neumeier, Laura
10	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)		on bottle	Kane, Sean / Clampitt, Chris
4/19/2011	14:31																	42.27652	-85.08526		Neumeier, Laura
11	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Kane, Sean / Clampitt, Chris
4/19/2011	14:37																	42.27649	-85.08563		Neumeier, Laura
12	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		staining on rocks	Kane, Sean / Clampitt, Chris
4/19/2011	14:59																	42.27689	-85.08659		Neumeier, Laura
2	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		most < 1 x 1 ft	Kane, Sean / Clampitt, Chris
4/19/2011	12:47																	42.27532	-85.08271		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 7.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
3	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/19/2011	13:02																	42.27550 / -85.08302		Neumeier, Laura
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/19/2011	13:09																	42.27562 / -85.08324		Neumeier, Laura
5	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/19/2011	13:14																	42.27562 / -85.08343		Neumeier, Laura
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/19/2011	13:23																	42.27580 / -85.08389		Neumeier, Laura
7	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/19/2011	13:50																	42.27597 / -85.08430		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 7.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
8	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)	1 surface residue
4/19/2011	14:03																	42.27600 / -85.08445	
9	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	
4/19/2011	14:28																	42.27652 / -85.08525	

START	
MDEQ	
Enbridge Team Lead	
Kane, Sean	
Clampitt, Chris	
Neumeier, Laura	
Kane, Sean	
Clampitt, Chris	
Neumeier, Laura	

Photo Logs

Field Photographs MP 7.25 – MP 7.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 7.25 – MP 7.50

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 7.25 – MP 7.50

LDB Zone ID 3, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 3, Photo 002



RDB Zone ID 4, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 6, Photo 002



RDB Zone ID 7, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 7, Photo 002



RDB Zone ID 8, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 8, Photo 002



RDB Zone ID 9, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 9, Photo 002



RDB Zone ID 9, Photo 003



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 10, Photo 001



RDB Zone ID 11, Photo 001



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 11, Photo 002



RDB Zone ID 11, Photo 003



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 12, Photo 001



RDB Zone ID 12, Photo 002



Field Photographs MP 7.25 – MP 7.50

RDB Zone ID 12, Photo 003



I Zone ID 1, Photo 001



Field Photographs MP 7.25 – MP 7.50

I Zone ID 1, Photo 002

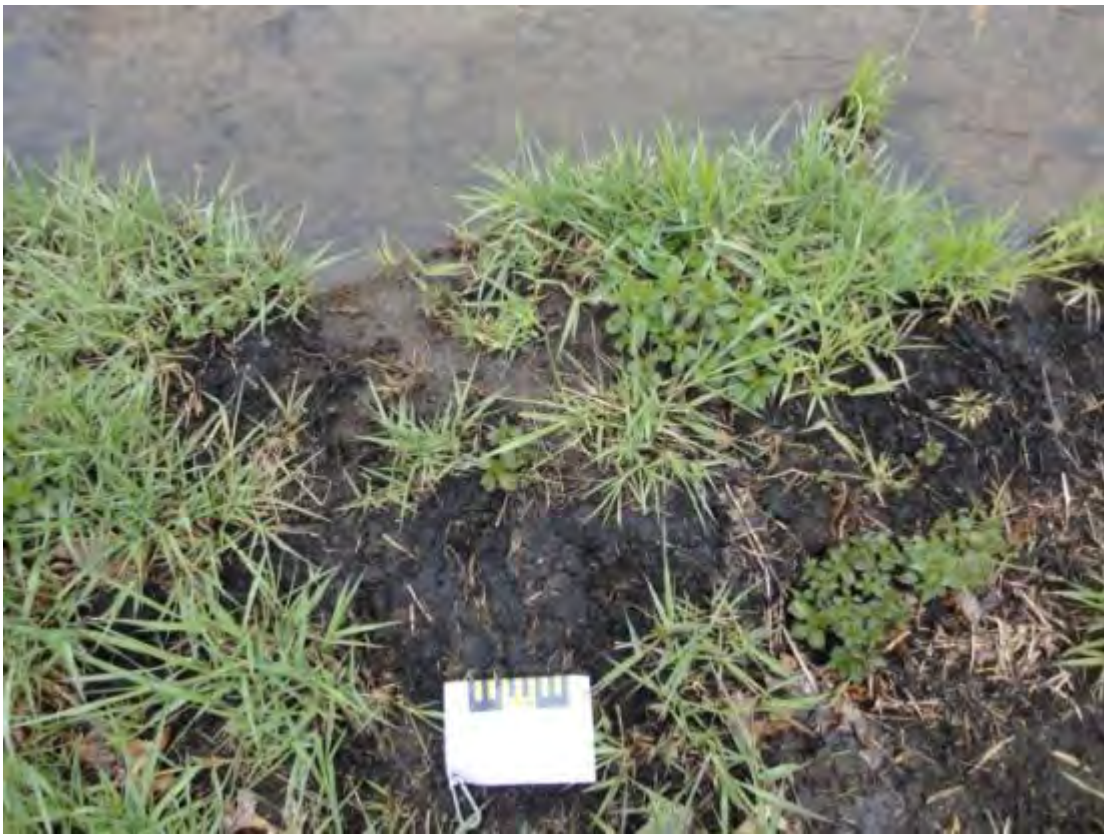


I Zone ID 2, Photo 001



Field Photographs MP 7.25 – MP 7.50

I Zone ID 2, Photo 002

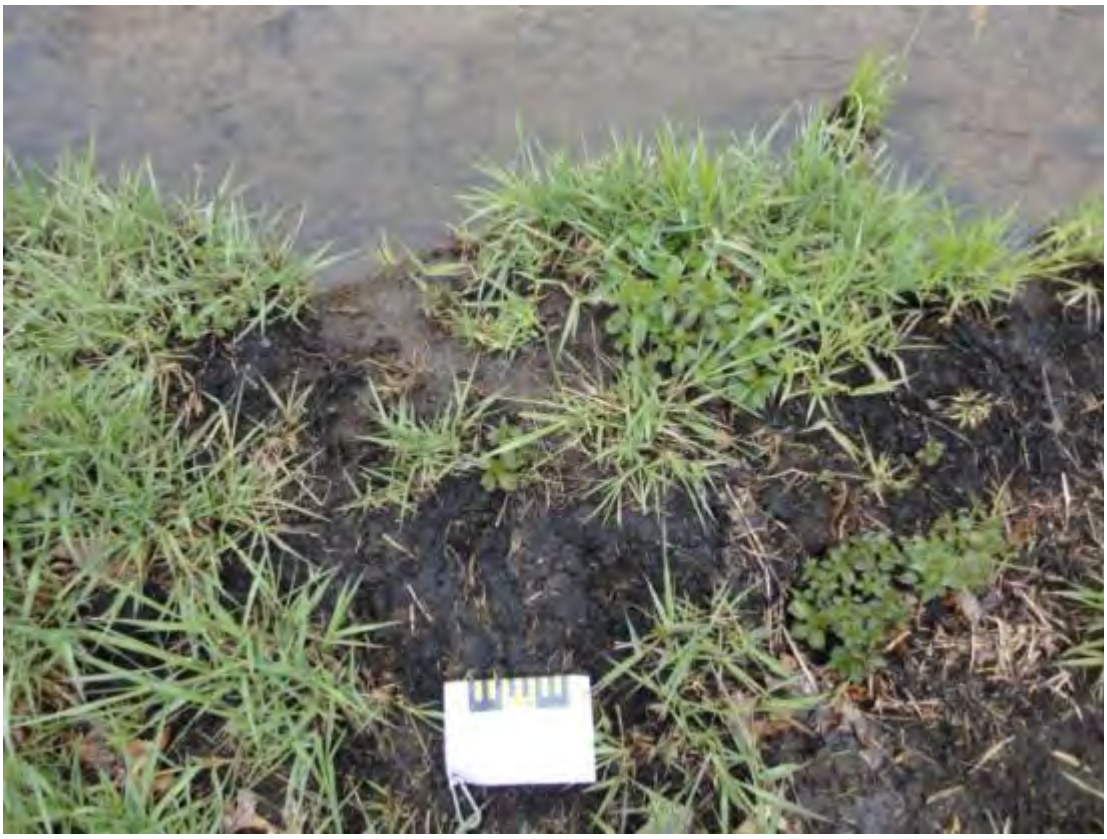


I Zone ID 3, Photo 001



Field Photographs MP 7.25 – MP 7.50

I Zone ID 3, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 7.25 to MP 7.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	JLS	Enbridge	MR
SOTF	START	JDP	MDEQ	JLS	Enbridge	MR
PI	START	JDP	MDEQ	JLS	Enbridge	MR
FLS	START	JDP	MDEQ	JLS	Enbridge	MR
Inundation Model	START	JDP	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell	START	6/6/2011	Date
John Powell	Printed Name		
Michelle DeLong	MDEQ	6/6/11	Date
Michelle DeLong	Printed Name		
Dave Bareham	Enbridge	6/6/2011	Date
Dave Bareham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.25 to MP 7.5, LDB Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/12/11	Date
Marcus Muccioni	Printed Name		
James Gamble	MDEQ	4-12-11	Date
James Gamble	Printed Name	4-12-11	
Chris Bauer			
Chris Bauer			
[signature]	Enbridge	4-12-11	Date
Hans Wronker	Printed Name		

The ~80ft of shoreline downstream of the LDB starting @ MP 7.25 was observed from the boat.

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 7.25 to MP 7.50, Unique ID LDB1, Bank: LDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5-27-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	5/27/11 Date
Ryan D. Blazic	Printed Name	
David Strand	Enbridge	5/27/11 Date
[signature]	Printed Name	

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 7.25 to MP 7.50, Unique ID LDB2, Bank: LDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5-27-11 Date

_____ Printed Name

_____ MDEQ 5/27/11 Date

Ryan D. Blazic Printed Name

David Strand Enbridge 5/27/11 Date

_____ Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.25 to MP 7.5, Bank ~~or~~ and Island* RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-19-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	4/19/11 Date
Christopher Clampitt	Printed Name	
[signature]	Enbridge	4/19/11 Date
Laura Neumeier	Printed Name	

*2 islands

13 zones on RB

1 zone for each island

Note: Heavy rain events during segment survey. saturated soil surface conditions.

Segment 7.50 – 7.75

MP 7.50 to MP 7.75

The LDB of segment 7.75 generally consists of emergent/herbaceous wetlands at the beginning of the segment and transitions to a forested wetland swamp further downstream. The reassessment identified three polygons. Trace amounts of surface oil residue were generally observed throughout the shoreline and overbank of the segment.

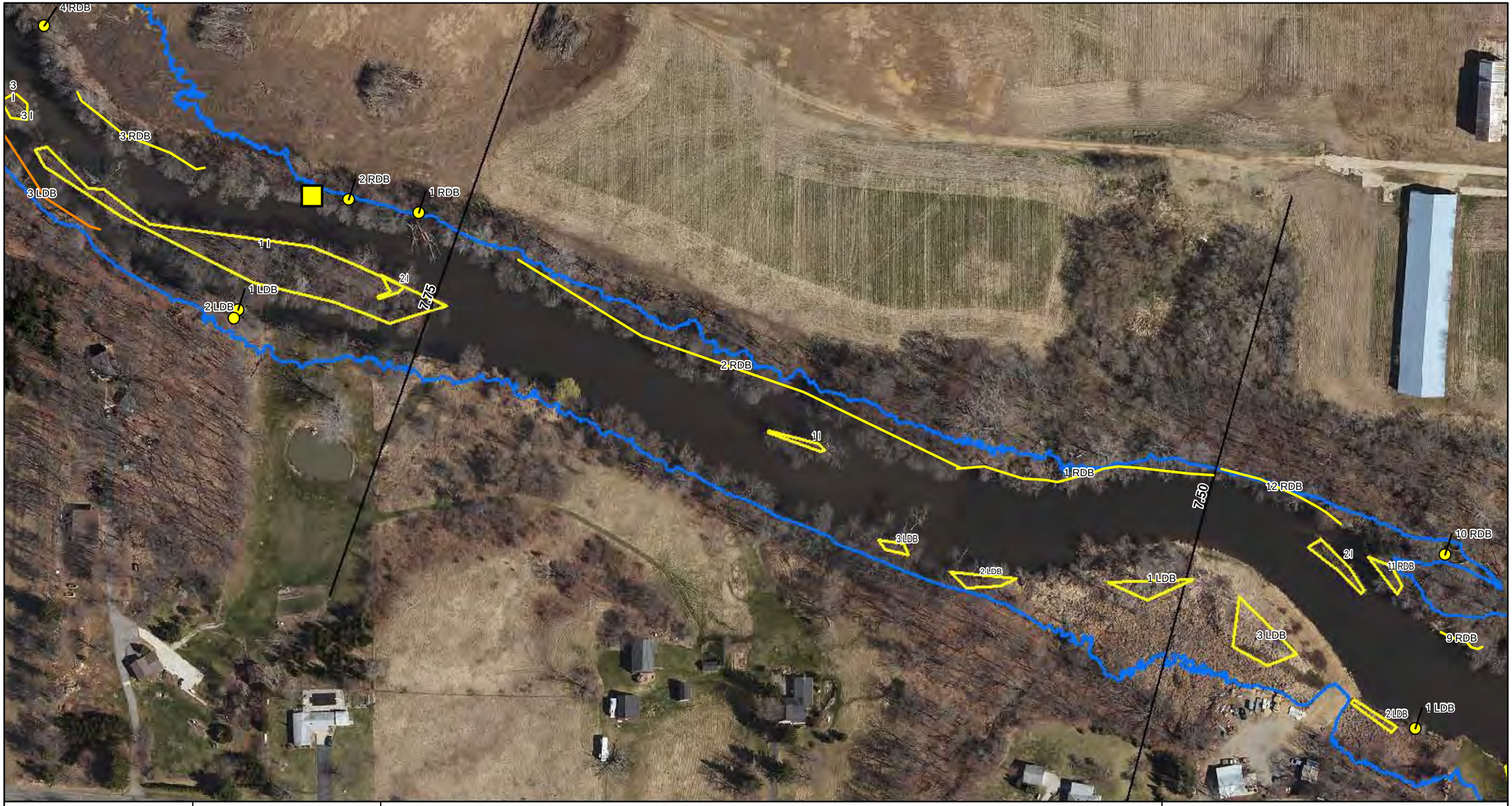
The RDB of segment 7.75 consists of forested wetland swamp habitat that transitions to emergent/herbaceous wetland further downstream. The reassessment identified two linear transects. In general, trace oil coating and stains were observed on trunks, stems and debris throughout most of the RDB shoreline. Surface oil residue was also observed in these areas.

One island (1 I) was identified within segment 7.75 that consists of forested wetland swamp habitat. In general, patchy amounts of oil staining and coating were observed on trunks, stems, and debris throughout most of the island. Patties were also observed mostly on the upstream side of Polygon 1 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

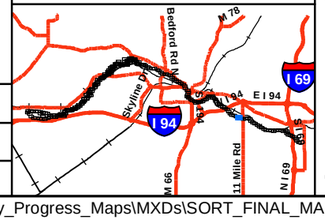
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP7.50-MP7.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 7.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	14:13																	42.27639	-85.08725		Wronka, Hans
2	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	14:37																	42.27644	-85.08816		Wronka, Hans
3	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		shallow stagnent backwater was accessible. completed area as left bank	Muccianti, Marcus
																					Bauer, Chris
4/12/2011	14:47																	42.27653	-85.08855		Wronka, Hans

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 7.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	P	Wetland-swamp (forested)		tar patties mainly on upstream side	**Enbridge Team Lead**
																					Kane, Sean
																					Clampitt, Chris
4/19/2011	15:58																	42.27700	-85.08911		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 7.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)	on rocks
4/20/2011	10:07																	42.27688 / -85.08810	
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	T	Wetland-emergent/herbaceous	polyline issue fixed 1 pt of residue rock staining
4/20/2011	11:22																	42.27805 / -85.09094	

START
MDEQ
Enbridge Team Lead
Kane, Sean
Clampitt, Chris
Neumeier, Laura
Kane, Sean
Clampitt, Chris
Neumeier, Laura

Photo Logs

Field Photographs MP 7.50 – MP 7.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 7.50 – MP 7.75

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 7.50 – MP 7.75

LDB Zone ID 3, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 7.50 – MP 7.75

I Zone ID 1, Photo 002



I Zone ID 1, Photo 003



Field Photographs MP 7.50 – MP 7.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002

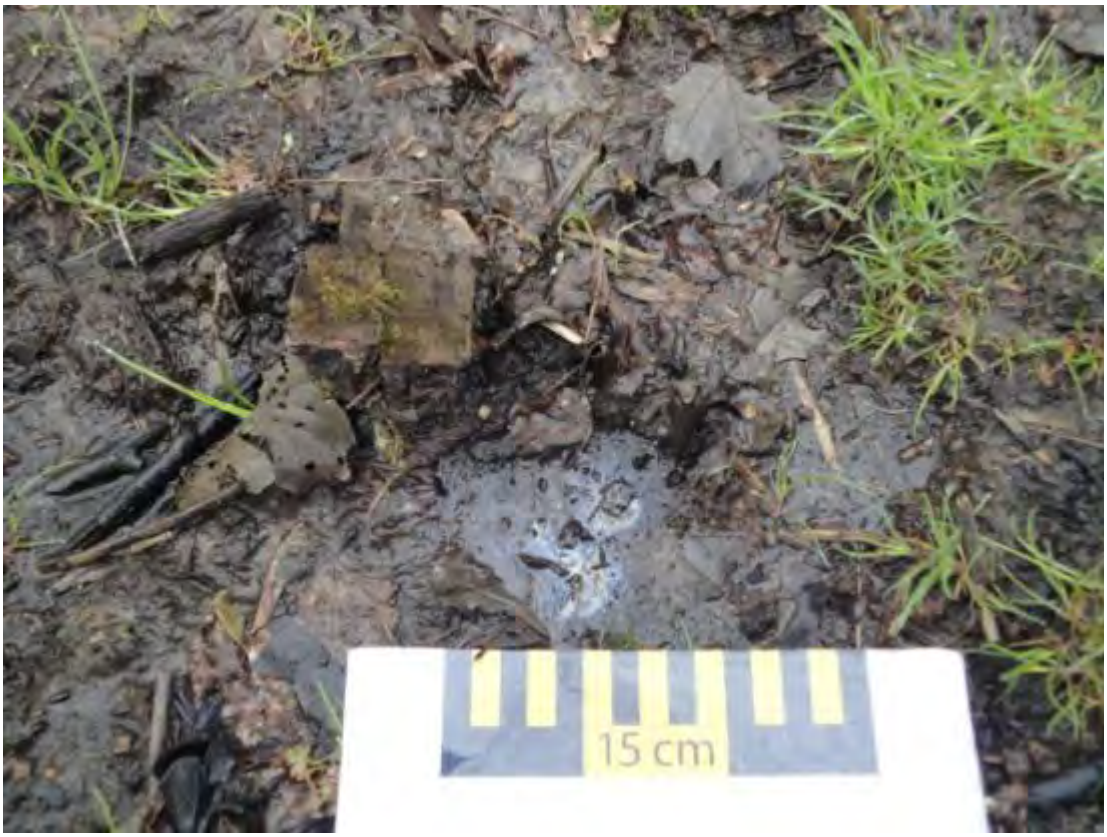


Field Photographs MP 7.50 – MP 7.75

RDB Zone ID 1, Photo 003



RDB Zone ID 1, Photo 004



Field Photographs MP 7.50 – MP 7.75

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 7.50 – MP 7.75

RDB Zone ID 2, Photo 003



RDB Zone ID 2, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 7.5 to MP 7.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barkham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.5 to MP 7.75 LDB, (Bank) or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/12/11 Date

Marcus Mucciante Printed Name

_____ MDEQ 4-12-11 Date

James Gamble Printed Name

_____ Enbridge 4-12-11 Date

Chris Bauer Printed Name

Middle 30-50 feet along shore (LDB) were observed from the Boat.

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 7.50 to MP 7.75, Unique ID LDB1, Bank: OB and/or Island ____.
Segment Length: 0.25 mile

Continues Polygon w/ 7.50. Picture associated w/ 7.50

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	5-27-11 Date
Jason Kane	Printed Name	
_____	MDEQ	5/27/11 Date
Ryan D. Blazic	Printed Name	
David Strand	Enbridge	5/27/11 Date
_____	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.5 to MP 7.75, Bank or Island: only*, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-19-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	4/19/11 Date
Christopher Campbell	Printed Name	
[signature]	Enbridge	4/19/11 Date
Laura Neumeier	Printed Name	

* 1 Island

1 zone captured by YUMA

Note: Saturated soil surface conditions due to heavy rain events.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.5 to MP 7.75, Bank ~~or Island~~: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/20/11 Date
Sean Kane	Printed Name	KU
[signature]	MDEQ	4/20/11 Date
Christopher Clampitt	Printed Name	
[signature]	Enbridge	4/20/11 Date
Laura Neumeier	Printed Name	

2 Zones collected by YUMA
↳ 2 polylines along shoreline

Segment 7.75 – 8.00

MP 7.75 to MP 8.00

The LDB of segment 8.00 consists mostly of a forested wetland swamp at the beginning of the segment which transitions to a sand-gravel shoreline further downstream. The reassessment identified two points and two linear transects. A trace amount of a surface oil film and patties was observed along the shoreline in Linear Transect 3 LDB. Trace to sporadic amounts of surface oil residue were observed at Linear Transect 4 LDB and Point 2 LDB along the shoreline. Trace occurrences of stained debris were documented at Point 2 LDB and Linear Transect 3 LDB. A patchy amount of patties and surface oil residue was observed at Point 1 LDB along the shoreline.

The RDB of segment 8.00 consists mostly of forested wetland swamp habitat throughout the segment. The reassessment identified four points, one polygon, and two linear transects. In general, trace to sporadic coating and stains were observed on trunks, stems, and debris throughout most of the segment. Trace to sporadic occurrences of patties were observed along the shoreline and overbank in Polygon 6 RDB and at Point 7 RDB. The FLS data identified a suspected oil signature within close proximity to Point 2 RDB.

Two island features (1 I and 2 I) were identified within segment 8.00 that consist of forested wetland swamp habitat and 3 I was identified as a rocky shoreline. In general, sporadic coating and stains were observed on trunks, stems, and debris throughout most of the island. Sporadic occurrences of patties were observed along the shoreline and overbank at Polygons 1 I and 3 I. Broken occurrences of asphalt pavement were observed at Polygon 2 I.

Two islands are located within the segment. The larger, upstream island is characterized as a forested wetland swamp habitat and the smaller, downstream island is characterized as having a rocky shoreline. The reassessment identified three polygons. Polygons 1 I and 3 I cover the larger and smaller islands, respectively. Polygon 2 I is situated within Polygon 1 I. In general, sporadic occurrences of oil coated debris and/or trunk and stems were identified on both islands, as well as tar patties. A broken cover of asphalt pavement was identified on the ground surface at Polygon 2 I.

No PI observations were noted within this segment.

The attachments provide additional details on this segment.

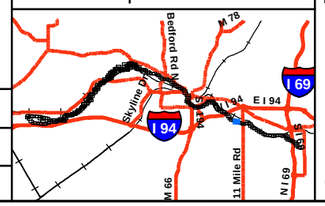
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP7.75-MP8.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 8																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	P	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/12/2011	15:20																	42.27755	-85.09240		Wronka, Hans
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank			Muccianti, Marcus Bauer, Chris
4/12/2011	15:23																	42.27751	-85.09241		Wronka, Hans
3	Shoreline	☐	☐	☐	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Sand-Gravel shoreline		film in river	Muccianti, Marcus Bauer, Chris
4/12/2011	15:50																	42.27845	-85.09392		Wronka, Hans
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Sand-Gravel shoreline		observation from boat	Muccianti, Marcus Bauer, Chris
4/12/2011	16:06																	42.27961	-85.09593		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 8

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ Enbridge Team Lead
1	Shoreline	4/20/2011	11:56	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Wetland-swamp (forested)	42.27798	-85.09133	?? organics ??	Kane, Sean Clampitt, Chris Neumeier, Laura
2	Shoreline	4/20/2011	12:05	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous	42.27804	-85.09174		Kane, Sean Clampitt, Chris Neumeier, Laura
3	Shoreline	4/20/2011	12:19	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.27853	-85.09334		Kane, Sean Clampitt, Chris Neumeier, Laura
4	Shoreline and Overbank	4/20/2011	12:28	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.27879	-85.09354		Kane, Sean Clampitt, Chris Neumeier, Laura
5	Shoreline	4/20/2011	12:42	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.27924	-85.09416		Kane, Sean Clampitt, Chris Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 8																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		1 tar patties pt	Kane, Sean
																					Clampitt, Chris
4/20/2011	13:09																	42.27969	-85.09501		Neumeier, Laura
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Kane, Sean
																					Clampitt, Chris
4/20/2011	13:14																	42.27935	-85.09432		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 8																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			Kane, Sean
																					Clampitt, Chris
4/19/2011	16:35																	42.27804	-85.09328		Neumeier, Laura
2	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	B	Wetland-swamp (forested)			Kane, Sean
																					Clampitt, Chris
4/19/2011	16:48																	42.27761	-85.09154		Neumeier, Laura
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	S	Other (comments)		rocky shoreline	Kane, Sean
																					Clampitt, Chris
4/19/2011	17:22																	42.27849	-85.09371		Neumeier, Laura

Photo Logs

Field Photographs MP 7.75 – MP 8.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 7.75 – MP 8.00

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 7.75 – MP 8.00

LDB Zone ID 3, Photo 002



LDB Zone ID 4, Photo 001



Field Photographs MP 7.75 – MP 8.00

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 7.75 – MP 8.00

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 7.75 – MP 8.00

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 7.75 – MP 8.00

RDB Zone ID 5, Photo 002



RDB Zone ID 6, Photo 001



Field Photographs MP 7.75 – MP 8.00

RDB Zone ID 6, Photo 002



RDB Zone ID 7, Photo 001



Field Photographs MP 7.75 – MP 8.00

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 7.75 – MP 8.00

I Zone ID 1, Photo 003



I Zone ID 2, Photo 001



Field Photographs MP 7.75 – MP 8.00

I Zone ID 2, Photo 002



I Zone ID 3, Photo 001



Field Photographs MP 7.75 – MP 8.00

I Zone ID 3, Photo 002



I Zone ID 3, Photo 003



Field Photographs MP 7.75 – MP 8.00

I Zone ID 3, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 7.75 to MP 8.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.75 to MP 8.0 LDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/12/11 Date

Marcus Williams Printed Name

_____ MDEQ 4-12-11 Date

James Gamble Printed Name

Chris Bauer 4-12-11

Chris Bauer

_____ Enbridge 4-12-11 Date

Hans Wranken Printed Name

roughly a 100 foot portion of shoreline was observed from the boat.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.75 to MP 8.0, Bank ~~or Island~~: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4-20-11 Date

Sean Hawe Printed Name

_____ MDEQ 4/20/11 Date

Christopher Clampitt Printed Name

_____ Enbridge 4/20/2011 Date

Laura Neumeier Printed Name

7 Zones captured by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.75 to MP 8.0, Bank or Island: Island only*, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-19-11	Date
Sean Lane	Printed Name		
[signature]	MDEQ	4/19/11	Date
Christopher Clampitt	Printed Name		
[signature]	Enbridge	4/19/11	Date
Laura Neumeier	Printed Name		

* 2 islands

Note: Saturated soil surface conditions due to heavy rain events.

3 total zones captured by YUMA

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 7.75 to MP 8.0, Bank or Island: RDB, Segment Length: 0.25 mile

Additional Survey following revised floodplain extent. (2011 Inundation Model)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5/27/11 Date
Jessica Childs	Printed Name	
Chris Bauer	MDEQ	5/27/11 Date
Chris Bauer	Printed Name	
[signature]	Enbridge	5/27/11 Date
Nate Hebir	Printed Name	

– No oil observed.

Segment 8.00 – 8.25

MP 8.00 to MP 8.25

The LDB of segment 8.25 consists mostly of a forested wetland swamp throughout the segment. The reassessment identified four polygons and one linear transect. Trace amounts of surface oil residue were observed in all areas. Traces of oil stained trees were observed within Polygon 2 LDB.

The RDB of segment 8.25 consists mostly of forested wetland swamp habitat throughout the segment. The reassessment identified two points, five polygons, and three linear transects. In general, trace to sporadic oil staining, coating, and covering were observed on trunks, stems, and debris throughout most of the segment. Trace to sporadic occurrences of patties and surface oil residue were observed along the shoreline and overbank in four polygons (4 RDB, 6 RDB, 7 RDB and 8 RDB) and along Linear Transect 9 RDB. An oil film on ponded water was identified at two polygons (4 RDB and 7 RDB) along the shoreline and overbank.

Five islands, with either scrub-shrub or forested wetland habitats, were identified within the 8.25 segment. Four islands were identified as Polygons 2 I, 3 I, 4 I, and 5 I and one island was identified with a linear transect (1 I). Islands identified with Polygons 2 I, 3 I, and 4 I and Linear Transect 1 I generally consisted of a patchy to broken distribution of patties and oiled debris, trunks, and stems along the shoreline and overbank. A patchy and broken distribution of surface oil residue was documented at Polygons 2 I and 3 I, respectively. Trace staining on debris, trunks, and stems were observed at Polygon 5 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

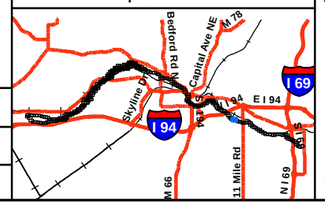
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP8.00-MP8.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 8.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	16:28																	42.27940	-85.09754		Wronka, Hans
2	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		stained trees	Muccianti, Marcus
																					Bauer, Chris
4/12/2011	16:35																	42.27942	-85.09784		Wronka, Hans
3	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	16:45																	42.27939	-85.09849		Wronka, Hans
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	16:52																	42.27935	-85.09959		Wronka, Hans
5	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/12/2011	16:56																	42.27928	-85.09978		Wronka, Hans

2011 Reassessment

Bank: I

Mile Marker: 8.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START / MDEQ / Enbridge Team Lead
				Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		
1	Shoreline and Overbank	4/20/2011	15:09	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	P	Wetland-scrub/shrub	42.27976 -85.09566	mainly on upstream side	Kane, Sean Clampitt, Chris Neumeier, Laura
2	Shoreline and Overbank	4/20/2011	15:24	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	P	Wetland-swamp (forested)	42.27978 -85.09777	tar patties mainly on upstream side	Kane, Sean Clampitt, Chris Neumeier, Laura
3	Shoreline and Overbank	4/20/2011	15:37	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	B	Wetland-swamp (forested)	42.27976 -85.09969	assessed by boat puke island	Kane, Sean Clampitt, Chris Neumeier, Laura
4	Shoreline and Overbank	4/20/2011	15:44	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☑	☑	B	Wetland-swamp (forested)	42.27971 -85.09969	tar patties mainly on upstream side	Kane, Sean Clampitt, Chris Neumeier, Laura
5	Shoreline and Overbank	4/20/2011	16:02	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	42.27966 -85.09851		Kane, Sean Clampitt, Chris Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 8.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Kane, Sean / Clampitt, Chris
4/20/2011	13:42																	42.27994	-85.09551		Neumeier, Laura
10	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		Wetland-swamp (forested)		steep bank	Kane, Sean / Clampitt, Chris
4/20/2011	15:02																	42.27981	-85.09598		Neumeier, Laura
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Kane, Sean / Clampitt, Chris
4/20/2011	13:48																	42.27997	-85.09558		Neumeier, Laura
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Kane, Sean / Clampitt, Chris
4/20/2011	13:51																	42.28001	-85.09566		Neumeier, Laura
4	Shoreline	☐	☑	☑	☐	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Kane, Sean / Clampitt, Chris
4/20/2011	13:56																	42.28002	-85.09575		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 8.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
5	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/20/2011	14:03																	42.28000 / -85.09598		Neumeier, Laura
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/20/2011	14:08																	42.28001 / -85.09605		Neumeier, Laura
7	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/20/2011	14:13																	42.28002 / -85.09624		Neumeier, Laura
8	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/20/2011	14:21																	42.28008 / -85.09641		Neumeier, Laura
9	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Kane, Sean / Clampitt, Chris
4/20/2011	14:38																	42.28008 / -85.09725		Neumeier, Laura

Photo Logs

Field Photographs MP 8.00 – MP 8.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 8.00 – MP 8.25

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 8.00 – MP 8.25

LDB Zone ID 5, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 4, Photo 003



RDB Zone ID 4, Photo 004



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 4, Photo 005



RDB Zone ID 5, Photo 001



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 7, Photo 002



RDB Zone ID 7, Photo 003



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 8, Photo 001



RDB Zone ID 8, Photo 002



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 8, Photo 003



RDB Zone ID 8, Photo 004



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 9, Photo 001



RDB Zone ID 9, Photo 002



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 9, Photo 003



RDB Zone ID 10, Photo 001



Field Photographs MP 8.00 – MP 8.25

RDB Zone ID 10, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 8.00 – MP 8.25

I Zone ID 1, Photo 002



I Zone ID 1, Photo 003



Field Photographs MP 8.00 – MP 8.25

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs MP 8.00 – MP 8.25

I Zone ID 2, Photo 003



I Zone ID 3, Photo 001



Field Photographs MP 8.00 – MP 8.25

I Zone ID 3, Photo 002



I Zone ID 3, Photo 003



Field Photographs MP 8.00 – MP 8.25

I Zone ID 4, Photo 001



I Zone ID 4, Photo 002



Field Photographs MP 8.00 – MP 8.25

I Zone ID 4, Photo 003



I Zone ID 4, Photo 004



Field Photographs MP 8.00 – MP 8.25

I Zone ID 5, Photo 001



I Zone ID 5, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 8.0 to MP 8.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/6/11 Date

Michelle DeLong — Printed Name

Dave Barcham — Enbridge — 6/6/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 8.0 to MP 8.25 LDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/12/11 Date

_____ Printed Name

_____ MDEQ — 4-12-11 Date

James Gamble Printed Name — 4-12-11

_____ Enbridge — 4-12-11 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 8.0 to MP 8.25, Bank ~~or~~ and Island: *RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-20-11 Date
Seong Kang	Printed Name	
[signature]	MDEQ	4/20/11 Date
Christopher Clampitt	Printed Name	
[signature]	Enbridge	4/20/2011 Date
Laura Naumeier	Printed Name	

*5 islands
- 1 zone for each island captured by YUMA

10 zones on RB captured by YUMA

Segment 8.25 – 8.50

MP 8.25 to MP 8.50

The LDB of segment 8.50 is largely comprised mostly of a forested wetland swamp and a low vegetated bank at the end of the segment. Back channels are present in the over bank. The reassessment identified two polygons and one linear transect. Sporadic occurrences ranging from an oil cover to stain were identified on debris at Polygons 1 LDB and 2 LDB, and an oil film on ponded water was also observed along the shoreline and overbank at these locations. The reassessment of Linear Transect 3 LDB was conducted from a boat and identified traces of surface oil residue.

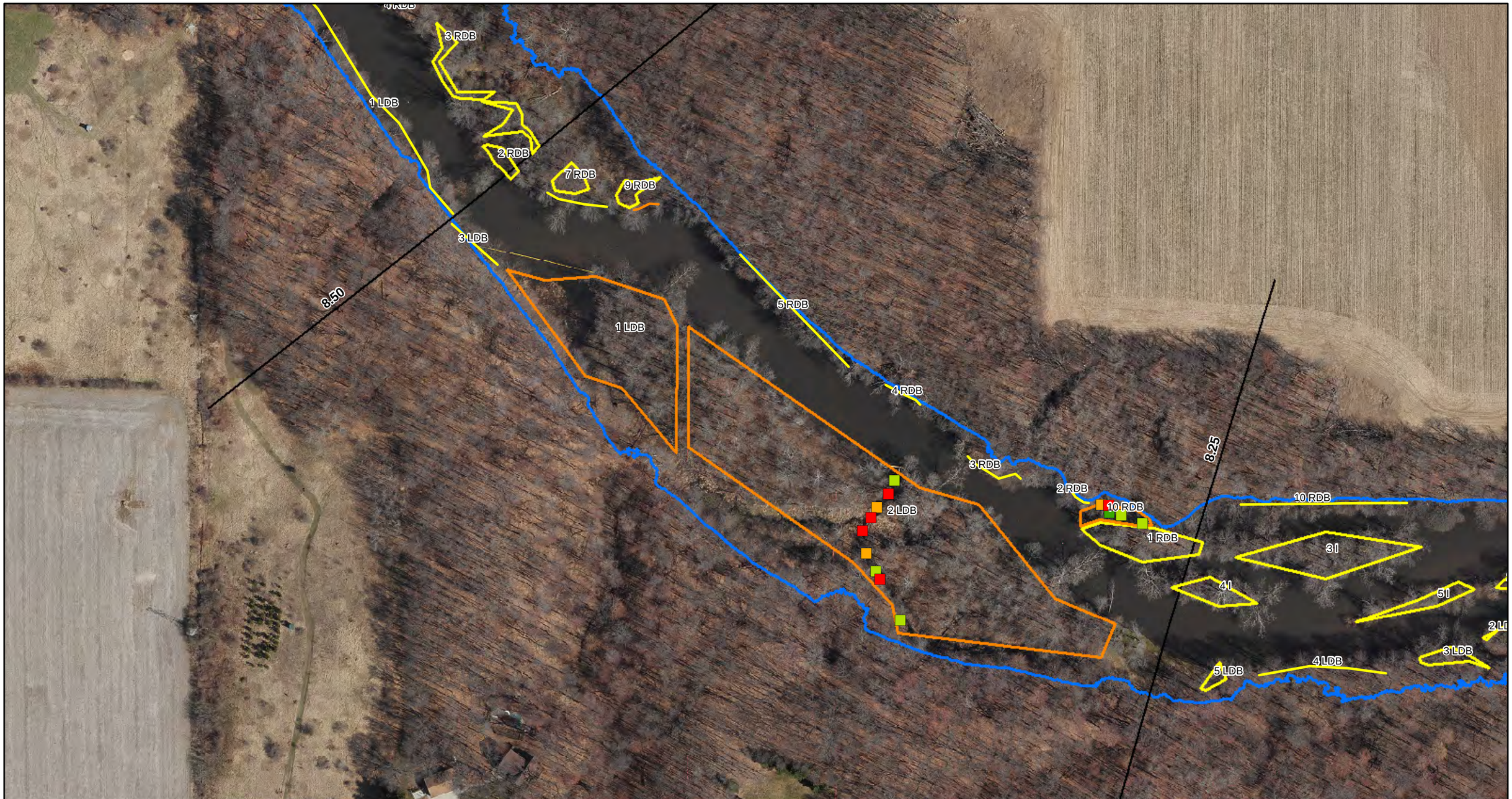
Poling of the back channel on the LDB within this segment was completed at nine locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 8.50 consists mostly of forested wetland swamp habitat transitioning to wetland scrub-shrub near the end of the segment. The reassessment identified three polygons and six linear transects. In general, trace to sporadic oil coating, staining and covering were observed on debris and/or trunks and stems throughout most of the segment. Traces to sporadic occurrences of patties were observed along the shoreline and overbank in Polygons 1 RDB and 7 RDB and along Linear Transects 2 RDB, 6 RDB, and 8 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

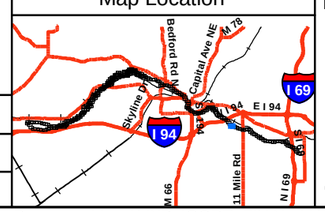
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP8.25-MP8.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 8.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	S	Wetland-swamp (forested)		yuma shutdown by windows updates. had to restore tracklog via backup. did not have to re-clear tracklog after startup. visual petroleum sheen observed on property . curtain is in place alongbank. property owner on site for assessment.	Muccianti, Marcus Bauer, Chris
4/14/2011	08:55																	42.28118	-85.10406		Wronka, Hans
2	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	S	Wetland-swamp (forested)		merge with other polygon in 8.50. patties within 20 feet of shore	Muccianti, Marcus Bauer, Chris
4/14/2011	09:42																	42.27955	-85.10008		Wronka, Hans
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		steep embankment. observation from boat	Muccianti, Marcus Bauer, Chris
4/14/2011	09:57																	42.28133	-85.10412		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 8.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline and Overbank	4/20/2011	16:31	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)	42.27995	-85.10038	area inland to innudation is partial under water. see track log	Kane, Sean Clampitt, Chris Neumeier, Laura
10	Overbank	6/15/2011	10:24	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	B	Wetland-swamp (forested)	42.27999	-85.10010		Muccianti, Marcus Bauer, Chris Neumeier, Laura
2	Overbank	4/20/2011	16:46	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.28020	-85.10055		Kane, Sean Clampitt, Chris Neumeier, Laura
3	Shoreline and Overbank	4/20/2011	16:54	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous	42.28049	-85.10135	staining on rock	Kane, Sean Clampitt, Chris Neumeier, Laura
4	Overbank	4/20/2011	17:02	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.28078	-85.10202	steep banks	Kane, Sean Clampitt, Chris Neumeier, Laura

2011 Reassessment

Bank: RDB

Mile Marker: 8.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
5	Shoreline			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			steep slope	Kane, Sean Clampitt, Chris
		4/20/2011	17:20																		42.28131	-85.10323		Neumeier, Laura
6	Shoreline			☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)				Kane, Sean Clampitt, Chris
		4/20/2011	17:40																		42.28152	-85.10387		Neumeier, Laura
7	Overbank			☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub				Kane, Sean Clampitt, Chris
		4/20/2011	17:57																		42.28139	-85.10354		Neumeier, Laura
8	Shoreline			☐	☑	☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub				Kane, Sean Clampitt, Chris
		4/20/2011	18:03																		42.28138	-85.10297		Neumeier, Laura
9	Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub				Kane, Sean Clampitt, Chris
		4/20/2011	18:16																		42.28144	-85.10366		Neumeier, Laura

Photo Logs

Field Photographs MP 8.25 – MP 8.50

LDB Zone ID 1, Photo 001

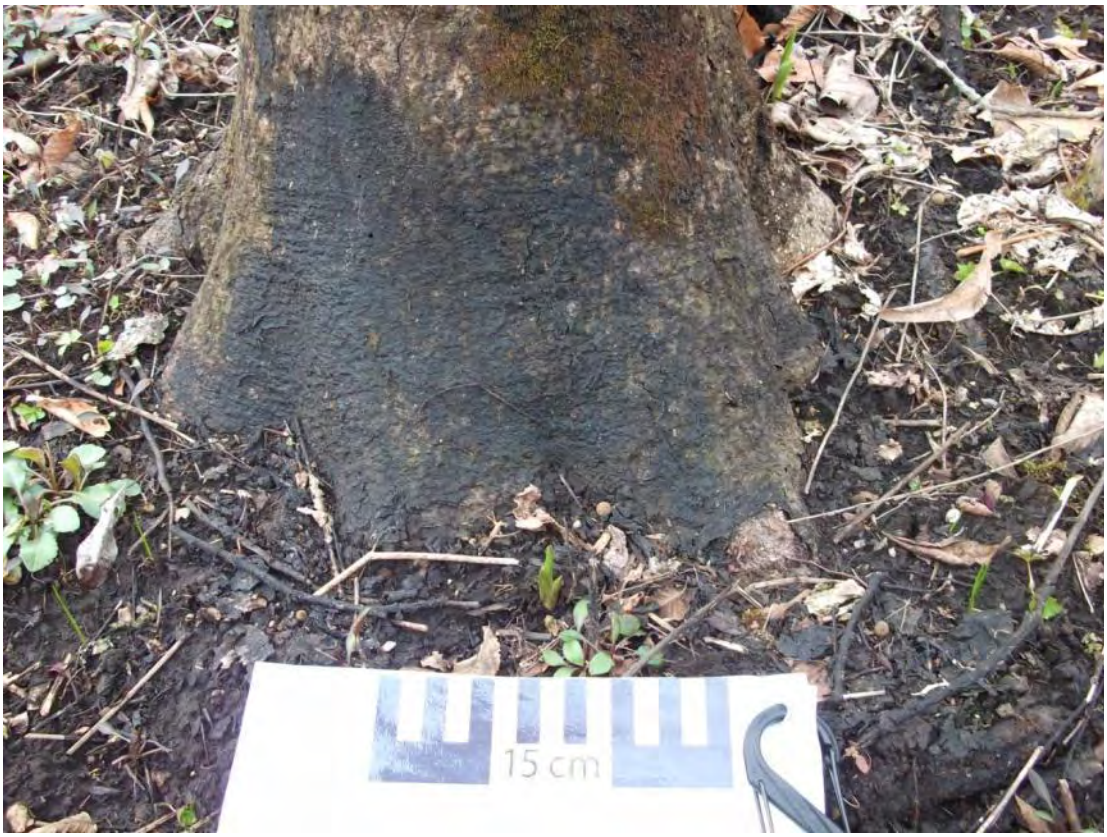


LDB Zone ID 1, Photo 002

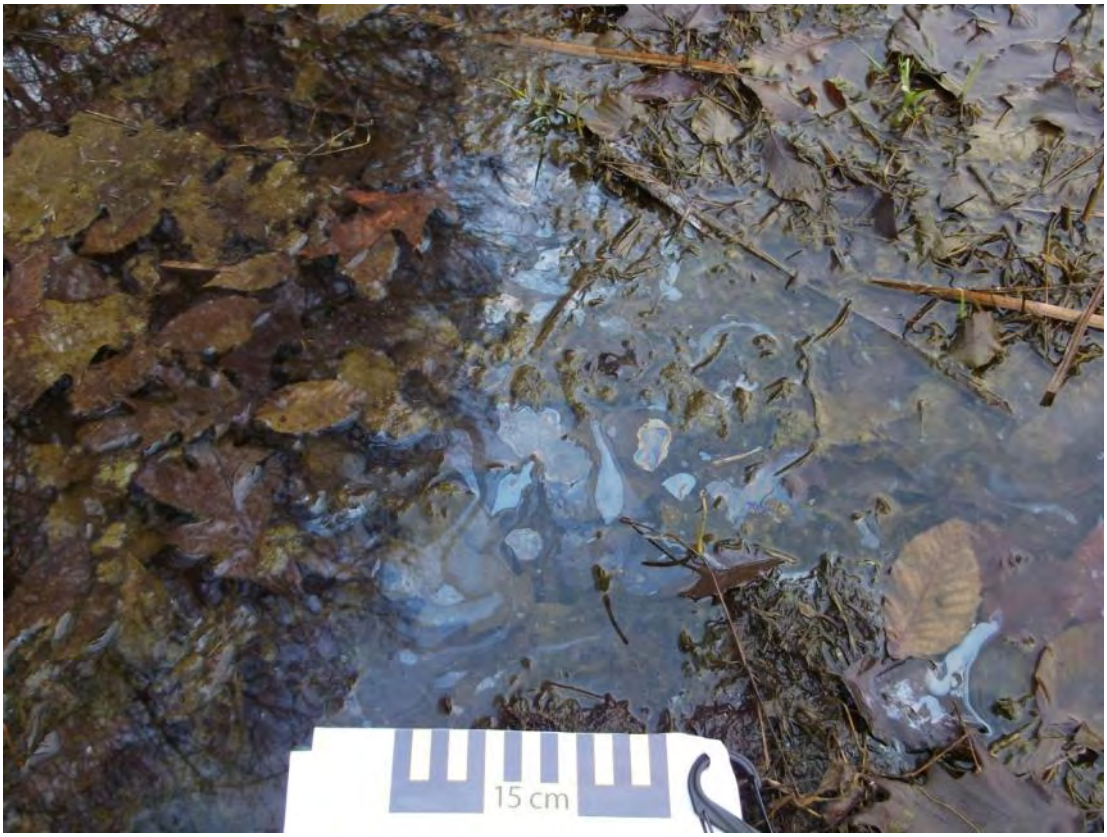


Field Photographs MP 8.25 – MP 8.50

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 8.25 – MP 8.50

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 8.25 – MP 8.50

LDB Zone ID 3, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 2, Photo 003



RDB Zone ID 3, Photo 001



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 3, Photo 002



RDB Zone ID 4, Photo 001



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 6, Photo 002



RDB Zone ID 6, Photo 003



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 8, Photo 001



RDB Zone ID 8, Photo 002



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 8, Photo 003



RDB Zone ID 9, Photo 001

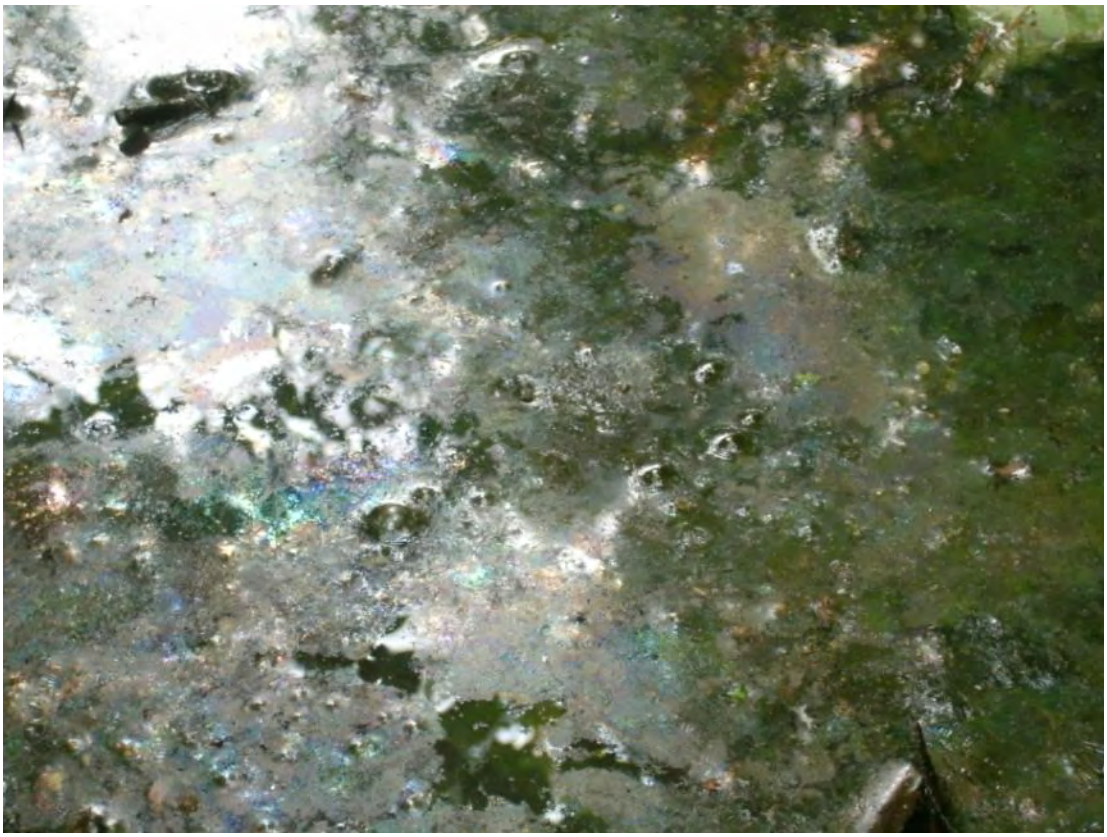


Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 9, Photo 002



RDB Zone ID 10, Photo 001



Field Photographs MP 8.25 – MP 8.50

RDB Zone ID 10, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 8.25 to MP 8.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	
SOTF	START		MDEQ		Enbridge	
PI	START		MDEQ		Enbridge	
FLS	START		MDEQ		Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved
Review poling data from new reassess polygon in backwater channel - right bank.	6/15/11

MD DB

Completeness Check Acknowledged

START — 6/6/2011 Date

John Powell — Printed Name

MDEQ — 6/6/11 Date

Michelle Delong — Printed Name

Enbridge — 6/6/2011 Date

Dave Burcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 8.25 to MP 8.5, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/14/11	Date
Marcus Murriano	Printed Name		
[signature]	MDEQ	4-14-11	Date
James Gamble	Printed Name	4-14-11	
Chris Bauer Chris Bauer [signature]	Enbridge	4-14-11	Date
Hans Wrong	Printed Name		

*Note the team was accompanied by Victor Cusoni while conducting the assessment on the tract of land that was accessed on foot. (KS-C-145)

*Note the final ~140 feet of LDB bank for this segment was evaluated by boat due to steep embankment.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 8.25 to MP 8.5, Bank ~~or Island~~: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

S-V	START	4-20-11 Date
Sean Kane	Printed Name	
	MDEQ	4/20/11 Date
Christopher Clampitt	Printed Name	
Laura Neumeier	Enbridge	4/20/2011 Date
Laura Neumeier	Printed Name	

9 zones captured by YUMA

No Islands

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 8.25 to MP 8.50, Unique ID 8.50 LDB L1/L2, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START — 5/16/11 Date

THOMAS P. GRAAN Printed Name

Kathleen Fairchild MDEQ — 5/16/11 Date

Kathleen Fairchild Printed Name

Don DeWitt Enbridge — 5/16/11 Date

Don DeWitt Printed Name

Strike points collected by YUMA

STRIKE Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 8.25 to MP 8.50, Unique ID Cove (8.50), Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/15/2011 Date

MARCUS MUCCIANTI Printed Name

_____ MDEQ 6/15/11 Date

Chris Bauer Printed Name

_____ Enbridge 6/15/2011 Date

Lara Neumeier Printed Name

Strike points and SORT polygon collected by YUMA

Segment 8.50 – 8.75

MP 8.50 to MP 8.75

The LDB of segment 8.75 consists of a low vegetated bank along the shoreline. The reassessment was conducted from a boat and one linear transect (1 LDB) was identified. In general, trace staining in the form of surface oil residue on trees was present throughout the area assessed.

The RDB of segment 8.75 consists mostly of wetland scrub-shrub habitat transitioning to forested wetland swamp near the end of the segment. The reassessment identified two points, seven polygons, and one linear transect. In general, trace to sporadic oil coating and stains were observed on debris and/or trunks and stems throughout most of the segment. Trace occurrences of patties were observed along the shoreline and overbank in Polygons 9 RDB and 10 RDB and along the shoreline at Point 5 RDB.

One island is located within segment 8.75 that is largely comprised of a forested wetland swamp along the shore and within the overbank. The reassessment identified Point 1 I, Polygon 2 I, and Linear Transect 3 I. The island generally contained a sporadic distribution of patties, oiled debris and/or trunks and stems along the shoreline and overbank.

The PI investigation identified one Unconfirmed Area of Interest within Polygon 2 I near the end of the segment. The FLS did not identify any oil signatures within this segment.

The attachments provide additional details on this segment.

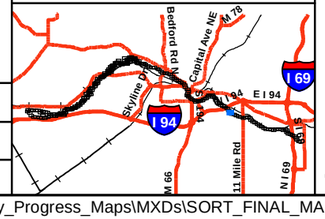
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP8.50-MP8.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	8.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		observations from boat. stained trees	Muccianti, Marcus
																					Bauer, Chris
4/12/2011	17:22																	42.28136	-85.10415		Wronka, Hans

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 8.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	P	Wetland-emergent/herbaceous			Kane, Sean
																					Clampitt, Chris
4/21/2011	12:59																	42.28427	-85.10607		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		tar patties on upstream side small area under restoreation matting under water	Kane, Sean
																					Clampitt, Chris
4/21/2011	13:11																	42.28427	-85.10632		Neumeier, Laura
3	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		tar patties polygon	Kane, Sean
																					Clampitt, Chris
4/21/2011	13:16																	42.28419	-85.10622		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 8.75																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
1	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub			Kane, Sean	
																					Clampitt, Chris	
4/21/2011	09:12																	42.28168	-85.10406		Neumeier, Laura	
10	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Kane, Sean	
																					Clampitt, Chris	
4/21/2011	12:34																	42.28453	-85.10587		Neumeier, Laura	
2	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub			Kane, Sean	
																					Clampitt, Chris	
4/21/2011	09:20																	42.28154	-85.10383		Neumeier, Laura	
3	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub			Kane, Sean	
																					Clampitt, Chris	
4/21/2011	09:55																	42.28209	-85.10423		Neumeier, Laura	
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		1 tar patties	Kane, Sean	
																					Clampitt, Chris	
4/21/2011	10:10																	42.28234	-85.10461		Neumeier, Laura	

2011 Reassessment

Bank: RDB

Mile Marker: 8.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
5	Shoreline	4/21/2011	10:13	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub	42.28225	-85.10465		Kane, Sean Clampitt, Chris Neumeier, Laura
6	Overbank	4/21/2011	10:50	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	42.28236	-85.10446		Kane, Sean Clampitt, Chris Neumeier, Laura
7	Shoreline and Overbank	4/21/2011	11:17	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	42.28279	-85.10495	area of shrubs walked by others	Kane, Sean Clampitt, Chris Neumeier, Laura
8	Overbank	4/21/2011	11:49	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	42.28342	-85.10538		Kane, Sean Clampitt, Chris Neumeier, Laura
9	Shoreline and Overbank	4/21/2011	12:15	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)	42.28405	-85.10586		Kane, Sean Clampitt, Chris Neumeier, Laura

Photo Logs

Field Photographs MP 8.50 – MP 8.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 3, Photo 002



RDB Zone ID 4, Photo 001



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 6, Photo 002



RDB Zone ID 6, Photo 003



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 8, Photo 001



RDB Zone ID 9, Photo 001



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 9, Photo 002



RDB Zone ID 10, Photo 001



Field Photographs MP 8.50 – MP 8.75

RDB Zone ID 10, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 8.50 – MP 8.75

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs MP 8.50 – MP 8.75

I Zone ID 2, Photo 003



I Zone ID 2, Photo 004



Field Photographs MP 8.50 – MP 8.75

I Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 8.5 to MP 8.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ	MD	Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle Delong — MDEQ — 6/6/11 Date

Michelle Delong — Printed Name

Dave Barcham — Enbridge — 6/6/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

LDB

Segment ID: From MP 8.50 to MP 8.75, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/12/11	Date
MARCUS MULLIANI	Printed Name		
[signature]	MDEQ	4-12-11	Date
James Gamble	Printed Name	4-12-11	
Chris Bauer			
[signature]	Enbridge	4-12-11	Date
Hans Wronka	Printed Name		

Entire segment observed from the boat.

Note some sections along segment had to be observed from approximately 20 to 30 feet from shore due to low overhanging trees.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 8.5 to MP 8.75, Bank ~~or~~ and Island: *RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4-21-11 Date

Sean Kane Printed Name

_____ MDEQ 4/21/11 Date

Christopher Clampitt Printed Name

_____ Enbridge 4/21/2011 Date

Laura Neumeier Printed Name

*2 islands –

3 zones on Islands captured by YUMA

10 zones on RB captured by YUMA

Segment 8.75 – 9.00

MP 8.75 to MP 9.00

The LDB of segment 9.00 consists mostly of a low vegetated bank and transitions to forested wetland swamp towards the end of the segment. The reassessment identified one point, two polygons, and one linear transect. In general, trace to sporadic staining of surface oil residue was present in most of the areas. Trace surface oil residue was identified at Polygon 2 LDB and 4 LDB and Linear Transect 1 LDB. A sporadic distribution of patties was also observed at Point 3 LDB.

The RDB of segment 9.00 consists mostly of forested wetland swamps. The reassessment identified one point, seven polygons, and three linear transects. In general, traces of oil coating and stains were observed on trunks, stems, and debris throughout most of the segment. Trace occurrences of patties were observed in four polygons (1 RDB, 4 RDB, 5 RDB, and 9 RDB) and along the shoreline of Linear Transect 11 RDB. A trace film on ponded water was documented in the overbank at Polygon 7 RDB and along the shoreline within Linear Transect 11 RDB.

Two islands are located within segment 9.00 that consist of forested wetland swamps. The reassessment identified one point and seven polygons. The upstream island (Polygons 1 I and 2 I, and Point 3 I) generally consisted of sporadic to patchy distribution of patties, asphalt pavement, oiled debris, trunks and stems. The downstream island (Polygons 4 I, 5 I, 6 I, 7 I and 8 I) consisted of oil film on ponded water and occurrences of surface oil residue, patties, tar balls, asphalt pavement on the ground surface, with oil staining to cover on debris, trunks and stems.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP8.75-MP9.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 9																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		observation from boat	Muccianti, Marcus Bauer, Chris
4/12/2011	17:40																	42.28441	-85.10677		Wronka, Hans
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/12/2011	17:45																	42.28668	-85.10946		Wronka, Hans
3	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/12/2011	17:52																	42.28677	-85.10942		Wronka, Hans
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/12/2011	18:06																	42.28709	-85.10931		Wronka, Hans

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 9																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☑	☑	S	Wetland-swamp (forested)			Kane, Sean Clampitt, Chris
4/21/2011	13:42																	42.28496	-85.10696		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	P	Wetland-swamp (forested)			Kane, Sean Clampitt, Chris
4/21/2011	13:51																	42.28495	-85.10696		Neumeier, Laura
3	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)			Kane, Sean Clampitt, Chris
4/21/2011	14:10																	42.28481	-85.10689		Neumeier, Laura
4	Shoreline and Overbank	☐	☑	☐	☑	☑	☐	☐	☑	☑	☐	☑	☑	☐	☑	☑	P	Wetland-swamp (forested)		continue from thursday April 21,2011 about 50 %	Kane, Sean Keiper, Bill
4/26/2011	09:53																	42.28639	-85.10871		Neumeier, Laura
5	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		polygon within polygon	Kane, Sean Keiper, Bill
4/26/2011	10:09																	42.28674	-85.10914		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 9																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	closer to shore	Kane, Sean Keiper, Bill
4/26/2011	10:15																	42.28653 / -85.10878		Neumeier, Laura
7	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	polygon within polygon	Kane, Sean Keiper, Bill
4/26/2011	10:20																	42.28691 / -85.10912		Neumeier, Laura
8	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☑	☐	☑	☑	☐	☑	☑	P	Wetland-swamp (forested)	about 50 %	Graan, Tom Fairchild, Katie
5/4/2011	13:57																	42.28642 / -85.10882		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 9																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		1 tar patties	Kane, Sean / Keiper, Bill
4/26/2011	10:52																	42.28493	-85.10660		Neumeier, Laura
10	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Kane, Sean / Keiper, Bill
4/26/2011	14:27																	42.28655	-85.10807		Neumeier, Laura
11	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		shoreline mainly observation at nodes (absorbant boom in creek) 1 tar patties	Kane, Sean / Keiper, Bill
4/26/2011	14:54																	42.28744	-85.10901		Neumeier, Laura
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Kane, Sean / Keiper, Bill
4/26/2011	11:03																	42.28476	-85.10593		Neumeier, Laura
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Kane, Sean / Keiper, Bill
4/26/2011	11:07																	42.28476	-85.10633		Neumeier, Laura

2011 Reassessment

Bank: RDB

Mile Marker: 9

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
4	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)		1 surface residue by tar patties	Kane, Sean
																					Keiper, Bill
4/26/2011	11:25																	42.28542	-85.10664		Neumeier, Laura
5	Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		mainly coating	Kane, Sean
																					Keiper, Bill
4/26/2011	11:58																	42.28553	-85.10743		Neumeier, Laura
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous			Kane, Sean
																					Keiper, Bill
4/26/2011	12:38																	42.28568	-85.10735		Neumeier, Laura
7	Shoreline and Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Kane, Sean
																					Keiper, Bill
4/26/2011	13:08																	42.28618	-85.10752		Neumeier, Laura
8	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Kane, Sean
																					Keiper, Bill
4/26/2011	13:28																	42.28624	-85.10783		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 9																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
9	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			Kane, Sean
																					Keiper, Bill
4/26/2011	13:54																	42.28587	-85.10811		Neumeier, Laura

Photo Logs

Field Photographs MP 8.75 – MP 9.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 8.75 – MP 9.00

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 5, Photo 003



RDB Zone ID 6, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 6, Photo 002



RDB Zone ID 7, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 7, Photo 002



RDB Zone ID 7, Photo 003



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 8, Photo 001



RDB Zone ID 8, Photo 002



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 8, Photo 003



RDB Zone ID 9, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 9, Photo 002



RDB Zone ID 9, Photo 003



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 9, Photo 004



RDB Zone ID 10, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 10, Photo 002



RDB Zone ID 11, Photo 001



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 11, Photo 002



RDB Zone ID 11, Photo 003



Field Photographs MP 8.75 – MP 9.00

RDB Zone ID 11, Photo 004



RDB Zone ID 11, Photo 005



Field Photographs MP 8.75 – MP 9.00

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 8.75 – MP 9.00

I Zone ID 1, Photo 003



I Zone ID 1, Photo 004



Field Photographs MP 8.75 – MP 9.00

I Zone ID 2, Photo 001



I Zone ID 3, Photo 001



Field Photographs MP 8.75 – MP 9.00

I Zone ID 3, Photo 002



I Zone ID 3, Photo 003



Field Photographs MP 8.75 – MP 9.00

I Zone ID 3, Photo 004

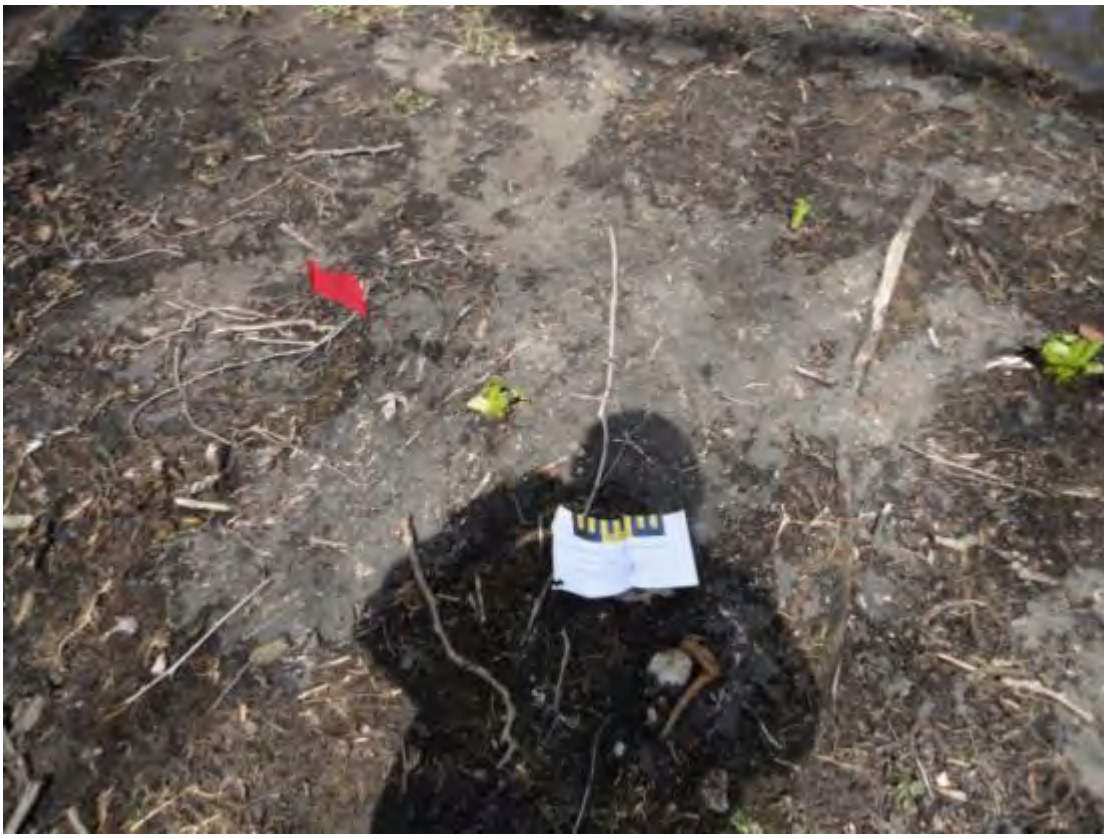


I Zone ID 4, Photo 001



Field Photographs MP 8.75 – MP 9.00

I Zone ID 4, Photo 002



I Zone ID 4, Photo 003



Field Photographs MP 8.75 – MP 9.00

I Zone ID 4, Photo 004



I Zone ID 4, Photo 005



Field Photographs MP 8.75 – MP 9.00

I Zone ID 4, Photo 006



I Zone ID 4, Photo 007



Field Photographs MP 8.75 – MP 9.00

I Zone ID 4, Photo 008



I Zone ID 5, Photo 001



Field Photographs MP 8.75 – MP 9.00

I Zone ID 5, Photo 002



I Zone ID 5, Photo 003



Field Photographs MP 8.75 – MP 9.00

I Zone ID 6, Photo 001



I Zone ID 6, Photo 002



Field Photographs MP 8.75 – MP 9.00

I Zone ID 7, Photo 001



I Zone ID 7, Photo 002



Field Photographs MP 8.75 – MP 9.00

I Zone ID 7, Photo 003



I Zone ID 8, Photo 001



Field Photographs MP 8.75 – MP 9.00

I Zone ID 8, Photo 002



I Zone ID 8, Photo 003



Field Photographs MP 8.75 – MP 9.00

I Zone ID 8, Photo 004



I Zone ID 8, Photo 005



Field Photographs MP 8.75 – MP 9.00

I Zone ID 8, Photo 006



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 8.75 to MP 9.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

LDB

Segment ID: From MP 8.75 to MP 9.0, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/12/11 Date

Marcus Muccianu Printed Name

Chris Bauer MDEQ 4-12-11 Date

Chris Bauer Printed Name

James Gamble 4-12-11

James Gamble

[signature] Enbridge 4-12-11 Date

Hans Wronker Printed Name

Majority of LDB observed from boat.
Part of the KS-C-147 property is presently on an island and was not ~~monit~~ assessed at this time.
Only monitored the LDB for this segment.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 8.75 to MP 9.0, Unique ID LDB Access, Bank ____ and/or Island Island only

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START _____ 5/4/11 Date

THOMAS P. GRAAN _____ Printed Name

Kat Fairchild _____ MDEQ _____ 5-4-11 Date

Kathleen Fairchild _____ Printed Name

Laura Neumeier _____ Enbridge _____ 5/4/11 Date

Laura Neumeier _____ Printed Name

1 Zone captured by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 8.75 to MP 9.0, ~~Bank or~~ Island only*: _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4-21-11 Date

Sean Kane Printed Name

_____ MDEQ 4/21/11 Date

Christopher Clampit Printed Name

_____ Enbridge 4/21/2011 Date

Laura Neumeier Printed Name

* 2 islands w/in MP 9.0 completed. One downstream island not completed due to YUMA failure.

3 zones collected by YUMA.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 8.75 to MP 9.0, Bank ~~of~~ and Island: * RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-26-11 Date
Sean Kane	Printed Name	
William Kuiper	MDEQ	4-26-11 Date
[signature]	Printed Name	
[signature]	Enbridge	4/26/2011 Date
Laura Neumeier	Printed Name	

* 1 remaining island (down-river most island) completed
4 zones captured on island by YUMA

RB – 11 zones captured by YUMA

Segment 9.00 – 9.25

MP 9.0 to MP 9.25

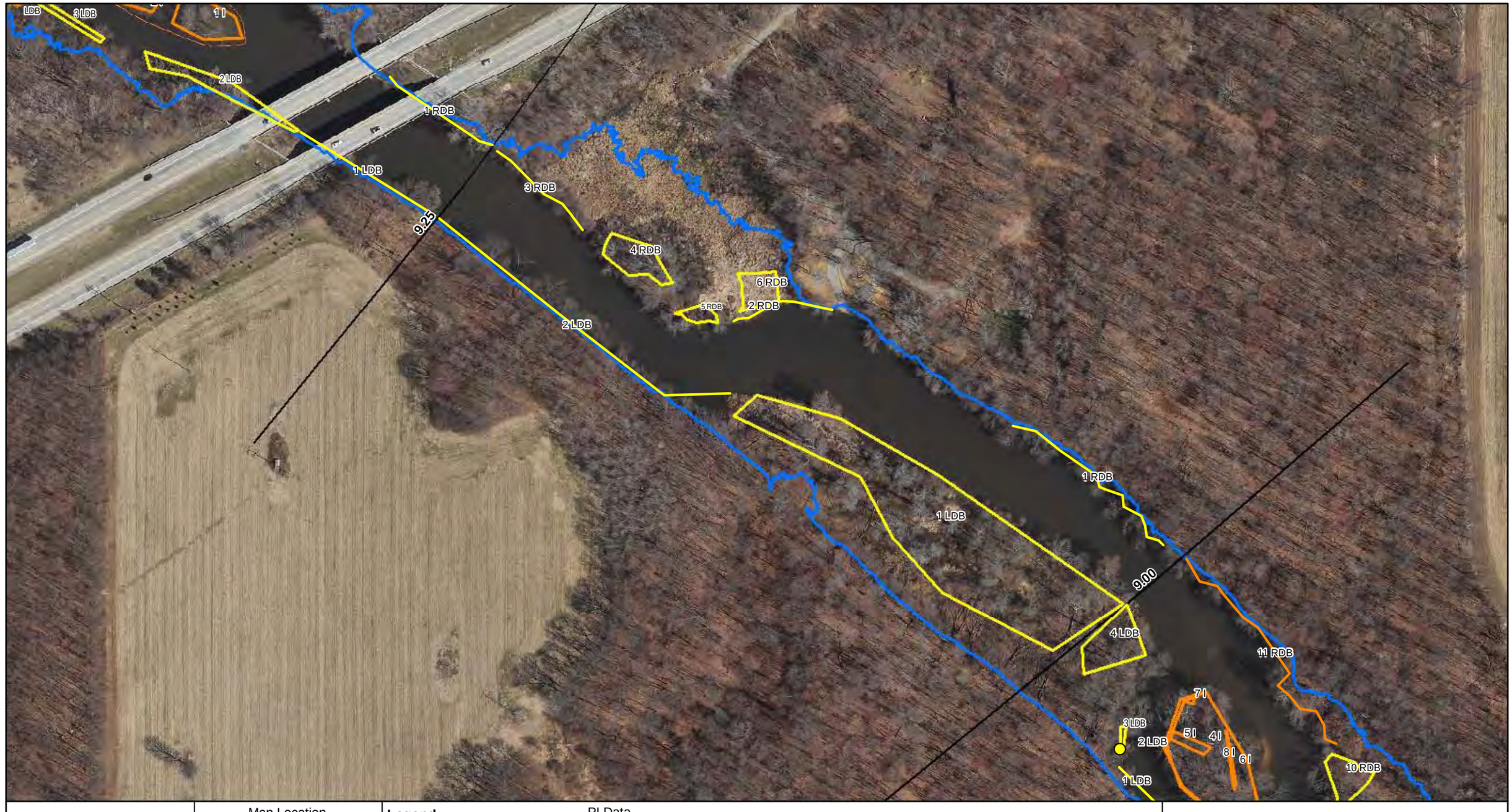
The LDB of segment 9.25 generally consists of a steep vegetated bank lining the upstream portion of the segment transitioning to a forested wetland swamp at the downstream portion of the segment. The reassessment identified one polygon and one linear transect. Trace amounts of coated and stained debris, patties, and surface oil residue were identified throughout the Polygon 1 LDB. Trace amounts of surface oil residue were also identified in Linear Transect 2 LDB.

The RDB of segment 9.25 consists of three different types of wetland habitats within the floodplain; forested wetland swamp, emergent/herbaceous, and scrub-shrub. The reassessment identified three polygons and three linear transects. In general, trace amounts of coated and stained debris and/or trunks and stems were identified at all locations.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

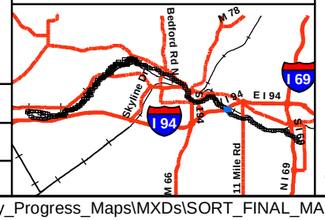
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP9.00-MP9.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 9.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)		polygon entends to waters edge	Muccianti, Marcus
																					Bauer, Chris
4/13/2011	08:49																	42.28788	-85.11055		Wronka, Hans
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		steep bank observation from boat	Muccianti, Marcus
																					Bauer, Chris
4/13/2011	09:02																	42.28908	-85.11352		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 9.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	4/26/2011	15:26	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.28800	-85.10993		Kane, Sean Keiper, Bill Neumeier, Laura
2	Shoreline and Overbank	4/26/2011	15:43	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	T	Wetland-emergent/herbaceous	42.28856	-85.11169		Kane, Sean Keiper, Bill Neumeier, Laura
3	Shoreline and Overbank	4/26/2011	16:12	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	42.28916	-85.11281		Kane, Sean Keiper, Bill Neumeier, Laura
4	Shoreline and Overbank	4/26/2011	16:36	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.28880	-85.11244		Kane, Sean Keiper, Bill Neumeier, Laura
5	Shoreline and Overbank	4/26/2011	16:41	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	42.28854	-85.11195		Kane, Sean Keiper, Bill Neumeier, Laura

2011 Reassessment

Bank:	RDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	9.25																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous			Kane, Sean
																					Keiper, Bill
4/26/2011	16:44																	42.28853	-85.11174		Neumeier, Laura

Photo Logs

Field Photographs MP 9.00 – MP 9.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 9.00 – MP 9.25

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001



Field Photographs MP 9.00 – MP 9.25

LDB Zone ID 2, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 1, Photo 004



RDB Zone ID 2, Photo 001



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 2, Photo 004



RDB Zone ID 2, Photo 005



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 9.00 – MP 9.25

RDB Zone ID 6, Photo 002



RDB Zone ID 6, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 9.0 to MP 9.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	yes	Enbridge MR
SOTF	START	JDP	MDEQ	yes	Enbridge MR
PI	START	JDP	MDEQ	yes	Enbridge MR
FLS	START	JDP	MDEQ	yes	Enbridge MR
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JTPowell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/6/11 Date

Michelle DeLong — Printed Name

DaBa — Enbridge — 6/6/2011 Date

Dave Barham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.0 to MP 9.25 LDB (Bank) or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/13/11 Date

Thomas Maciunas Printed Name

_____ MDEQ 4-13-11 Date

James Dahlke Printed Name

Chris Bauer 4/13/11

_____ Enbridge 4-13-11 Date

Hans Wranta Printed Name

Approximately 1/2 of the section was observed from the boat.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.0 to MP 9.25, (Bank) ~~or Island~~: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-26-11 Date
Sean Kane	Printed Name	
William Keiger	MDEQ	4-26-11 Date
[signature]	Printed Name	
Laura Neumeier	Enbridge	4/26/2011 Date
Laura Neumeier	Printed Name	

6 Zones captured by YUMA

Segment 9.25 – 9.50

MP 9.25 to MP 9.50

The LDB of segment 9.50 generally consists of a low vegetative bank with scrub-shrub, emergent/herbaceous, or forested wetland swamp habitats. The reassessment identified one point, seven polygons, and one linear transect, generally containing staining, surface oil residue, and patties. One polygon (4 LDB), occurring within a previous O&M work site (9.50 L1), contained an unconfirmed film across the excavated area. This excavation was completed in the fall of 2010.

The RDB of segment 9.50 consists primarily of Historic Bridge Park. A tributary enters the river with segment 9.50. The reassessment identified one point, one polygon, and one linear transect. Trace amounts of staining and coating on structures and/or trunks and stems were identified. A sporadic occurrence of film on ponded water was identified in Point 3 RDB.

Poling of the tributary on the RDB within this segment was completed at fifteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One PI observation noted as an Unconfirmed Area of Interest was identified in this segment corresponding to Polygon 4 LDB.

One island is located within segment 9.50 consisting of emergent/herbaceous wetland habitat. The initial reassessment identified two polygons. Polygon 1 I contained a broken distribution of oil occurrence ranging from patties and asphalt pavement on the soil surface to surface oil residue on trunks and stems. Polygon 2 I contained trace amounts of stained or covered trunks and stems.

The FLS did not identify any oil signatures within this segment.

The attachments provide additional details on this segment.

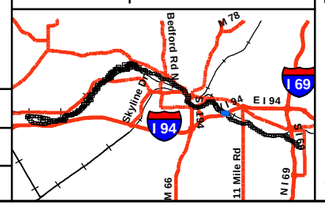
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP9.25-MP9.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 9.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		steep bank observation from boat	Muccianti, Marcus Bauer, Chris
4/13/2011	09:06																	42.28936	-85.11434		Wronka, Hans
2	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank			Muccianti, Marcus Bauer, Chris
4/13/2011	09:21																	42.28965	-85.11527		Wronka, Hans
3	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-scrub/shrub			Muccianti, Marcus Bauer, Chris
4/13/2011	09:32																	42.28992	-85.11585		Wronka, Hans
4	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Other (comments)		excavated area isolated by containment boom. possible that film is organic. unable to confirm	Muccianti, Marcus Bauer, Chris
4/13/2011	09:42																	42.29007	-85.11622		Wronka, Hans
5	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	S	Wetland-emergent/herbaceous			Muccianti, Marcus Bauer, Chris
4/13/2011	09:55																	42.29042	-85.11656		Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character															
Mile Marker: 9.5																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
6	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	P	Wetland-scrub/shrub			Muccianti, Marcus	Bauer, Chris
4/13/2011	09:57																	42.29039	-85.11651		Wronka, Hans	
7	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus	Bauer, Chris
4/13/2011	10:05																	42.29059	-85.11687		Wronka, Hans	
8	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		patties along waters edge	Muccianti, Marcus	Bauer, Chris
4/13/2011	10:14																	42.29079	-85.11695		Wronka, Hans	
9	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		patties at waters edge	Muccianti, Marcus	Bauer, Chris
4/13/2011	10:25																	42.29110	-85.11710		Wronka, Hans	

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 9.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
																					Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☑	☐	☑	☑	☐	☑	☑	B	Wetland-emergent/herbaceous		about 50% piles of debris with tar	Kane, Sean
																					Keiper, Bill
4/26/2011	17:06																	42.28989	-85.11497		Neumeier, Laura
2	Shoreline and Overbank	☐	☑	☐	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	T	Wetland-emergent/herbaceous			Kane, Sean
																					Keiper, Bill
4/26/2011	17:18																	42.28993	-85.11529		Neumeier, Laura

2011 Reassessment

Bank: RDB

Mile Marker: 9.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		coating on I-94 bridge	Kane, Sean
																					Keiper, Bill
4/26/2011	17:36																	42.28993	-85.11427		Neumeier, Laura
2	Overbank	☐	☑	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	T	Lawn (maintained land)		staing and coating on concrete and guard rail	Graan, Tom
																					Goddard, Matt
5/19/2011	15:16																	42.29024	-85.11501		Neumeier, Laura
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		mix of biological sheen and oil	Graan, Tom
																					Goddard, Matt
5/19/2011	14:16																	42.29083	-85.11364		Neumeier, Laura

Photo Logs

Field Photographs MP 9.25 – MP 9.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 9.25 – MP 9.50

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 9.25 – MP 9.50

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 9.25 – MP 9.50

LDB Zone ID 6, Photo 001



LDB Zone ID 7, Photo 001



Field Photographs MP 9.25 – MP 9.50

LDB Zone ID 8, Photo 001



LDB Zone ID 8, Photo 002



Field Photographs MP 9.25 – MP 9.50

LDB Zone ID 9, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 9.25 – MP 9.50

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 9.25 – MP 9.50

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 9.25 – MP 9.50

RDB Zone ID 2, Photo 003



RDB Zone ID 2, Photo 004



Field Photographs MP 9.25 – MP 9.50

RDB Zone ID 2, Photo 005



RDB Zone ID 3, Photo 001



Field Photographs MP 9.25 – MP 9.50

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 9.25 – MP 9.50

I Zone ID 1, Photo 003



I Zone ID 1, Photo 004



Field Photographs MP 9.25 – MP 9.50

I Zone ID 1, Photo 005



I Zone ID 1, Photo 006



Field Photographs MP 9.25 – MP 9.50

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs MP 9.25 – MP 9.50

I Zone ID 2, Photo 003



I Zone ID 2, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 9.25 to MP 9.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Strike team to complete assessment on RDB for MP 9.25 to 9.5	May 20/11

Completeness Check Acknowledged

	START	6/6/2011	Date
John Powell	Printed Name		
Michelle DeLong	MDEQ	6/6/11	Date
Michelle DeLong	Printed Name		
	Enbridge	6/6/2011	Date
Dave Barcham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

LDB

Segment ID: From MP 9.25 to MP 9.5, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/13/11 Date

Marcus Muccioni Printed Name

Chris Bauer MDEQ 4-13-11 Date

Chris Bauer Printed Name

[signature] 4-13-11

James Gamble

[signature] Enbridge 4-13-11 Date

Hans Wronka Printed Name

Shoreline @ Bridge was observed by boat

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.25 to MP 9.5, ~~Bank or~~ Island: RB* ONLY, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4-26-11 Date
Sean Kane	Printed Name	
William Keiper	MDEQ	4-26-11 Date
[signature]	Printed Name	
[signature]	Enbridge	4/26/2011 Date
Laura Neumeier	Printed Name	

* 1 island - 2 zones captured by YVMA

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 9.25 to MP 9.50, Unique ID RDB FF, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START 5/19/11 Date

THOMAS P. GRAAN _____ Printed Name

_____ MDEQ 5/19/2011 Date

Matt Goddard _____ Printed Name

_____ Enbridge 5/19/2011 Date

Laura Neumeier _____ Printed Name

Strike points collected by YUMA

2 SORT features collected by YUMA

Segment 9.50 – 9.75

MP 9.50 to MP 9.75

The LDB of segment 9.75 generally consists of emergent/herbaceous wetland habitat on the upstream portion of the LDB, transitioning to a sand/gravel shoreline toward the downstream portion of the LDB. The reassessment identified two polygons and one linear transect largely containing staining and surface oil residue, with patties and oiled debris noted.

The RDB of segment 9.75 consists primarily of a low vegetative bank. The reassessment identified four polygons containing trace to sporadic amounts of stained and coated trunks and stems. One polygon (1 RDB) located at the start of the segment was identified as containing both organic and petroleum film/sheen.

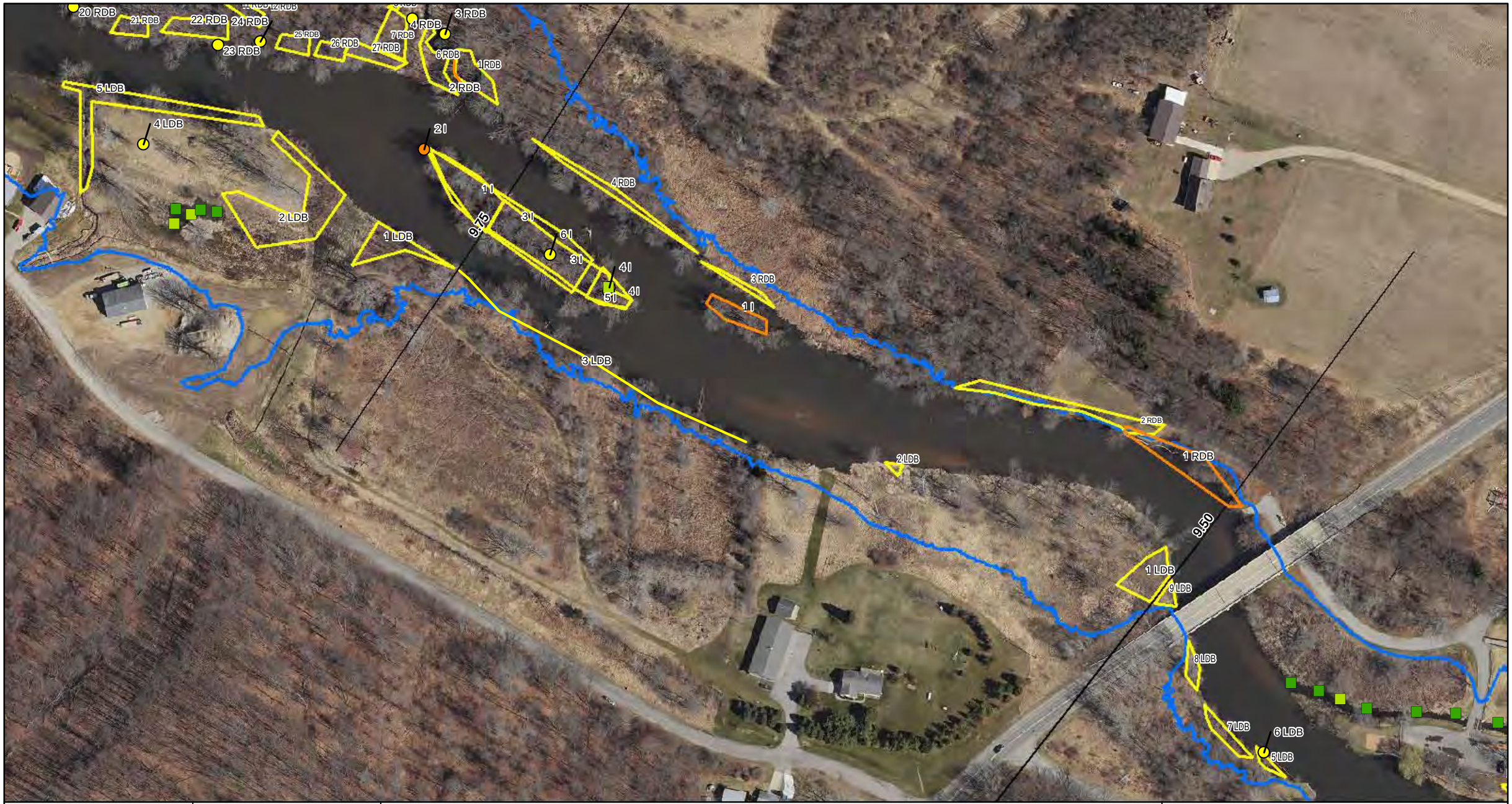
Two islands are located within segment 9.75, consisting of forested wetland swamp habitat. The reassessment identified one polygon (1 I) on the upstream island containing broken amounts of oil occurrence, including sheen, patties, and ranging from covered to coated tar. It was also noted that this island contained a petroleum odor. The reassessment of the downstream island identified polygons (Polygon 3 I and 4 I) containing stained to covered debris, trunks and stems. Tar balls, patties, and surface oil residue was also present at Polygon 4 I. The downstream island was located within segment 9.75 and segment 10.00. The island was assessed as part of the reassessment for both segments.

Poling was also conducted within the segment to fully assess submerged oil on the downstream island at Polygon 4 I. The detailed results of the poling activities will be completed under a separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

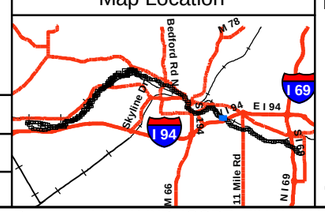
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP9.50-MP9.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 9.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Muccianti, Marcus
																					Bauer, Chris
4/13/2011	10:35																	42.29129	-85.11710		Wronka, Hans
2	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Muccianti, Marcus
																					Bauer, Chris
4/13/2011	10:55																	42.29165	-85.11877		Wronka, Hans
3	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Sand-Gravel shoreline		landform at end of segment is now an island	Muccianti, Marcus
																					Bauer, Chris
4/13/2011	11:16																	42.29227	-85.12140		Wronka, Hans

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 9.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☑	☑	☐	☑	☐	☐	☐	☑	☑	☑	☐	☐	☑	☑	B	Wetland-swamp (forested)	island; petroleum odor	Johnson, Kevin Flickinger, Brian
4/26/2011	11:05																	42.29229 / -85.11965		Oswald, John
3	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☑	☐	☑	☑	P	Wetland-swamp (forested)		Johnson, Kevin Flickinger, Brian
4/26/2011	12:08																	42.29269 / -85.12121		Oswald, John
4	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☑	☑	☐	☑	☐	☐	☑	☑	P	Wetland-swamp (forested)	was 9.75 i2 pink polygon 10 to 15 %	Graan, Tom Fairchild, Katie
5/4/2011	12:56																	42.29241 / -85.12044		Neumeier, Laura
5	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	STAINS ON TREES	Kane, Sean ROBIN OEMING
5/9/2011	18:16																	42.29238 / -85.12040		Juntilla, John
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Wetland-swamp (forested)	TAR ON GROUND	Kane, Sean ROBIN OEMING
5/9/2011	18:20																	42.29254 / -85.12075		Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 9.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	S	Low Vegetated Bank		sheen mix of natural & petroleum	Johnson, Kevin
																					Flickinger, Brian
4/26/2011	10:27																	42.29179	-85.11735		Oswald, John
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		2-3 foot bank	Johnson, Kevin
																					Flickinger, Brian
4/26/2011	10:54																	42.29214	-85.11913		Oswald, John
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Johnson, Kevin
																					Flickinger, Brian
4/26/2011	11:21																	42.29252	-85.11986		Oswald, John
4	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Johnson, Kevin
																					Flickinger, Brian
4/26/2011	11:39																	42.29255	-85.11988		Oswald, John

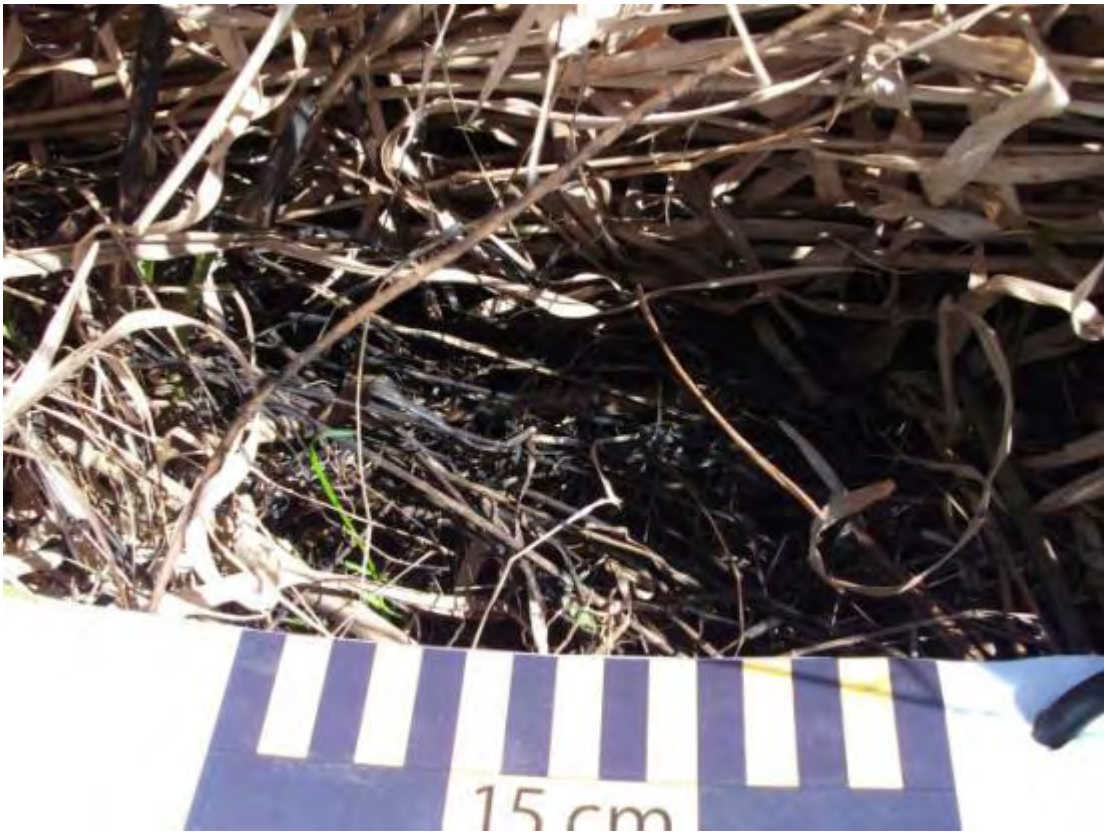
Photo Logs

Field Photographs MP 9.50 – MP 9.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 9.50 – MP 9.75

LDB Zone ID 3, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 9.50 – MP 9.75

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 9.50 – MP 9.75

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 9.50 – MP 9.75

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 9.50 – MP 9.75

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 9.50 – MP 9.75

I Zone ID 1, Photo 003



I Zone ID 3, Photo 001



Field Photographs MP 9.50 – MP 9.75

I Zone ID 3, Photo 002



I Zone ID 3, Photo 003



Field Photographs MP 9.50 – MP 9.75

I Zone ID 4, Photo 001



I Zone ID 4, Photo 002



Field Photographs MP 9.50 – MP 9.75

I Zone ID 4, Photo 003



I Zone ID 4, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 9.5 to MP 9.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[ ]	MDEQ	[ ]	Enbridge [ ]
SOTF	START	[ ]	MDEQ	[ ]	Enbridge [ ]
PI	START	[ ]	MDEQ	[ ]	Enbridge [ ]
FLS	START	[ ]	MDEQ	[ ]	Enbridge [ ]
Inundation Model	START	[ ]	MDEQ	[ ]	Enbridge [ ]

Action Items

	Action Item Description	Date Resolved
(1)	Confirm polygon shp 2RDB MP 9.5-9.75 w team lead. (suspected YUMA error)	May 23/11

Completeness Check Acknowledged

[ ]	START	6/6/2011 Date
John Powell	Printed Name	
[ ]	MDEQ	6/6/11 Date
Michelle Delong	Printed Name	
[ ]	Enbridge	6/6/2011 Date
Dave Bareham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

LDB

Segment ID: From MP 9.5 to MP 9.75 (Bank) or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/13/11 Date

_____ Printed Name

_____ MDEQ 4-13-11 Date

James Gamble Printed Name 4-13-11

Chris Bauer

_____ Enbridge 4-13-11 Date

Hans Wronka Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.5 to MP 9.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 04/26/2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 4/26/11 Date

Brian Flickinger Printed Name

[signature] Enbridge — 4/26/11 Date

JOHN OSWALD Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 9.5 to MP 9.75, Unique ID 9.75 2 I, Bank ____ and/or Island Island only

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/4/11 — Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5-4-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/4/11 — Date

Laura Neumeier — Printed Name

* 1 polygon collected by YUMA

Segment 9.75 – 10.00

MP 9.75 to MP 10.00

The LDB of segment 10.00 generally consists of emergent/herbaceous, scrub-shrub, forested wetland swamp habitats and maintained land. A pond is present within the LDB. The reassessment identified three points and five polygons. In general, trace to sporadic amounts of staining and surface oil residue was identified at all locations.

Poling of the pond within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 10.00 consists primarily of forested wetland swamp with areas of scrub-shrub and emergent/herbaceous wetlands. The reassessment identified eight points, twenty-nine polygons, and two linear transects. In general, trace to sporadic occurrences of stained debris and/or trunks and stems were identified at all locations. A trace occurrence of film on ponded water was identified in Point 18 RDB and Linear Transect 2 RDB.

Two islands are located within segment 10.00, consisting primarily of forested wetland swamp habitat. The reassessment identified three points and five polygons on the two islands. In general, trace to patchy amounts of staining and film were identified at all locations. A trace or sporadic occurrence of film on ponded water was identified in Points 2 I and 4 I. Trace to patchy tar balls and patties were identified at Point 2 I and Polygons 1 I, 3 I, and 8 I. The upstream island was located within segment 9.75 and segment 10.00. The island was assessed as part of the reassessment for both segments.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

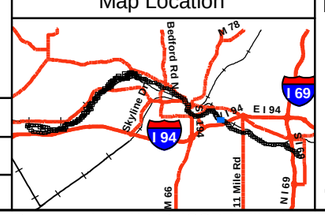
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP9.75-MP10.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 10																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub			Muccianti, Marcus Bauer, Chris
4/13/2011	11:35																	42.29268	-85.12177		Wronka, Hans
2	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub			Muccianti, Marcus Bauer, Chris
4/13/2011	11:52																	42.29307	-85.12237		Wronka, Hans
4	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-emergent/herbaceous			Muccianti, Marcus Bauer, Chris
4/13/2011	12:08																	42.29301	-85.12316		Wronka, Hans
5	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub		creek bed contains material along edge	Muccianti, Marcus Bauer, Chris
4/13/2011	12:18																	42.29282	-85.12354		Wronka, Hans
6	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/13/2011	13:32																	42.29397	-85.12512		Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 10																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
7	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Lawn (maintained land)	
4/13/2011	13:35																	42.29362 / -85.12536	
8	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Lawn (maintained land)	
4/13/2011	13:38																	42.29384 / -85.12579	
9	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)	
4/13/2011	13:54																	42.29422 / -85.12587	

START	
MDEQ	
Enbridge Team Lead	
Muccianti, Marcus	
Bauer, Chris	
Wronka, Hans	
Muccianti, Marcus	
Bauer, Chris	
Wronka, Hans	
Muccianti, Marcus	
Bauer, Chris	
Wronka, Hans	

2011 Reassessment

Bank: I	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 10																				MDEQ
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems				
Date	**Time**																**Latitude**	**Longitude**		Enbridge Team Lead
1	Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☑	☐	☑	☐	☐	☐	☑	P	Wetland-swamp (forested)		STAINING AND TAR FAIRLY EVENLY DISTRIBUTED	Kane, Sean
																				ROBIN OEMING
5/9/2011	10:21																	42.29274	-85.12123		Juntilla, John
2	Shoreline	☐	☐	☑	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		SHEEN AND TAR BALL ON BANK OF ISLAND	Kane, Sean
																					ROBIN OEMING
5/9/2011	10:32																	42.29300	-85.12150		Juntilla, John
3	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☑	☑	☐	☑	☑	☐	☑	☑	P	Wetland-swamp (forested)		TAR ON GROUND AND ON TREES	Kane, Sean
																					ROBIN OEMING
5/9/2011	18:08																	42.29237	-85.12045		Juntilla, John
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN IN A HOLE	Kane, Sean
																					ROBIN OEMING
5/9/2011	18:13																	42.29240	-85.12040		Juntilla, John
7	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous		OZID 8 ISLAND 2 IN SEGMENT 10.00 ID #45, STAIN ON TREE	Kane, Sean
																					ROBIN OEMING
5/10/2011	13:04																	42.29435	-85.12491		Juntilla, John

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 10																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
8	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☑	☐	☑	☐	P	Wetland-emergent/herbaceous		OZID 7 ISLAND 2 IN 10.00 SEGMENT ID #45, TAR ON GROUND AND DEBRI, BANK/ISLAND SHOULD BE ISLAND	Kane, Sean ROBIN OEMING
5/10/2011	12:59																	42.29446	-85.12491		Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 10

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	5/9/2011	11:04	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)	42.29327	-85.12124	STAINING SOME TAR	Kane, Sean / ROBIN OEMING / Juntilla, John
10	Overbank	5/9/2011	14:14	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	42.29376	-85.12188	STAINING AND TAR	Kane, Sean / ROBIN OEMING / Juntilla, John
11	Overbank	5/9/2011	14:59	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.29362	-85.12264	STAINING AND TAR ON TREES	Kane, Sean / ROBIN OEMING / Juntilla, John
12	Overbank	5/9/2011	15:15	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)	42.29399	-85.12261	STAINING AND TAR ON TREES	Kane, Sean / ROBIN OEMING / Juntilla, John
13	Overbank	5/9/2011	15:29	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub	42.29414	-85.12254	STAINING ON TREES	Kane, Sean / ROBIN OEMING / Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 10

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
14	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		STAINING ON TREES	Kane, Sean
																					ROBIN OEMING
5/9/2011	15:40																	42.29427	-85.12264		Juntilla, John
15	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub		STAINING ON TREES AND STEMS	Kane, Sean
																					ROBIN OEMING
5/9/2011	15:59																	42.29427	-85.12286		Juntilla, John
16	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING ON TREES	Kane, Sean
																					ROBIN OEMING
5/9/2011	16:08																	42.29425	-85.12314		Juntilla, John
17	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		STAINING ON TREES AND TAR ON GROUND	Kane, Sean
																					ROBIN OEMING
5/9/2011	16:21																	42.29394	-85.12325		Juntilla, John
18	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SOME OIL SHEEN ON POOLED WATER	Kane, Sean
																					ROBIN OEMING
5/9/2011	16:25																	42.29396	-85.12333		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 10																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
19	Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	TAR AND STAINING ON GROUND AND TREES	Kane, Sean / ROBIN OEMING
5/9/2011	16:42																	42.29363 / -85.12327		Juntilla, John
2	Shoreline	☐	☐	☑	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank	STAINING ON UPSTREAM BANK OF CREEK	Kane, Sean / ROBIN OEMING
5/9/2011	11:13																	42.29337 / -85.12134		Juntilla, John
20	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous	TAR ON CUT STACKED WOOD	Kane, Sean / ROBIN OEMING
5/9/2011	16:50																	42.29361 / -85.12358		Juntilla, John
21	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	TAR ON GROUND AND RINGS ON TREES	Kane, Sean / ROBIN OEMING
5/9/2011	16:57																	42.29347 / -85.12316		Juntilla, John
22	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	TAR ON TREES AND GROUND	Kane, Sean / ROBIN OEMING
5/9/2011	17:04																	42.29346 / -85.12270		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 10																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
23	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☑	B	Wetland-swamp (forested)	OIL RESIDUE AND TAR STAINING	Kane, Sean / ROBIN OEMING
5/9/2011	17:06																	42.29342 / -85.12274		Juntilla, John
24	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)	STAINING ON TREES	Kane, Sean / ROBIN OEMING
5/9/2011	17:12																	42.29346 / -85.12247		Juntilla, John
25	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	STAINING ON TREES	Kane, Sean / ROBIN OEMING
5/9/2011	17:18																	42.29346 / -85.12218		Juntilla, John
26	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	STAINING ON TREES	Kane, Sean / ROBIN OEMING
5/9/2011	17:24																	42.29344 / -85.12197		Juntilla, John
27	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	STAINING ON TREES AND DEBRI	Kane, Sean / ROBIN OEMING
5/9/2011	17:34																	42.29339 / -85.12162		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 10																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
28	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID 28, STAINING AND TAR ON TREES	Kane, Sean	ROBIN OEMING
5/10/2011	09:12																	42.29413	-85.12376		Juntilla, John	
29	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID29, TAR ON TREES AND GROUND	Kane, Sean	ROBIN OEMING
5/10/2011	09:48																	42.29446	-85.12352		Juntilla, John	
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SMALL TAR BALL IN STRAW	Kane, Sean	ROBIN OEMING
5/9/2011	11:30																	42.29350	-85.12138		Juntilla, John	
30	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID 30, TAR ON TREES AND DEBRI	Kane, Sean	ROBIN OEMING
5/10/2011	09:55																	42.29419	-85.12312		Juntilla, John	
31	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID 31, TAR ON TREES AND DEBRI	Kane, Sean	ROBIN OEMING
5/10/2011	10:20																	42.29439	-85.12334		Juntilla, John	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 10																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
32	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	OZID 32, TAR ON TREES AND DEBRI
5/10/2011	10:37																	42.29463 / -85.12366	
33	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	OZID33, TAR ON TREES
5/10/2011	10:51																	42.29423 / -85.12418	
34	Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)	OZID 34, TAR ON TREES, TRACE TAR BALLS THROUGH
5/10/2011	10:59																	42.29402 / -85.12424	
35	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)	OZID 35, SURFACE OIL RESIDUE
5/10/2011	11:07																	42.29426 / -85.12444	
36	Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	OZID 36, TAR ON TREES AND GROUND
5/10/2011	11:19																	42.29435 / -85.12425	

START	
MDEQ	
Enbridge Team Lead	
Kane, Sean	
ROBIN OEMING	
Juntilla, John	
Kane, Sean	
ROBIN OEMING	
Juntilla, John	
Kane, Sean	
ROBIN OEMING	
Juntilla, John	
Kane, Sean	
ROBIN OEMING	
Juntilla, John	
Kane, Sean	
ROBIN OEMING	
Juntilla, John	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 10																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
37	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID 37, TAR ON TREES AND DEBRI	Kane, Sean / ROBIN OEMING
5/10/2011	11:32																	42.29456	-85.12395		Juntilla, John
38	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID 38, TAR ON GROUND AND TREES	Kane, Sean / ROBIN OEMING
5/10/2011	11:46																	42.29419	-85.12456		Juntilla, John
39	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID 39, STAINING AND TAR ON TREES	Kane, Sean / ROBIN OEMING
5/10/2011	11:54																	42.29404	-85.12447		Juntilla, John
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		TAR ON DEBRI	Kane, Sean / ROBIN OEMING
5/9/2011	11:37																	42.29357	-85.12157		Juntilla, John
5	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub		STAINING ON TREES AND DEBRI	Kane, Sean / ROBIN OEMING
5/9/2011	11:45																	42.29358	-85.12162		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 10																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☐	☐	☑	☐	☐	☑	☑	T	Wetland-emergent/herbaceous		STAINING AND TAR ON VEGITATION, BANK AND GROUND	Kane, Sean	
																					ROBIN OEMING	
5/9/2011	11:58																	42.29339	-85.12153		Juntilla, John	
7	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		STAININNG AND TAR	Kane, Sean	
																					ROBIN OEMING	
5/9/2011	12:56																	42.29357	-85.12167		Juntilla, John	
8	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING AND TAR	Kane, Sean	
																					ROBIN OEMING	
5/9/2011	13:10																	42.29377	-85.12180		Juntilla, John	
9	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING AND TAR	Kane, Sean	
																					ROBIN OEMING	
5/9/2011	13:59																	42.29387	-85.12210		Juntilla, John	

Photo Logs

Field Photographs MP 9.75 – MP 10.00

LDB Zone ID 1, Photo 001

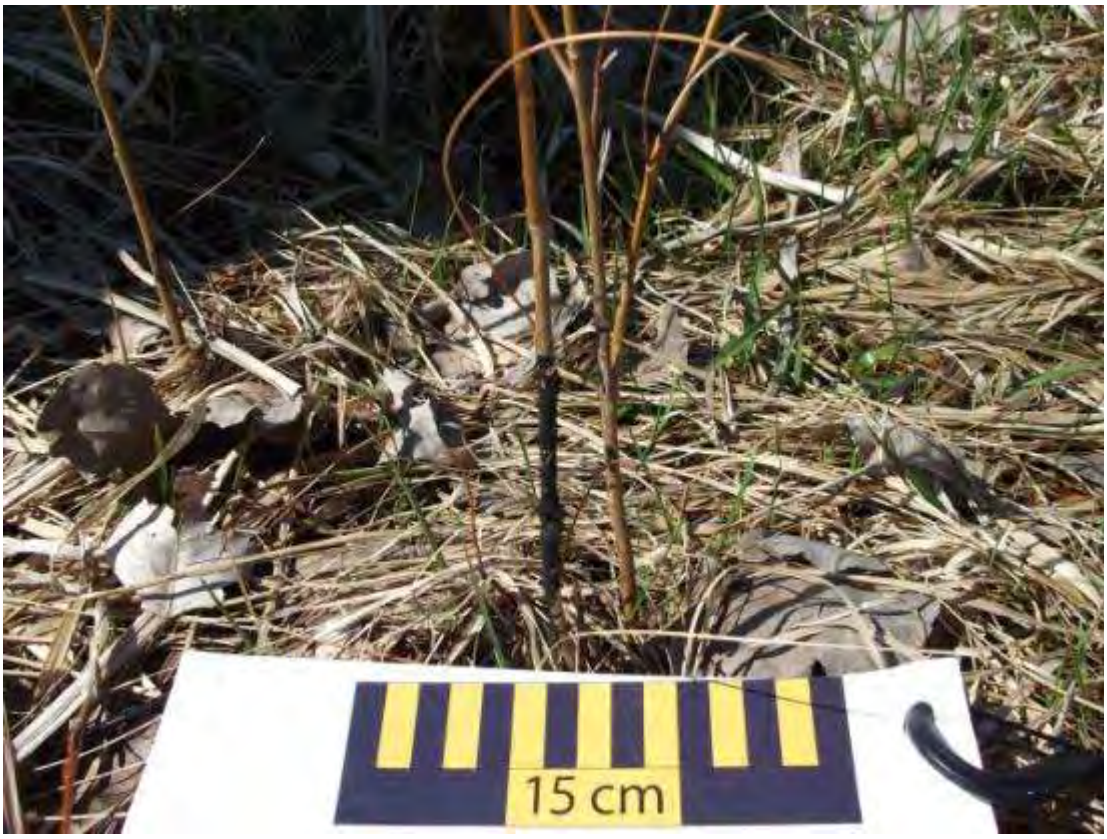


LDB Zone ID 2, Photo 001



Field Photographs MP 9.75 – MP 10.00

LDB Zone ID 2, Photo 002



LDB Zone ID 4, Photo 001



Field Photographs MP 9.75 – MP 10.00

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 9.75 – MP 10.00

LDB Zone ID 7, Photo 001



LDB Zone ID 8, Photo 001



Field Photographs MP 9.75 – MP 10.00

LDB Zone ID 9, Photo 001



LDB Zone ID 9, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001

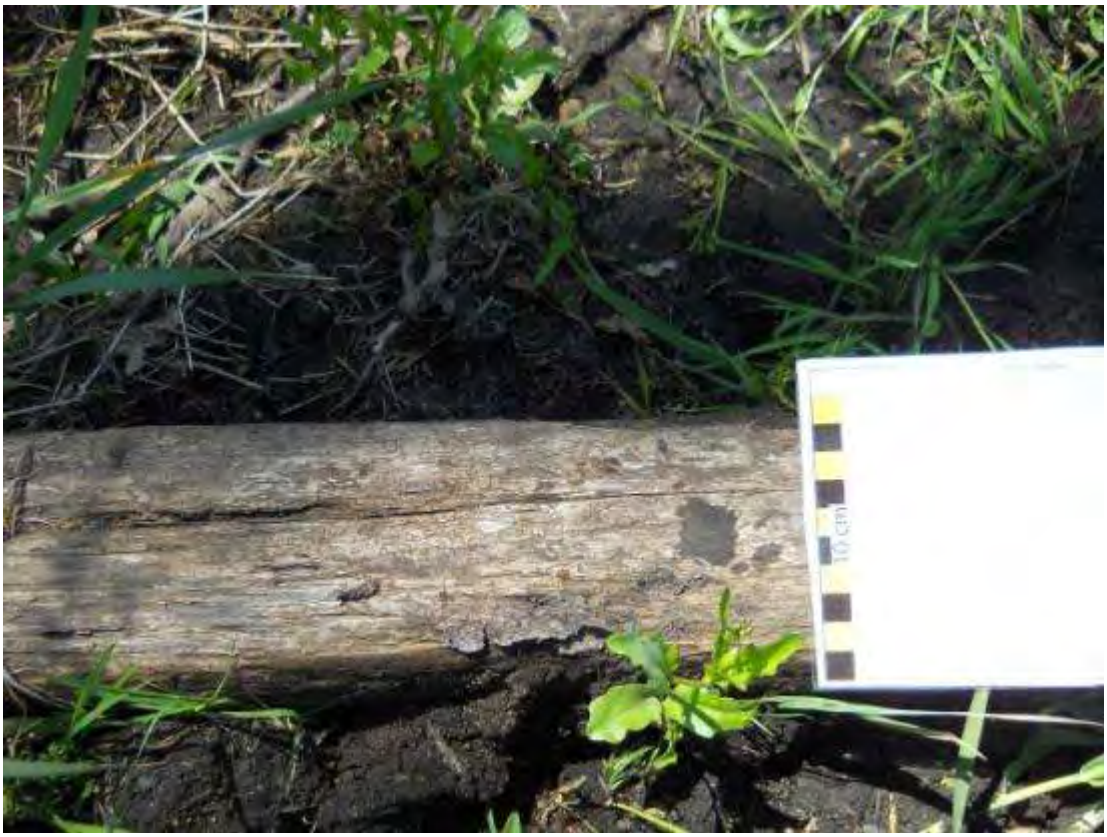


Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 6, Photo 002



RDB Zone ID 6, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 6, Photo 004



RDB Zone ID 6, Photo 005



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 6, Photo 006



RDB Zone ID 7, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 7, Photo 002



RDB Zone ID 7, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 7, Photo 004



RDB Zone ID 7, Photo 005



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 7, Photo 006



RDB Zone ID 8, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 8, Photo 002



RDB Zone ID 9, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 9, Photo 002

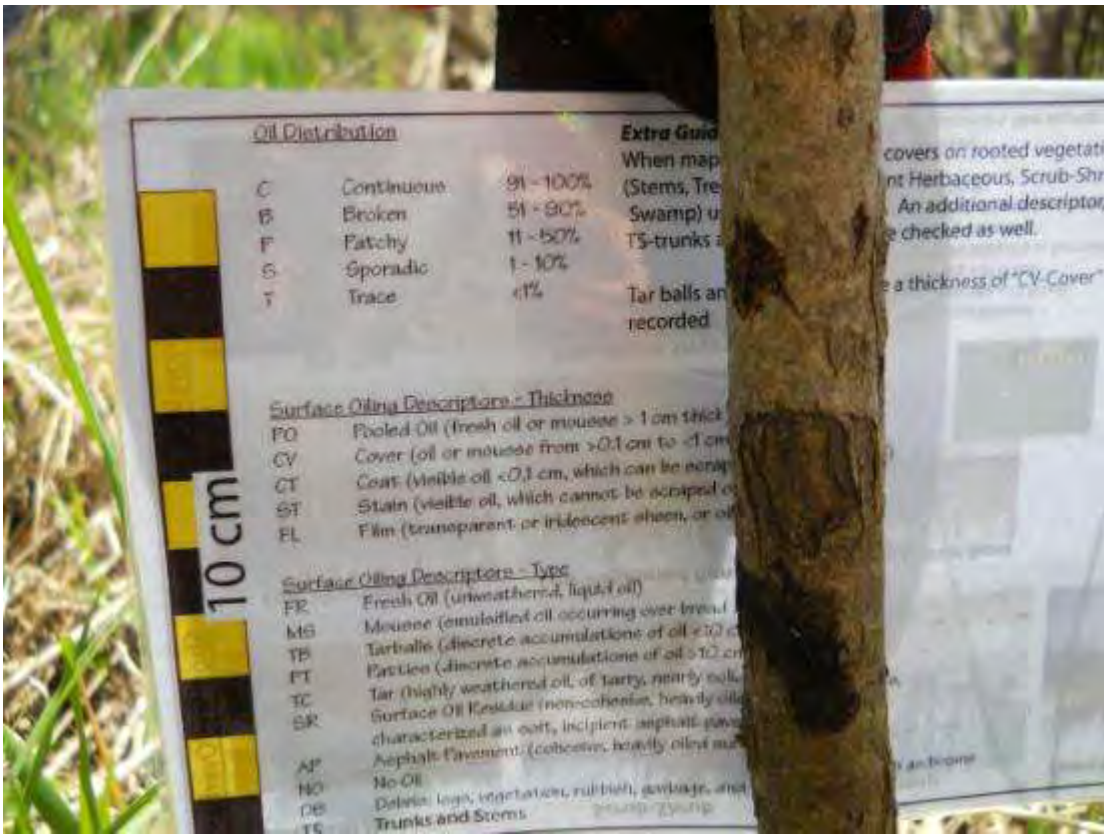


RDB Zone ID 10, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 10, Photo 002



RDB Zone ID 11, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 11, Photo 002



RDB Zone ID 11, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 11, Photo 004



RDB Zone ID 12, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 12, Photo 002



RDB Zone ID 12, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 13, Photo 001



RDB Zone ID 13, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 14, Photo 001



RDB Zone ID 14, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 15, Photo 001



RDB Zone ID 15, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 16, Photo 001



RDB Zone ID 16, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 17, Photo 001



RDB Zone ID 17, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 17, Photo 003



RDB Zone ID 17, Photo 004

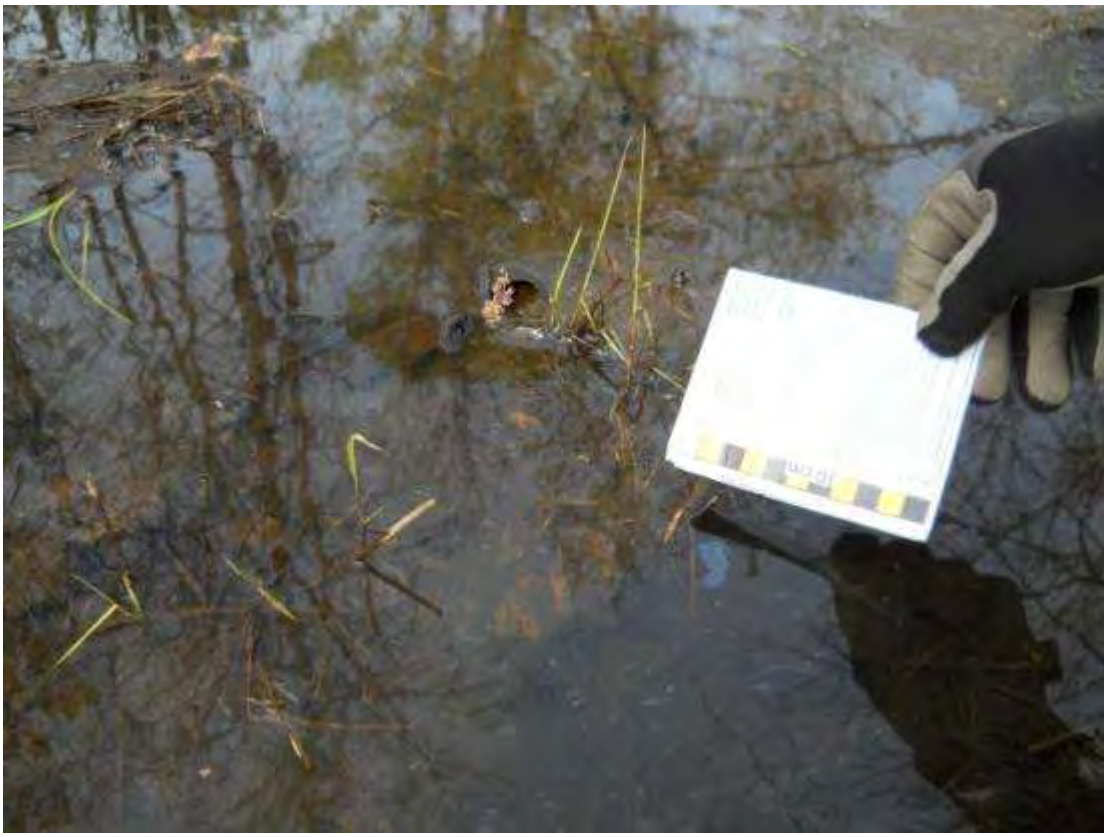


Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 17, Photo 005

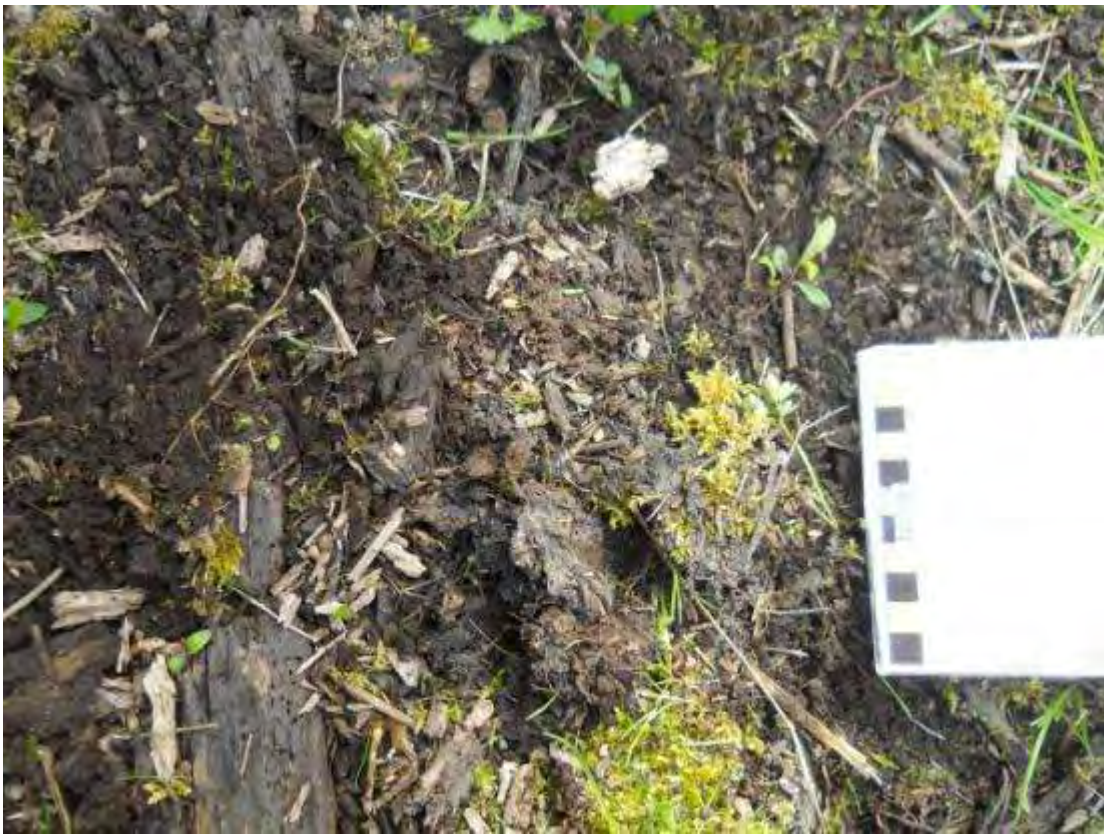


RDB Zone ID 18, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 19, Photo 001



RDB Zone ID 19, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 19, Photo 003



RDB Zone ID 19, Photo 004



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 20, Photo 001



RDB Zone ID 21, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 21, Photo 002



RDB Zone ID 22, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 22, Photo 002

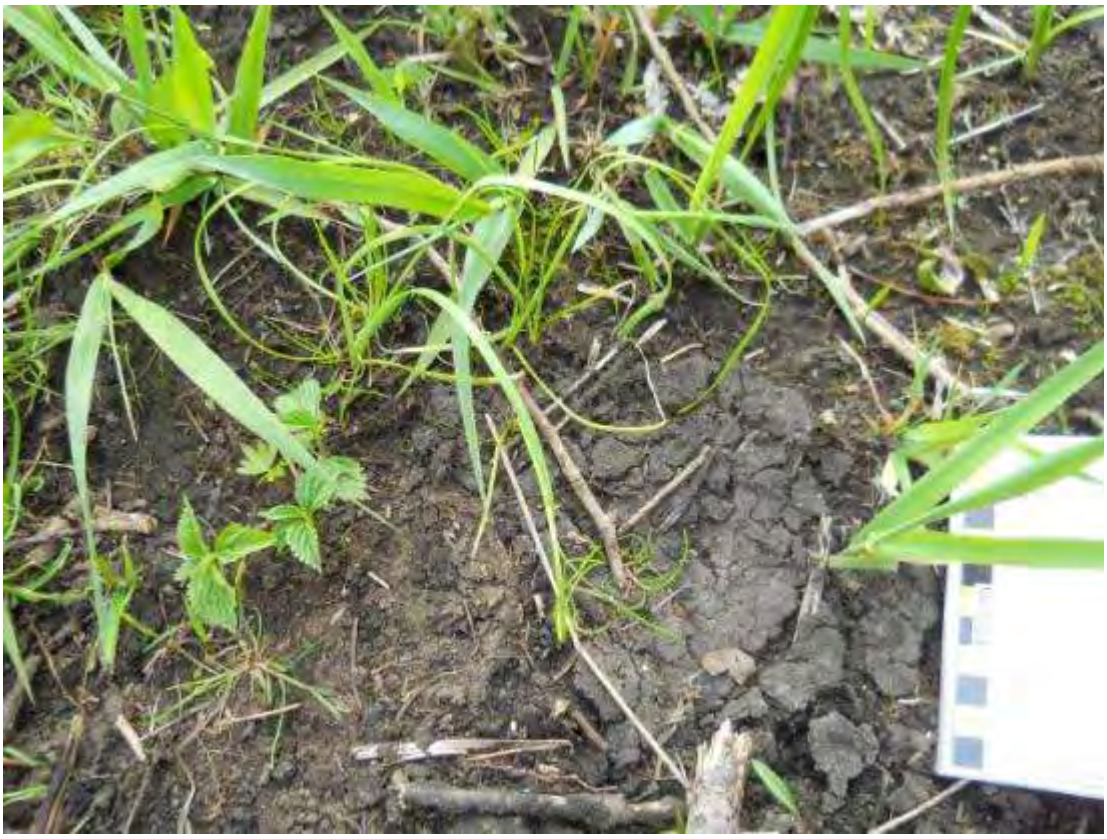


RDB Zone ID 22, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 22, Photo 004



RDB Zone ID 23, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 23, Photo 002



RDB Zone ID 24, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 25, Photo 001



RDB Zone ID 25, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 25, Photo 003



RDB Zone ID 25, Photo 004



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 25, Photo 005



RDB Zone ID 26, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 26, Photo 002



RDB Zone ID 26, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 26, Photo 004



RDB Zone ID 26, Photo 005



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 26, Photo 006



RDB Zone ID 27, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 27, Photo 002



RDB Zone ID 27, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 27, Photo 004



RDB Zone ID 28, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 28, Photo 002



RDB Zone ID 28, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 28, Photo 004



RDB Zone ID 29, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 29, Photo 002



RDB Zone ID 29, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 29, Photo 004



RDB Zone ID 29, Photo 005



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 29, Photo 006



RDB Zone ID 30, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 30, Photo 002



RDB Zone ID 30, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 31, Photo 001



RDB Zone ID 31, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 31, Photo 003



RDB Zone ID 31, Photo 004



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 32, Photo 001



RDB Zone ID 32, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 32, Photo 003



RDB Zone ID 32, Photo 004



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 33, Photo 001



RDB Zone ID 33, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 33, Photo 003



RDB Zone ID 33, Photo 004



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 33, Photo 005



RDB Zone ID 33, Photo 006



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 33, Photo 007



RDB Zone ID 34, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 34, Photo 002



RDB Zone ID 34, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 34, Photo 004



RDB Zone ID 35, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 36, Photo 001



RDB Zone ID 36, Photo 002



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 36, Photo 003



RDB Zone ID 37, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 37, Photo 002



RDB Zone ID 37, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 37, Photo 004



RDB Zone ID 38, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 38, Photo 002



RDB Zone ID 38, Photo 003



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 38, Photo 004



RDB Zone ID 38, Photo 005



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 38, Photo 006



RDB Zone ID 39, Photo 001



Field Photographs MP 9.75 – MP 10.00

RDB Zone ID 39, Photo 002



RDB Zone ID 39, Photo 003



Field Photographs MP 9.75 – MP 10.00

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 9.75 – MP 10.00

I Zone ID 1, Photo 003



I Zone ID 2, Photo 001



Field Photographs MP 9.75 – MP 10.00

I Zone ID 3, Photo 001



I Zone ID 3, Photo 002



Field Photographs MP 9.75 – MP 10.00

I Zone ID 3, Photo 003



I Zone ID 3, Photo 004



Field Photographs MP 9.75 – MP 10.00

I Zone ID 3, Photo 005



I Zone ID 3, Photo 006



Field Photographs MP 9.75 – MP 10.00

I Zone ID 3, Photo 007



I Zone ID 3, Photo 008



Field Photographs MP 9.75 – MP 10.00

I Zone ID 3, Photo 009



I Zone ID 3, Photo 010



Field Photographs MP 9.75 – MP 10.00

I Zone ID 3, Photo 011



I Zone ID 4, Photo 001



Field Photographs MP 9.75 – MP 10.00

I Zone ID 4, Photo 002



I Zone ID 5, Photo 001



Field Photographs MP 9.75 – MP 10.00

I Zone ID 6, Photo 001



I Zone ID 6, Photo 002



Field Photographs MP 9.75 – MP 10.00

I Zone ID 7, Photo 001



I Zone ID 8, Photo 001



Field Photographs MP 9.75 – MP 10.00

I Zone ID 8, Photo 002



I Zone ID 8, Photo 003



Field Photographs MP 9.75 – MP 10.00

I Zone ID 8, Photo 004



I Zone ID 8, Photo 005



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 9.75 to MP 10.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	GAB	Enbridge
SOTF	START	JDP	MDEQ	GAB	Enbridge
PI	START	JDP	MDEQ	GAB	Enbridge
FLS	START	JDP	MDEQ	GAB	Enbridge
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JDPowell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/6/11 Date

Michelle DeLong — Printed Name

Dave Buckham — Enbridge — 6/6/2011 Date

Dave Buckham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.75 to MP 10.0, (Bank) or Island:_____, Segment Length: 0.25 mile — LDB

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/13/11 Date

_____ Printed Name

_____ MDEQ — 4-13-11 Date (4-13-11)

Jama Gamble Printed Name

Chris Bauer / Chris Bauer

_____ Enbridge — 4-13-1 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 9.75 to MP 10.0, Unique ID LDB3 (10.0), Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/4/11 — Date

THOMAS P. GRAAN — Printed Name

Kathleen Fairchild — MDEQ — 5-4-11 — Date

Kathleen Fairchild — Printed Name

Dan DeWitt — Enbridge — 5/4/11 — Date

Dan DeWitt — Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 9.75 to MP 10.00, Unique ID LDB1, Bank: LB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	5-27-11 Date
Sean Kane	Printed Name	
_____	MDEQ	5/27/11 Date
Ryan P. Blazic	Printed Name	
David Straud	Enbridge	5/27/11 Date
_____	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.75 to MP 10.0, Bank or Island: 2 islands, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-10-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	5/10/11 Date
R.G. Overhuis	Printed Name	
[signature]	Enbridge	5-10-11 Date
John V. Juntilla	Printed Name	

upstream island: 2 features collected from 9.75-10.0 - collected May 9th 2011

4 features collected from 9.50-9.75 - collected May 8th, 2011

down stream Island: 2 features collected on island near border of MP10.0 line - collected May 10th 2011

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.75 to MP 10.0 RDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-10-11 Date
Jean Hane	Printed Name	
[signature]	MDEQ	5/10/11 Date
[signature]	Printed Name	
[signature]	Enbridge	5-10-11 Date
John W. Juntilla	Printed Name	

27 Features collected on this segment on May 9th, 2011.

12 Features collected on this segment on May 10th, 2011

Vegitation coverage is increasing. Making it harder to see and to get around.

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 9.75 to MP 10.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 05/27/11 Date

CHRIS BECKETT Printed Name

[signature] MDEQ 5-27-11 Date

William Kaiser Printed Name

[signature] Enbridge 5/27/11 Date

JOSEPH STANDEN Printed Name

REASSESSED REVISED INUNDATION AREA. DID NOT IDENTIFY ANY OIL

Segment 10.00 – 10.25

MP 10.00 to MP 10.25

The LDB of segment 10.25 generally consists of forested wetland swamp. The reassessment identified only one large polygon encompassing the LDB, including the entire overbank. This area was identified as having a trace occurrence of staining and surface oil residue throughout.

The RDB of segment 10.25 consists primarily of forested wetland swamp with areas of scrub-shrub and emergent/herbaceous wetlands. The reassessment identified 32 polygons, linear transects, and/or points containing primarily trace to sporadic oil occurrences, and localized patchy to broken stained debris, trunks and stems. One of these points (Point 15 RDB) contained sheen on pooled water.

The FLS did not identify any oil signatures within this segment and no PI observations were made.

The attachments provide additional details on this segment.

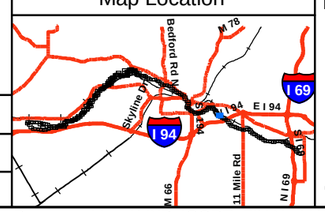
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP10.00-MP10.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 10.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		observed stain along 10.00 and 10.25 boundary lines. polygon reflects entire section	Muccianti, Marcus
																					Bauer, Chris
4/13/2011	14:19																	42.29585	-85.12657		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 10.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR AND STAINING ON TREES AND DEBRI	Kane, Sean
																					ROBIN OEMING
5/10/2011	13:33																	42.29466	-85.12449		Juntilla, John
10	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING ON TREES	Kane, Sean
																					ROBIN OEMING
5/10/2011	15:29																	42.29470	-85.12472		Juntilla, John
11	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	P	Wetland-swamp (forested)		TAR ON GROUND	Kane, Sean
																					ROBIN OEMING
5/10/2011	15:35																	42.29483	-85.12467		Juntilla, John
12	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		STAINING ON TREES	Kane, Sean
																					ROBIN OEMING
5/10/2011	15:55																	42.29527	-85.12387		Juntilla, John
13	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING ON TREE AND TAR ON GROUND	Kane, Sean
																					ROBIN OEMING
5/10/2011	16:04																	42.29555	-85.12370		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 10.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
14	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Wetland-scrub/shrub		OILY RESIDUE IN SEDIMENT	Kane, Sean
																					ROBIN OEMING
5/10/2011	16:49																	42.29669	-85.12532		Juntilla, John
15	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-scrub/shrub		PETROLEUM SHEEN ON POOLED WATER	Kane, Sean
																					ROBIN OEMING
5/10/2011	16:54																	42.29667	-85.12528		Juntilla, John
16	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	P	Wetland-emergent/herbaceous		OZID 16, TAR ON GROUND	Kane, Sean
																					ROBIN OEMING
5/11/2011	08:32																	42.29661	-85.12524		Juntilla, John
17	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub		OZID 17, STAINS ON TREES AND DEBRI	Kane, Sean
																					ROBIN OEMING
5/11/2011	08:41																	42.29673	-85.12534		Juntilla, John
18	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous		OZID 18, STAINING ON VEGITATION AND DEBRI, SHEEN NOTED INTERMITENTLY ABOUT THREE FEET INTO RIVER	Kane, Sean
																					ROBIN OEMINNG
5/11/2011	08:59																	42.29643	-85.12477		Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 10.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
19	Shoreline and Overbank	5/11/2011	09:06	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	42.29632	-85.12462	OZID 19, STAINING ON TREE	Kane, Sean / ROBIN OEMING / Juntilla, John
2	Overbank	5/10/2011	13:55	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.29487	-85.12397	STAINS ON TREES AND DEBRI	Kane, Sean / ROBIN OEMING / Juntilla, John
20	Overbank	5/11/2011	09:24	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-emergent/herbaceous	42.29667	-85.12511	OZID 20, STAINING ON VEGITATION AND DEBRI	Kane, Sean / ROBIN OEMING / Juntilla, John
21	Overbank	5/11/2011	09:43	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.29676	-85.12631	OZID 21, STAINING ON TREES	Kane, Sean / ROBIN OEMING / Juntilla, John
22	Overbank	5/11/2011	09:46	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)	42.29668	-85.12625	OZID 22, STAINING ON TREES	Kane, Sean / ROBIN OEMING / Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 10.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ	Enbridge Team Lead
23	Overbank			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			OZID 23, STAINING ON TREES AND VEGITATION	Kane, Sean	ROBIN OEMING
		5/11/2011	10:00																		42.29671	-85.12579			Juntilla, John
24	Overbank			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	B	Wetland-swamp (forested)			OZID 24, TAR ON DEBRI	Kane, Sean	ROBIN OEMING
		5/11/2011	10:12																		42.29658	-85.12598			Juntilla, John
25	Overbank			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	B	Wetland-swamp (forested)			OZID 25, TAR ON DEBRI	Kane, Sean	ROBIN OEMING
		5/11/2011	10:15																		42.29652	-85.12596			Juntilla, John
26	Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			OZID 26, STAINING ON TREES AND VEVITATION	Kane, Sean	ROBIN OEMING
		5/11/2011	10:57																		42.29628	-85.12647			Juntilla, John
27	Overbank			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			OZID 27, STAINING ON TREES AND DEBRI	Kane, Sean	ROBIN OEMING
		5/11/2011	11:10																		42.29655	-85.12615			Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 10.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
28	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	P	Wetland-swamp (forested)		OZID 28, TAR ON VEGITATION	Kane, Sean / ROBIN OEMING
5/11/2011	11:14																	42.29658	-85.12615		Juntilla, John
29	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		OZID 29, STAINING ON TREES, TAR ON GROUND	Kane, Sean / ROBIN OEMING
5/11/2011	11:23																	42.29652	-85.12562		Juntilla, John
3	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		STAINS And TAR ON TREES	Kane, Sean / ROBIN OEMING
5/10/2011	14:15																	42.29498	-85.12354		Juntilla, John
30	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		OZID 30, TAR ON GROUND	Kane, Sean / ROBIN OEMING
5/11/2011	11:27																	42.29652	-85.12572		Juntilla, John
31	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank		OZID 31, TAR ON VEGITATION	Kane, Sean / ROBIN OEMING
5/11/2011	11:33																	42.29631	-85.12590		Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 10.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START	MDEQ	Enbridge Team Lead
32	Overbank	5/11/2011	11:43	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	P	Wetland-swamp (forested)	42.29629	-85.12617	OZID 32, TAR ON GROUND AND SURROUNDING VEGITATION	Kane, Sean	ROBIN OEMING	Juntilla, John
4	Overbank	5/10/2011	14:31	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.29515	-85.12342	STAINING ON TREE AND DEBRI	Kane, Sean	ROBIN OEMING	Juntilla, John
5	Overbank	5/10/2011	14:36	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-scrub/shrub	42.29504	-85.12340	STAINING ON DEBRI	Kane, Sean	ROBIN OEMING	Juntilla, John
6	Overbank	5/10/2011	14:52	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)	42.29514	-85.12408	STAINING ON DEBRI	Kane, Sean	ROBIN OEMING	Juntilla, John
7	Overbank	5/10/2011	14:54	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub	42.29513	-85.12410	TAR PATTY ON GROUND	Kane, Sean	ROBIN OEMING	Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 10.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
8	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub	STAINING ON TREE AND DEBRI
5/10/2011	14:58																	42.29506 / -85.12419	
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐	☐	☐	P	Wetland-swamp (forested)	TAR ON GROUND
5/10/2011	15:19																	42.29492 / -85.12460	

START	
MDEQ	
Enbridge Team Lead	
Kane, Sean	
ROBIN OEMING	
Juntilla, John	
Kane, Sean	
ROBIN OEMING	
Juntilla, John	

Photo Logs

Field Photographs MP 10.00 – MP 10.25

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 1, Photo 004



RDB Zone ID 2, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 2, Photo 004



RDB Zone ID 3, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 3, Photo 002



RDB Zone ID 3, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 3, Photo 004



RDB Zone ID 4, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 7, Photo 001



RDB Zone ID 8, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 8, Photo 002



RDB Zone ID 9, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 9, Photo 002



RDB Zone ID 9, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 10, Photo 001



RDB Zone ID 10, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 10, Photo 003



RDB Zone ID 10, Photo 004



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 11, Photo 001



RDB Zone ID 12, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 12, Photo 002



RDB Zone ID 12, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 12, Photo 004



RDB Zone ID 13, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 13, Photo 002



RDB Zone ID 14, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 15, Photo 001



RDB Zone ID 16, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 16, Photo 002



RDB Zone ID 16, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 17, Photo 001



RDB Zone ID 17, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 17, Photo 003



RDB Zone ID 17, Photo 004



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 17, Photo 005



RDB Zone ID 17, Photo 006



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 17, Photo 007



RDB Zone ID 17, Photo 008



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 18, Photo 001



RDB Zone ID 18, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 18, Photo 003



RDB Zone ID 18, Photo 004



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 18, Photo 005



RDB Zone ID 18, Photo 006



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 19, Photo 001



RDB Zone ID 19, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 20, Photo 001



RDB Zone ID 20, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 20, Photo 003



RDB Zone ID 20, Photo 004



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 21, Photo 001



RDB Zone ID 21, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 21, Photo 003



RDB Zone ID 22, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 22, Photo 002



RDB Zone ID 23, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 23, Photo 002



RDB Zone ID 23, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 23, Photo 004



RDB Zone ID 23, Photo 005



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 23, Photo 006



RDB Zone ID 23, Photo 007



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 24, Photo 001



RDB Zone ID 25, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 25, Photo 002



RDB Zone ID 26, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 26, Photo 002



RDB Zone ID 26, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 26, Photo 004



RDB Zone ID 26, Photo 005



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 26, Photo 006



RDB Zone ID 27, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 27, Photo 002



RDB Zone ID 27, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 28, Photo 001



RDB Zone ID 28, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 28, Photo 003



RDB Zone ID 29, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 29, Photo 002



RDB Zone ID 30, Photo 001



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 30, Photo 002



RDB Zone ID 30, Photo 003



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 31, Photo 001



RDB Zone ID 31, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 32, Photo 001



RDB Zone ID 32, Photo 002



Field Photographs MP 10.00 – MP 10.25

RDB Zone ID 32, Photo 003



RDB Zone ID 32, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 10.0 to MP 10.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	GAB	Enbridge [signature]
SOTF	START	[signature]	MDEQ	GAB	Enbridge [signature]
PI	START	[signature]	MDEQ	GAB	Enbridge [signature]
FLS	START	[signature]	MDEQ	GAB	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	MLD	Enbridge DB

Action Items

	Action Item Description	Date Resolved
1	Track log explanation for ILDR polygon at MP 10.0 to 10.25 (discuss with team lead)	May 20/11

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/6/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.0 to MP 10.25 (LDB) Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/13/11 Date

MARIUS MINCIANTI Printed Name

_____ MDEQ 4-13-11 Date

James Gamble Printed Name

Chris Bauer 4-13-11

Chris Bauer

_____ Enbridge 4-13-11 Date

Hans Vrooman Printed Name

* Note: There were areas of this segment that were difficult to access due to heavy brush and thorn bushes. Oil staining was however evident on brush and trees in virtually all of the areas that were accessed. Oil staining was also evident along the vegetation present at the maximum extent of the inundation boundary. It is clearly evident that this segment contains trace amounts of residual oil.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.0 to MP 10.25 RDB, Bank or ~~Island:~~ ____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-11-11 Date
Jeana Hawe	Printed Name	
[signature]	MDEQ	5/11/11 Date
T.G. Zemlicka	Printed Name	
[signature]	Enbridge	5-11-11 Date
John W. Juntilla	Printed Name	

15 Features collected on May 10th 2011 (1-15)

17 Features collected on May 11th 2011 (16-32)

Segment 10.25 – 10.50

MP 10.25 to MP 10.50

The LDB of segment 10.50 generally consists of forested wetland swamp with areas of maintained land, emergent/herbaceous and scrub-shrub wetland habitat. The reassessment identified seven polygons and three points containing primarily trace to sporadic staining and surface oil residue throughout.

The RDB of segment 10.50 consists primarily of forested wetland swamp. The reassessment identified fourteen polygons and five points containing primarily trace to sporadic stained and coated debris, trunks and stems, with some areas of film, and sporadic to patchy patties noted throughout. Points 9 RDB, 11 RDB, and 17 RDB contained sheen or petroleum on pooled water. Polygons 5 RDB and 20 RDB contained surface film/sheen.

Poling was completed at six locations on the RDB within this segment to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One small island is present near the 10.50 segment line that generally consists of a sand and gravel shoreline. Observations of sheen in puddles and stained vegetation were made.

The FLS did identify one suspected oil signature on the LDB within this segment that correlates with Polygon 1 LDB.

One Inconclusive PI observation was made in this segment within an area of the river on the LDB. SORT did not observe any surface contamination in this area.

The attachments provide additional details on this segment.

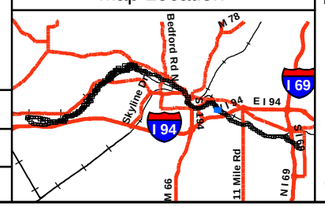
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP10.25-MP10.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: I		Oil Thickness					Oil Character														
Mile Marker: 10.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Sand-Gravel shoreline		SHEEN PRESENT BY SHORE IN PUDDLES, ALSO STAINING ON VEGITATION	Kane, Sean
																					ROBIN OEMING
5/12/2011	13:36																	42.29808	-85.12942		Juntilla, John

2011 Reassessment

Bank: LDB

Mile Marker: 10.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline and Overbank	4/13/2011	15:48	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.29551	-85.12808	includes herbaceous swamp	Muccianti, Marcus Bauer, Chris Wronka, Hans
10	Shoreline and Overbank	4/13/2011	17:18	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.29787	-85.13011		Muccianti, Marcus Bauer, Chris Wronka, Hans
2	Shoreline and Overbank	4/13/2011	16:05	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Lawn (maintained land)	42.29600	-85.12817	rip rap shoreline with stain. approximately 20 stained trees	Muccianti, Marcus Bauer, Chris Wronka, Hans
3	Shoreline and Overbank	4/13/2011	16:12	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	S	Lawn (maintained land)	42.29595	-85.12831		Muccianti, Marcus Bauer, Chris Wronka, Hans
4	Overbank	4/13/2011	16:29	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub	42.29648	-85.12874		Muccianti, Marcus Bauer, Chris Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character															
Mile Marker: 10.5																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
5	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		tar patties throughout	Muccianti, Marcus	
																					Bauer, Chris	
4/13/2011	16:40																	42.29690	-85.12879		Wronka, Hans	
6	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	B	Wetland-scrub/shrub			Muccianti, Marcus	
																					Bauer, Chris	
4/13/2011	16:46																	42.29689	-85.12878		Wronka, Hans	
7	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Muccianti, Marcus	
																					Bauer, Chris	
4/13/2011	16:53																	42.29669	-85.12868		Wronka, Hans	
8	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus	
																					Bauer, Chris	
4/13/2011	17:03																	42.29682	-85.12927		Wronka, Hans	
9	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus	
																					Bauer, Chris	
4/13/2011	17:11																	42.29765	-85.12978		Wronka, Hans	

2011 Reassessment

Bank: RDB

Mile Marker: 10.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	5/11/2011	13:10	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.29633	-85.12668	STAINS ON TREES AND DEBRI	Kane, Sean / ROBIN OEMING / Juntilla, John
11	Overbank	5/11/2011	15:46	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.29674	-85.12715	SHEEN ON POOLED WATER	Kane, Sean / ROBIN OEMING / Juntilla, John
12	Overbank	5/11/2011	16:21	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.29676	-85.12783	STAINED VEGITATION AND TREES	Kane, Sean / ROBIN OEMING / Juntilla, John
13	Overbank	5/11/2011	16:49	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.29660	-85.12806	TAR AND STAINING SPREAD THROUGHOUT	Kane, Sean / ROBIN OEMING / Juntilla, John
14	Overbank	5/12/2011	09:07	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.29657	-85.12820	TAR ON GROUND	Kane, Sean / ROBIN OEMING / Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 10.5																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
15	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING ON VEGITATION	Kane, Sean	ROBIN OEMING
5/12/2011	09:23																	42.29708	-85.12768		Juntilla, John	
16	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING ON TREES AND VEGITATION ALSO COATINGS ON DEBRI	Kane, Sean	ROBIN OEMING
5/12/2011	11:25																	42.29678	-85.12784		Juntilla, John	
17	Overbank	☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		GLOB OF PRODUCT IN WETLAND AREA, OBSERVED IN SHALLOW WATER	Kane, Sean	ROBIN OEMING
5/12/2011	11:43																	42.29766	-85.12856		Juntilla, John	
18	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINING ON VEGITATION	Kane, Sean	ROBIN OEMING
5/12/2011	13:09																	42.29803	-85.12905		Juntilla, John	
19	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐	T	Sand-Gravel shoreline		TRACE STAINING CONSISTENT WITH REST OF AREA	Kane, Sean	ROBIN OEMING
5/12/2011	13:14																	42.29813	-85.12898		Juntilla, John	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 10.5																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
2	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	P	Wetland-swamp (forested)		TAR ON GROUND	Kane, Sean	ROBIN OEMING
5/11/2011	13:20																	42.29624	-85.12658		Juntilla, John	
20	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		closer to 10%	Graan, Tom	Fairchild, Katie
5/17/2011	09:30																	42.29637	-85.12759		Neumeier, Laura	
3	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		STAINING ON TREES	Kane, Sean	ROBIN OEMING
5/11/2011	13:35																	42.29614	-85.12719		Juntilla, John	
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub		TAR PATTIES	Kane, Sean	ROBIN OEMING
5/11/2011	13:40																	42.29629	-85.12690		Juntilla, John	
5	Overbank	☐	☐	☑	☑	☐	☐	☑	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		STAINS ON TREES AND TAR ON THE GROUND	Kane, Sean	ROBIN OEMING
5/11/2011	14:06																	42.29601	-85.12743		Juntilla, John	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 10.5																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)		TAR ON GROUND	Kane, Sean	ROBIN OEMING
5/11/2011	14:17																	42.29602	-85.12756		Juntilla, John	
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	P	Wetland-swamp (forested)		TAR ON GROUND	Kane, Sean	ROBIN OEMING
5/11/2011	14:27																	42.29608	-85.12777		Juntilla, John	
8	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	B	Wetland-swamp (forested)		SURFACE OIL RESIDUE IN SOIL	Kane, Sean	ROBIN OEMING
5/11/2011	14:55																	42.29627	-85.12769		Juntilla, John	
9	Overbank	☐	☑	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-emergent/herbaceous		PETROLIUM IN POOLED WATER	Kane, Sean	ROBIN OEMING
5/11/2011	15:02																	42.29640	-85.12766		Juntilla, John	

Photo Logs

Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 3, Photo 002



LDB Zone ID 4, Photo 001



Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 4, Photo 002



LDB Zone ID 4, Photo 003



Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 5, Photo 001

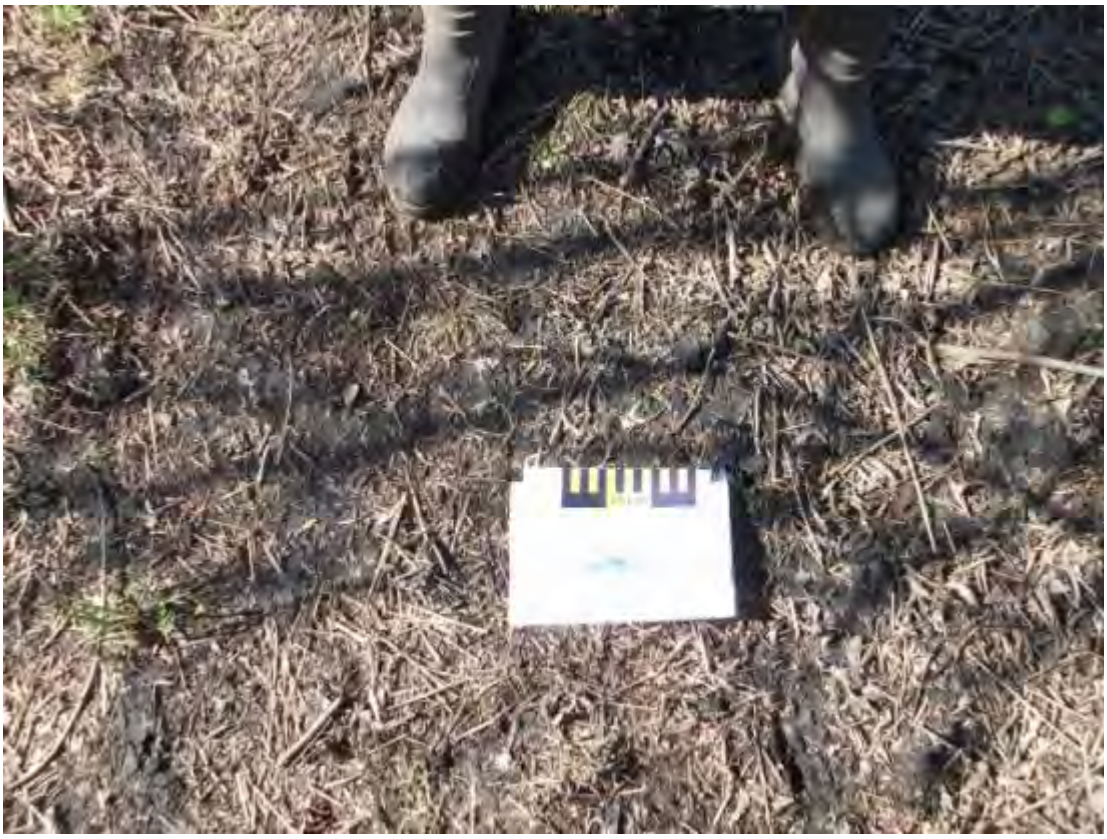


LDB Zone ID 6, Photo 001



Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 7, Photo 001



LDB Zone ID 7, Photo 002



Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 8, Photo 001



LDB Zone ID 9, Photo 001



Field Photographs MP 10.25 – MP 10.50

LDB Zone ID 10, Photo 001



LDB Zone ID 10, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 1, Photo 003



RDB Zone ID 1, Photo 004



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 1, Photo 005



RDB Zone ID 1, Photo 006



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 1, Photo 007



RDB Zone ID 1, Photo 008



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 1, Photo 009



RDB Zone ID 1, Photo 010



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 2, Photo 003



RDB Zone ID 2, Photo 004



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 3, Photo 003



RDB Zone ID 3, Photo 004



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 3, Photo 005



RDB Zone ID 3, Photo 006



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 3, Photo 007



RDB Zone ID 4, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 4, Photo 002



RDB Zone ID 5, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 5, Photo 002



RDB Zone ID 5, Photo 003



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 5, Photo 004



RDB Zone ID 5, Photo 005



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 6, Photo 003



RDB Zone ID 7, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 7, Photo 002



RDB Zone ID 7, Photo 003



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 7, Photo 004



RDB Zone ID 8, Photo 001

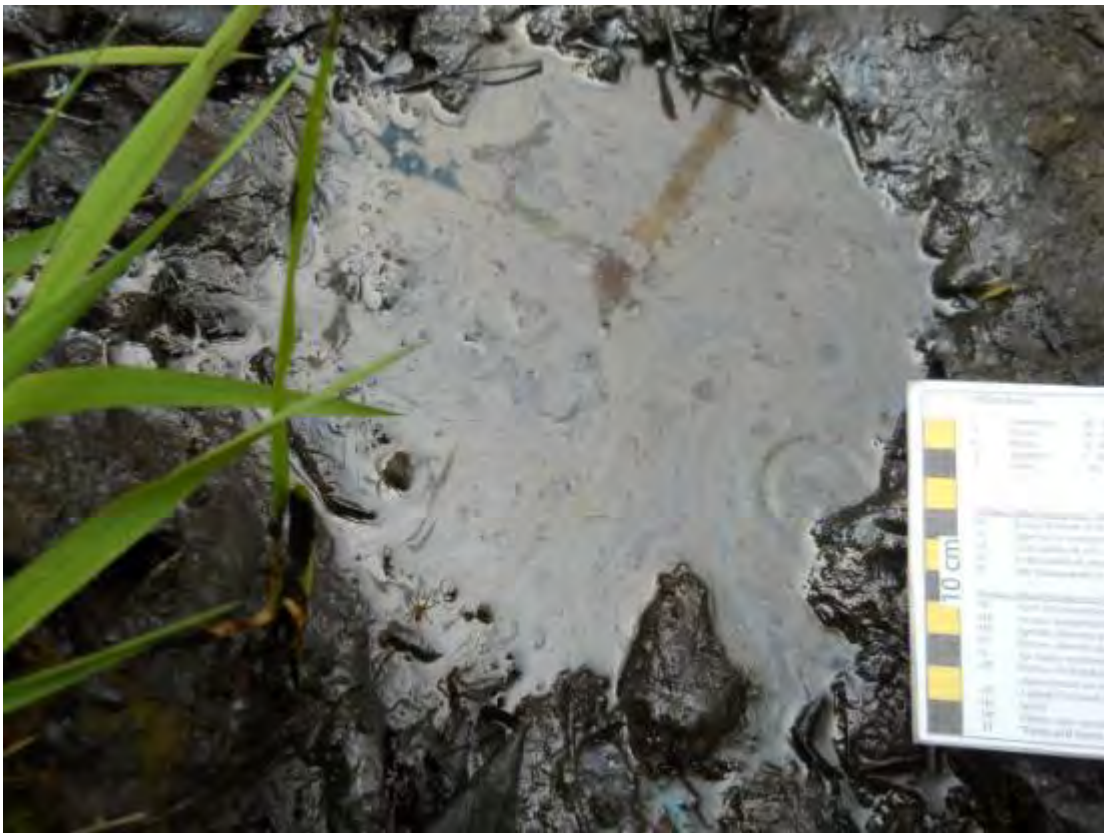


Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 8, Photo 002



RDB Zone ID 9, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 9, Photo 002

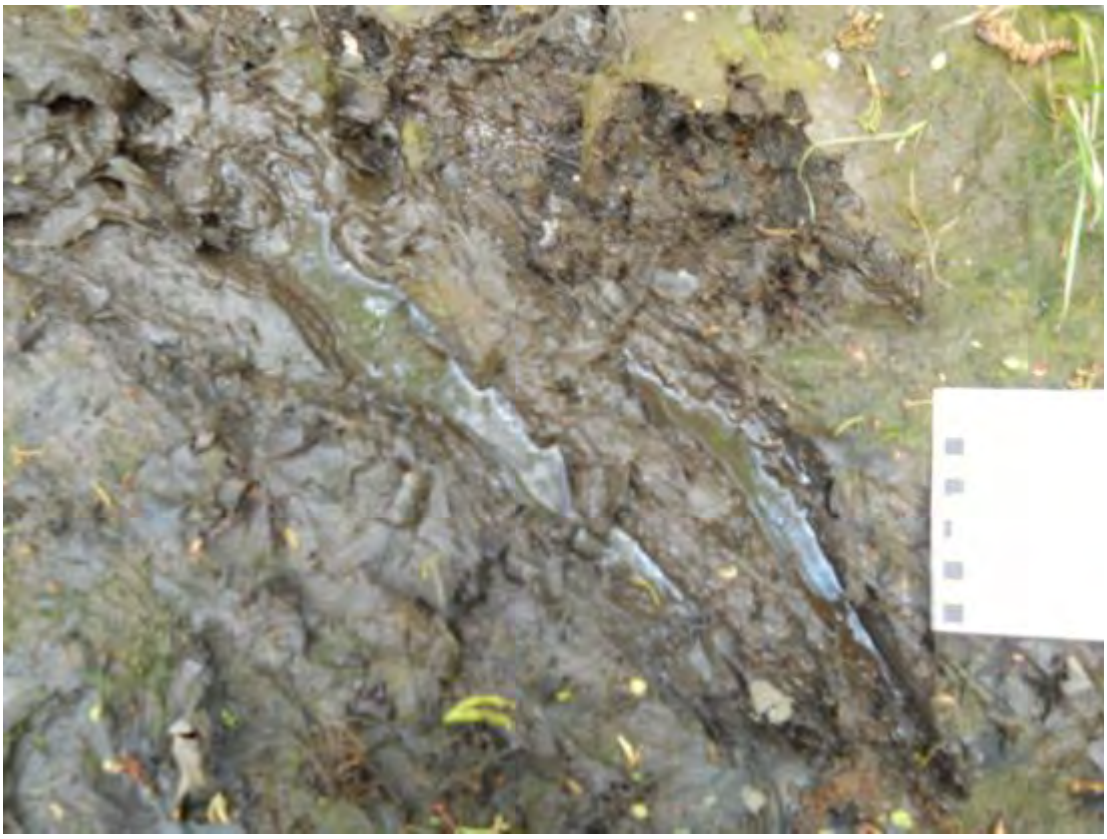


RDB Zone ID 10, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 10, Photo 002



RDB Zone ID 10, Photo 003



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 10, Photo 004



RDB Zone ID 11, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 11, Photo 002



RDB Zone ID 12, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 12, Photo 002



RDB Zone ID 12, Photo 003



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 12, Photo 004



RDB Zone ID 12, Photo 005



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 12, Photo 006



RDB Zone ID 12, Photo 007



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 12, Photo 008



RDB Zone ID 13, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 13, Photo 002



RDB Zone ID 13, Photo 003



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 13, Photo 004



RDB Zone ID 13, Photo 005



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 14, Photo 001



RDB Zone ID 14, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 14, Photo 003



RDB Zone ID 15, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 15, Photo 002



RDB Zone ID 15, Photo 003



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 16, Photo 001



RDB Zone ID 16, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 16, Photo 003



RDB Zone ID 16, Photo 004



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 16, Photo 005



RDB Zone ID 16, Photo 006



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 17, Photo 001



RDB Zone ID 17, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 17, Photo 003



RDB Zone ID 17, Photo 004



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 18, Photo 001



RDB Zone ID 18, Photo 002



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 18, Photo 003



RDB Zone ID 18, Photo 004



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 18, Photo 005



RDB Zone ID 18, Photo 006



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 18, Photo 007



RDB Zone ID 18, Photo 008



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 19, Photo 001



RDB Zone ID 20, Photo 001



Field Photographs MP 10.25 – MP 10.50

RDB Zone ID 20, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 10.25 – MP 10.50

I Zone ID 1, Photo 002



I Zone ID 1, Photo 003



Field Photographs MP 10.25 – MP 10.50

I Zone ID 1, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 10.25 to MP 10.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	BAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	BAB	Enbridge [initials]
PI	START	[initials]	MDEQ	BAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	BAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/6/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.25 to MP 10.5 LDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/13/11 Date

Marcus Mercier Printed Name

Chris Bauer MDEQ 4-13-11 Date

Chris Bauer Printed Name

James Gamble 4-13-11

James Gamble

_____ Enbridge 4-13-11 Date

Hans Wronton Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.25 to MP 10.50, Bank or Island: RDB and One island, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5-12-11 Date

Sean Kane Printed Name

[signature] MDEQ — 5/12/11 Date

ROBIN CEMINO Printed Name

[signature] Enbridge — 5-12-11 Date

John W. Juntilla Printed Name

13 features collected on May 11, 2011

6 features collected on May 12, 2011

Island 1 feature collected on the island near the 10.50 mile post

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 10.25 to MP 10.50, Unique ID 10.50 RDB 10, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Braan START — 5/17/11 Date

THOMAS P. BRAAN Printed Name

Kathleen Fairchild MDEQ — 5-17-11 Date

Kathleen Fairchild Printed Name

Laura Neumeier Enbridge — 5/17/2011 Date

Laura Neumeier Printed Name

Strike points collected by YUMA

Sort polygon collected by YUMA

Segment 10.50 – 10.75

MP 10.50 to MP 10.75

The LDB of segment 10.75 generally consists of emergent/herbaceous wetland habitat. The reassessment identified four polygons and two points containing primarily trace to sporadic, covered to coated trunks, stems or debris. Sporadic tar and surface oil residue were identified at Polygons 2 LDB and 5 LDB. Polygon 4 LDB was identified as an area containing (possibly biological) film/sheen on a former access road.

The RDB of segment 10.75 consists primarily of scrub-shrub wetland habitat. The reassessment identified one polygon and two points containing primarily trace to sporadic, stained and coated debris, trunks and stems.

One island is present in segment 10.75 and generally consists of scrub-shrub wetland habitat. One polygon was identified that encompasses the entire island and contains patchy coated, covered and stained oiled features as well as debris, trunks and stems.

The FLS did identify one suspected oil signature on the LDB within this segment that correlates with Polygon 5 LDB. Two Inconclusive PI observations were made within the LDB in this segment.

The attachments provide additional details on this segment.

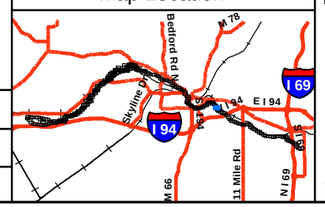
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP10.50-MP10.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 10.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	4/12/2011	16:10	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous	42.29880	-85.13038		Graan, Tom Flickinger, Brian Senn, Derek
2	Shoreline and Overbank	4/12/2011	16:37	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☑	☐	☐	☐	☑	S	Wetland-emergent/herbaceous	42.29882	-85.13026	SOME TREES AND SHRUBS	Graan, Tom Flickinger, Brian Senn, Derek
3	Overbank	4/12/2011	16:44	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Lawn (maintained land)	42.29881	-85.13025	DID NOT SURVEY INSIDE HOMEOWNERS FENCED LAWN	Graan, Tom Flickinger, Brian Senn, Derek
4	Overbank	4/12/2011	17:00	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Other (comments)	42.29892	-85.13125	RESTORED ACCESS ROAD, POSSIBLY BIOLOGICAL SHEEN	Graan, Tom Flickinger, Brian Senn, Derek
5	Shoreline and Overbank	4/12/2011	18:03	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)	42.30110	-85.13199		Graan, Tom Flickinger, Brian Senn, Derek

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	10.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Other (comments)		debris along fenceline	Graan, Tom
																					Fairchild, Katie
5/4/2011	09:57																	42.29802	-85.13050		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 10.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
																					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	09:38																	42.29886	-85.12934		Mike Van Loan
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	09:55																	42.29930	-85.12998		Mike Van Loan
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	10:41																	42.30079	-85.13097		Mike Van Loan

2011 Reassessment

Bank:	I	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	10.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	P	Wetland-swamp (forested)		Cover refering to SR. Petroleum odor.	Shauna Ross
																					Sara Vandelfzjil
4/12/2011	10:23																	42.29973	-85.13039		Mike Van Loan

Photo Logs

Field Photographs MP 10.50 – MP 10.75

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 10.50 – MP 10.75

I Zone ID 1, Photo 003



LDB Zone ID 1, Photo 001



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 1, Photo 002



LDB Zone ID 1, Photo 003



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 2, Photo 003



LDB Zone ID 2, Photo 004



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 2, Photo 005



LDB Zone ID 2, Photo 006



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 5, Photo 001



LDB Zone ID 5, Photo 002



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 5, Photo 003



LDB Zone ID 5, Photo 004



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 5, Photo 005



LDB Zone ID 5, Photo 006



Field Photographs MP 10.50 – MP 10.75

LDB Zone ID 5, Photo 007



LDB Zone ID 6, Photo 001



Field Photographs MP 10.50 – MP 10.75

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 10.50 – MP 10.75

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 10.5 to MP 10.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle Delong	MDEQ	6/6/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Bareham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.5 to MP 10.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/12/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ 4/12/11 Date

SARAH VANDERZIJL Printed Name

_____ Enbridge 4-12-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.5 to MP 10.75, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/12/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] RD — MDEQ — 4/12/11 — Date

Brian Flickinger, RD / MATTHEW WESENER — Printed Name

[signature] — Enbridge — 4/12/11 — Date

Derek Senn — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 10.50 to MP 10.75, Unique ID LDB Access, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Green — START — 5/4/11 — Date

THOMAS P. GREEN — Printed Name

Kat Fairchild — MDEQ — 5-4-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/4/2011 — Date

Laura Neumeier — Printed Name

1 point captured by YUMA

Segment 10.75 – 11.00

MP 10.75 to MP 11.00

The LDB of segment 11.00 generally consists of forested wetland habitat. The reassessment identified three polygons and one point containing primarily trace to sporadic, coated material along with some residual surface oil residue and tar. Polygon 2 LDB was identified as an area containing a mix of (possibly biological) film/sheen.

Poling was conducted at twelve locations on the LDB within the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

The RDB of segment 11.00 consists primarily of low vegetative bank with areas of forested wetland swamp. The reassessment identified one polygon and three points containing trace sporadic areas of stained debris, trunks and stems. Point 4 RDB identified an area of mixed petroleum and biological sheen.

Three islands are present in segment 11.00 and all generally consist of forested wetland swamp. One polygon was identified on each island and all contained sporadic cover, coated and stained debris, trunks and stems, as well as surface oil residue.

The FLS did not identify any oil signatures within this segment. One PI location was observed along the RDB near the segment 11.00 boundary and has been identified as a High Priority Area.

The attachments provide additional details on this segment.

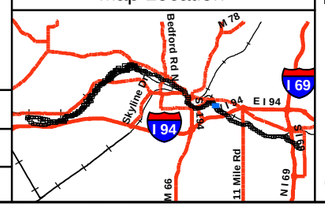
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP10.75-MP11.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 11																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			Graan, Tom / Wesener, Matt
4/13/2011	09:21																	42.30138	-85.13260		Senn, Derreck
2	Overbank	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-swamp (forested)		MIX OF PETROLEUM & BIOLOGICAL SHEEN	Graan, Tom / Wesener, Matt
4/13/2011	10:27																	42.30196	-85.13476		Senn, Derreck
3	Overbank	☐	☑	☑	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		POLYGON OVERLAPS SEGMENT 11.25 NORTHWEST PORTION MORE HEAVILY AFFECTED	Graan, Tom / Wesener, Matt
4/13/2011	13:59																	42.30273	-85.13604		Senn, Derreck
4	Overbank	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		PHOTOS 1-3 GO WITH FEATURE 11.00L3	Graan, Tom / Wesener, Matt
4/13/2011	14:27																	42.30229	-85.13389		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 11																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Shauna Ross	Sara Vandelfzjil
4/12/2011	10:53																	42.30141	-85.13156			Mike Van Loan
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Shauna Ross	Sara Vandelfzjil
4/12/2011	11:14																	42.30198	-85.13206			Mike Van Loan
3	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Shauna Ross	Sara Vandelfzjil
4/12/2011	11:32																	42.30219	-85.13231			Mike Van Loan
4	Overbank	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		sheen appears to be a mix of petroleum and organic	Shauna Ross	Sara Vandelfzjil
4/12/2011	11:35																	42.30219	-85.13227			Mike Van Loan

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 11																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	P	Wetland-swamp (forested)			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	11:03																	42.30153	-85.13226		Mike Van Loan
2	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	11:53																	42.30310	-85.13329		Mike Van Loan
3	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	12:22																	42.30357	-85.13417		Mike Van Loan

Photo Logs

Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 2, Photo 003



LDB Zone ID 3, Photo 001



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 3, Photo 002



LDB Zone ID 3, Photo 003



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 3, Photo 004



LDB Zone ID 3, Photo 005



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 3, Photo 006



LDB Zone ID 3, Photo 007



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 3, Photo 008



LDB Zone ID 3, Photo 009



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 3, Photo 010



LDB Zone ID 3, Photo 011



Field Photographs MP 10.75 – MP 11.00

LDB Zone ID 3, Photo 012



LDB Zone ID 4, Photo 001

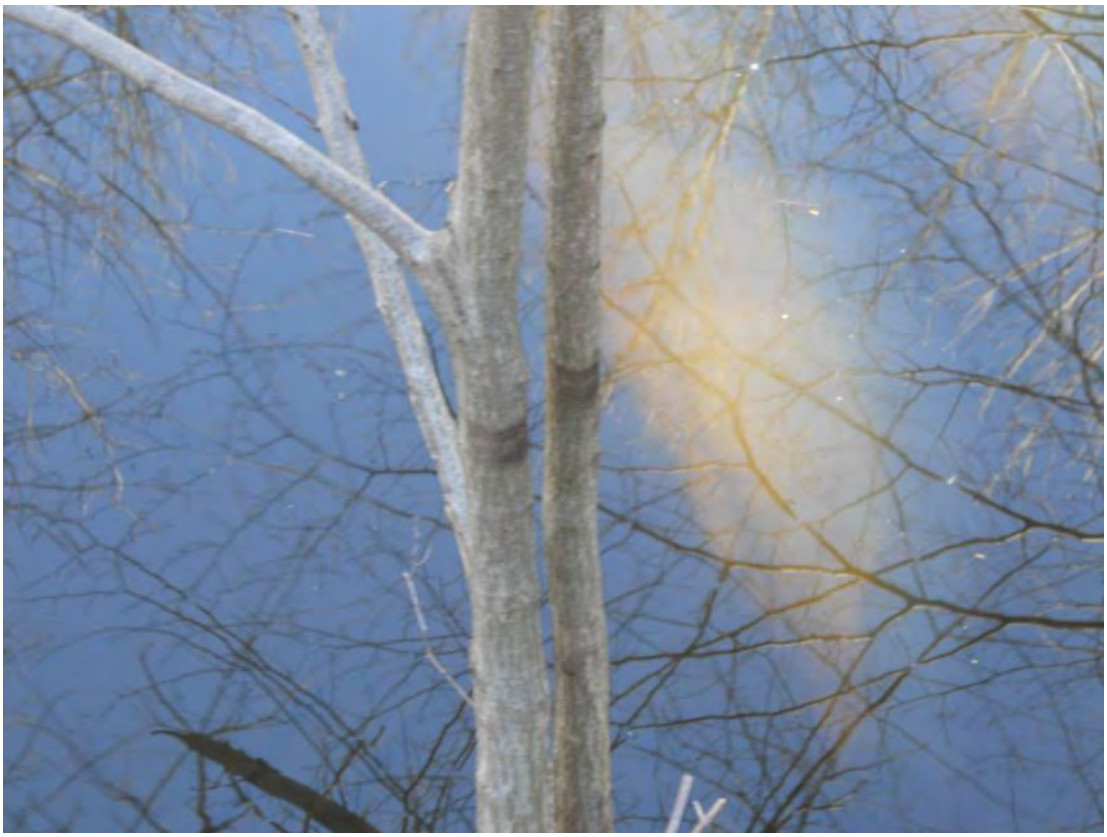


Field Photographs MP 10.75 – MP 11.00

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 10.75 – MP 11.00

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 10.75 – MP 11.00

RDB Zone ID 4, Photo 001



I Zone ID 1, Photo 001



Field Photographs MP 10.75 – MP 11.00

I Zone ID 1, Photo 002



I Zone ID 2, Photo 001



Field Photographs MP 10.75 – MP 11.00

I Zone ID 2, Photo 002



I Zone ID 3, Photo 001



Field Photographs MP 10.75 – MP 11.00

I Zone ID 3, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 10.75 to MP 11.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

MDEQ — 6/7/11 Date

Michelle Delong Printed Name

Enbridge — 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.75 to MP 11.0, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna M. Ross — START — 4/12/2011 — Date

Shawna Marie Ross — Printed Name

Sarah VanDyke — MDEQ — 4/12/11 — Date

SARAH VAN DELFZIJL — Printed Name

Michael Van Loon — Enbridge — 4-12-2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.75 to MP 11.0, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/13/11 — Date

THOMAS P. GRAAN — Printed Name

Brian Flickinger RD/MATTHEW WERNET — MDEQ — 4/13/11 — Date

Brian Flickinger RD/MATTHEW WERNET — Printed Name

Enbridge — 4/13/11 — Date

Derek Senn — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 10.75 to MP 11, (Bank) or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Gagan — START — 4/19/11 — Date

THOMAS P. GAGAN — Printed Name

Dana Stroupe — MDEQ — 4-19-11 — Date

Dana Stroupe — Printed Name

[signature] — Enbridge — 4/19/11 — Date

Derek Senn — Printed Name

* Note: This signoff covers only the inundation area south of River Road. That was assessed on 4/14/11.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 10.75 to MP 11.0, Unique ID 11.00 LDB5, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Grasan — START — 5/3/11 — Date

Thomas P. Grasan — Printed Name

Kathleen Fairchild — MDEQ — 5-3-11 — Date

Kathleen Fairchild — Printed Name

Don Dehlt — Enbridge — 5-3-11 — Date

Don Dehlt — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT) and Strike

SIGN-OFF SHEET

Segment ID: From MP 10.75 to MP 11.0, Bank or Island: LDB, Segment Length: 0.25 mile

↳ ~~Reass~~ Additional Assessment following new inundation Model

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 6/5/11 Date

Marcus Nuclear Printed Name

Ray Spaulding MDEQ — 6/5/11 Date

Ray Spaulding Printed Name

[signature] Enbridge — 6-5-11 Date

Hans Wronka Printed Name

- 2 poling points and 2 SORT points recorded on south side of River Road right at the culvert
- The remaining assessment involved walking the perimeter of the emergent wetland/marsh south of the River Road culvert

Segment 11.00 – 11.25

MP 11.00 to MP 11.25

The LDB of segment 11.25 generally consists of forested wetland and emergent/herbaceous wetland habitat, with back channels present in the overbank. The reassessment identified six polygons containing primarily trace to sporadic, coated and stained debris, trunks and stems, along with some broken surface oil residue and tar. All polygons, excluding Polygon 2 LDB contained within Polygon 4 LDB, were identified as containing film (sheen). Traces of film with surface oil residue were observed at Points 7 LDB and 8 LDB.

Poling of a back channel on the LDB within this segment was completed at sixty-five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 11.25 consists of forested wetland swamp and scrub-shrub wetland habitat in the overbank. The reassessment identified two points containing trace amounts of stained trunks and stems. Polygon 3 RDB straddles the 11.25 segment line and contains sporadic occurrences of oil film with stained to coated debris, trunks and stems.

Two islands are present in segment 11.25 and generally consist of forested wetland swamp and emergent/herbaceous wetland habitat. The upstream island (Polygon 1 I) contained coated and stained trunks and stems and the downstream island (Polygon 2 I) contained stained debris, trunks and stems.

The FLS did not identify any oil signatures within this segment. One PI observations was observed within the RDB of this segment and has been identified as a High Priority Area. No associated SORT data coincides with this data point.

The attachments provide additional details on this segment.

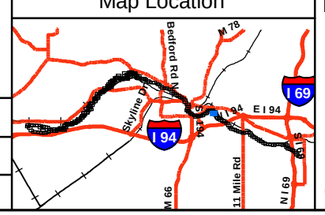
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP11.00-MP11.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

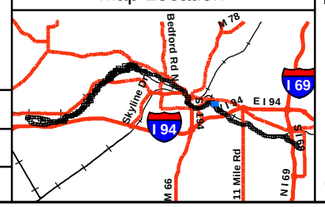
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP11.00-MP11.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 11.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-emergent/herbaceous			Graan, Tom
																					Wesener, Matt
4/13/2011	18:01																	42.30381	-85.13556		Senn, Derreck
2	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	B	Wetland-emergent/herbaceous			Graan, Tom
																					Wesener, Matt
4/14/2011	12:29																	42.30438	-85.13754		Senn, Derreck
3	Shoreline and Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☑	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		FURTHER AWAY FROM RIVER SHEEN OBSERVED TS AND STAINING OBSERVED CLOSER TO SHORELINE ~30FT	Graan, Tom
																					Wesener, Matt
4/14/2011	14:24																	42.30335	-85.13923		Senn, Derreck
4	Shoreline and Overbank	☐	☑	☑	☑	☑	☑	☐	☐	☐	☑	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)			Graan, Tom
																					Wesener, Matt
4/14/2011	15:20																	42.30377	-85.13810		Senn, Derreck
5	Shoreline	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Other (comments)		SHEEN OBSERVED ALONG BANKS COULD NOT ASSESS AREA-WATER	Graan, Tom
																					Wesener, Matt
4/14/2011	15:44																	42.30349	-85.13877		Senn, Derreck

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 11.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-emergent/herbaceous		SHEEN IS DISTRIBUTED BETWEEN TUSSOCKS	Graan, Tom Wesener, Matt
4/14/2011	16:34																	42.30349	-85.13879		Senn, Derreck
7	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		Digitized point with field team.	Muccianti, Marcus Spaulding, Ray
6/5/2011																		42.30197	-85.13708		Wronka, Hans
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		Digitized point with field team.	Muccianti, Marcus Spaulding, Ray
6/5/2011																		42.30195	-85.13693		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 11.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					VanDelfzijl, Sarah
4/12/2011	12:41																	42.30383	-85.13461		VanLoan, Mike
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					VanDelfzijl, Sarah
4/12/2011	12:45																	42.30391	-85.13479		VanLoan, Mike
3	Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub			Graan, Tom
																					Fairchild, Katie
5/27/2011	11:44																	42.30598	-85.13727		Neumeier, Laura

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 11.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna VanDelfzijl, Sarah
4/12/2011	13:06																	42.30394	-85.13507		VanLoan, Mike
2	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous			Ross, Shauna VanDelfzijl, Sarah
4/12/2011	14:40																	42.30446	-85.13776		VanLoan, Mike

Photo Logs

Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 1, Photo 005



LDB Zone ID 2, Photo 001



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 2, Photo 004



LDB Zone ID 2, Photo 005



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 3, Photo 005



LDB Zone ID 4, Photo 001



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 002



LDB Zone ID 4, Photo 003



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 004



LDB Zone ID 4, Photo 005



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 006



LDB Zone ID 4, Photo 007



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 008



LDB Zone ID 4, Photo 009



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 010



LDB Zone ID 4, Photo 011



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 012



LDB Zone ID 4, Photo 013



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 014



LDB Zone ID 4, Photo 015



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 016



LDB Zone ID 4, Photo 017



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 018



LDB Zone ID 4, Photo 019



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 020



LDB Zone ID 4, Photo 021



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 4, Photo 022



LDB Zone ID 4, Photo 023



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 5, Photo 001



LDB Zone ID 5, Photo 002



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 11.00 – MP 11.25

LDB Zone ID 6, Photo 003



LDB Zone ID 7, Photo 001



Field Photographs MP 11.00 – MP 11.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 11.00 – MP 11.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 11.00 – MP 11.25

RDB Zone ID 3, Photo 003



I Zone ID 1, Photo 001



Field Photographs MP 11.00 – MP 11.25

I Zone ID 1, Photo 002



I Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 11.0 to MP 11.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle Delong — MDEQ — 6/6/11 Date

Michelle Delong — Printed Name

Dave Barker — Enbridge — 6/6/2011 Date

Dave Barker — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.0 to MP 11.25, Bank ~~or~~ AND Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Ross — START — 4/12/2011 — Date

Shawna Marie Ross — Printed Name

Sarah VanDeHey — MDEQ — 4/12/11 — Date

SARAH VANDEHEY — Printed Name

Enbridge — 4-12-2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.0 to MP 11.25, (Bank) or Island: LB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/14/11 — Date

THOMAS P. GRAAN — Printed Name

MDEQ — 4/14/11 — Date

MATTHEW D WESENER / Brian Flicking RP — Printed Name

Enbridge — 4/14/11 — Date

Derek Senn — Printed Name

Note: Did not assess the area South of the road due to uncertainty regarding permission to access property

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.25 to MP X, (Bank) or Island: LeST, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Braan — START — 4/15/11 — Date

Thomas P. Braan — Printed Name

R. Flicking RP / WRD — MDEQ — 4/15/11 — Date

Brian Flicking RP / Matt Wesener — Printed Name

Enbridge — 4/15/11 — Date

Derek Sean — Printed Name

Note: The areas of this segment that have been assessed on April 14 + 15, 2011 and documented on the Yuma unit are being signed off on as adequately assessed by the team members present during the assessment. This documentation and sign-off is necessary due to new MDEQ personnel joining the assessment team beginning on Monday, April 18, 2011.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11 to MP 11.25, Bank or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/19/11 — Date

THOMAS P. GRAAN — Printed Name

Dana Strouse — MDEQ — 4-19-11 — Date

Dana Strouse — Printed Name

Enbridge — 4/19/11 — Date

Derek Senn — Printed Name

Note: This signoff covers only the inundation area south of River Road that was assessed on 4/19/11

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.0 to MP 11.25, Unique ID LDB 7 (11.25), Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/4/11 — Date

THOMAS P. GRAAN — Printed Name

Kathleen Fairchild — MDEQ — 5-4-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/4/2011 — Date

Laura Neumeier — Printed Name

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.0 to MP 11.25, Unique ID RDB 1, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/27/11 — Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5-27-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/27/2011 — Date

Laura Neumeier — Printed Name

1 SORT feature captured by YUMA

Segment 11.25 – 11.50

MP 11.25 to MP 11.50

The LDB of segment 11.50 consists of forested wetland habitat. The reassessment identified twelve polygons and one point containing primarily trace to sporadic, scattered, coated and stained debris, trunks and stems, along with some film and tar. Seven polygons (1 LDB, 3 LDB, 4 LDB, 6 LDB, 7 LDB, 9 LDB, and, 10 LDB) all were identified as areas of film/sheen. Polygon 9 LDB was identified as having sheen on standing water scattered throughout the polygon. A small transect line (Linear Transect 8 LDB) contained a continuous distribution of tar and was noted as having a heavy sheen and some floating tar.

Poling of a back channel on the LDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 11.50 consists of forested wetland swamp habitat. The reassessment identified two polygons and one point containing primarily trace stained trunks and stems, along with trace tar balls noted at Point 2 RDB.

Four island polygons are present in segment 11.50, all generally consisting of forested wetland swamp habitat. All island polygons contained trace areas of covered and stained trunks and stems along with surface oil residue.

The FLS did not identify any oil signatures within this segment. Three PI observations were noted within this segment. Two were identified as High Priority Areas, and occurred immediately adjacent to Polygon 1 RDB. The third PI observation occurred in the vicinity of Polygon 2 I and was Inconclusive.

The attachments provide additional details on this segment.

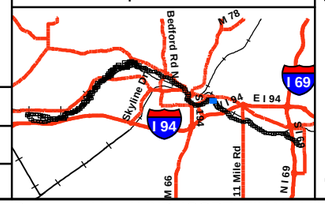
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP11.25-MP11.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 11.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)			Graan, Tom Wesener, Matt
4/14/2011	17:07																	42.30366	-85.13911		Senn, Derreck
10	Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		STAINED TS&DB LOW % -TRACE THROUGHOUT POLYGON	Graan, Tom Wesener, Matt
4/15/2011	11:20																	42.30519	-85.14083		Senn, Derreck
11	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Graan, Tom Wesener, Matt
4/15/2011	11:59																	42.30546	-85.13880		Senn, Derreck
12	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)		ZONE ID WILL NEED CHANGED TO NEXT IN SEQUENCE FROM 4/15/11 MIXTURE OF BIOLOGICAL & OIL SHEEN	Graan, Tom Strouse, Dana
4/19/2011	10:57																	42.30508	-85.14035		VanLoan, Mike
13	Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		NEEDS OIL ZONE RENUMBERED TO NEXT IN SEQUENCE PRIMARILY CT & ST	Graan, Tom VanDelfzijl, Sarah
4/19/2011	11:13																	42.30478	-85.14083		Senn, Derreck

2011 Reassessment

Bank: LDB

Mile Marker: 11.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
14	Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	P	Wetland-swamp (forested)		NEEDES RENUMBERED TO NEXT IN SEQUENCE PRIMARILY CT & CV	Graan, Tom
																					VanDelfzijl, Sarah
4/19/2011	11:25																	42.30478	-85.14087		Senn, Derreck
3	Shoreline and Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Graan, Tom
																					Wesener, Matt
4/14/2011	17:36																	42.30360	-85.13970		Senn, Derreck
4	Shoreline and Overbank	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			Graan, Tom
																					Wesener, Matt
4/14/2011	18:13																	42.30377	-85.13952		Senn, Derreck
5	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		COVER CLOSER TO 10% SR IN 1 ISOLATED SPOT	Graan, Tom
																					Wesener, Matt
4/15/2011	10:46																	42.30519	-85.13953		Senn, Derreck
6	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)			Graan, Tom
																					Wesener, Matt
4/15/2011	14:14																	42.30692	-85.13925		Senn, Derreck

2011 Reassessment

Bank: LDB

Mile Marker: 11.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ Enbridge Team Lead
7	Shoreline			☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			*SHOULD BE 11.50*	Graan, Tom Wesener, Matt
4/15/2011		10:10																			42.30465	-85.14011		Senn, Derreck
8	Overbank			☐	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	C	Wetland-swamp (forested)			HEAVY SHEEN AND SOME FLOATING TAR	Graan, Tom Wesener, Matt
4/15/2011		13:26																			42.30594	-85.14019		Senn, Derreck
9	Shoreline and Overbank			☐	☑	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	P	Wetland-swamp (forested)			SHEEN IN STANDING WATER	Graan, Tom Wesener, Matt
4/15/2011		14:06																			42.30695	-85.13920		Senn, Derreck

2011 Reassessment

Bank: RDB

Mile Marker: 11.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	14:20																	42.30477	-85.13702		Mike Van Loan
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		sheen present tarballs emerged after sediment was disturbed	Shauna Ross
																					Sara Vandelfzjil
4/12/2011	14:25																	42.30523	-85.13703		Mike Van Loan
3	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Shauna Ross
																					Sara Vandelfzjil
4/12/2011	17:11																	42.30626	-85.13784		Mike Van Loan

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 11.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)			Shauna Ross / Sara Vandelfzjil
4/12/2011	15:02																	42.30429	-85.13869		Mike Van Loan
2	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)			Shauna Ross / Sara Vandelfzjil
4/12/2011	15:42																	42.30403	-85.13903		Mike Van Loan
3	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)			Shauna Ross / Sara Vandelfzjil
4/12/2011	16:16																	42.30501	-85.13878		Mike Van Loan
4	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)			Shauna Ross / Sara Vandelfzjil
4/12/2011	16:18																	42.30498	-85.13897		Mike Van Loan

Photo Logs

Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 3, Photo 003



LDB Zone ID 4, Photo 001



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 4, Photo 002



LDB Zone ID 4, Photo 003



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 4, Photo 004



LDB Zone ID 4, Photo 005



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 5, Photo 001



LDB Zone ID 5, Photo 002



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 5, Photo 003



LDB Zone ID 5, Photo 004



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 5, Photo 005



LDB Zone ID 5, Photo 006



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 5, Photo 007



LDB Zone ID 6, Photo 001



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 6, Photo 002



LDB Zone ID 6, Photo 003



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 7, Photo 001



LDB Zone ID 7, Photo 002



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 7, Photo 003



LDB Zone ID 7, Photo 004



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 7, Photo 005



LDB Zone ID 7, Photo 006



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 7, Photo 007



LDB Zone ID 7, Photo 008

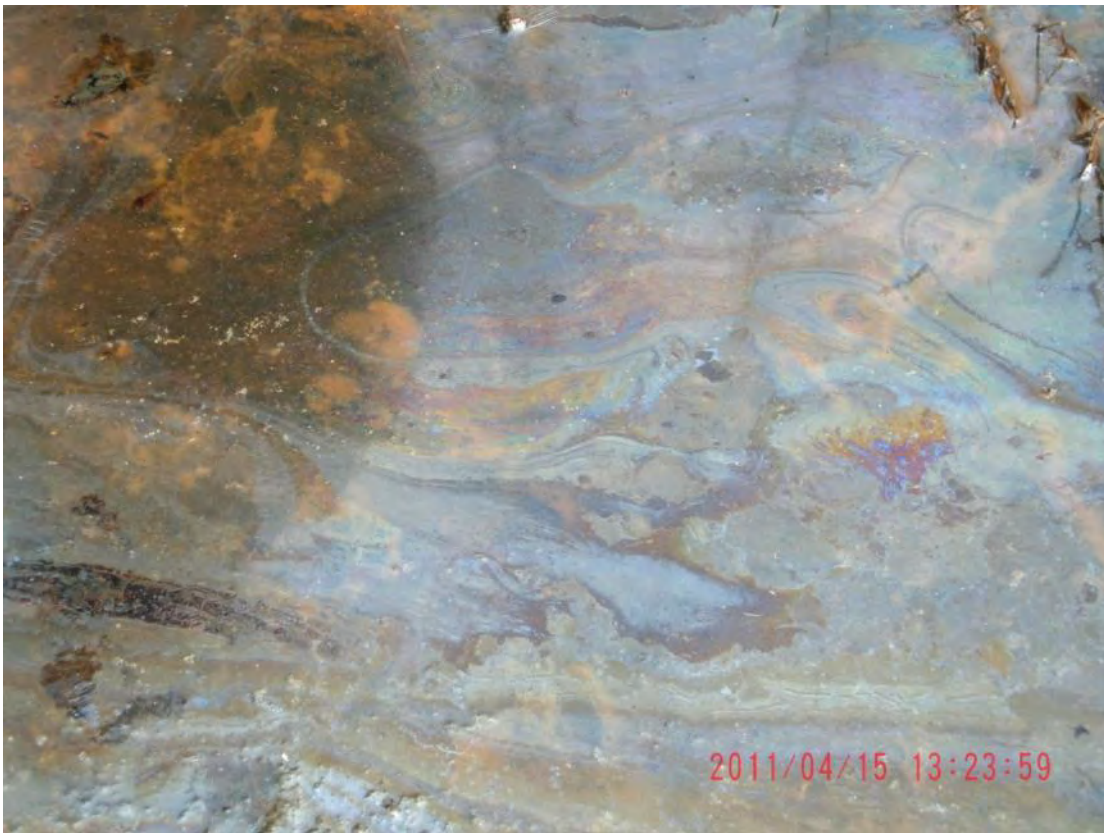


Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 7, Photo 009



LDB Zone ID 8, Photo 001



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 8, Photo 002



LDB Zone ID 9, Photo 001



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 9, Photo 002



LDB Zone ID 9, Photo 003



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 10, Photo 001



LDB Zone ID 10, Photo 002



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 10, Photo 003



LDB Zone ID 10, Photo 004



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 10, Photo 005



LDB Zone ID 10, Photo 006



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 10, Photo 007



LDB Zone ID 10, Photo 008



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 10, Photo 009



LDB Zone ID 10, Photo 010



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 10, Photo 011



LDB Zone ID 10, Photo 012



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 11, Photo 001



LDB Zone ID 12, Photo 001



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 13, Photo 001



LDB Zone ID 13, Photo 002



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 13, Photo 003



LDB Zone ID 14, Photo 001



Field Photographs MP 11.25 – MP 11.50

LDB Zone ID 14, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 11.25 – MP 11.50

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 11.25 – MP 11.50

RDB Zone ID 1, Photo 004



RDB Zone ID 1, Photo 005



Field Photographs MP 11.25 – MP 11.50

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 11.25 – MP 11.50

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs MP 11.25 – MP 11.50

I Zone ID 2, Photo 002



I Zone ID 3, Photo 001



Field Photographs MP 11.25 – MP 11.50

I Zone ID 3, Photo 002



I Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 11.25 to MP 11.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	BAB	Enbridge	
SOTF	START		MDEQ	BAB	Enbridge	
PI	START		MDEQ	BAB	Enbridge	
FLS	START		MDEQ	BAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

	Action Item Description	Date Resolved
(1)	Pole in backwater channel across 11.25–11.5 MP boundary (in proximity to boat launch)	5/20/11

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.25 to MP 11.5, ~~Bank~~ AND Island: BOB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna M. Ross — START — 4/12/2011 — Date

Shawna Marie Ross — Printed Name

Sarah VanDeWalle — MDEQ — 4/12/11 — Date

SARAH VANDEWALLE — Printed Name

Mike Van Loan — Enbridge — 4-12-2011 — Date

Mike Van Loan — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

11.50 RDBI polygon only - no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlac _____ START _____ 6/5/11 Date

John Verlac _____ Printed Name

James M. Gamble _____ MDEQ _____ 6/5/11 Date

James M. Gamble _____ Printed Name

Z O V L _____ Enbridge _____ 6/5/11 Date

Michael Von Loan _____ Printed Name

Team 2 Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.25 to MP 11.5, Bank or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P Oram	START	4/19/11 Date
THOMAS P. ORAM	Printed Name	
Dana Struse	MDEQ	4/19/11 Date
Dana Struse	Printed Name	
	Enbridge	4/19/11 Date
Derek Sean	Printed Name	

NOTE: This signoff covers the remaining portion of this segment that was not completed on 4/15/11. This portion of the assessment was completed on 4/19/11 & completes the 11.25 to 11.5 LOB segment

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.25 to MP 11.50, Unique ID LDB II, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Grann — START — 5/20/11 — Date

THOMAS P. GRANN — Printed Name

Matt Goddard — MDEQ — 5/20/11 — Date

Matt Goddard — Printed Name

Don DeWitt — Enbridge — 5/20/2011 — Date

Don DeWitt — Printed Name

Strike points captured by YUMA

Segment 11.50 – 11.75

MP 11.50 to MP 11.75

The LDB of segment 11.75 generally consists of forested swamp and emergent/herbaceous wetland habitats. Multiple back channels are present throughout the overbank. The reassessment identified three points and two large polygons encompassing the LDB, including the entire overbank (Polygons 3 LDB and 6 LDB), and one Polygon 5 LDB shown southwest of the 11.75 segment line. A trace to broken occurrence of oil and tar covered to stained debris and/or trunks and stems in Polygons 3 LDB, 5 LDB, 6 LDB and Point 7 LDB. A sporadic distribution of tar patties was identified at Point 2 LDB. A sporadic to broken occurrence of oil film on ponded water was observed at Polygons 3 LDB and 6 LDB and Point 7 LDB. An oil film, possibly a combination of biological and petroleum, was observed at Point 1 LDB.

Poling of the back channel on the LDB within this segment was completed at twenty locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

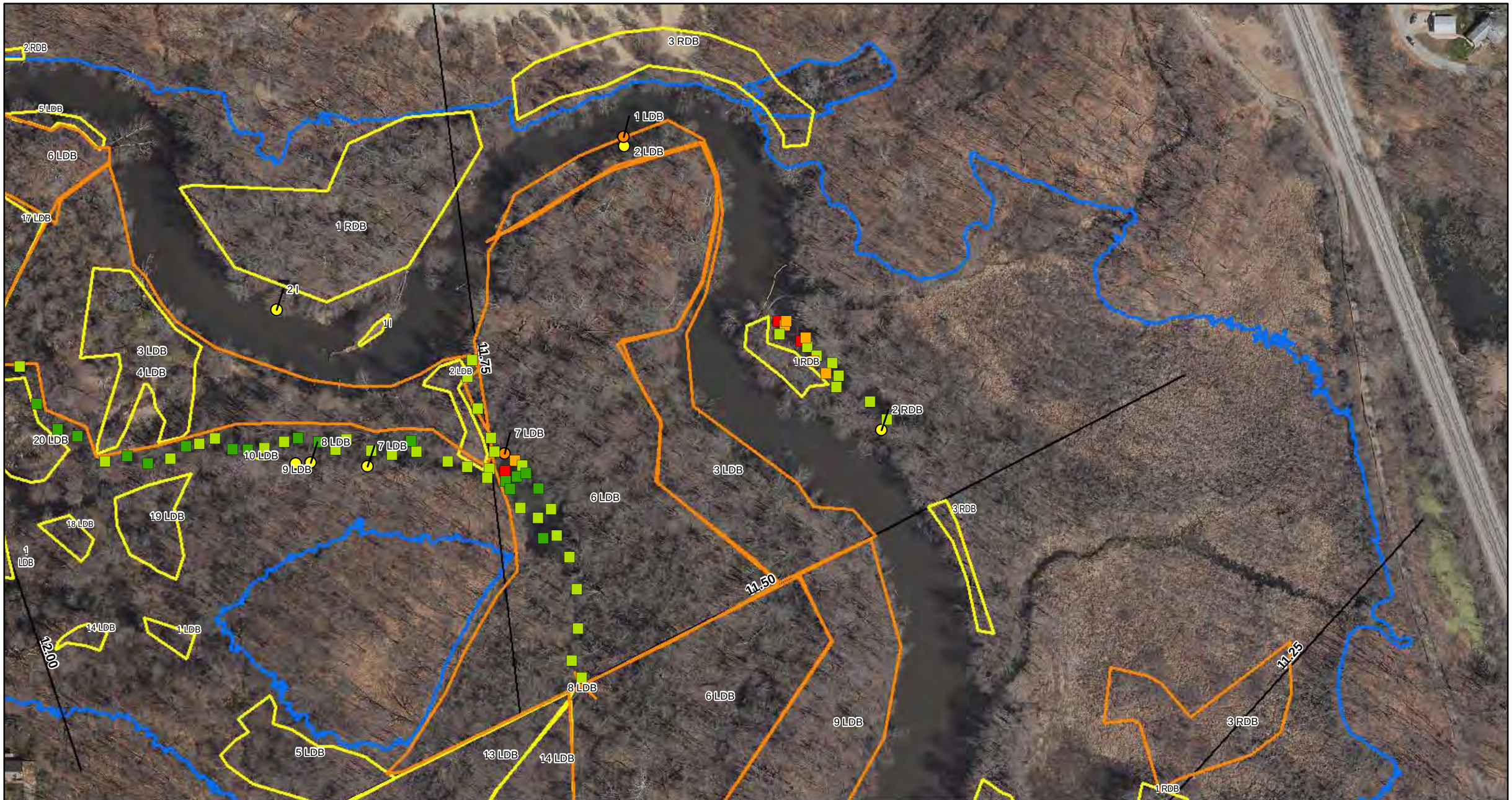
The RDB of segment 11.75 consists primarily of forested wetland swamp with areas of low vegetative banks. Meander scars and back channels are present in the overbank. The reassessment identified one point and two polygons. In general, a trace distribution of covered and/or stained trunks and stems was identified at all locations. Traces of surface oil residue were documented on the ground surface at Polygon 1 RDB and Point 2 RDB.

Poling of the back channel on the RDB within this segment was completed at fourteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not identify any oil signatures within this segment and no PI observations were made.

The attachments provide additional details on this segment.

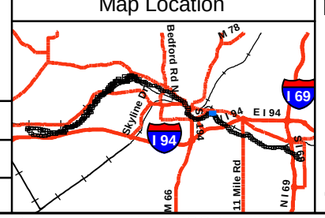
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP11.50-MP11.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB

Mile Marker: 11.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna VanDelfzijl, Sarah
4/13/2011	09:32																	42.30729	-85.13898		VanLoan, Mike
2	Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna VanDelfzijl, Sarah
4/13/2011	09:41																	42.30714	-85.13851		VanLoan, Mike
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna VanDelfzijl, Sarah
4/13/2011	11:11																	42.30832	-85.14088		VanLoan, Mike

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character																
Mile Marker: 11.75																							
Source: 2011 Reassessment																							
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**		
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**		
																					Enbridge Team Lead		
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-emergent/herbaceous		POSSIBLE MIXED SHEEN	Graan, Tom		
																					Strouse, Dana		
4/19/2011	14:42																	42.30841	-85.14004		VanLoan, Mike		
2	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous			Graan, Tom		
																					Strouse, Dana		
4/19/2011	14:44																	42.30837	-85.14004		Senn, Derreck		
3	Shoreline and Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		LOW END AROUND 1% VERY LITTLR SR FL IN STANDING WATER	Graan, Tom		
																					Strouse, Dana		
4/19/2011	15:01																	42.30814	-85.14064		Senn, Derreck		
5	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Graan, Tom		
																					Strouse, Dana		
4/19/2011	16:33																	42.30597	-85.14197		Senn, Derreck		
6	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	P	Wetland-swamp (forested)			Graan, Tom		
																					Strouse, Dana		
4/19/2011	16:42																	42.30594	-85.14195		Senn, Derreck		

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 11.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
7	Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	P	Wetland-swamp (forested)		covers shoreline area around pond	**Enbridge Team Lead**
																					Graan, Tom
																					Fairchild, Katie
5/3/2011	11:10																	42.30688	-85.14091		Neumeier, Laura

Photo Logs

Field Photographs MP 11.50 – MP 11.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 11.50 – MP 11.75

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 11.50 – MP 11.75

RDB Zone ID 3, Photo 001



LDB Zone ID 1, Photo 001



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 6, Photo 002



LDB Zone ID 6, Photo 003



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 6, Photo 004



LDB Zone ID 6, Photo 005



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 6, Photo 006



LDB Zone ID 6, Photo 007



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 6, Photo 008



LDB Zone ID 6, Photo 009



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 6, Photo 010



LDB Zone ID 6, Photo 011



Field Photographs MP 11.50 – MP 11.75

LDB Zone ID 7, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 11.5 to MP 11.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MD	Enbridge	DB
SOTF	START	[signature]	MDEQ	GAB	Enbridge	[signature]
PI	START	[signature]	MDEQ	GAB	Enbridge	[signature]
FLS	START	[signature]	MDEQ	GAB	Enbridge	[signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge	DB

Action Items

	Action Item Description	Date Resolved
(1)	Delineation lines to be completed for 2 strike poling areas.	6/8/2011

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.5 to MP 11.75, (Bank) or Island: EOB, Segment Length: 0.25 mile

3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna M Ross — START — 4/13/2011 Date

Shawna Marie Ross — Printed Name

[signature] — MDEQ — 4/13/11 Date

SARAH VANDERZIJL — Printed Name

[signature] — Enbridge — 4-13-2011 Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

11.75RDB1 polygon only - no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 6/5/11 Date

John Vuolac Printed Name

[signature] MDEQ 6/5/11 Date

James M. Gamble Printed Name

[signature] Enbridge 6/5/11 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

11.75 RDB2 polygon only - no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

John Vertae Printed Name

_____ MDEQ _____ Date

James M. Gamble Printed Name

_____ Enbridge _____ Date

Michael Van Laan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.5 to MP 11.75, Bank or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan START 4/19/11 Date

THOMAS P. GRAAN Printed Name

Dana Strouse MDEQ 4-19-11 Date

Dana Strouse Printed Name

[signature] Enbridge 4/19/11 Date

Desch Senn Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.5 to MP 11.75, Unique ID LDB4 (11.75), Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/3/11 — Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5-3-11 — Date

Kathleen Fairchild — Printed Name

Don DeWitt — Enbridge — 5/3/11 — Date

Don DeWitt — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.50 to MP 11.75, Unique ID 11.75 RI, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Braun _____ START 5/17/11 Date

THOMAS P. BRAUN _____ Printed Name

Kat Fairchild _____ MDEQ 5-17-11 Date

Kathleen Fairchild _____ Printed Name

Don DeWitt _____ Enbridge 5/17/11 Date

Don DeWitt _____ Printed Name

Strikepoints collected by YUMA

Segment 11.75 – 12.00

MP 11.75 to MP 12.00

The LDB of segment 12.00 generally consists of forested wetland swamp along the shoreline and within the overbank. Numerous back channels are present in the overbank. The reassessment identified three points, twelve polygons, and one linear transect. In general, trace to broken distributions of covered to stained debris and/or trunks and stems were identified in most areas. A trace to broken distribution of surface oil residue was identified at both the shoreline and overbank. Additionally, large areas of the overbank were identified as having trace amounts of oil film on ponded water.

Poling of the back channels on the LDB within this segment was completed at thirty-three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 12.00 consists primarily of forested wetland swamp with areas of low vegetative banks. The reassessment identified two polygons containing primarily trace occurrences of stained trunks and stems.

Two islands are present in this segment. Both were identified as having forested wetland swamp as the primary habitat. The upstream island contained trace amounts of covered and stained trunks and stems, as well as surface oil residue. The downstream island consisted of sporadic distributions of covered surface oil residue on the ground surface.

The FLS did not identify any oil signatures within this segment and no PI observations were made.

The attachments provide additional details on this segment.

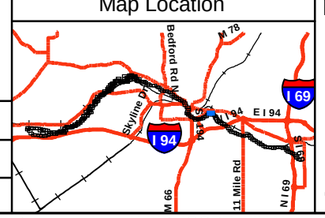
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP11.75-MP12.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 12																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)	
4/13/2011	12:12																	42.30754 / -85.14150	
2	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-emergent/herbaceous	
4/13/2011	12:19																	42.30764 / -85.14208	

START	
MDEQ	
Enbridge Team Lead	
Ross, Shauna	
VanDelfzijl, Sarah	
VanLoan, Mike	
Ross, Shauna	
VanDelfzijl, Sarah	
VanLoan, Mike	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 12																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					VanDelfzijl, Sarah
4/13/2011	11:55																	42.30821	-85.14260		VanLoan, Mike
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna
																					VanDelfzijl, Sarah
4/13/2011	12:35																	42.30871	-85.14399		VanLoan, Mike

2011 Reassessment

| Bank: LDB | | Oil Thickness | | | | | Oil Character | | | | |

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 12																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
16	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Ponded Water - Reassess	reassess when drier	Graan, Tom Fairchild, Katie
5/3/2011	14:55																	42.30694 / -85.14375		Neumeier, Laura
17	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	TAR COATED AND STAINED TREES AND DEBRIS	Hadwin, Eric Wesener, Matt
5/11/2011	09:59																	42.30759 / -85.14394		Kytta, Ken
18	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank	TAR COATED AND STAINED TREES AND BRANCHES	Hadwin, Eric Wesener, Matt
5/11/2011	11:52																	42.30665 / -85.14315		Kytta, Ken
19	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank	TAR COATED AND STAINED DEBRIS	Hadwin, Eric Wesener, Matt
5/11/2011	12:09																	42.30689 / -85.14285		Kytta, Ken
2	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Wetland-swamp (forested)		Graan, Tom Strouse, Dana
4/20/2011	10:04																	42.30734 / -85.14120		Senn, Derreck

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 12																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
20	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		TAR COATED AND STAINED TREES AND DEBRIS; HEAVIER THAN TRACE	Hadwin, Eric / Wesener, Matt
5/11/2011	12:28																	42.30703	-85.14327		Kytta, Ken
3	Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☑	☐	☐	☑	☐	B	Wetland-swamp (forested)		INFORMATION ABOUT COATED DEBRIS PILES WITHIN OTHER POLYGON	Graan, Tom / Strouse, Dana
4/20/2011	10:46																	42.30747	-85.14273	SR ABUNDANT IN LOW SPOTS SHOULD BE ZONE 3	Senn, Derreck
4	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		SHEENS IN STANDING WATER	Graan, Tom / Strouse, Dana
4/20/2011	12:11																	42.30733	-85.14333		Senn, Derreck
5	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑	P	Wetland-swamp (forested)			Graan, Tom / Strouse, Dana
4/20/2011	13:32																	42.30847	-85.14366		Senn, Derreck
6	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)			Graan, Tom / Strouse, Dana
4/20/2011	13:49																	42.30830	-85.14321		Senn, Derreck

2011 Reassessment

Bank: LDB

Mile Marker: 12

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
7	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Graan, Tom
																					Strouse, Dana
4/20/2011	14:41																	42.30695	-85.14149		Senn, Derreck
8	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Graan, Tom
																					Strouse, Dana
4/20/2011	14:47																	42.30699	-85.14192		Senn, Derreck
9	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Graan, Tom
																					Strouse, Dana
4/20/2011	14:52																	42.30697	-85.14196		Senn, Derreck

Photo Logs

Field Photographs MP 11.75 – MP 12.00

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs MP 11.75 – MP 12.00

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 3, Photo 002



LDB Zone ID 4, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 4, Photo 002



LDB Zone ID 4, Photo 003



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 4, Photo 004



LDB Zone ID 4, Photo 005



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 4, Photo 006



LDB Zone ID 4, Photo 007



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 4, Photo 008



LDB Zone ID 5, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 5, Photo 002



LDB Zone ID 6, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 6, Photo 002



LDB Zone ID 6, Photo 003



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 6, Photo 004



LDB Zone ID 6, Photo 005



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 7, Photo 001



LDB Zone ID 7, Photo 002



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 8, Photo 001



LDB Zone ID 9, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 10, Photo 001



LDB Zone ID 13, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 13, Photo 002



LDB Zone ID 13, Photo 003



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 13, Photo 004



LDB Zone ID 13, Photo 005



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 13, Photo 006



LDB Zone ID 13, Photo 007



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 13, Photo 008



LDB Zone ID 14, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 14, Photo 002



LDB Zone ID 14, Photo 003



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 15, Photo 001



LDB Zone ID 16, Photo 001



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 17, Photo 001



LDB Zone ID 17, Photo 002



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 18, Photo 001



LDB Zone ID 18, Photo 002



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 19, Photo 001



LDB Zone ID 19, Photo 002



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 20, Photo 001



LDB Zone ID 20, Photo 002



Field Photographs MP 11.75 – MP 12.00

LDB Zone ID 20, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 11.75 to MP 120, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle Delong	MDEQ	6/7/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.75 to MP 12.0, Bank and/or Island: RDB, Segment Length: 0.25 mile

4 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross	START	4/13/2011 Date
Shawna Marie Ross	Printed Name	
Sarah VanDeElzijl	MDEQ	4/13/11 Date
SARAH VANDEELZIJL	Printed Name	
[signature]	Enbridge	4-13-2011 Date
Michael Van Loon	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 11.75 to MP 12.0 (Bank) or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/21/11 — Date

THOMAS P. GRAAN — Printed Name

Dana Strouse — MDEQ — 4/21/11 — Date

Dana Strouse — Printed Name

[signature] — Enbridge — 4/21/11 — Date

Derek Senn — Printed Name

Note: This segment contained areas that were inassessable and were mapped as such.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.75 to MP 12.0 (12.00 *), Unique ID LDB 12, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/3/11 — Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5-3-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/3/2011 — Date

Laura Neumeier — Printed Name

* YUMA collected one point in this polygon to identify that entire polygon needs to be reassessed in dryer conditions.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.75 to MP 12.0, Unique ID LDB11 12.0*, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/3/11 — Date

THOMAS P. GRAAN — Printed Name

Kathleen Fairchild — MDEQ — 5-3-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/3/2011 — Date

Laura Neumeier — Printed Name

* Only a portion of polygon was polled as channel. Remainder of polygon was seperated into 2 new polygons (12.00 L1 and 12.00 L2 identified in YUMA) for areas that need to be reassessed in dryer conditions.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.75 to MP 12.00, Unique ID CDB16 1200, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	5/11/11 Date
ERIK HANSEN	Printed Name	
_____	MDEQ	5/11/11 Date
MATT WEBENER	Printed Name	
_____	Enbridge	5/11/11 Date
KEN KITTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.75 to MP 12.00, Unique ID 12.00 CDBLS, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/11/11 Date

ERIK HADWIN Printed Name

_____ MDEQ 5/11/11 Date

MATT WESENER Printed Name

_____ Enbridge 5/11/11 Date

KEN KYTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 11.75 to MP 12.00, Unique ID 12.00 LDB13, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/11/11 Date

Erik Hauwer Printed Name

_____ MDEQ 5/11/11 Date

MATT WESENER Printed Name

_____ Enbridge 5/11/11 Date

KEN KYTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

12.00 (DBI polygon only - no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 6/5/11 Date

John Verlan Printed Name

_____ MDEQ — 6/5/11 Date

James M. Gamble Printed Name

_____ Enbridge — 6/5/11 Date

Michael Van Loan Printed Name

Segment 12.00 – 12.25

MP 12.00 to MP 12.25

The LDB of segment 12.25 consists of primarily of forested wetland swamp and areas of emergent/herbaceous wetlands. Back channels are present within the overbank. The reassessment identified five points and seven polygons. These areas were identified as having trace to sporadic areas of coated and stained debris, trunks and stems.

Poling of the back channel on the LDB within this segment was completed at seventeen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 12.25 consists primarily of a low vegetative bank. The reassessment identified one linear transect that spanned almost the entire RDB. It was noted that this area contained sporadic occurrences of stained trunks and stems.

The FLS did not identify any oil signatures within this segment and no PI observations were made.

The attachments provide additional details on this segment.

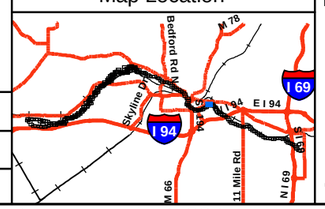
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP12.00-MP12.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 12.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank			Ross, Shauna
																					VanDelfzijl, Sarah
4/13/2011	12:53																	42.30567	-85.14590		VanLoan, Mike

2011 Reassessment

Bank: LDB

Mile Marker: 12.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character											Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		AREA FILLED WITH EXTREMELY DENSE VEGETATION AND DOWNED TREES CANNOT SAFELY TRAVERSE. OBSERVATIONS MADE IN AREAS VIEWABLE	Graan, Tom Strouse, Dana
4/20/2011	17:18																	42.30645	-85.14380		Senn, Derreck
10	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR STAINED AND COVERED TREES AND DEBRIS	Hadwin, Eric Wesener, Matt
5/11/2011	11:09																	42.30647	-85.14400		Kytta, Ken
11	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED TREES AND DEBRIS	Hadwin, Eric Wesener, Matt
5/11/2011	11:18																	42.30677	-85.14416		Kytta, Ken
12	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED TREES AND DEBRIS	Hadwin, Eric Wesener, Matt
5/11/2011	11:32																	42.30691	-85.14414		Kytta, Ken
13	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		limited SORT coverage due to down trees from recent storm	Johnson, Rex Strouse, Dana
6/6/2011	14:03																	42.30656	-85.14541		Reid, Neil

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 12.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Graan, Tom / Strouse, Dana
4/21/2011	11:13																	42.30832	-85.14449		Senn, Derreck
4		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-emergent/herbaceous			Graan, Tom / Strouse, Dana
4/21/2011	11:32																	42.30767	-85.14548		Senn, Derreck
5	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank			Graan, Tom / Strouse, Dana
4/21/2011	11:42																	42.30658	-85.14539		Senn, Derreck
6	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank			Graan, Tom / Strouse, Dana
4/21/2011	12:37																	42.30551	-85.14560		Senn, Derreck
7		☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Graan, Tom / Strouse, Dana
4/21/2011	12:43																	42.30543	-85.14570		Senn, Derreck

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 12.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
8	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED BRANCHES/TREES	Hadwin, Eric
																					Wesener, Matt
5/11/2011	09:33																	42.30810	-85.14445		Kytta, Ken
9	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED TREES AND DEBRIS	Hadwin, Eric
																					Wesener, Matt
5/11/2011	10:09																	42.30717	-85.14439		Kytta, Ken

Photo Logs

Field Photographs MP 12.00 – MP 12.25

RDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 001



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 1, Photo 002



LDB Zone ID 1, Photo 003



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 3, Photo 003



LDB Zone ID 4, Photo 001



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 7, Photo 001



LDB Zone ID 8, Photo 001



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 8, Photo 002



LDB Zone ID 9, Photo 001



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 9, Photo 002



LDB Zone ID 10, Photo 001



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 10, Photo 002



LDB Zone ID 10, Photo 003



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 11, Photo 001



LDB Zone ID 11, Photo 002



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 12, Photo 001



LDB Zone ID 12, Photo 002



Field Photographs MP 12.00 – MP 12.25

LDB Zone ID 13, Photo 001



LDB Zone ID 13, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 12.0 to MP 12.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	GAB	Enbridge [signature]
SOTF	START	[signature]	MDEQ	GAB	Enbridge [signature]
PI	START	[signature]	MDEQ	GAB	Enbridge [signature]
FLS	START	[signature]	MDEQ	GAB	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

[signature] MDEQ — 6/7/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 12.0 to MP 12.25, Bank or Island: RDB, Segment Length: 0.25 mile

1 feature (Shoreline)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Ross — START — 4/13/2011 — Date

Shawna Marie Ross — Printed Name

Sarah VanDeHaar — MDEQ — 4/13/11 — Date

Sarah VanDeHaar — Printed Name

Enbridge — 4-13-2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 12 to MP 12.25 (Bank) or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/21/11 — Date

THOMAS P. GRAAN — Printed Name

Dana Strause — MDEQ — 4/21/11 — Date

Dana Strause — Printed Name

Derek Senn — Enbridge — 4/21/11 — Date

Derek Senn — Printed Name

Note: This segment contained a large area of standing water that could not be assessed.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 12.0 to MP 12.25*, Unique ID LDB2, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/3/11 — Date

THOMAS P. GRAAN — Printed Name

Kathleen Fairchild — MDEQ — 5-3-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/3/2011 — Date

Laura Neumeier — Printed Name

* Only a portion of polygon was polled as a channel. Remainder of polygon was seperated into 2 new polygons (12.25L1 and 12.25L2 identified in YUMA) for areas that need to be reassessed in dryer conditions.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 12.00 to MP 12.25, Unique ID 6038, Bank: OB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/11/11 Date

ERIC HADWIN Printed Name

_____ MDEQ — 5/11/11 Date

MATT WESENER Printed Name

_____ Enbridge — 5/11/11 Date

KEN KTTM Printed Name

Craig A Wieman — 5/11/2011

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 12.00 to MP 12.25, Unique ID LDB9, Bank: B and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/11/11 Date

Eric Hadwin Printed Name

_____ MDEQ — 5/11/11 Date

MATT WESENER Printed Name

_____ Enbridge — 5/11/11 Date

KEN KYTTA Printed Name

_____ — 5/11/2011

Craig A Wieman

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 12.00 to MP 12.25, Unique ID LDB 1, Bank: LDB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/6/11 — Date

Rex Johnson — Printed Name

Dana Stroube — MDEQ — 6/6/11 — Date

Dana Stroube — Printed Name

[signature] — Enbridge — 6/6/11 — Date

Nate Hehir — Printed Name

- No oil Observed
- Numerous downed tree's throughout assessment area from recent wind storm event.

Segment 12.25 – 12.50

MP 12.25 to MP 12.50

The LDB of segment 12.50 generally consists of three habitats: low vegetative bank areas along the shoreline at the beginning of the segment and emergent/herbaceous wetlands and forested wetland swamp along the shoreline and overbank. The reassessment identified two points, three polygons and one linear transect. In general, trace and sporadic distributions of oil or tar covered to stained debris and/or trunks and stems were identified at most locations. Sporadic distributions of surface oil residue were observed at Polygon 3 LDB and 7 LDB. A broken cover of asphalt pavement was documented at Polygon 5 LDB.

The RDB of segment 12.50 consists primarily of forested wetland swamp. The reassessment identified six points and six polygons. Trace to sporadic occurrences of oil covered to stained debris and/or trunks and stems were documented in most areas. A sporadic occurrence of tar patties was documented at Point 2 RDB, and surface oil residue was noted at Point 11 RDB. The FLS identified one suspected oil signature within the RDB of the segment, which coincides with Polygon 10 RDB and Point 9 RDB.

Two islands are present in this segment, both consisting of forested wetland swamp. The upstream island contained sporadic areas of cover, coated and stained debris, trunks and stems along with surface oil residue. The downstream island, which consists of 2 I and 3 I and spans into the next segment, contained trace to patchy areas of covered, coated, and stained debris, trunks and stems. Additionally patties and surface oil residue were also noted.

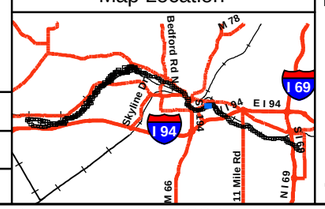
No PI observations were made within this segment.

The attachments provide additional details on this segment.

Segment Figures



Map Location



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP12.25-MP12.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 12.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		Ross, Shauna / Veldkamp, Chris
4/14/2011	14:42																	42.30418 / -85.14862		Juntilla, John
2	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)		Ross, Shauna / Veldkamp, Chris
4/14/2011	15:14																	42.30314 / -85.14976		Juntilla, John
3	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Wetland-swamp (forested)	polygon inside larger polygon	Ross, Shauna / Veldkamp, Chris
4/14/2011	15:30																	42.30326 / -85.14957		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 12.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	10:11																	42.30638	-85.14769		Juntilla, John
10	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	13:35																	42.30552	-85.14663		Juntilla, John
11	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Low Vegetated Bank			Ross, Shauna / Veldkamp, Chris
4/14/2011	13:40																	42.30531	-85.14669		Juntilla, John
12	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	14:20																	42.30462	-85.15079		Juntilla, John
2	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		shingle tar	Ross, Shauna / Veldkamp, Chris
4/14/2011	10:25																	42.30603	-85.14781		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 12.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
3	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	11:01																	42.30471	-85.15063		Juntilla, John
4	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	11:37																	42.30546	-85.14844		Juntilla, John
5	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	12:12																	42.30454	-85.14860		Juntilla, John
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	P	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	12:20																	42.30498	-85.14889		Juntilla, John
7	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	12:26																	42.30520	-85.14898		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 12.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
8	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	P	Wetland-swamp (forested)	
4/14/2011	12:32																	42.30532 / -85.14895	
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Wetland-swamp (forested)	
4/14/2011	13:14																	42.30549 / -85.14660	

START
MDEQ
Ross, Shauna
Veldkamp, Chris
Juntilla, John
Ross, Shauna
Veldkamp, Chris
Juntilla, John

Enbridge Team Lead

2011 Reassessment

Bank: LDB

Mile Marker: 12.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Graan, Tom
																					Strouse, Dana
4/21/2011	13:11																	42.30513	-85.14626		Senn, Derreck
3	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)			Graan, Tom
																					Strouse, Dana
4/21/2011	13:29																	42.30465	-85.14702		Senn, Derreck
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Graan, Tom
																					Strouse, Dana
4/21/2011	13:36																	42.30457	-85.14728		Senn, Derreck
5	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	B	Wetland-emergent/herbaceous		PETROLEUM ODOR	Graan, Tom
																					Strouse, Dana
4/21/2011	14:07																	42.30331	-85.14918		Senn, Derreck
6	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Graan, Tom
																					Strouse, Dana
4/21/2011	14:17																	42.30318	-85.14929		Senn, Derreck

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 12.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
7	Shoreline and Overbank	☐	☑	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	S	Wetland-emergent/herbaceous			Graan, Tom
																					Strouse, Dana
4/21/2011	14:24																	42.30328	-85.14912		Senn, Derreck

Photo Logs

Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 2, Photo 003



LDB Zone ID 2, Photo 004



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 3, Photo 005



LDB Zone ID 4, Photo 001



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 6, Photo 001



LDB Zone ID 7, Photo 001



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 7, Photo 002



LDB Zone ID 7, Photo 003



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 7, Photo 004



LDB Zone ID 7, Photo 005



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 7, Photo 006



LDB Zone ID 7, Photo 007



Field Photographs MP 12.25 – MP 12.50

LDB Zone ID 7, Photo 008



RDB Zone ID 1, Photo 001



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 5, Photo 002



RDB Zone ID 5, Photo 003



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 5, Photo 004



RDB Zone ID 6, Photo 001



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 7, Photo 001



RDB Zone ID 8, Photo 001



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 9, Photo 001



RDB Zone ID 10, Photo 001



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 10, Photo 002



RDB Zone ID 11, Photo 001



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 12, Photo 001



RDB Zone ID 12, Photo 002



Field Photographs MP 12.25 – MP 12.50

RDB Zone ID 12, Photo 003



RDB Zone ID 12, Photo 004



Field Photographs MP 12.25 – MP 12.50

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 12.25 – MP 12.50

I Zone ID 1, Photo 003



I Zone ID 2, Photo 001



Field Photographs MP 12.25 – MP 12.50

I Zone ID 2, Photo 002



I Zone ID 2, Photo 003



Field Photographs MP 12.25 – MP 12.50

I Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 12.25 to MP 12.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

RDB and Entire Island x2

Segment ID: From MP 12.25 to MP 12.5, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Li Ross _____ START 4/14/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ 4/14/11 Date

Chris Verdkamp Printed Name

_____ Enbridge 4/14/11 Date

John W. Juntilla Printed Name

The Island was observed completely as a part of this segement. It also has become two separate islands since the map was developed.

15 features were collected for this segment

(12 on RDB
3 on the islands)

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 12.75 to MP 12.5, (Bank) or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/21/11 — Date

Thomas P. GRAAN — Printed Name

Dana Strouse — MDEQ — 4/21/11 — Date

Dana Strouse — Printed Name

[signature] — Enbridge — 4/21/11 — Date

Derek Senn — Printed Name

Note: One segment of shoreline could not be assessed by shore due to steep banks and safety concerns. This segment could not be adequately assessed by fanboat due to overhanging branches & swift river current.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 12.25 to MP 12.5, Unique ID 12.50 LDB1, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/3/11 — Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5-3-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/3/2011 — Date

Laura Neumeier — Printed Name

Segment 12.50 – 12.75

MP 12.50 to MP 12.75

The LDB of segment 12.75 consist of low vegetative bank and forested wetland swamp. The reassessment identified four polygons and two linear transects containing trace to sporadic areas of coated and stained debris, trunks, and stems. Additionally, coated tar balls and patties were also observed at Polygons 2 LDB, 5 LDB, and 6 LDB.

The RDB of segment 12.75 consists primarily of low vegetative banks and forested wetland swamp. The reassessment identified oil occurrences at one polygon, two points, and one linear transect containing trace areas of coated and stained debris, trunks, and stems.

Poling of back channels on the RDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One island is present in this segment consisting of forested wetland swamp containing trace coated and stained debris, trunks and stems.

The FLS did not identify any oil signatures within segment and no PI observations were noted.

The attachments provide additional details on this segment.

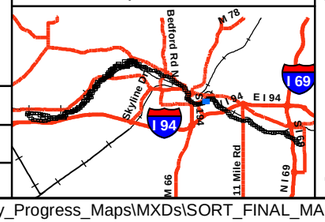
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP12.50-MP12.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 12.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ Enbridge Team Lead
1	Shoreline	5/12/2011	15:27	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank	42.30286	-85.14977	STAINING ON TREES OBSERVED BY BOAT OF STEEP BANK	Kane, Sean ROBIN OEMING Juntilla, John
2	Shoreline and Overbank	5/12/2011	15:51	☐	☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.30265	-85.14998	STAINING INTERMITENTLY ALONG SHORE, TAR BALLS OBSERVED. PICTURES TAKEN WITH YUMA DUE TO WET CAMERA. RIVER SIDE FOLLOWS BANK	Kane, Sean ROBIN OEMING Juntilla, John
3	Shoreline	5/12/2011	16:18	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Other (comments)	42.30234	-85.15122	STEEP BANK WITH NOT MUCH ROCK BUT MANY ROOTS IN BLACK DIRT. STAINING ON ROOTS AND TREES. LINE FOLLOWS BANK	Kane, Sean ROBIN OEMING Juntilla, John
4	Shoreline and Overbank	5/12/2011	16:52	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.30233	-85.15149	STAINING ON VEGITATION AND DEBRI	Kane, Sean ROBIN OEMING Juntilla, John
5	Overbank	5/12/2011	17:00	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.30234	-85.15153	TAR ON GROUND	Kane, Sean ROBIN OEMING Juntilla, John

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	12.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		Wetland-emergent/herbaceous		TAR ON GROUND	Kane, Sean
																					ROBIN OEMING
5/12/2011	17:07																	42.30235	-85.15176		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 12.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Ross, Shauna / Veldkamp, Chris
4/14/2011	16:14																	42.30307	-85.15192		Juntilla, John
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	16:26																	42.30281	-85.15224		Juntilla, John
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna / Veldkamp, Chris
4/14/2011	16:45																	42.30211	-85.15336		Juntilla, John
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Ross, Shauna / Veldkamp, Chris
4/14/2011	16:57																	42.30234	-85.15383		Juntilla, John
6	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		drum	Kane, Sean / Blazic, Ryan
6/5/2011	12:04																	42.30345	-85.15326		DaveStrand

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											
Mile Marker: 12.75																		
Source: 2011 Reassessment																		
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**
Date	**Time**																	**Latitude** / **Longitude**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)
4/14/2011	17:17																	42.30334 / -85.15121

Comments	**START**
	MDEQ
	Enbridge Team Lead
	Ross, Shauna
	Veldkamp, Chris
	Juntilla, John

Photo Logs

Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 1, Photo 005



LDB Zone ID 2, Photo 001



Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 2, Photo 002



LDB Zone ID 3, Photo 001



Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 3, Photo 002



LDB Zone ID 4, Photo 001



Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 5, Photo 002



LDB Zone ID 6, Photo 001



Field Photographs MP 12.50 – MP 12.75

LDB Zone ID 6, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 12.50 – MP 12.75

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 12.50 – MP 12.75

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 12.50 – MP 12.75

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 12.50 – MP 12.75

RDB Zone ID 6, Photo 001



I Zone ID 1, Photo 001



Field Photographs MP 12.50 – MP 12.75

I Zone ID 1, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 12.5 to MP 12.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/7/2011	Date
ISAAK ABOULAFIA	Printed Name		
Michelle Delong	MDEQ	6/7/11	Date
Michelle Delong	Printed Name		
	Enbridge	6/7/2011	Date
Dave Barcham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

RDB and New island (formed after mp produced)

Segment ID: From MP 12.50 to MP 12.75, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna M Ross _____ START 4/14/2011 Date

Shawna Marie Ross Printed Name

Chris Veldkamp _____ MDEQ 4/14/11 Date

Chris Veldkamp Printed Name

John W Juntilla _____ Enbridge 4-14-2011 Date

John W. Juntilla Printed Name

A new island formed along the middle portion of this segment.

5 - YUMA Features collected in this segment

(4-along RDB
1-on the new island)

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP ~~12.75~~ 12.50 to MP 12.75, Unique ID RDB1, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6-05-11 Date

_____ Printed Name

_____ MDEQ 6/5/11 Date

_____ Printed Name

_____ Enbridge 6/5/11 Date

_____ Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 12.50 to MP 12.75, Unique ID RDB2, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6-05-11 Date

Jean Kowa Printed Name

_____ MDEQ 6/5/11 Date

Ryan Blue Printed Name

_____ Enbridge 6/5/11 Date

David Strand Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 12.50 to MP 12.75, Bank or ~~Island:~~ LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Sean Kane START 5-12-2011 Date

[signature] Printed Name

[signature] MDEQ 5/12/11 Date

Robert Deming Printed Name

[signature] Enbridge 5-12-11 Date

John W. Juntilla Printed Name

2 features were observed from the boat (~400 ft of shoreline)

6 Features collected on this segment

Segment 12.75 – 13.00

MP 12.75 to MP 13.00

The LDB of segment 13.00 generally consists of forested wetland swamp and areas of low vegetative banks. The reassessment identified two linear transects and two points as having trace areas of coated debris, trunks, and stems. Additionally, trace areas of tar were also identified at Point 1 LDB and Linear Transect 3 LDB. Patchy asphalt pavement was observed at Point 2 LDB.

The RDB of segment 13.00 consists primarily of forested wetland swamp and emergent/herbaceous wetland habitats. The reassessment identified fifteen polygons, two linear transects, and twelve points containing trace to patchy areas of covered, coated and stained debris, trunks, and stems, along with trace to patchy areas of patties and surface oil residue. Two points (3 RDB and 8 RDB) were identified as having film/sheen.

The FLS did not identify any oil signatures and no PI observations were made within this segment.

The attachments provide additional details on this segment.

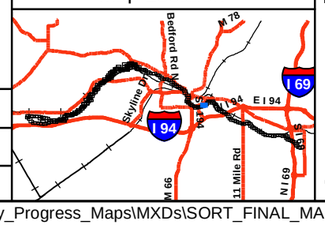
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP12.75-MP13.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 13																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous	
4/15/2011	08:53																	42.30185 / -85.15487	
10	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	
4/15/2011	11:09																	42.30251 / -85.15713	
11	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)	
4/15/2011	11:22																	42.30239 / -85.15730	
12	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	
4/15/2011	11:32																	42.30236 / -85.15766	
13	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)	
4/15/2011	11:40																	42.30257 / -85.15788	

START	
MDEQ	
Enbridge Team Lead	
Ross, Shauna	
Veldkamp, Chris	
Juntilla, John	
Ross, Shauna	
Veldkamp, Chris	
Juntilla, John	
Ross, Shauna	
Veldkamp, Chris	
Juntilla, John	
Ross, Shauna	
Veldkamp, Chris	
Jintilla,John	
Ross, Shauna	
Veldkamp, Chris	
Juntilla, John	

2011 Reassessment

Bank: RDB

Mile Marker: 13

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ Enbridge Team Lead
14	Overbank			☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	P	Wetland-emergent/herbaceous				Ross, Shauna Veldkamp, Chris
		4/15/2011	12:52																		42.30171	-85.15547		Jintilla,John
15	Overbank			☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous				Ross, Shauna Veldkamp, Chris
		4/15/2011	13:08																		42.30192	-85.15667		Jintilla,John
16	Overbank			☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☑	☐	P	Wetland-emergent/herbaceous				Ross, Shauna Veldkamp, Chris
		4/15/2011	13:27																		42.30157	-85.15625		Jintilla,John
17	Overbank			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-emergent/herbaceous				Ross, Shauna Veldkamp, Chris
		4/15/2011	13:39																		42.30131	-85.15603		Jintilla,John
18	Overbank			☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☑	☐		Wetland-emergent/herbaceous				Ross, Shauna Veldkamp, Chris
		4/15/2011	13:48																		42.30132	-85.15537		Jintilla,John

2011 Reassessment

Bank: RDB

Mile Marker: 13

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ Enbridge Team Lead
19	Overbank	4/15/2011	13:54	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous	42.30099	-85.15537		Ross, Shauna Veldkamp, Chris Juntilla, John
2	Overbank	4/15/2011	09:00	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.30189	-85.15509		Ross, Shauna Veldkamp, Chris Juntilla, John
20	Overbank	4/15/2011	13:56	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous	42.30115	-85.15551		Ross, Shauna Veldkamp, Chris Juntilla, John
21	Overbank	4/15/2011	13:59	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous	42.30108	-85.15523		Ross, Shauna Veldkamp, Chris Juntilla, John
22	Overbank	4/15/2011	14:13	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous	42.30127	-85.15474		Ross, Shauna Veldkamp, Chris Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 13

Source: 2011 Reassessment

Oil Zone ID / Date	Feature / Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat: Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
23	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous			Ross, Shauna Veldkamp, Chris
4/15/2011	14:26																	42.30180	-85.15363		Jintilla,John
24	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-emergent/herbaceous			Ross, Shauna Veldkamp, Chris
4/15/2011	14:32																	42.30168	-85.15403		Jintilla,John
25	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous			Ross, Shauna Veldkamp, Chris
4/15/2011	14:52																	42.30127	-85.15431		Jintilla,John
3	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		sheen	Ross, Shauna Veldkamp, Chris
4/15/2011	09:22																	42.30237	-85.15611		Juntilla, John
4	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna Veldkamp, Chris
4/15/2011	09:36																	42.30290	-85.15657		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 13																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
26	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	S	Wetland-emergent/herbaceous			Ross, Shauna Goddard, Matt
4/19/2011	10:27																	42.30057	-85.15743		VanLoan, Mike
27	Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-scrub/shrub			Ross, Shauna Goddard, Matt
4/19/2011	10:42																	42.29976	-85.15650		VanLoan, Mike
28	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-emergent/herbaceous			Ross, Shauna Goddard, Matt
4/19/2011	10:54																	42.29993	-85.15668		VanLoan, Mike
29	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/19/2011	11:17																	42.30216	-85.15756		VanLoan, Mike

2011 Reassessment

Bank: RDB

Mile Marker: 13

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
5	Overbank	4/15/2011	09:51	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.30245	-85.15639		Ross, Shauna Veldkamp, Chris Juntilla, John
6	Overbank	4/15/2011	10:21	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.30197	-85.15570		Ross, Shauna Veldkamp, Chris Jintilla,John
7	Overbank	4/15/2011	10:30	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.30258	-85.15659		Ross, Shauna Veldkamp, Chris Juntilla, John
8	Overbank	4/15/2011	10:52	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)	42.30276	-85.15691	sheen possible organic and petro mix	Ross, Shauna Veldkamp, Chris Juntilla, John
9	Overbank	4/15/2011	10:56	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.30277	-85.15692		Ross, Shauna Veldkamp, Chris Juntilla, John

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 13																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Flickinger, Brian
4/26/2011	12:59																	42.30160	-85.15308		Oswald, John
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	P	Wetland-swamp (forested)			Johnson, Kevin / Flickinger, Brian
4/26/2011	13:25																	42.30082	-85.15436		Oswald, John
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Flickinger, Brian
4/26/2011	13:49																	42.29923	-85.15687		Oswald, John
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Johnson, Kevin / Flickinger, Brian
4/26/2011	17:19																	42.30160	-85.15323		Oswald, John

Photo Logs

Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 6, Photo 003



RDB Zone ID 6, Photo 004



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 6, Photo 005



RDB Zone ID 7, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 7, Photo 002



RDB Zone ID 8, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 9, Photo 001



RDB Zone ID 10, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 10, Photo 002



RDB Zone ID 10, Photo 003



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 11, Photo 001



RDB Zone ID 12, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 13, Photo 001



RDB Zone ID 14, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 14, Photo 002



RDB Zone ID 14, Photo 003



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 15, Photo 001



RDB Zone ID 15, Photo 002



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 16, Photo 001



RDB Zone ID 16, Photo 002



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 16, Photo 003



RDB Zone ID 16, Photo 004



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 17, Photo 001



RDB Zone ID 17, Photo 002



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 18, Photo 001



RDB Zone ID 19, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 20, Photo 001



RDB Zone ID 21, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 21, Photo 002



RDB Zone ID 22, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 22, Photo 002



RDB Zone ID 23, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 24, Photo 001



RDB Zone ID 24, Photo 002



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 25, Photo 001



RDB Zone ID 25, Photo 002



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 25, Photo 003



RDB Zone ID 25, Photo 004



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 25, Photo 005



RDB Zone ID 25, Photo 006



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 25, Photo 007



RDB Zone ID 26, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 26, Photo 002



RDB Zone ID 27, Photo 001



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 28, Photo 001



RDB Zone ID 28, Photo 002



Field Photographs MP 12.75 – MP 13.00

RDB Zone ID 28, Photo 003



RDB Zone ID 29, Photo 001



Field Photographs MP 12.75 – MP 13.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 12.75 – MP 13.00

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 12.75 – MP 13.00

LDB Zone ID 3, Photo 003



LDB Zone ID 4, Photo 001



Field Photographs MP 12.75 – MP 13.00

LDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 12.75 to MP 13.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	GAB	Enbridge [signature]
SOTF	START	[signature]	MDEQ	GAB	Enbridge [signature]
PI	START	[signature]	MDEQ	GAB	Enbridge [signature]
FLS	START	[signature]	MDEQ	BAB	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/6/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barchom Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 12.75 to MP 13.0, Bank or Island: RvB, Segment Length: 0.25 mile

4 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/19/2011 — Date

Shawna Marie Ross — Printed Name

Matt Goddard — MDEQ — 4/15/11 — Date

Matt Goddard — Printed Name

Michael Van Loon — Enbridge — 4-19-2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 12.75 to MP 13.00, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 04/26/2011 Date

Kevin Johnson — Printed Name

[signature] — MDEQ — 4/26/11 Date

Brian Flickinger — Printed Name

[signature] — Enbridge — 4/26/11 Date

JOHN OSWALD — Printed Name

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Addendum to the Shoreline and Overbank Reassessment
MP 0.00 through MP 40.00
and
Submerged Oil Reassessment
MP 0.00 through MP 37.8
Report

(Binder 4 of 7)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: August 12, 2011

Segment 13.00 – 13.25

MP 13.00 to MP 13.25

The LDB of segment 13.25 generally consists of forested wetland swamp and areas of scrub-shrub wetland areas. The reassessment identified four polygons and one point. These areas were identified as having trace to sporadic areas of coated and stained debris and trunks and stems. Additionally sporadic to patchy areas of tar and asphalt pavement were also identified on the LDB

The RDB of segment 13.25 consists primarily of forested wetland swamp and emergent/herbaceous wetland habitats. The reassessment identified four polygons and four points containing primarily trace to patchy areas of covered and stained debris and trunks and stems, along with two small areas of tar balls and/or surface oil residue Points 2 RDB and 5 RDB.

The FLS did not identify any oil signatures and no PI observations were made within this segment.

The attachments provide additional details on this segment.

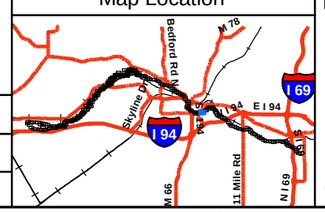
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP13.00-MP13.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 13.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Ross, Shauna / Goddard, Matt
4/19/2011	11:29																	42.30139 / -85.15809		VanLoan, Mike
2	Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Wetland-swamp (forested)		Ross, Shauna / Goddard, Matt
4/19/2011	11:32																	42.30120 / -85.15810		VanLoan, Mike
3	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Ross, Shauna / Goddard, Matt
4/19/2011	11:55																	42.30083 / -85.15823		VanLoan, Mike
4	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Ross, Shauna / Goddard, Matt
4/19/2011	12:04																	42.30016 / -85.15822		VanLoan, Mike
5	Overbank	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)		Ross, Shauna / Goddard, Matt
4/19/2011	12:39																	42.29937 / -85.15781		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 13.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/19/2011	13:03																	42.30062	-85.15901		VanLoan, Mike
7	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Ross, Shauna
																					Goddard, Matt
4/19/2011	13:10																	42.30099	-85.15940		VanLoan, Mike
8	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/19/2011	14:06																	42.29948	-85.15985		VanLoan, Mike

2011 Reassessment

Bank: LDB

Mile Marker: 13.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Flickinger, Brian
4/26/2011	14:26																	42.29913	-85.15728		Oswald, John
2	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Flickinger, Brian
4/26/2011	16:25																	42.29869	-85.15859		Oswald, John
3	Overbank	☐	☐	☑	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☑	S	Wetland-scrub/shrub		subtract	Johnson, Kevin
																					Flickinger, Brian
4/26/2011	16:39																	42.29882	-85.15958		Oswald, John
4	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	P	Wetland-swamp (forested)		subtract	Johnson, Kevin
																					Flickinger, Brian
4/26/2011	16:46																	42.29893	-85.15996		Oswald, John
5	Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐		Wetland-swamp (forested)		subtract	Johnson, Kevin
																					Flickinger, Brian
4/26/2011	16:59																	42.29971	-85.16091		Oswald, John

Photo Logs

Field Photographs MP 13.00 – MP 13.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 13.00 – MP 13.25

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 13.00 – MP 13.25

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 13.00 – MP 13.25

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 13.00 – MP 13.25

RDB Zone ID 8, Photo 001



RDB Zone ID 8, Photo 002



Field Photographs MP 13.00 – MP 13.25

RDB Zone ID 8, Photo 003



LDB Zone ID 1, Photo 001



Field Photographs MP 13.00 – MP 13.25

LDB Zone ID 1, Photo 002



LDB Zone ID 1, Photo 003



Field Photographs MP 13.00 – MP 13.25

LDB Zone ID 1, Photo 004



LDB Zone ID 1, Photo 005



Field Photographs MP 13.00 – MP 13.25

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 13.00 – MP 13.25

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 13.00 – MP 13.25

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 13.00 – MP 13.25

LDB Zone ID 5, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 13.0 to MP 13.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
Ken Powell	Printed Name	
Michelle Delong	MDEQ	6/6/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 13.0 to MP 13.25, Bank or Island: ____, Segment Length: 0.25 mile

8 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross _____ START _____ 4/19/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ _____ 4/19/11 Date

Matt Goddard Printed Name

_____ Enbridge _____ 4-19-2011 Date

Michael Van Loon Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 13.0 to MP 13.25, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 4/26/2011 — Date

Kevin Johnson — Printed Name

B. Flicky — MDEQ — 4/26/11 — Date

Brian Flicky — Printed Name

John Oswald — Enbridge — 4/20/11 — Date

JOHN OSWALD — Printed Name

Segment 13.25 – 13.50

MP 13.25 to MP 13.50

The LDB of segment 13.50 generally consists of forested wetland swamp and areas of scrub-shrub wetland areas. The reassessment identified five polygons and one point. These areas were identified as having trace areas of covered, coated and stained debris, and trunks and stems. Additionally, sporadic to patchy areas of patties and asphalt pavement were identified in Polygons 3 LDB, 4 LDB, and 6 LDB.

The RDB of segment 13.50 consists primarily of forested wetland swamp, emergent/herbaceous wetlands and scrub-shrub wetland habitats. The reassessment identified two polygons (1 RDB and 2 RDB) containing primarily trace areas of staining on trunks and stems. One relatively small polygon (3 RDB) within Polygon 2 RDB identified sporadic cover of asphalt pavement on the ground surface.

The FLS did detect three oil signatures within the LDB of the segment. All three locations were in relatively close proximity to SORT findings.

No PI observations were made within this segment.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP13.25-MP13.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character																
Mile Marker: 13.5																							
Source: 2011 Reassessment																							
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**		
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**		
																					Enbridge Team Lead		
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna		
																					VanDelfzijl, Sarah		
4/13/2011	14:01																	42.30030	-85.16252		VanLoan, Mike		
2	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna		
																					VanDelfzijl, Sarah		
4/13/2011	14:26																	42.29997	-85.16286		VanLoan, Mike		
3	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)			Ross, Shauna		
																					VanDelfzijl, Sarah		
4/13/2011	14:33																	42.29952	-85.16320		VanLoan, Mike		

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character																
Mile Marker: 13.5																							
Source: 2011 Reassessment																							
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**		
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**		
																					Enbridge Team Lead		
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Ross, Shauna		
																					Zimont, Ben		
5/11/2011	10:13																	42.29930	-85.16251		VanLoan, Mike		
2	Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub			Ross, Shauna		
																					Zimont, Ben		
5/11/2011	11:02																	42.29942	-85.16100		VanLoan, Mike		
3	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☑	P	Wetland-swamp (forested)			Ross, Shauna		
																					Zimont, Ben		
5/11/2011	11:26																	42.29990	-85.16085		VanLoan, Mike		
4	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		patties not evenly distributed throughout polygon	Ross, Shauna		
																					Zimont, Ben		
5/11/2011	11:47																	42.30025	-85.16142		VanLoan, Mike		
5	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-emergent/herbaceous			Ross, Shauna		
																					Wesener, Matt		
5/11/2011	11:58																	42.29949	-85.16253		VanLoan, Mike		

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 13.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Zimont, Ben
5/11/2011	12:07																	42.29871	-85.16432		VanLoan, Mike
																					Enbridge Team Lead

Photo Logs

Field Photographs MP 13.25 – MP 13.50

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 13.25 – MP 13.50

RDB Zone ID 3, Photo 001



LDB Zone ID 1, Photo 001



Field Photographs MP 13.25 – MP 13.50

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 13.25 – MP 13.50

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 13.25 – MP 13.50

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002



Field Photographs MP 13.25 – MP 13.50

LDB Zone ID 4, Photo 003



LDB Zone ID 5, Photo 001



Field Photographs MP 13.25 – MP 13.50

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 13.25 to MP 13.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	[signature]	Enbridge [signature]
SOTF	START	[signature]	MDEQ	[signature]	Enbridge [signature]
PI	START	[signature]	MDEQ	[signature]	Enbridge [signature]
FLS	START	[signature]	MDEQ	[signature]	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START 6/6/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ 6/6/11 Date

Michelle DeLong Printed Name

[signature] Enbridge 6/6/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 13.05 to MP 13.5, Bank or Island: RDB, Segment Length: 0.25 mile

3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/13/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ — 4/13/'11 Date

Sarah VanBelleghijl Printed Name

_____ Enbridge — 4-13-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 13.25 to MP 13.5, Bank or Island: LDB, Segment Length: 0.25 mile

* 6 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/11/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/11/11 Date

[signature] Printed Name

[signature] Enbridge — 5-11-11 Date

Michael Van Loan Printed Name

Segment 13.50 – 13.75

MP 13.50 to MP 13.75

The LDB of segment 13.75 generally consists of forested wetland swamp and areas of scrub-shrub wetland, with some sporadic areas of ponded water. The reassessment identified nine polygons, two linear transects, and one point. These areas were identified as having primarily trace to sporadic areas of tar coated and stained debris, trunks and stems. Three polygons contained areas where film/sheen was present (Polygons 2 LDB, 9 LDB, and 16 LDB).

Poling was completed at twenty-five locations on the LDB within this segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

The RDB of segment 13.75 consists primarily of forested wetland swamp and low vegetative banks with areas of ponded water. The reassessment identified four polygons and one linear transect containing primarily trace areas of covered, coated and stained debris, trunks, and stems. Additionally, an area of trace patties was noted in Polygon 1 RDB.

Two islands were identified within this segment, consisting of low vegetative bank with trace to sporadic cover, coated, and stained trunks and stems, with occurrences of patties and asphalt pavement.

The FLS did detect two suspected oil signatures within the LDB of the segment. Both locations were in relatively close proximity to SORT data at Point 4 LDB and Polygon 11 LDB.

No PI observations were made within this segment.

The attachments provide additional details on this segment.

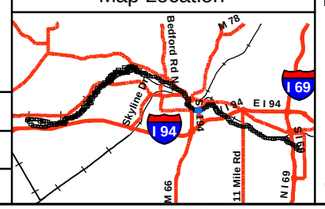
Segment Figures

14.00
13.75
13.50
1 RDB
2 RDB
3 RDB
4 I
3 I
2 RDB
1 RDB
6 RDB
5 RDB
1 I
2 I
2 LDB
3 LDB
4 RDB
1 I
2 I
2 LDB
4 LDB
3 RDB
5 LDB
2 RDB
1 LDB
6 LDB
2 LDB
1 RDB
3 LDB
1 LDB
9 LDB
15 LDB
5 LDB
11 LDB
10 LDB
16 LDB
12 LDB
13 LDB

ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP13.50-MP13.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 13.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank			☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub			Ross, Shauna Zimont, Ben
		5/11/2011	13:09																		42.29780	-85.16380		VanLoan, Mike
10	Shoreline and Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna Zimont, Ben
		5/11/2011	16:01																		42.29712	-85.16612		VanLoan, Mike
11	Shoreline			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna Zimont, Ben
		5/11/2011	16:09																		42.29720	-85.16717		VanLoan, Mike
12	Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			TAR COATED AND STAINED TRESS AND STEMS	Hadwin, Eric Washburn, Bruce
		5/16/2011	10:32																		42.29670	-85.16728		Hehir, Nate
13	Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			TAR COATED AND STAINED TREES AND DEBRIS	Hadwin, Eric Washburn, Bruce
		5/16/2011	10:52																		42.29679	-85.16599		Hehir, Nate

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character															
Mile Marker: 13.75																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
15	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED TREES	Hadwin, Eric	
																					Washburn, Bruce	
5/16/2011	13:42																	42.29705	-85.16641		Hehir, Nate	
16	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Graan, Tom	
																					Goddard, Matt	
5/19/2011	16:55																	42.29676	-85.16735		Neumeier, Laura	
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Ross, Shauna	
																					Zimont, Ben	
5/11/2011	13:35																	42.29744	-85.16487		VanLoan, Mike	
3	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna	
																					Zimont, Ben	
5/11/2011	13:56																	42.29771	-85.16493		VanLoan, Mike	
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna	
																					Wesener, Matt	
5/11/2011	14:09																	42.29729	-85.16521		VanLoan, Mike	

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 13.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
5	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Zimont, Ben
5/11/2011	14:36																	42.29703	-85.16558		VanLoan, Mike
9	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		inundated area located in swamp shallow enough to assess sheen observed after sediment was disturbed while walking thru inundation	Ross, Shauna
																					Zimont, Ben
5/11/2011	15:49																	42.29714	-85.16677		VanLoan, Mike

2011 Reassessment

Bank: RDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 13.75																				
Source: 2011 Reassessment																				
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date / **Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1 Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Ross, Shauna Zimont, Ben
5/14/2011 10:05																	0.00000	0.00000		VanLoan, Mike
2 Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Ross, Shauna Zimont, Ben
5/14/2011 10:11																	0.00000	0.00000		VanLoan, Mike
4 Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Ross, Shauna Zimont, Ben
5/14/2011 13:02																	42.29756	-85.16556		VanLoan, Mike
5 Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna Zimont, Ben
5/14/2011 13:22																	42.29750	-85.16667		VanLoan, Mike
6 Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna Zimont, Ben
5/14/2011 13:30																	0.00000	0.00000		VanLoan, Mike

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 13.75																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	S	Low Vegetated Bank		TAR PATTIES AND SMALL AREAS OD ASPHALT PAVEMENT	Hadwin, Eric
																					Washburn, Bruce
5/16/2011	14:21																	42.29773	-85.16526		Hehir, Nate
2	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		TAR COATED AND STAINED TREES; ONE TAR PATTY OBSERVED AS WELL	Hadwin, Eric
																					Washburn, Bruce
5/16/2011	14:30																	42.29759	-85.16527		Hehir, Nate

Photo Logs

Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001

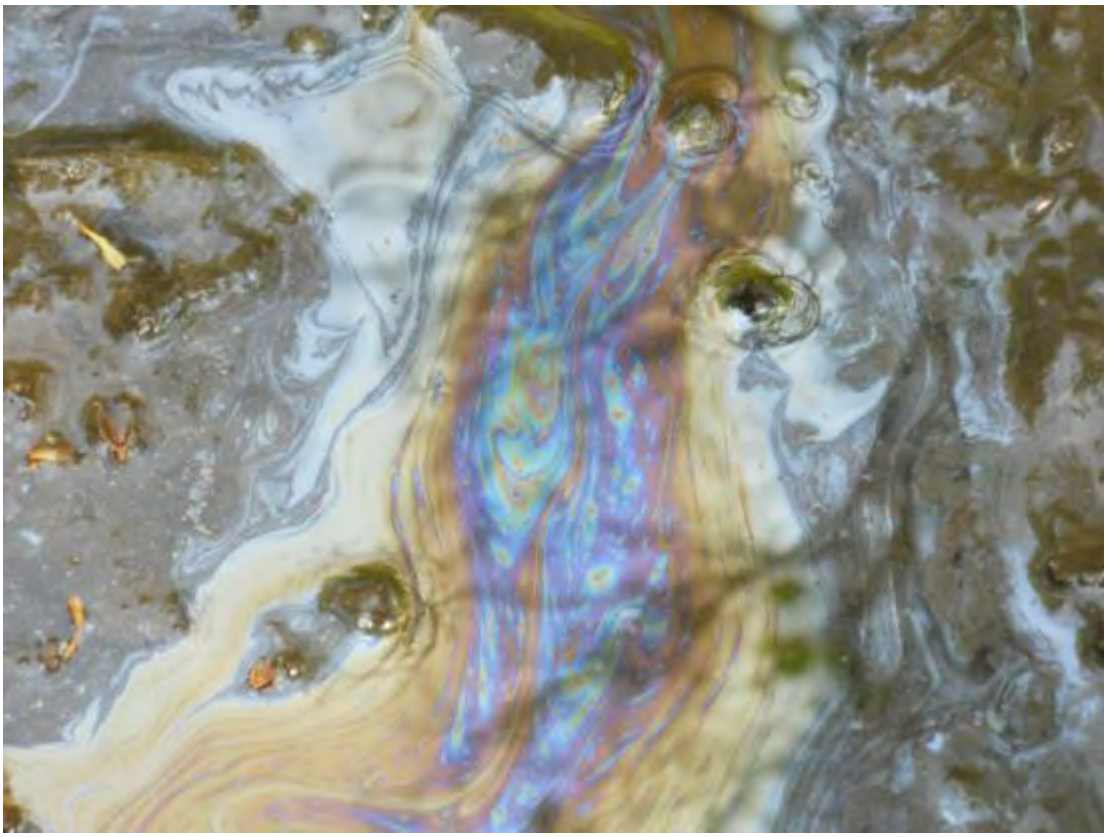


Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001

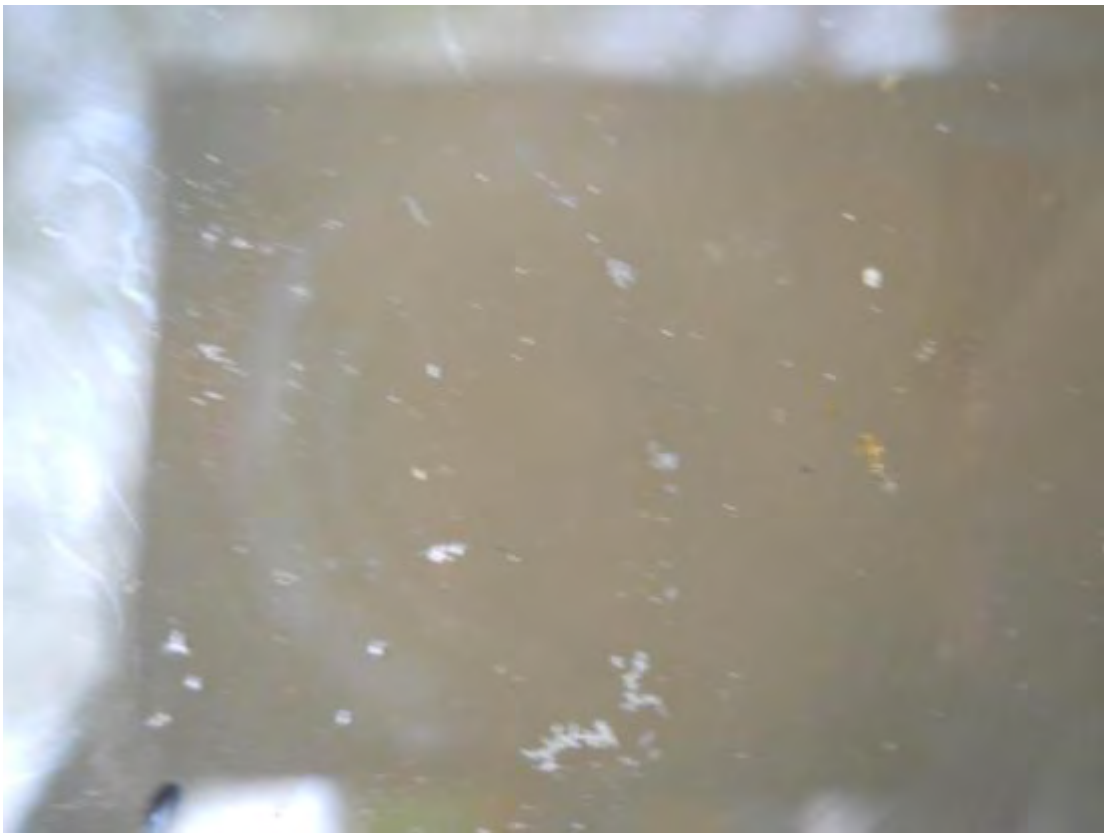


Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 5, Photo 002



LDB Zone ID 9, Photo 001



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 9, Photo 002



LDB Zone ID 10, Photo 001



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 10, Photo 002



LDB Zone ID 11, Photo 001



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 11, Photo 002



LDB Zone ID 12, Photo 001



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 12, Photo 002



LDB Zone ID 13, Photo 001



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 13, Photo 002



LDB Zone ID 15, Photo 001



Field Photographs MP 13.50 – MP 13.75

LDB Zone ID 16, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 13.50 – MP 13.75

RDB Zone ID 2, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 13.50 – MP 13.75

RDB Zone ID 4, Photo 002



RDB Zone ID 5, Photo 001



Field Photographs MP 13.50 – MP 13.75

RDB Zone ID 6, Photo 001



I Zone ID 1, Photo 001



Field Photographs MP 13.50 – MP 13.75

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs MP 13.50 – MP 13.75

I Zone ID 2, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 13.5 to MP 13.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
~~Start to address~~	

Completeness Check Acknowledged

[signature] START 6/7/2011 Date

ISAAC ABOUHAFIA Printed Name

[signature] MDEQ 6/7/11 Date

Michelle DeLong Printed Name

[signature] Enbridge 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 13.5 to MP 13.75, Bank or Island: LDB, Segment Length: 0.25 mile

11 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/11/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/11/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge — 3-11-11 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

* Did not assess island in Segment

Segment ID: From MP 13.5 to MP 13.75, Bank or Island: RDB, Segment Length: 0.25 mile

6 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 5/14/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ 5/14/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge 5-14-11 Date

Michael Van Loan Printed Name

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 13.50 to MP 13.75, Unique ID 6, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/16/11 Date

Erik Brown Printed Name

Bruce Washburn MDEQ — 5/16/11 Date

Bruce A Washburn Printed Name

[signature] Enbridge — 5/16/11 Date

Nate Hehir Printed Name

- Polling conducted.

[signature] Tetra Tech — 5/16/2011

Craig A Wiseman

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 13.50 to MP 13.75, Unique ID 8, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/16/11 Date

Erik Hawin Printed Name

Bruce Washburn MDEQ 5/16/11 Date

Bruce L Wood Printed Name

_____ Enbridge 5/16/11 Date

Nate Hehir Printed Name

- Polling Conducted

_____ Tetra Tech 5/16/2011

Craig A Wiemann

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 13.50 to MP 13.75, Unique ID _____, Bank ____ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/16/11 Date

Erik Hauwiw Printed Name

_____ MDEQ 5/16/11 Date

Bruce Washburn Printed Name

_____ Enbridge 5/16/11 Date

Nate Hehir Printed Name

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 13.50 to MP 13.75, Unique ID 16 LDB, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/19/11 — Date

THOMAS P. GRAAN — Printed Name

Matt Goddard — MDEQ — 5/19/11 — Date

Matt Goddard — Printed Name

Laura Newmeier — Enbridge — 5/19/2011 — Date

Laura Newmeier — Printed Name

- SORT polygon collected by YUMA - film on water.
- Polygon under water at time of assessment.
- Area anticipated to dry out in summer and reassessment prudent at that time.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 13.50 to MP 13.75, Unique ID LDB1, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6-05-11 Date

Jason Howe Printed Name

_____ MDEQ 6/5/11 Date

Ryan Blazic Printed Name

_____ Enbridge 6/5/11 Date

David Strand Printed Name

Segment 13.75 – 14.00

MP 13.75 to MP 14.00

The LDB of segment 14.00 generally consists of scrub-shrub wetland and areas of low vegetated banks, with some rip rap. The reassessment identified one polygon and two linear transects identified as having primarily trace areas of covered, coated and stained debris, trunks and stems.

The RDB of segment 14.00 consists primarily of forested wetland swamp. The reassessment identified one polygon and one linear transect containing primarily trace areas of stained trunks and stems. One point (3 RDB) was identified as having sporadic cover of surface oil residue on the ground surface.

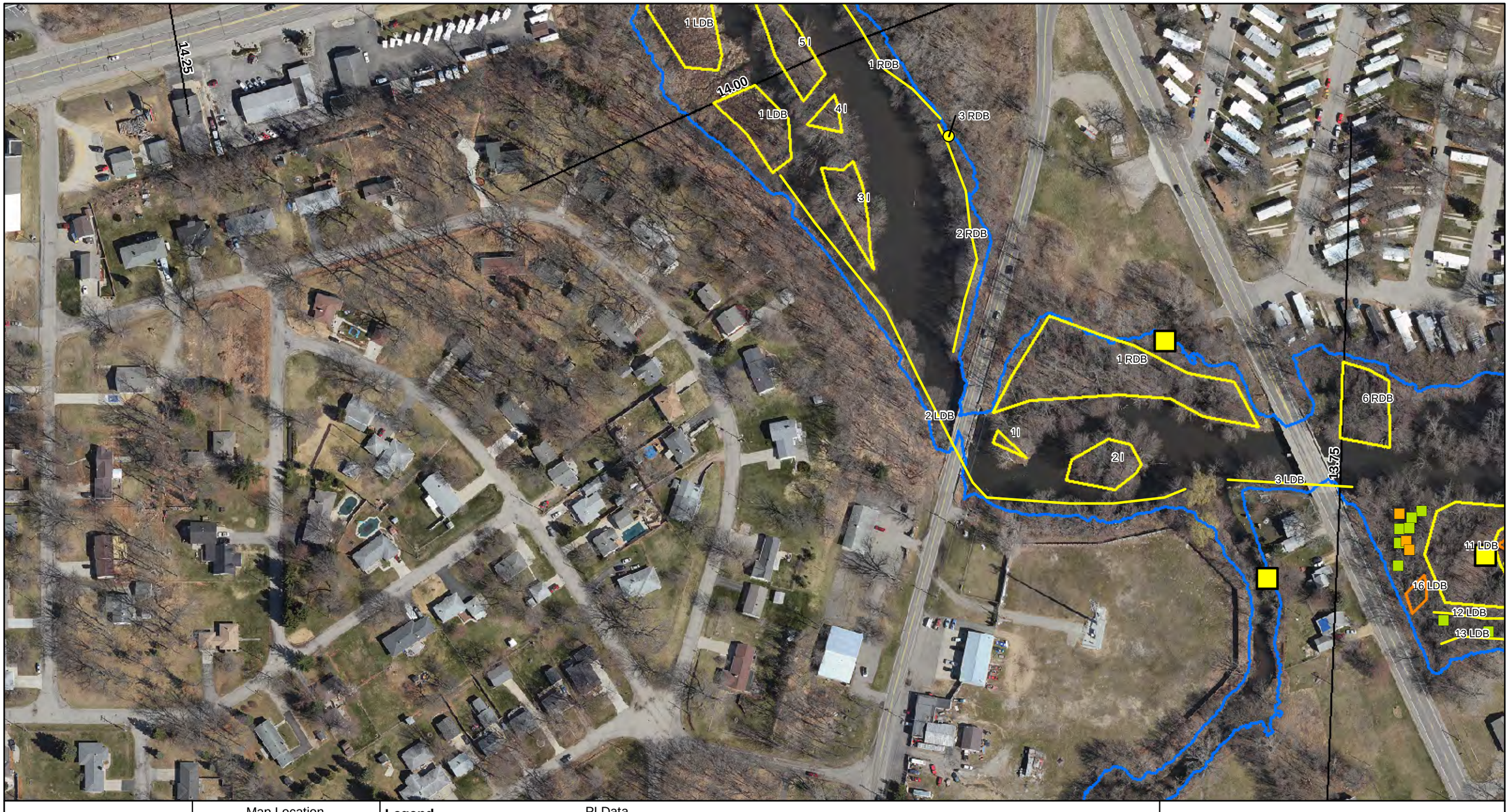
Multiple islands were identified within this segment consisting of forested wetland swamp with primarily sporadic cover of patties, asphalt pavement, and surface oil residue, as well as stained trunks and stems throughout.

The FLS did detect two suspected oil signatures, one on the LDB and one on RDB of the segment. The location on the RDB most closely coincides with Polygon 1 RDB, while the signature on the left is not associated with a SORT observation.

No PI observations were made within this segment.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP13.75-MP14.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 14																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/19/2011	14:49																	42.29736	-85.16971		VanLoan, Mike
2	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☑	☑	S	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/19/2011	15:03																	42.29746	-85.16921		VanLoan, Mike
3	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/19/2011	17:38																	42.29819	-85.17061		VanLoan, Mike
4	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/19/2011	17:56																	42.29880	-85.17102		VanLoan, Mike
5	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/19/2011	18:09																	42.29903	-85.17092		VanLoan, Mike

2011 Reassessment

Bank: RDB

Mile Marker: 14

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/19/2011	14:44																	42.29763	-85.16962		VanLoan, Mike
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Goddard, Matt
4/19/2011	15:28																	42.29785	-85.17011		VanLoan, Mike
3	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/19/2011	17:20																	42.29875	-85.17019		VanLoan, Mike

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 14																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub			Ross, Shauna / Zimont, Ben
5/10/2011	16:53																	42.29859	-85.17123		VanLoan, Mike
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑		Low Vegetated Bank			Ross, Shauna / Zimont, Ben
5/10/2011	17:22																	42.29724	-85.16778		VanLoan, Mike
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Rip Rap			Ross, Shauna / Zimont, Ben
5/10/2011	17:28																	42.29727	-85.16849		VanLoan, Mike

Photo Logs

Field Photographs MP 13.75 – MP 14.00

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 13.75 – MP 14.00

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 13.75 – MP 14.00

RDB Zone ID 2, Photo 003



RDB Zone ID 3, Photo 001



Field Photographs MP 13.75 – MP 14.00

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 13.75 – MP 14.00

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs MP 13.75 – MP 14.00

I Zone ID 3, Photo 001



I Zone ID 4, Photo 001



Field Photographs MP 13.75 – MP 14.00

I Zone ID 5, Photo 001



LDB Zone ID 1, Photo 001



Field Photographs MP 13.75 – MP 14.00

LDB Zone ID 1, Photo 002



LDB Zone ID 2, Photo 001



Field Photographs MP 13.75 – MP 14.00

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs MP 13.75 – MP 14.00

LDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 13.75 to MP 14.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barham	Printed Name	

Team 5 Yuma 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 13.75 to MP 14.0, Bank or Island: RDB, Segment Length: 0.25 mile

7 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ 4/19/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ _____ 4/19/11 Date

Matt Goddard Printed Name

_____ Enbridge _____ 4-19-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 13.75 to MP 14.0, Bank or Island: LDB, Segment Length: 0.25 mile

★ 3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/10/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ — 5/10/11 Date

Ben A. Zimmer Printed Name

_____ Enbridge — 5-10-11 Date

Michael Van Loan Printed Name

Segment 14.00 – 14.25

MP 14.00 to MP 14.25

The LDB of segment 14.25 generally consists of forested wetland swamp, scrub-shrub wetland areas of low vegetated banks, with some rip rap. The reassessment identified five polygons, two linear transects, and one point. In general, this segment was identified as having primarily trace areas of coated and stained debris, trunks and stems. Oil staining was observed on rip rap underneath the bridge at Linear Transect 7 LDB.

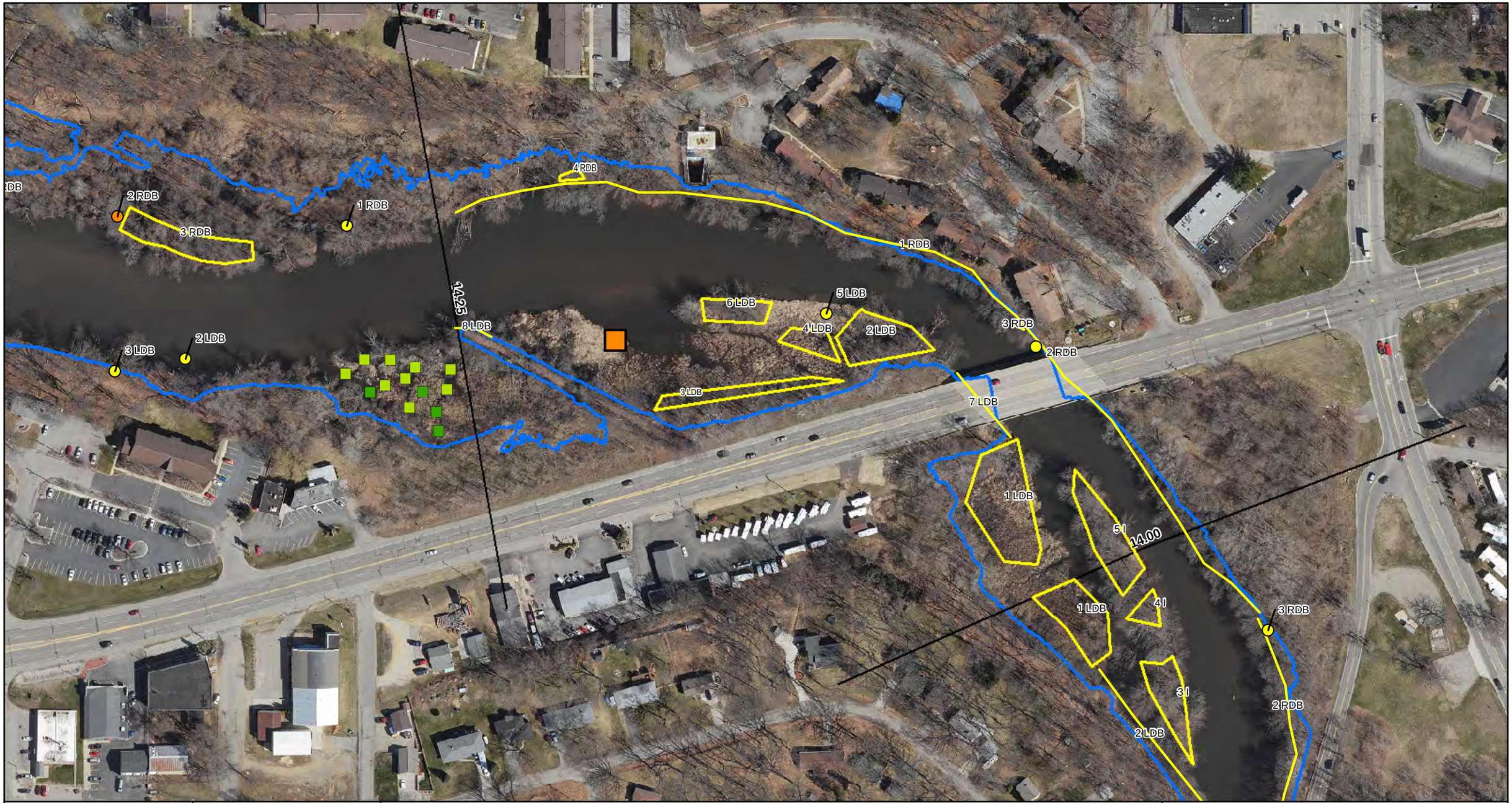
The RDB of segment 14.25 consists primarily of forested wetland swamp, low vegetative bank, and rip rap. The reassessment identified one polygon, two linear transects, and one point containing sporadic to patchy areas of covered, coated, and stained surface oil residue on the ground surface and on debris, trunks and stems.

The FLS did detect one oil signature within the LDB of the segment. The location is not associated with a SORT observation.

No PI observations were made within this segment.

The attachments provide additional details on this segment.

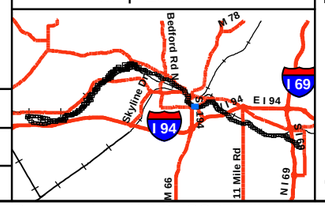
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP14.00-MP14.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB

Mile Marker: 14.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank			Muccianti, Marcus
																					Goddard, Matt
4/19/2011	18:24																	42.29996	-85.17159		VanLoan, Mike
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap			Ross, Shauna
																					Goddard, Matt
4/19/2011	18:30																	42.29999	-85.17157		VanLoan, Mike
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Low Vegetated Bank			Muccianti, Marcus
																					Goddard, Matt
4/19/2011	18:35																	42.30010	-85.17171		VanLoan, Mike
4	Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑		Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	09:38																	42.30072	-85.17439		VanLoan, Mike

2011 Reassessment

Bank: LDB

Mile Marker: 14.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline and Overbank	5/11/2011	16:50	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub	42.29959	-85.17167		Ross, Shauna Zimont, Ben VanLoan, Mike
2	Shoreline and Overbank	5/12/2011	09:17	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.30008	-85.17272		Ross, Shauna Zimont, Ben VanLoan, Mike
3	Overbank	5/12/2011	09:59	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.29983	-85.17270		Ross, Shauna Zimont, Ben VanLoan, Mike
4	Overbank	5/12/2011	10:05	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous	42.30002	-85.17298		Ross, Shauna Zimont, Ben VanLoan, Mike
5	Overbank	5/12/2011	10:09	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous	42.30013	-85.17281		Ross, Shauna Zimont, Ben VanLoan, Mike

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 14.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		possible sheen in pothole in polygon	Ross, Shauna Zimont, Ben
5/12/2011	10:21																	42.30018	-85.17312		VanLoan, Mike
7	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Rip Rap		underneath bridge	Ross, Shauna Zimont, Ben
5/12/2011	10:30																	42.29962	-85.17186		VanLoan, Mike
8	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna Zimont, Ben
5/12/2011	11:09																	42.30003	-85.17492		VanLoan, Mike

Photo Logs

Field Photographs MP 14.00 – MP 14.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 14.00 – MP 14.25

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 14.00 – MP 14.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 14.00 – MP 14.25

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 14.00 – MP 14.25

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 14.00 – MP 14.25

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 14.00 – MP 14.25

LDB Zone ID 7, Photo 001



LDB Zone ID 8, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 14.0 to MP 14.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barkham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.0 to MP 14.25, Bank or Island: ~~R~~ Isl, Segment Length: 0.25 mile

1 feature today, 4 total

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/20/2011 — Date

Shawna Marie Ross — Printed Name

Matt Goddard — MDEQ — 4/20/11 — Date

Matt Goddard — Printed Name

Enbridge — 4-20-2011 — Date

Michael Van Loan — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.0 to MP 14.25, Bank or Island: OB, Segment Length: 0.25 mile

* 7 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/12/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/12/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge — 5-12-11 Date

Michael Van Loon Printed Name

Segment 14.25 – 14.50

MP 14.25 to MP 14.50

The LDB of segment 14.50 generally consists of sand and gravel shorelines and areas of low vegetated banks, with man-made structures. The reassessment identified one linear transect and two points. These areas were identified as generally having trace areas of coated and stained debris, trunks and stems.

Poling of the LDB portion of the segment was completed at thirteen locations to fully assess the overbank. The detailed results of the poling activities will be presented under a separate cover.

The RDB of segment 14.50 consists primarily of forested wetland swamp. The reassessment identified one polygon, one linear transect, and two points containing trace to sporadic areas of coated and stained debris, trunks and stems. Trace oil film was observed at Point 2 RDB.

The FLS did not detect oil signatures and no PI observations were made within this segment.

The attachments provide additional details on this segment.

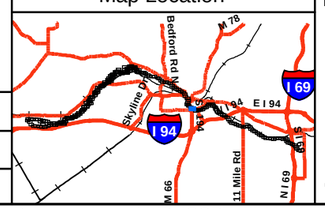
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP14.25-MP14.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 14.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Man-Made Structure		metal poles	Ross, Shauna / Goddard, Matt
4/20/2011	15:02																	42.29989	-85.17652		VanLoan, Mike
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Sand-Gravel shoreline			Ross, Shauna / Goddard, Matt
4/20/2011	15:21																	42.29986	-85.17699		VanLoan, Mike
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna / Goddard, Matt
4/20/2011	15:38																	42.30043	-85.17909		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 14.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/20/2011	09:58																	0.00000	0.00000		VanLoan, Mike
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Ross, Shauna Goddard, Matt
4/20/2011	10:23																	42.30052	-85.17699		VanLoan, Mike
3	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Dumping area. a lot of trash throughout area.	Ross, Shauna Goddard, Matt
4/20/2011	10:36																	42.30035	-85.17627		VanLoan, Mike
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna Goddard, Matt
4/20/2011	12:06																	42.30047	-85.17797		VanLoan, Mike

Photo Logs

Field Photographs MP 14.25 – MP 14.50

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 14.25 – MP 14.50

LDB Zone ID 4, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 14.25 – MP 14.50

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 14.25 – MP 14.50

RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 14.25 to MP 14.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Bareham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.25 to MP 14.5, Bank or Island: RDB, Segment Length: 0.25 mile

4 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/20/2011	Date
Shaona Marie Ross	Printed Name		
[signature]	MDEQ	4/20/11	Date
Matt Goddard	Printed Name		
[signature]	Enbridge	4-20-2011	Date
Michael Van Loon	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 14.25 to MP 14.50, Unique ID RDB1, Bank: ROB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-05-11	Date
[signature]	Printed Name		
[signature]	MDEQ	6/5/11	Date
Ryan Blazic	Printed Name		
[signature]	Enbridge	6/5/11	Date
David Strand	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.25 to MP 14.5, Bank or Island: LDB, Segment Length: 0.25 mile

4 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/20/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ — 4/20/11 Date

_____ Printed Name

_____ Enbridge — 4-20-2011 Date

Michael Van Loon Printed Name

☆ Note: Innundated wetland area to deep to assess. Polygon taken.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 14.25 to MP 14.5, Unique ID 14.50 LDB1, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/3/11 Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5-3-11 Date

Kathleen Fairchild — Printed Name

Dan DeWitt — Enbridge — 5-3-11 Date

Dan DeWitt — Printed Name

Segment 14.50 – 14.75

MP 14.50 to MP 14.75

The LDB of segment 14.75 generally consists of forested wetland swamp. The reassessment identified two polygons. This segment was identified as having trace areas of stained trunks and stems.

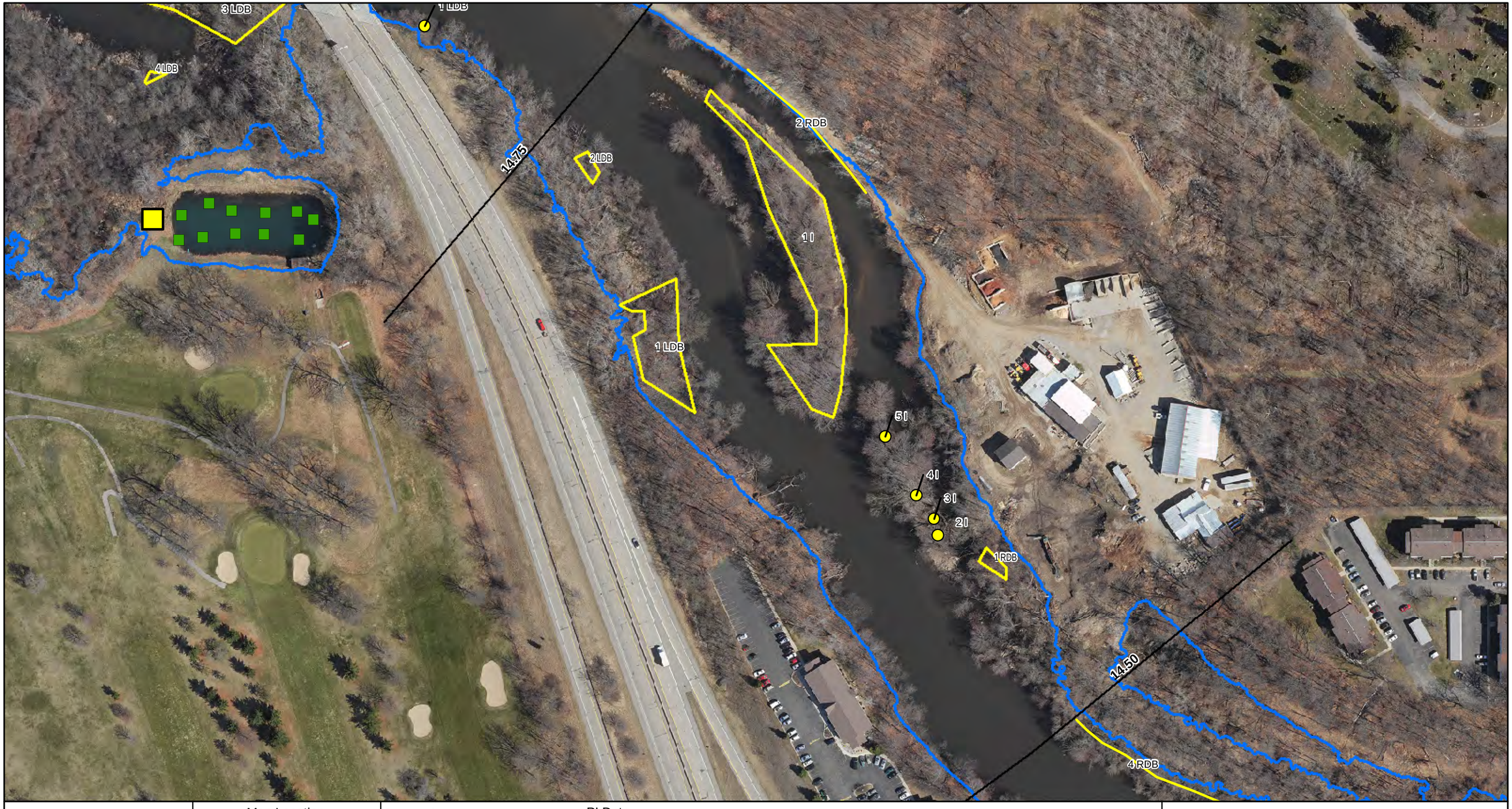
The RDB of segment 14.75 consists primarily of forested wetland swamp and low vegetative banks. The reassessment identified one polygon and one linear transect containing trace areas of stained debris, trunks and stems.

Two islands were identified within this segment, each consisting of forested wetland swamp. The initial reassessment identified one polygon on the downstream island and four points on the upstream island. Both islands contained trace areas of covered and stained trunks and stems. Additionally, Polygon 1 I was also found to contain trace surface oil staining.

The FLS did not detect oil signatures and no PI observations were made within this segment.

The attachments provide additional details on this segment.

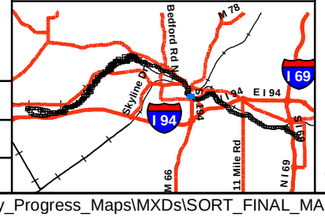
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP14.50-MP14.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: I

Mile Marker: 14.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	12:48																	42.30280	-85.18078		VanLoan, Mike
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	13:04																	42.30198	-85.18013		VanLoan, Mike
3	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	13:08																	42.30205	-85.18015		VanLoan, Mike
4	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	13:11																	42.30215	-85.18025		VanLoan, Mike
5	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	13:14																	42.30242	-85.18043		VanLoan, Mike

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 14.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		sheen thoughtout polygon in the areas of inundation possible product	Ross, Shauna
																					Goddard, Matt
4/20/2011	16:07																	42.30298	-85.18201		VanLoan, Mike
2	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	16:28																	42.30371	-85.18234		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 14.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	13:45																	42.30185	-85.17990		VanLoan, Mike
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Ross, Shauna
																					Goddard, Matt
4/20/2011	14:10																	42.30429	-85.18187		VanLoan, Mike

Photo Logs

Field Photographs MP 14.50 – MP 14.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 14.50 – MP 14.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 14.50 – MP 14.75

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 14.50 – MP 14.75

RDB Zone ID 2, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 14.50 – MP 14.75

I Zone ID 1, Photo 002



I Zone ID 1, Photo 003



Field Photographs MP 14.50 – MP 14.75

I Zone ID 1, Photo 004



I Zone ID 1, Photo 005



Field Photographs MP 14.50 – MP 14.75

I Zone ID 2, Photo 001



I Zone ID 3, Photo 001



Field Photographs MP 14.50 – MP 14.75

I Zone ID 4, Photo 001



I Zone ID 5, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 14.5 to MP 14.75 Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.5 to MP 14.75, Bank or Island: LDB, Segment Length: 0.25 mile

2 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/30/2011 Date
Shawna Marie Ross	Printed Name	
Matt Goddard	MDEQ	4/20/11 Date
[signature]	Printed Name	
[signature]	Enbridge	4-20-2011 Date
Michael Van Loon	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.5 to MP 14.75, Bank of Island: RDB (2) and (5), Segment Length: 0.25 mile

7 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/20/2011 Date
Shawna Marie Ross	Printed Name	
[signature]	MDEQ	4/20/11 Date
Matt Goddard	Printed Name	
[signature]	Enbridge	4-20-2011 Date
Michael Van Laan	Printed Name	

Segment 14.75 – 15.00

MP 14.75 to MP 15.00

The LDB of segment 15.00 generally consists of forested wetland swamp and low vegetative banks. A pond is located on the southeast portion of the LDB in this segment. The reassessment identified three polygons and two points. These areas were identified as having trace areas of coated and stained debris, trunks and stems, with Polygons 3 LBD and 6 LDB containing trace areas of patties.

Poling of a pond on the LDB within this segment was completed at eleven locations to fully assess submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 15.00 consists primarily of forested wetland swamp and low vegetative banks. The reassessment identified one polygon, two points, and one linear transect containing trace to sporadic areas of coated and stained debris, trunks and stems. Additionally, Linear Transect 1 RDB contained a sporadic presence of surface oil residue.

Three islands were identified within this segment consisting of emergent/herbaceous wetland habitat. The upstream island contained two polygons and two points containing trace to sporadic, coated and stained debris, trunks and stems. The island also contained trace amounts of pooled oil and film at Point 3 I. The next island downstream contained Polygon 5 I with trace cover, coated, and stained surface oil residue, debris, trunks and stems. The furthest downstream island contained Point 6 I and consisted of sporadic coated and stained trunks and stems.

The FLS did identify three suspected oil signatures and one detected oil signature within the segment. Two suspected and one detected oil signature coincide with SORT observations Polygons 5 I and 4 RDB. The third suspected oil signature was observed near the pond on the LDB. One PI observation noted as a High Priority Area was identified near Point 5 LDB within this segment.

The attachments provide additional details on this segment.

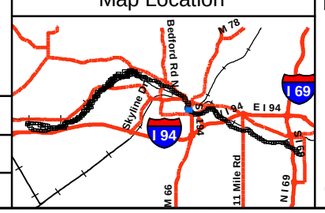
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP14.75-MP15.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 15

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/20/2011	17:20																	0.00000	0.00000		VanLoan, Mike
3	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		adjacent inundated water had organic sheen possble product sheen	Ross, Shauna
																					Zimont, Ben
5/10/2011	14:15																	42.30409	-85.18412		VanLoan, Mike
4	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Zimont, Ben
5/10/2011	14:31																	42.30392	-85.18483		VanLoan, Mike
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna
																					Zimont, Ben
5/10/2011	15:03																	42.30504	-85.18643		VanLoan, Mike
6	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub			Ross, Shauna
																					Zimont, Ben
5/10/2011	15:13																	42.30443	-85.18590		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character																
Mile Marker: 15																							
Source: 2011 Reassessment																							
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**		
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**		
																					Enbridge Team Lead		
1	Shoreline	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Low Vegetated Bank			Ross, Shauna		
																					Goddard, Matt		
4/20/2011	16:48																	42.30482	-85.18311		VanLoan, Mike		
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Ross, Shauna		
																					Goddard, Matt		
4/20/2011	17:01																	42.30497	-85.18405		VanLoan, Mike		
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		sheen observed out in river	Ross, Shauna		
																					Zimont, Ben		
5/9/2011	09:37																	42.30517	-85.18508		VanLoan, Mike		
4	Shoreline and Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna		
																					Zimont, Ben		
5/9/2011	09:57																	42.30588	-85.18536		VanLoan, Mike		

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 15																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		Ross, Shauna; Zimont, Ben; VanLoan, Mike
5/9/2011	10:26																	42.30496 / -85.18576		
2	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-emergent/herbaceous		Ross, Shauna; Zimont, Ben; VanLoan, Mike
5/9/2011	10:39																	42.30470 / -85.18574		
3	Overbank	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	fresh oil emerged fromsediment after stepping into pool	Ross, Shauna; Zimont, Ben; VanLoan, Mike
5/9/2011	10:42																	42.30473 / -85.18544		
4	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	S	Wetland-emergent/herbaceous		Ross, Shauna; Zimont, Ben; VanLoan, Mike
5/9/2011	10:52																	42.30468 / -85.18507		
5	Shoreline and Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	T	Wetland-swamp (forested)		Ross, Shauna; Zimont, Ben; VanLoan, Mike
5/9/2011	11:14																	42.30558 / -85.18593		

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 15																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
6	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-emergent/herbaceous	
5/9/2011	11:28																	42.30592 / -85.18608	

START
MDEQ
Enbridge Team Lead
Ross, Shauna
Zimont, Ben
VanLoan, Mike

Photo Logs

Field Photographs MP 14.75 – MP 15.00

LDB Zone ID 1, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 14.75 – MP 15.00

LDB Zone ID 3, Photo 002



LDB Zone ID 3, Photo 003



Field Photographs MP 14.75 – MP 15.00

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 14.75 – MP 15.00

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 14.75 – MP 15.00

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 14.75 – MP 15.00

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 14.75 – MP 15.00

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 14.75 – MP 15.00

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs MP 14.75 – MP 15.00

I Zone ID 2, Photo 002



I Zone ID 3, Photo 001



Field Photographs MP 14.75 – MP 15.00

I Zone ID 4, Photo 001



I Zone ID 5, Photo 001



Field Photographs MP 14.75 – MP 15.00

I Zone ID 5, Photo 002



I Zone ID 6, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 14.75 to MP 15.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/7/2011 Date

ISAAC ABOUCAFIA Printed Name

MDEQ — 6/7/11 Date

Michelle Delong Printed Name

Enbridge — 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.75 to MP 15.0, Bank or Island: LDB, Segment Length: 0.25 mile

* Segment only assessed upstream of bridge

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/20/2011 — Date

Shawna Marie Ross — Printed Name

Matt Caddell — MDEQ — 4/20/11 — Date

Matt Caddell — Printed Name

Enbridge — 4/20/2011 — Date

Michael Van Loan — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 14.75 to MP 15.00, Bank or Island: RDB, Segment Length: 0.25 mile

* Segment only assessed upstream of bridge

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/20/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 4/20/11 Date

Matt Goddard Printed Name

[signature] Enbridge — 4/20/2011 Date

Michael Van Loon Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 14.75 to MP 15.00, Unique ID RDB1, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

S-K START 6-05-11 Date

Sean Kane Printed Name

MDEQ 6/5/11 Date

Ryan Blazic Printed Name

David Strand Enbridge 6/5/11 Date

David Strand Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

* Only assessed area downstream of bridge

Segment ID: From MP 14.75 to MP 15.0, Bank or Island: RDB, Segment Length: 0.25 mile

2 RDB, 6 island features : 8 total

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/9/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/9/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge — 5-9-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Only assessed area downstream of bridge.

Segment ID: From MP 14.75 to MP 15.0, Bank or Island: LDB, Segment Length: 0.25 mile

* 5 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/10/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/10/11 Date

Ben A. Simon Printed Name

[signature] Enbridge — 5-10-11 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 14.75 to MP 15.00, Unique ID LDB2, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	5/17/11 Date
Erik Hansen	Printed Name	
_____	MDEQ	5/17/11 Date
Bruce Washburn	Printed Name	
_____	Enbridge / Tetra Tech	5/17/2011 Date
Craig A Wiemann	Printed Name	

Segment 15.00 – 15.25

MP 15.00 to MP 15.25

The LDB of segment 15.25 generally consists of low vegetative banks and rip rap. The reassessment identified two linear transects noted as having trace areas of coated and stained debris, trunks, and stems.

The RDB of segment 15.25 consists primarily of forested wetland swamp and low vegetative banks. The reassessment identified two polygons and one point containing trace areas of coated and stained debris, trunks, and stems. Film/sheen was identified on Polygon 3 RDB.

One island was identified within this segment consisting of emergent/herbaceous wetland habitat. The single polygon contained coated and stained debris, trunks, and stems.

The FLS did not detect oil signatures within the segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP15.00-MP15.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 15.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Rip Rap			Ross, Shauna
																					Zimont, Ben
5/9/2011	15:11																	42.30819	-85.18949		VanLoan, Mike
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna
																					Zimont, Ben
5/9/2011	15:31																	42.30505	-85.18645		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 15.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank			Ross, Shauna / Zimont, Ben
5/9/2011	12:58																	42.30802	-85.18606		VanLoan, Mike
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna / Zimont, Ben
5/9/2011	14:09																	42.30841	-85.18680		VanLoan, Mike
3	Shoreline	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-emergent/herbaceous		arrowleaf vegetation	Ross, Shauna / Zimont, Ben
5/9/2011	14:57																	42.30607	-85.18612		VanLoan, Mike

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 15.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous	trees on island with coat	Ross, Shauna / Zimont, Ben
5/9/2011	12:25																	42.30781 / -85.18864		VanLoan, Mike

Photo Logs

Field Photographs MP 15.00 – MP 15.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 15.00 – MP 15.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 15.00 – MP 15.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 15.00 – MP 15.25

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 15.0 to MP 15.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/6/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Bareham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 15.0 to MP 15.25, Bank or Island: OB, Segment Length: 0.25 mile

3 features - one small area too soft to access

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 5/9/2011 — Date

Shawna Marie Ross — Printed Name

[signature] — MDEQ — 5/5/11 — Date

Ben A. Zimont — Printed Name

[signature] — Enbridge — 5-9-2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 15.0 to MP 15.25, ~~Bank~~ and ~~or~~ Island: RDB, Segment Length: 0.25 mile

* 4 total features (1 island, 3 RDB)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 5/9/2011 — Date

Shawna Marie Ross — Printed Name

[signature] — MDEQ — 5/9/11 — Date

Ben A. Zimont — Printed Name

[signature] — Enbridge — 5-9-2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 15.00 to MP 15.25, Unique ID CD83, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/11/11 Date

ERIK HADWIN Printed Name

_____ MDEQ — 5/11/11 Date

MATT WESENER Printed Name

_____ Enbridge — 5/11/11 Date

KEN KEITA Printed Name

Segment 15.25 – 15.50

MP 15.25 to MP 15.50

The LDB of segment 15.50 generally consists of rip rap at the beginning of the segment, north of Burnham Street, and transitions to a low vegetative bank. The reassessment identified two points and three linear transects. The linear transects extend along most of the LDB. Traces of oil stained to coated debris and/or trunks and stems were identified throughout the LDB.

The RDB of segment 15.50 is bisected by Burnham Street at MP 15.25, and includes an island located north of Burnham Street. Both the island and RDB consist primarily emergent/herbaceous wetlands. The reassessment identified one point and one polygon. Traces of oil covered debris were identified at Point 2 RDB. Traces of oil coated and stained debris, trunks and stems were documented on most of the island (Polygon 1 RDB).

Poling within this segment was completed on the RDB east of the island at twelve locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect oil signatures and no PI observations were made within this segment.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP15.25-MP15.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 15.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank	
5/10/2011	09:29																	42.31079 / -85.18653	
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank	
5/10/2011	09:36																	42.31058 / -85.18695	
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank	
5/10/2011	09:40																	42.31056 / -85.18705	
4	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank	
5/10/2011	10:13																	42.30861 / -85.18937	
5	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Rip Rap	
5/10/2011	10:19																	42.30838 / -85.18951	

START	
MDEQ	
Enbridge Team Lead	
Ross, Shauna	
Zimont, Ben	
VanLoan, Mike	
Ross, Shauna	
Zimont, Ben	
VanLoan, Mike	
Ross, Shauna	
Zimont, Ben	
VanLoan, Mike	
Ross, Shauna	
Zimont, Ben	
VanLoan, Mike	
Ross, Shauna	
Zimont, Ben	
VanLoan, Mike	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 15.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-emergent/herbaceous			Ross, Shauna; Zimont, Ben
5/10/2011	11:19																	42.30856	-85.18906		VanLoan, Mike
2	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Ross, Shauna; Zimont, Ben
5/10/2011	11:53																	42.30936	-85.18562		VanLoan, Mike

Photo Logs

Field Photographs MP 15.25 – MP 15.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 15.25 – MP 15.50

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 15.25 – MP 15.50

LDB Zone ID 5, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 15.25 – MP 15.50

RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 15.25 to MP 15.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved
Extend delineation boundary to include	May 23/11
Strike information in north mill pond.	

Completeness Check Acknowledged

	START	6/6/2011	Date
John Powell	Printed Name		
Michelle DeLong	MDEQ	6/6/11	Date
Michelle DeLong	Printed Name		
	Enbridge	6/6/2011	Date
Dave Barcham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 15.25 to MP 15.5, Bank or Island: RDB, Segment Length: 0.25 mile

* 3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/10/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/10/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge — 5·10·2011 Date

Michael Van Loon Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 15.25 to MP 15.5, Bank or Island: LDB, Segment Length: 0.25 mile

☆ 5 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

Shawna Marie Ross Printed Name

_____ MDEQ 5/10/11 Date

Ben A. Zimmer Printed Name

_____ Enbridge 5-10-11 Date

Michael Van Laan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 15.25 to MP 15.50, Unique ID 3, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/16/11 Date

Erik Hanson Printed Name

_____ MDEQ 5/16/11 Date

Bruce Washburn Printed Name

_____ Enbridge 5/16/11 Date

Nate Hehr Printed Name

- Polling Assessment

Craig Wiemann Tetra Tech 5/16/2011

Segment 15.50 – 15.75

MP 15.50 to MP 15.75

The LDB of segment 15.75 is bisected by Dickman Street. The river flows through steel culverts under Dickman Street and then is impounded until it flows over the Kalamazoo River Dam and is channelized as it enters Battle Creek. The LDB consists of a low vegetated bank on either side of Dickman Street and rip rap downstream of the dam. The reassessment identified four linear transects. In general, oil coated to stained debris and/or trunks and stems were identified along the LDB upstream of the dam and just below the dam. Traces of tar coated and covered trunks and stems were identified along the downstream side of the culverts that run under Dickman Street at Linear Transects 1 LDB, 2 LDB, and 4 LDB.

Poling of the river along the LDB within this segment was completed above the Kalamazoo River Dam at twelve locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 15.75 is bisected by Dickman Street. The river flows through steel culverts under Dickman Street and then is impounded until it flows over the Kalamazoo River Dam and is channelized as it enters Battle Creek. The RDB consists of a forested wetland swamp upstream of Dickman Street and rip rap downstream of the Kalamazoo River Dam. The reassessment identified one polygon and two linear transects. A heavy sheen (film) was identified along the shoreline at the water surface (Linear Transect 2 RDB). In addition, oil covered to stained debris was observed on trunks and stems, and surface oil residue was documented on the ground surface along the linear transect. Coated and stained debris and/or trunks and stems were identified on the rip rap downstream of the dam.

Poling of the river along the RDB within this segment was completed above and below the Kalamazoo River Dam at thirty-eight locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did detect one oil signature within the segment on the RDB. Three PI observations identified as High Priority Areas were made within this segment on the RDB. Two of the PI observations were located along Linear Transect 2 RDB.

The attachments provide additional details on this segment.

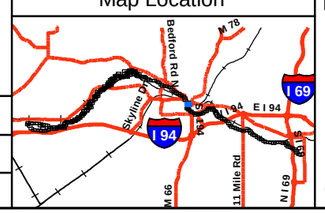
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP15.50-MP15.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 15.75																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Rip Rap		oil stain on stone rip rap at base of slope assed from lefr bank with field glasses	Graan, Tom Keiper, Bill
5/12/2011	14:06																	42.31337	-85.18558		Neumeier, Laura
2	Shoreline	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑		Wetland-swamp (forested)		heavy sheen noted on river surface along shore line	Graan, Tom Keiper, Bill
5/12/2011	16:02																	42.31151	-85.18501		Neumeier, Laura
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Rip Rap		photos taken by YUMA, this date 10:41 AM	Graan, Tom Goddard, Matt
5/22/2011	10:27																	42.31296	-85.18501		Neumeier, Laura

2011 Reassessment

Bank: LDB

Mile Marker: 15.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Man-Made Structure		culverts under Dickman Ave	Graan, Tom
																					Keiper, Bill
5/12/2011	11:52																	42.31202	-85.18552		Neumeier, Laura
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank			Graan, Tom
																					Keiper, Bill
5/12/2011	12:25																	42.31264	-85.18561		Neumeier, Laura
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		Rip Rap		oil on rip rap shoreline assessed from op bank with fieldglasses	Graan, Tom
																					Keiper, Bill
5/12/2011	13:24																	42.31269	-85.18554		Neumeier, Laura
4	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	S	Low Vegetated Bank		film on river surface at shoreline	Graan, Tom
																					Keiper, Bill
5/12/2011	15:20																	42.31158	-85.18565		Neumeier, Laura

Photo Logs

Field Photographs MP 15.50 – MP 15.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 15.50 – MP 15.75

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 15.50 – MP 15.75

LDB Zone ID 1, Photo 005



LDB Zone ID 1, Photo 006



Field Photographs MP 15.50 – MP 15.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 15.50 – MP 15.75

LDB Zone ID 2, Photo 003

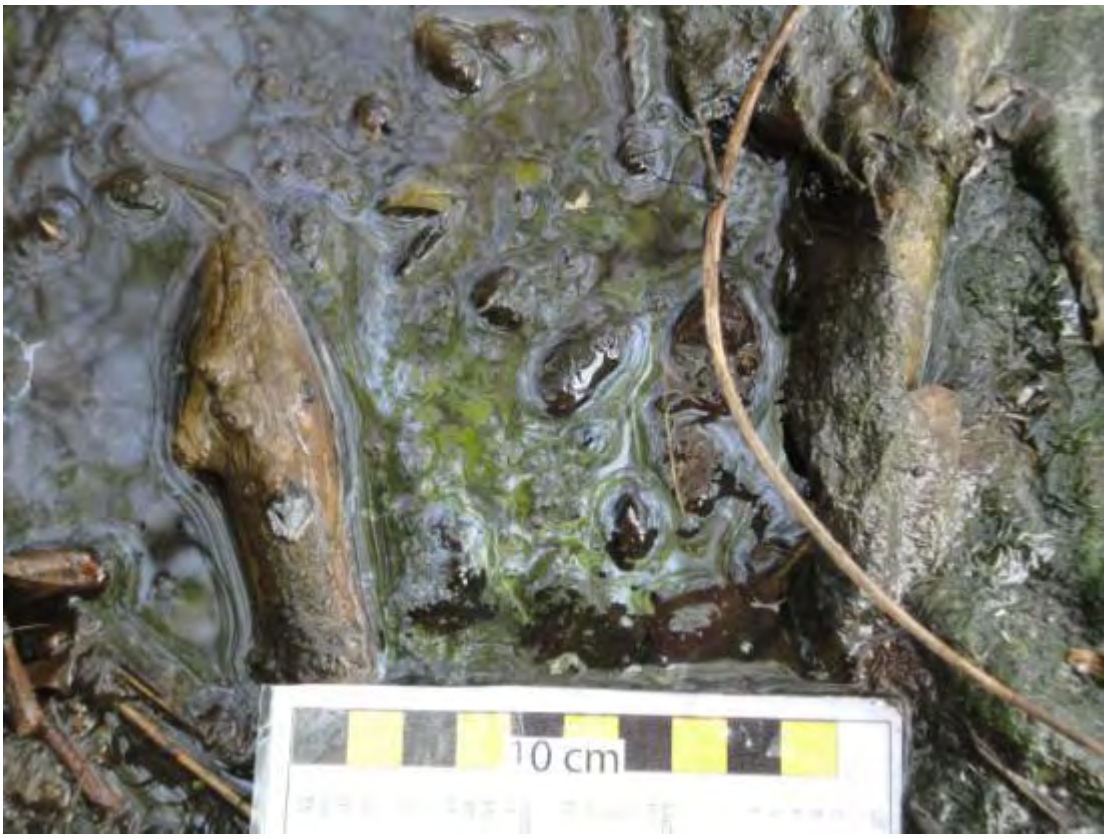


LDB Zone ID 3, Photo 001



Field Photographs MP 15.50 – MP 15.75

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002



Field Photographs MP 15.50 – MP 15.75

LDB Zone ID 4, Photo 003



RDB Zone ID 1, Photo 001



Field Photographs MP 15.50 – MP 15.75

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002

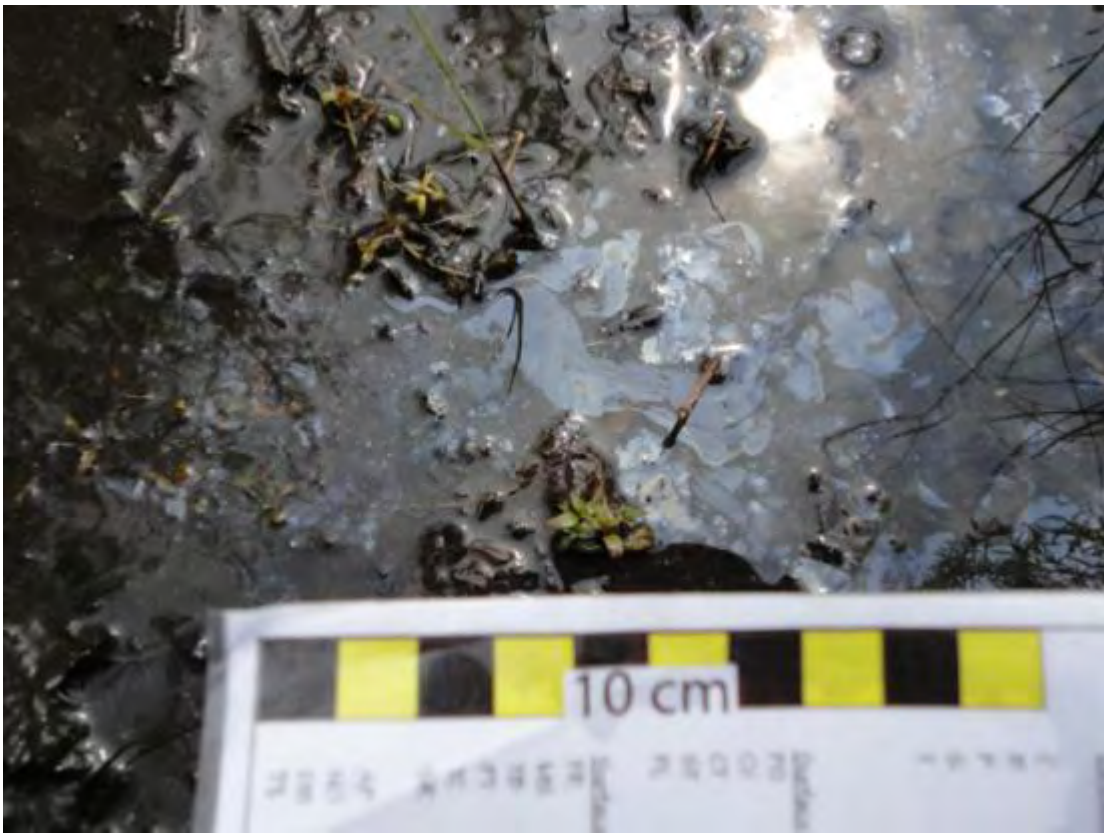


Field Photographs MP 15.50 – MP 15.75

RDB Zone ID 2, Photo 003



RDB Zone ID 2, Photo 004



Field Photographs MP 15.50 – MP 15.75

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 15.50 – MP 15.75

RDB Zone ID 3, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 15.5 to MP 15.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

	Action Item Description	Date Resolved
①	Strike assess. RDB at storm pipe just below Kalamazoo dam. (mill pond dam)	May 23/11
②	Extend poling delineation line to cover entire mill pond north of Dickman Rd.	May 23/11

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/6/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Bareham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 15.50 to MP 15.75, Unique ID _____, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/12/11 — Date

THOMAS P. GRAAN — Printed Name

William Kuiper — MDEQ — 5/12/11 — Date

_____ — Printed Name

_____ — Enbridge — 5/12/2011 — Date

Laura Neumeier — Printed Name

- Poling points collected by YUMA - elected not to fully delineate heavy sheen and globules due to a lack of containment boom.
- Sort poly lines created along shoreline and rip rap down river of Dickman Road culverts.
- Sort poly line created along shoreline up river of Dickman Road culverts.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 15.50 to MP 15.75, Unique ID 15.6 LDB, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Grann — START — 5/18/11 Date

THOMAS P. GRANN — Printed Name

Matt Goddard — MDEQ — 5/18/11 Date

Matt Goddard — Printed Name

Don DeWitt — Enbridge — 5/18/11 Date

Don DeWitt — Printed Name

Signoff is for strike points collected 5/18/2011. These points were in addition to points collected on 5/12/2011.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 15.50 to MP 15.75, Unique ID _____, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START 5/12/11 Date

THOMAS P. GRAAN _____ Printed Name

William Keiper _____ MDEQ 5-12-11 Date

_____ Printed Name

_____ Enbridge 5/12/2011 Date

Laura Neumeier _____ Printed Name

- Poling points collected by YUMA - elected not to fully delineate moderate ~~heavy~~ sheen and globules due to a lack of containment boom. TG WK
- Sort polylines created along shoreline and rip rap down river of Dickman Road culverts.
- Sort polyline created along shoreline up river of Dickman Road culverts.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 15.50 to MP 15.75, Unique ID 15.6 RDB, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/18/11 Date

THOMAS P. GRAAN — Printed Name

Matt Goddard — MDEQ — 5/18/11 Date

Matt Goddard — Printed Name

Don DeWitt — Enbridge — 5/18/11 Date

Don DeWitt — Printed Name

Sign off is for strike points collected 5/18/2011. These points are in addition to points collected on 5/12/2011.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 15.50 to MP 15.75, Unique ID RDB JJ, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rebecca Bryan START — 5/22/11 Date

Rebecca Bryan Printed Name

MDEQ — 5/22/11 Date

Matt Goddard Printed Name

Enbridge — 5/22/2011 Date

Lara Neumeier Printed Name

SORT polygon collected by YUMA

Strike points collected by YUMA

Segment 15.75 – 16.00

MP 15.75 to MP 16.00

The Kalamazoo River is controlled by a concrete channel as it flows through segment 16.00 in Battle Creek. The sidewalls are steeply sloped and the river could not be accessed because of safety issues. Therefore, the reassessment was completed approximately 10 feet back from the top of the opposite bank and from highway overpasses where present.

The LDB of segment 16.00 is bisected by East Fountain Street and consists of sloping concrete sidewalls. The reassessment identified one linear transect. A possible horizontal stain line measuring approximately 390 feet long was observed on the concrete sidewall above the observed water surface on 4/13/11.

The RDB of segment 16.00 is bisected by East Fountain Street and consists of sloping concrete sidewalls. The reassessment did not identify any evidence of oil staining on the concrete sidewall.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

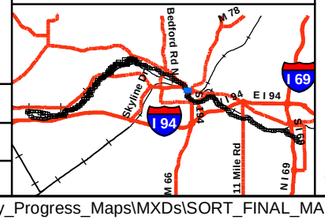
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP15.75-MP16.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	16																				MDEQ
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shroreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Man-Made Structure		START - POTENTIAL STAIN LINE ALONG CONCRETE BANK	Johnson, Rex
																					Conn, Chris
4/13/2011	15:39																	0.00000	0.00000		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 16																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Latitude**	**Longitude**		Enbridge Team Lead
Date	**Time**																				
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Man-Made Structure		SECTION FREE OF OIL OR STAINING (16.00 RDB)	Johnson, Rex
																					Conn, Chris
4/13/2011	15:59																	42.31689	-85.18888		Kytta, Ken

Photo Logs

Field Photographs MP 15.75 – MP 16.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 15.75 – MP 16.00

LDB Zone ID 1, Photo 003



RDB Zone ID 1, Photo 001



Field Photographs MP 15.75 – MP 16.00

RDB Zone ID 1, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 15.75 to MP 16.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle Delong — MDEQ — 6/6/11 Date

Michelle Delong — Printed Name

Dave Bareham — Enbridge — 6/6/2011 Date

Dave Bareham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 15.75 to MP 16.00, Bank or Island: RIGHT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/13/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/13/11 — Date

Chris Conn — Printed Name

Ken Watts — Enbridge — 4/13/11 — Date

Ken Watts — Printed Name

ASSESSED BOTH BANKS FROM TOP OF CONCRETE AND WITH A SINGLE TRAVERSE.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 15.75 to MP 16.00, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/13/11 Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/13/11 Date

Chris Conn — Printed Name

[signature] — Enbridge — 4/13/11 Date

KEN KUHTA — Printed Name

ASSESSED BOTH BANKS FROM TOP OF CONCRETE.
ASSESSED BOTH BANKS ON SAME TRANSECT.

Segment 16.00 – 16.25

MP 16.00 to MP 16.25

The Kalamazoo River is controlled by a concrete channel as it flows through segment 16.25 in Battle Creek. The sidewalls are steeply sloped and the river could not be accessed because of safety issues. Therefore, the reassessment was completed approximately 10 feet back from the top of the opposite bank and from highway overpasses where present.

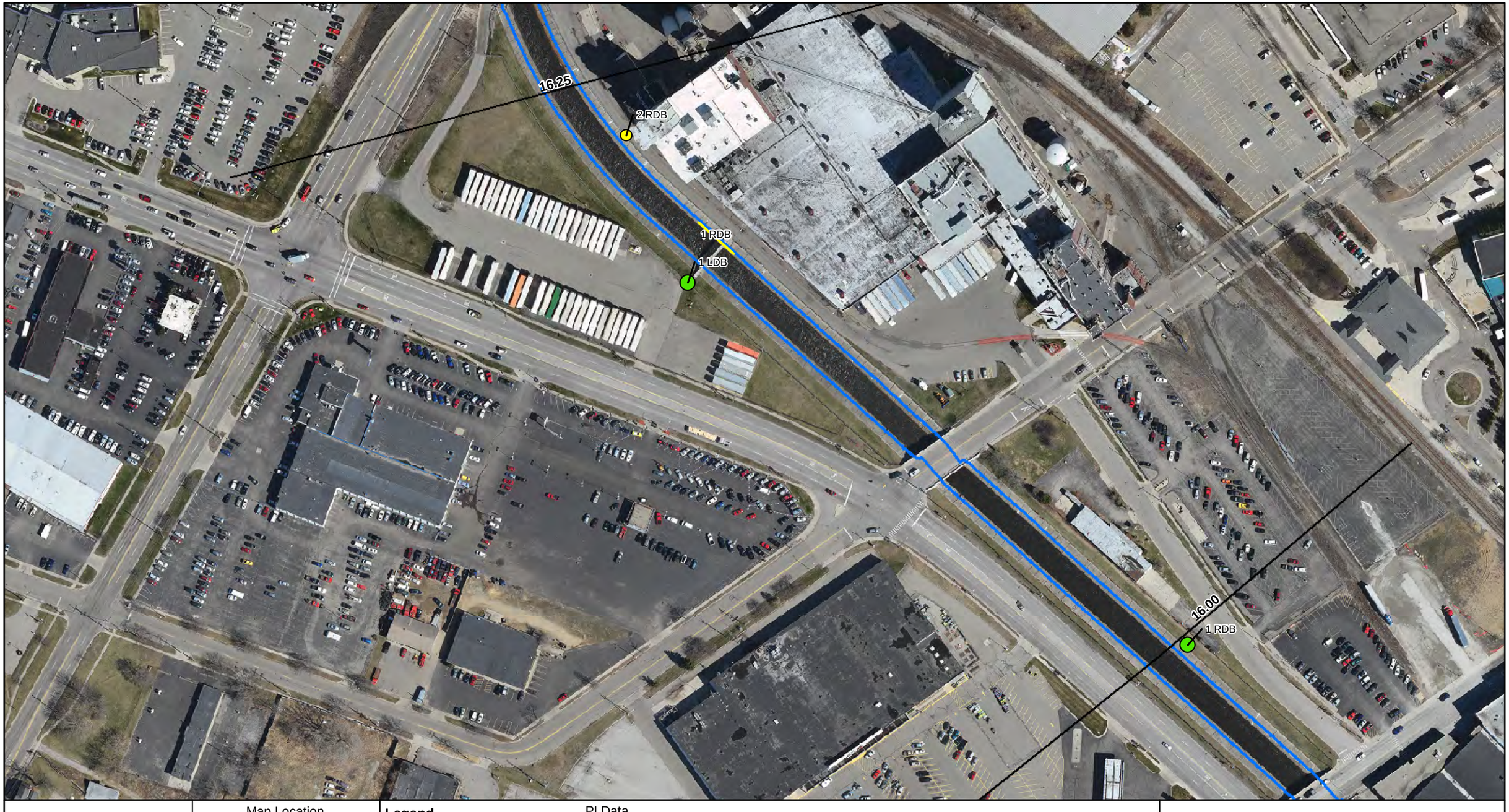
The LDB of segment 16.25 is bisected by McCamly Street South and consists of sloping concrete sidewalls. The reassessment did not identify any evidence of oil staining on the concrete sidewall.

The RDB of segment 16.25 is bisected by McCamly Street South and consists of sloping concrete sidewalls. The reassessment identified one point and one linear transect. A possible horizontal stain line measuring approximately 75 feet long was observed on the concrete sidewall above the observed water surface on 4/13/11 at Linear Transect 1 RDB. Possible staining on the concrete sidewall was also observed at Point 2 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP16.00-MP16.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

| Bank: LDB | | Oil Thickness | | | | | Oil Character | | | | |

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 16.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Man-Made Structure		START - POTENTIAL OIL STAINING ON CONCRETE BANK	Johnson, Rex
																					Conn, Chris
4/13/2011	16:23																	0.00000	0.00000		Kytta, Ken
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Man-Made Structure		POTENTIAL OIL STAINING ON CONCRETE BANK	Johnson, Rex
																					Conn, Chris
4/13/2011	16:28																	42.31910	-85.19223		Kytta, Ken

Photo Logs

Field Photographs MP 16.00 – MP 16.25

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 16.00 – MP 16.25

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 16.0 to MP 16.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011	Date
John Powell	Printed Name		
Michelle DeLong	MDEQ	6/6/11	Date
Michelle DeLong	Printed Name		
	Enbridge	6/6/2011	Date
Dave Barcham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.00 to MP 16.25, Bank or Island: RIGHT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/13/11 Date

Rex Johnson — Printed Name

[signature] — MDEQ — 4/13/11 Date

Chris Conn — Printed Name

[signature] — Enbridge — 4/13/11 Date

KEN KATTA — Printed Name

ASSESSMENT PERFORMED FROM TOP OF CONCRETE FOR BOTH SIDES FROM A SINGLE TRENCH.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.00 to MP 16.25, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson	START	4/13/11 Date
Rex Johnson	Printed Name	
Chris Conn	MDEQ	4/13/11 Date
Chris Conn	Printed Name	
	Enbridge	4/13/11 Date
KEN KUTTA	Printed Name	

ASSESSMENT PERFORMED FROM TOP OF CONCRETE FOR BOTH SIDES OF RIVER IN A SINGLE TRAVERSE

Segment 16.25 – 16.50

MP 16.25 to MP 16.50

The Kalamazoo River is controlled by a concrete channel as it flows through segment 16.50 in Battle Creek. The sidewalls are steeply sloped and the river could not be accessed because of safety issues. Therefore, the reassessment was completed approximately 10 feet back from the top of the opposite bank and from highway overpasses where present. The segment also includes the confluence of Battle Creek and the Kalamazoo River and an approximate 500 foot reach of Battle Creek. The embankments of the confluence of the two waterways are armored with either concrete or rip rap.

The LDB of segment 16.50 is bisected by three roadways and a rail line. This segment consists of sloping concrete sidewalls and rip rap at the very end (north) of the segment along the Kalamazoo River, and approximately 500 feet up the RDB of Battle Creek. The reassessment identified one polygon and one linear transect on the Kalamazoo River. Rip rap and debris within Polygon 1 LDB were sporadically coated and stained with oil. A possible horizontal stain line measuring approximately 90 feet long was observed on the concrete sidewall above the observed water surface on 4/13/11 at Linear Transect 2 LDB.

The RDB of segment 16.50 is bisected by three roadways and a rail line. This segment consists of sloping concrete sidewalls changing to vertical sidewalls at the north end of the segment along the Kalamazoo River, and includes a steep vegetated bank along the confluence with the LDB of Battle Creek. The reassessment identified three points along this segment. Possible sporadic staining was observed on the concrete side wall at Point 1 RDB located beneath the South Washington Avenue Bridge. The LDB of Battle Creek at the confluence with the Kalamazoo River consists of low vegetated bank with emergent/herbaceous wetland. Patchy occurrence of film was observed in pooled water along the LDB of Battle Creek at Point 2 RDB as well as a trace distribution of surface oil residue on the ground surface at Point 3 RDB. No oiled surfaces were identified on the RDB of Battle Creek.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

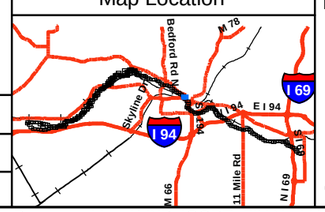
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP16.25-MP16.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 16.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap		TAR COATED AND STAINED DEBRI AMONGST SHORE RIP RAP	Johnson, Rex
																					Conn, Chris
4/13/2011	17:58																	42.32251	-85.19381		Kytta, Ken
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Man-Made Structure		START - POTENTIAL OIL STAINING ON CONCRETE BANK	Johnson, Rex
																					Conn, Chris
4/13/2011	18:04																	0.00000	0.00000		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 16.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Man-Made Structure		POTENTIAL STAINING ON CULVERT - ~50FT DOWNSTREAM OF POINT (ACCESS NOT POSSIBLE)	Johnson, Rex Conn, Chris
4/13/2011	16:45																	42.31995	-85.19289		Kytta, Ken
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Low Vegetated Bank		SHEEN ON POOLED WATER; POTENTIALLY FROM SOURCE OTHER THAN RELEASE	Johnson, Rex Conn, Chris
4/14/2011	08:46																	42.32280	-85.19248		Kytta, Ken
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		possible stain	Muccianti, Marcus Bauer, Chris
4/14/2011	11:23																	42.32299	-85.19397		Wronka, Hans

Photo Logs

Field Photographs MP 16.25 – MP 16.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 16.25 – MP 16.50

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 16.25 – MP 16.50

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 16.25 – MP 16.50

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 16.25 to MP 16.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2014 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/6/14 Date

Michelle D. DeLong Printed Name

[signature] Enbridge — 6/6/2014 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.25 to MP 16.50, Bank or Island: LEFT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/13/11 Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/13/11 Date

Chris Conn — Printed Name

Ken Kytta — Enbridge — 4/13/11 Date

Ken Kytta — Printed Name

BOTH SIDES OF CHANNEL ACCESSED FROM TOP OF CONCRETE IN A SINGLE TRAVERSE

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.25 to MP 16.5, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/14/11 Date

Marcus Maccubbin Printed Name

Chris Bauer MDEQ — 4-14-11 Date

Chris Bauer Printed Name

James Gamble 4-14-11

James Gamble

_____ Enbridge — 4-14-11 Date

Hans Wronka Printed Name

Did not walk or Boat upper Portion of this (Kalamazoo) segment due to unsafe condition of Concrete channel

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.25 to MP 16.50, Bank or Island: RIGHT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/14/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 4/14/11 — Date

Chris Conn — Printed Name

[signature] — Enbridge — 4/14/11 — Date

KEN KATTA — Printed Name

Segment 16.50 – 16.75

MP 16.50 to MP 16.75

The LDB of segment 16.75 is bisected by South Kendall Street near the end of the segment. The LDB shoreline consists of a sand and gravel bank within the first 150 feet of the segment and is armored with rip rap throughout the remainder of the segment. The reassessment identified one point, one polygon, and one linear transect. Sporadic to patchy occurrences of asphalt pavement and patties were identified on Point 1 LDB and Polygon 2 LDB. Traces of surface oil residue on the ground surface, as well as oil stained and covered rip rap, was identified along the length of Linear Transect 3 LDB.

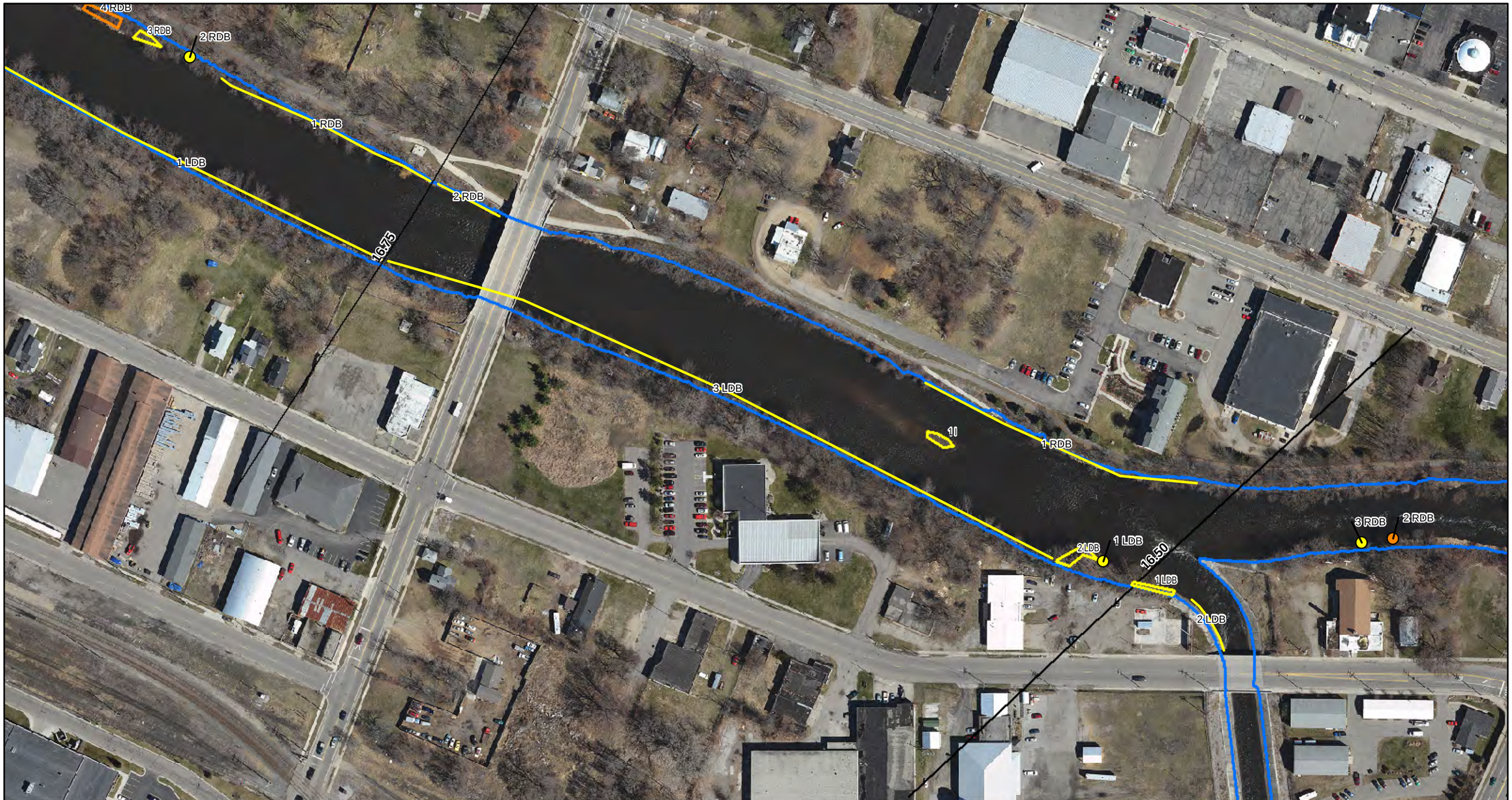
The RDB of segment 16.75 is bisected by South Kendall Street near the end of the segment and consists of rip rap along the shoreline. The reassessment identified two linear transects. A sporadic distribution of oil and tar covering to staining rip rap was documented in both linear transects.

One island was identified in the segment and consists of a low vegetated bank. The reassessment identified a polygon that covered the entire island. The island had a patchy distribution of a coating to a cover of asphalt pavement, patties and tar balls on the island.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

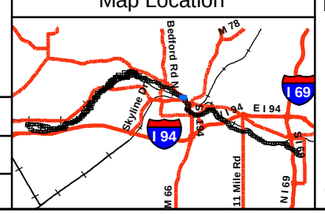
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP16.50-MP16.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 16.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	P	Sand-Gravel shoreline			Muccianti, Marcus
																					Bauer, Chris
4/14/2011	11:35																	42.32269	-85.19420		Wronka, Hans
2	Shoreline	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	S	Sand-Gravel shoreline			Muccianti, Marcus
																					Bauer, Chris
4/14/2011	11:39																	42.32275	-85.19432		Wronka, Hans
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Rip Rap		first 150 feet of left decending bank beginning at the 16.75 line and working upstream is sparatic	Muccianti, Marcus
																					Bauer, Chris
4/14/2011	11:54																	42.32299	-85.19510		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 16.75																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Rip Rap		TAR COVER RIP RAP AND DEBRIS ALONG SHORELINE	Johnson, Rex
																					Conn, Chris
4/14/2011	09:59																	42.32350	-85.19521		Kytta, Ken
2	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Rip Rap		OIL COATED RIP RAP AND DEBRIS ALONG SHORELINE	Johnson, Rex
																					Conn, Chris
4/14/2011	10:21																	42.32418	-85.19778		Kytta, Ken

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 16.75																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Latitude**	**Longitude**		Enbridge Team Lead
Date	**Time**																				
1	Shoreline	☐	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☑	☐	☐	☐	P	Low Vegetated Bank		TAR BALLS/PATTIES, ASPHALT PAVEMENT ON SMALL ISLAND; VEGETATION CLEARED	Johnson, Rex
																					Conn, Chris
4/14/2011	10:39																	42.32320	-85.19515		Kytta, Ken

Photo Logs

Field Photographs MP 16.50 – MP 16.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 16.50 – MP 16.75

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 16.50 – MP 16.75

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 16.50 – MP 16.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 16.50 – MP 16.75

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 16.50 – MP 16.75

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 16.50 – MP 16.75

RDB Zone ID 2, Photo 004



I Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 16.5 to MP 16.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/6/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Bacham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.50 to MP 16.75, Bank and/or Island: RIGHT, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/14/11 Date
Rex Johnson	Printed Name	
[signature]	MDEQ	4/14/11 Date
Chris Conn	Printed Name	
[signature]	Enbridge	4/14/11 Date
KEN KYTTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.5 to MP 16.75, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/14/11 Date

Thomas Macciani Printed Name

Chris Bauer MDEQ 4-14-11 Date

Chris Bauer Printed Name

James Gamble 4-14-11

_____ Enbridge 4-14-11 Date

Hans Wronka Printed Name

Segment 16.75 – 17.00

MP 16.75 to MP 17.00

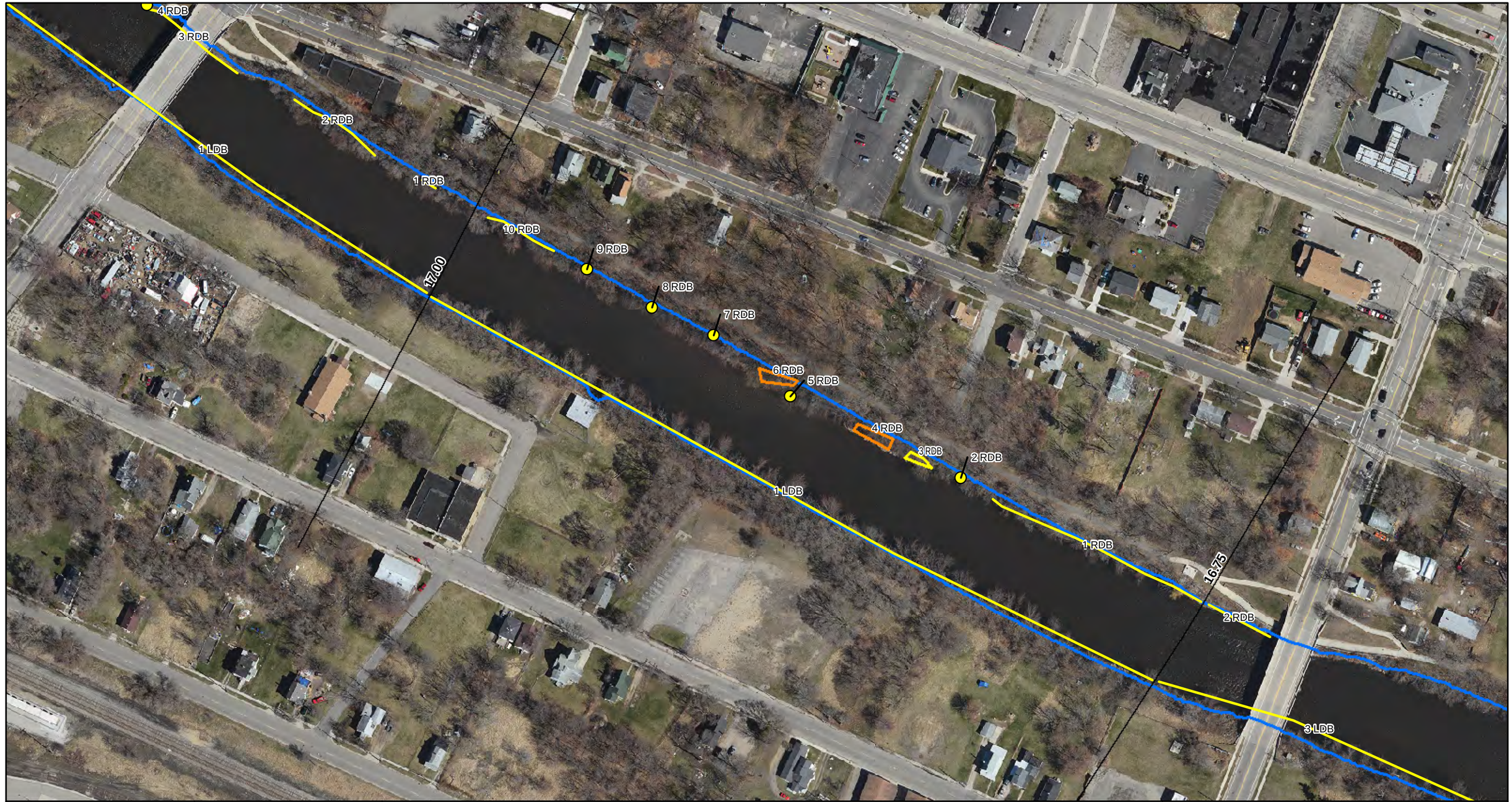
The LDB of segment 17.00 is armored with rip rap. The reassessment identified one linear transect along the entire length of the segment. Traces of surface oil residue on the ground surface as well as staining on rip rap and debris were present along the linear transect.

The RDB of segment 17.00 consists of rip rap on both ends of the segment and low vegetated bank and emergent/herbaceous wetlands in the middle of the segment along the shoreline. The reassessment identified five points, three polygons, and two linear transects. A trace to sporadic distribution of tar and oil, covering to staining debris and vegetation, was identified at all locations. A sporadic film was observed on pooled water at Polygons 4 RDB and 6 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

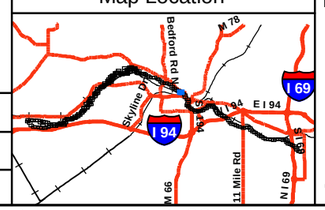
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP16.75-MP17.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character									Oil Distribution			
Mile Marker: 17																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Rip Rap	
4/14/2011	12:20																	42.32408	-85.19858

Comments	START
	MDEQ
	Enbridge Team Lead
	Muccianti, Marcus
	Bauer, Chris
	Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 17

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character											Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Rip Rap		TAR COATED DEBRIS AND RIP RAP ALONG SHORELINE	Johnson, Rex
																					Conn, Chris
4/14/2011	11:20																	42.32477	-85.19943		Kytta, Ken
10	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Rip Rap		TAR COATED RIP RAP AND DEBRIS	Johnson, Rex
																					Conn, Chris
4/14/2011	13:31																	42.32597	-85.20235		Kytta, Ken
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap		OIL COATED LEAF	Johnson, Rex
																					Conn, Chris
4/14/2011	11:29																	42.32486	-85.19962		Kytta, Ken
3	Shoreline	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		TAR COATED DEBRIS	Johnson, Rex
																					Conn, Chris
4/14/2011	11:36																	42.32493	-85.19981		Kytta, Ken
4	Shoreline	☐	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Wetland-emergent/herbaceous		TAR COATED DEBRIS; SHEEN ON POOLED WATER	Johnson, Rex
																					Conn, Chris
4/14/2011	11:44																	42.32507	-85.20024		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 17																					MDEQ
Source: 2011 Reassessment		Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Oil Zone ID	Feature																				
Date	Time																				
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Low Vegetated Bank		TAR COATED TREE AND BRANCHES	Johnson, Rex
																					Conn, Chris
4/14/2011	11:50																	42.32522	-85.20059		Kytta, Ken
6	Shoreline	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED LEAVES AND SHEEN ON POOLED WATER	Johnson, Rex
																					Conn, Chris
4/14/2011	11:57																	42.32528	-85.20080		Kytta, Ken
7	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Rip Rap		TAR COATED STICKS	Johnson, Rex
																					Conn, Chris
4/14/2011	12:58																	42.32546	-85.20107		Kytta, Ken
8	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap		TAR COATED STICK	Johnson, Rex
																					Conn, Chris
4/14/2011	13:06																	42.32559	-85.20145		Kytta, Ken
9	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap		TAR SPOT ON RIP RAP	Johnson, Rex
																					Conn, Chris
4/14/2011	13:16																	42.32576	-85.20183		Kytta, Ken

Photo Logs

Field Photographs MP 16.75 – MP 17.00

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001

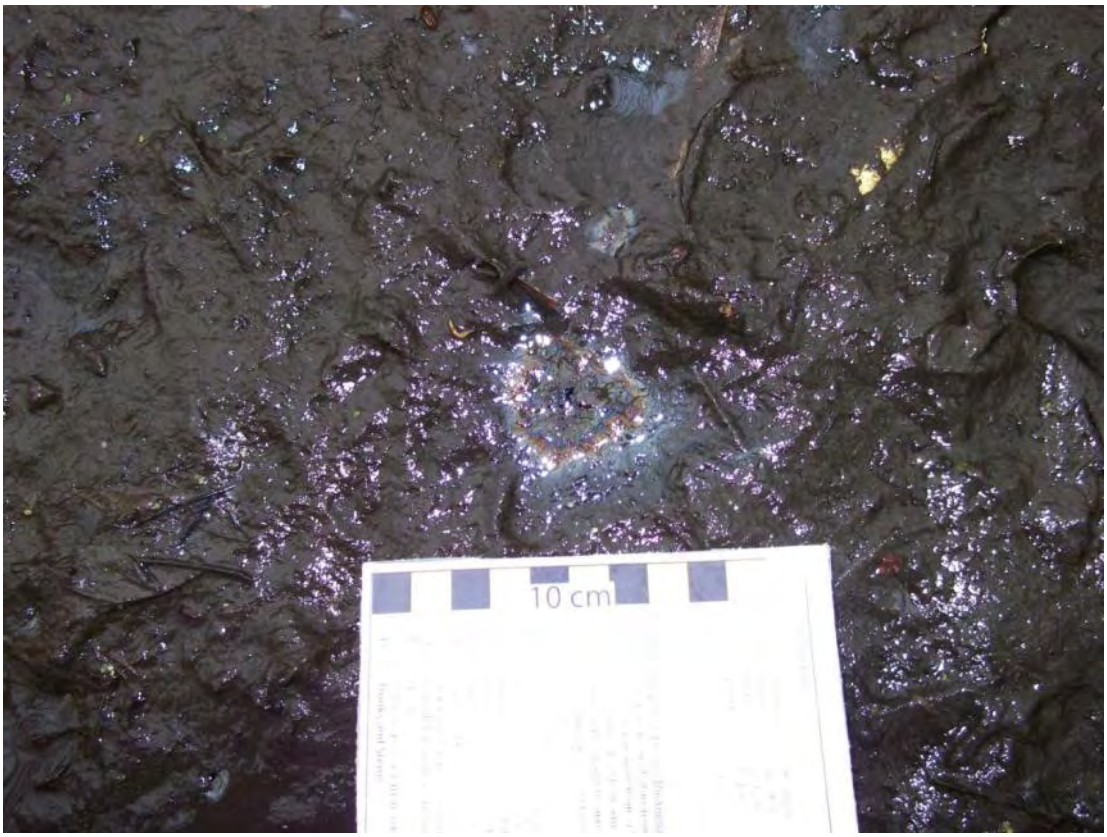


Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 4, Photo 003



RDB Zone ID 4, Photo 004



Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 8, Photo 001



RDB Zone ID 9, Photo 001



Field Photographs MP 16.75 – MP 17.00

RDB Zone ID 10, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 16.75 to MP 17.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.75 to MP 17.00, Bank or Island: River, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____	START	4/14/11 Date
Rex Johnson	Printed Name	
_____	MDEQ	4/14/11 Date
Chris Conn	Printed Name	
_____	Enbridge	4/14/11 Date
Ken Kytta	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 16.75 to MP 17.00, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/14/11 Date

Marcus Muccianti Printed Name

_____ MDEQ — 4-14-11 Date

James Gamble Printed Name — 4-14-11

Chris Bauer
Chris Bauer

_____ Enbridge — 4-14-11 Date

Hans Wronka Printed Name

~~Seat~~ Segment evaluated by boat due to steep and highly uneven embankment

Segment 17.00 – 17.25

MP 17.00 to MP 17.25

The LDB of segment 17.25 is bisected by Angell Street and is armored with rip rap. The reassessment identified one linear transect along the entire length of the segment. Traces of surface oil residue on the ground surface and oil staining and coatings were identified on debris along the linear transect.

The RDB of segment 17.25 is bisected by Angell Street and is armored with rip rap with the exception of the very end of the segment where a low vegetated bank is present along the shoreline. The reassessment identified one point and six linear transects. Trace to patchy distributions of oil and tar, which coated debris and branches overhanging the water, were identified at all locations. A sporadic to patchy distribution of oil coated the rip rap and man-made structures at Point 4 RDB and in Linear Transects 5 RDB and 6 RDB.

One island is located in segment 17.25 and is considered a low vegetated bank habitat. The reassessment identified one polygon on the island. A sporadic coat of tar patties was identified on the ground surface at the upstream portion of the island.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

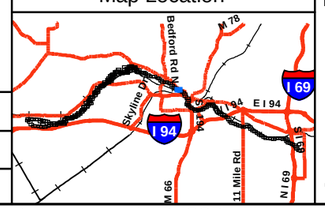
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP17.00-MP17.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 17.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Rip Rap	
4/14/2011	13:38																	42.32576	-85.20272

Comments	**START**
	MDEQ
	Enbridge Team Lead
steep embankment observation from bank	Muccianti, Marcus
	Bauer, Chris
	Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 17.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	4/14/2011	13:42	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap	42.32617	-85.20284	TAR COATED DEBRIS OVERHANGING RIVER	Johnson, Rex / Conn, Chris / Kytta, Ken
2	Shoreline	4/14/2011	14:01	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Rip Rap	42.32648	-85.20359	TAR COATED DEBRIS AND OVERHANGING BRANCHES	Johnson, Rex / Conn, Chris / Kytta, Ken
3	Shoreline	4/14/2011	14:17	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Rip Rap	42.32688	-85.20444	TAR COATED DEBRIS AND OVERHANGING BRANCHES	Johnson, Rex / Conn, Chris / Kytta, Ken
4	Shoreline	4/14/2011	14:19	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	P	Rip Rap	42.32690	-85.20445	COATED ROCK AND CEMENT OUTFALL PIPE	Johnson, Rex / Conn, Chris / Kytta, Ken
5	Shoreline	4/14/2011	14:29	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Rip Rap	42.32720	-85.20487	TAR COATED RIP RAP AND BRANCHES	Johnson, Rex / Conn, Chris / Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 17.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Rip Rap		TAR COATED RIP RAP AND DEBRIS	Johnson, Rex / Conn, Chris
4/14/2011	14:51																	42.32787	-85.20584		Kytta, Ken
7	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATED VEGETATION	Johnson, Rex / Conn, Chris
4/14/2011	15:06																	42.32812	-85.20628		Kytta, Ken

2011 Reassessment

Bank: I	Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 17.25																			
Source: 2011 Reassessment																			
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**	**Comments**	**START**
Date / **Time**																	**Latitude** / **Longitude**		**MDEQ**
1 / Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank	TAR PATTIES ON ISLAND	Johnson, Rex
																			Conn, Chris
4/14/2011 / 15:14																	42.32774 / -85.20661		Kytta, Ken

Photo Logs

Field Photographs MP 17.00 – MP 17.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 17.00 – MP 17.25

LDB Zone ID 1, Photo 003



RDB Zone ID 1, Photo 001



Field Photographs MP 17.00 – MP 17.25

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 17.00 – MP 17.25

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 17.00 – MP 17.25

RDB Zone ID 5, Photo 002



RDB Zone ID 6, Photo 001



Field Photographs MP 17.00 – MP 17.25

RDB Zone ID 6, Photo 002



RDB Zone ID 7, Photo 001



Field Photographs MP 17.00 – MP 17.25

RDB Zone ID 7, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 17.00 – MP 17.25

I Zone ID 1, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 17.0 to MP 17.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle Delong	MDEQ	6/6/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.00 to MP 17.25, Bank ~~of~~ AND Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/14/11 Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/14/11 Date

Chris Conn — Printed Name

KEN KYTTA — Enbridge — 4/14/11 Date

KEN KYTTA — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.00 to MP 17.25, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/14/11	Date
Marcus Muccin	Printed Name		
James Gamble	MDEQ	4-14-11	Date
James Gamble	Printed Name	4-14-11	
Chris Bauer Chris Bauer			
[signature]	Enbridge	4-14-11	Date
Hans Wronka	Printed Name		

Segment 17.25 – 17.50

MP 17.25 to MP 17.50

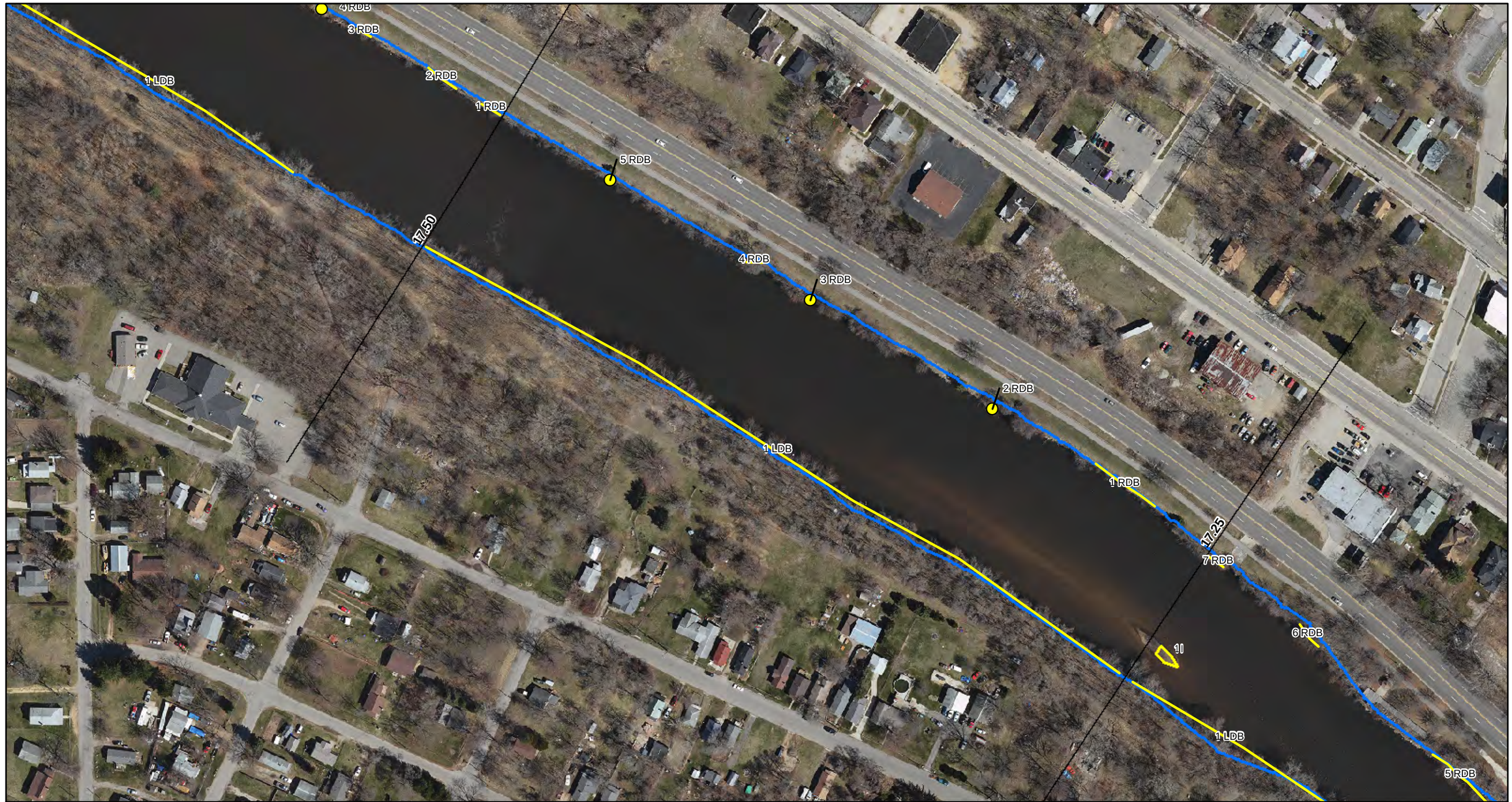
The LDB of segment 17.50 consists of a steep, low vegetated bank within the overbank. The reassessment identified one linear transect along the entire length of the segment. Traces of surface oil residue on the ground surface and staining on debris were identified along the linear transect.

The RDB of segment 17.50 consists of a low vegetated bank. The reassessment identified three points and two linear transects. A trace to sporadic distribution of oil and tar coating debris and vegetation, both on the bank and overhanging the river, was identified at all locations.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

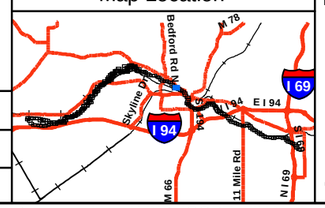
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP17.25-MP17.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 17.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank		Steep embankment. most observation from boat	Muccianti, Marcus
																					Bauer, Chris
4/14/2011	14:11																	42.32941	-85.21106		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 17.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATED VEGETATION ON BANK	Johnson, Rex
																					Conn, Chris
4/14/2011	15:30																	42.32857	-85.20704		Kytta, Ken
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Low Vegetated Bank		TAR COATED OVERHANGING VEGETATION	Johnson, Rex
																					Conn, Chris
4/14/2011	15:37																	42.32881	-85.20765		Kytta, Ken
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Low Vegetated Bank		TAR COATED OVERHANGING VEGETATION	Johnson, Rex
																					Conn, Chris
4/14/2011	15:45																	42.32927	-85.20874		Kytta, Ken
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATED VEGETATION ON BANK	Johnson, Rex
																					Conn, Chris
4/14/2011	15:51																	42.32944	-85.20913		Kytta, Ken
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		TAR COATED OVERHANGING VEGETATION	Johnson, Rex
																					Conn, Chris
4/14/2011	16:00																	42.32979	-85.20993		Kytta, Ken

Photo Logs

Field Photographs MP 17.25 – MP 17.50

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 17.25 – MP 17.50

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 17.25 – MP 17.50

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 17.25 – MP 17.50

RDB Zone ID 5 Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 17.25 to MP 17.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	GAB	Enbridge [signature]
SOTF	START	[signature]	MDEQ	GAB	Enbridge [signature]
PI	START	[signature]	MDEQ	GAB	Enbridge [signature]
FLS	START	[signature]	MDEQ	GAB	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/6/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.25 to MP 17.5, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____	START	4/14/11 Date
Rex Johnson	Printed Name	
_____	MDEQ	4/14/11 Date
Chris Conn	Printed Name	
_____	Enbridge	4/14/11 Date
KEN KYTTA	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.25 to MP 17.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/14/11	Date
MARCUS MURCIANI	Printed Name		
[signature]	MDEQ	4-14-11	Date
James Gamble	Printed Name	4-14-11	
Chris Bauer Chris Bauer			
[signature]	Enbridge	4-14-11	Date
Hans Wronka	Printed Name		

Segment 17.50 – 17.75

MP 17.50 to MP 17.75

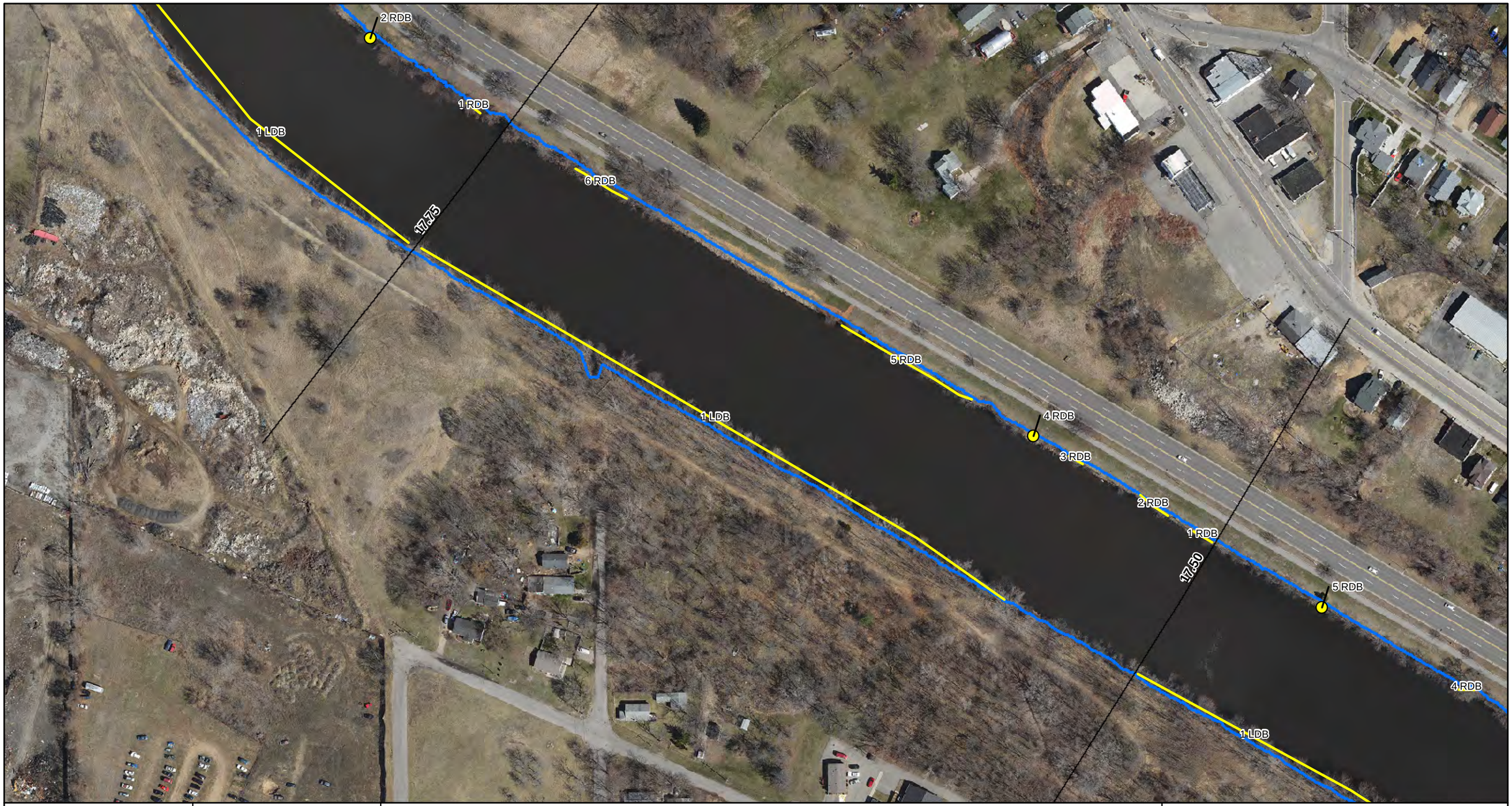
The LDB of segment 17.75 consists of a steep, low vegetated bank along the shoreline. The reassessment identified one linear transect along the majority of the segment. Traces of surface oil residue on the ground surface and oil staining on debris were identified along Linear Transect 1 LDB.

The RDB of segment 17.75 consists of a low vegetated bank along the shoreline. The reassessment identified one point and five linear transects. Trace to sporadic distributions of stained and coated debris and/or trunks and stems on the bank and overhanging the water were identified at all locations. A sporadic distribution of patties was identified at Linear Transect 5 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

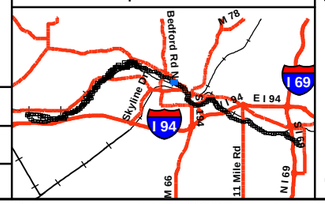
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP17.50-MP17.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character									Oil Distribution			
Mile Marker: 17.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems			
Date	**Time**																		
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T		
4/14/2011	14:33																		

Habitat		Comments	START
			MDEQ
Latitude	**Longitude**		**Enbridge Team Lead**
Low Vegetated Bank		steep embankment observations from boat. tar patties near 17.75 marker	Muccianti, Marcus
			Bauer, Chris
42.33130	-85.21517		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 17.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED/STAINED TREE AND BRANCHES	Johnson, Rex / Conn, Chris
4/14/2011	16:42																	42.33012	-85.21069		Kytta, Ken
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED TREES AND STEMS	Johnson, Rex / Conn, Chris
4/14/2011	16:48																	42.33022	-85.21093		Kytta, Ken
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED TREES AND BRANCHES	Johnson, Rex / Conn, Chris
4/14/2011	16:52																	42.33044	-85.21144		Kytta, Ken
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Low Vegetated Bank		TAR COATED OVERHANGING VEGETATION	Johnson, Rex / Conn, Chris
4/14/2011	16:55																	42.33053	-85.21164		Kytta, Ken
5	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		TAR COATED TREES AND BRANCHES; RINGS ON TREES; TAR PATTIES	Johnson, Rex / Conn, Chris
4/14/2011	17:00																	42.33070	-85.21207		Kytta, Ken

2011 Reassessment

Bank:	RDB	Oil Thickness					Oil Character												
Mile Marker:	17.75																		
Source:	2011 Reassessment																		
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
6	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank	
4/14/2011	17:20																	42.33173	-85.21436

Comments	**START**
	MDEQ
	Enbridge Team Lead
TAR COATED VEGETATION; TREE RINGS	Johnson, Rex
	Conn, Chris
	Kytta, Ken

Photo Logs

Field Photographs MP 17.50 – MP 17.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 17.50 – MP 17.75

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 17.50 – MP 17.75

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 17.50 – MP 17.75

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 17.50 – MP 17.75

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 17.50 – MP 17.75

RDB Zone ID 5, Photo 003



RDB Zone ID 5, Photo 004



Field Photographs MP 17.50 – MP 17.75

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 17.5 to MP 17.75 Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge PB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/6/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.5 to MP 17.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/14/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/14/11 — Date

Chris Conn — Printed Name

Ken Kytta — Enbridge — 4/14/11 — Date

Ken Kytta — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.5 to MP 17.75, Bank or Island: LBI, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/14/11 Date

MARCUS MUCCIANTI Printed Name

_____ MDEQ 4-14-11 Date

James Gamble Printed Name 4-14-11

Chris Bauer

Chris Bauer

_____ Enbridge 4-14-11 Date

Hans Wronka Printed Name

This segment is labled as 7.75 not 17.75 in the YUMA.

Segment 17.75 – 18.00

MP 17.75 to MP 18.00

The LDB of segment 18.00 consists of a low vegetated bank along the shoreline. The reassessment identified one linear transect along the entire length of the segment. Traces of surface oil residue on the ground surface, as well as trace oil stained to coated debris were identified along the linear transect. A trace distribution of patties was also documented along the water's edge.

The RDB of segment 18.00 consists of a low vegetated bank along the shoreline. The reassessment identified one point and three linear transects. Trace to patchy distributions of oil and tar that stained to covered debris and vegetation were identified at all locations. A sporadic distribution of patties was identified at Linear Transect 3 RDB and along the bank at Point 2 RDB. Trace staining on trunks (tree rings) as well as oil staining on a concrete outfall structure were identified in Linear Transect 4 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

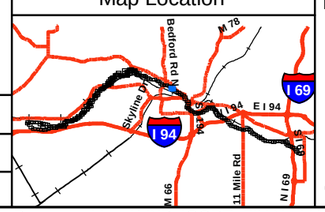
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP17.75-MP18.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	18																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank		observations from boat and walking. patties along waters edge	Muccianti, Marcus
																					Bauer, Chris
4/14/2011	15:02																	42.33416	-85.21847		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 18

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		TAR COATED TREES AND BRANCHES	Johnson, Rex
																					Conn, Chris
4/14/2011	17:34																	42.33195	-85.21491		Kytta, Ken
2	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	P	Low Vegetated Bank		TAR PATTIES ALONG BANK	Johnson, Rex
																					Conn, Chris
4/14/2011	17:40																	42.33224	-85.21558		Kytta, Ken
3	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☑	☑	☐	☐	☐	☑	☐	S	Low Vegetated Bank		TAR COVERED VEGETATION; TAR PATTIES	Johnson, Rex
																					Conn, Chris
4/14/2011	17:48																	42.33305	-85.21648		Kytta, Ken
4	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATING ON VEGETATION AND CONCRETE OUTFALL; TREE RINGS	Johnson, Rex
																					Conn, Chris
4/14/2011	18:01																	42.33428	-85.21749		Kytta, Ken

Photo Logs

Field Photographs MP 17.75 – MP 18.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 17.75 – MP 18.00

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 17.75 – MP 18.00

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 17.75 – MP 18.00

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 17.75 – MP 18.00

RDB Zone ID 4, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 17.75 to MP 18.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/6/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barchom Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.75 to MP 18.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson	START	4/14/11 Date
Rex Johnson	Printed Name	
Chris Conn	MDEQ	4/14/11 Date
Chris Conn	Printed Name	
	Enbridge	4/14/11 Date
Ken Kytta	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 17.75 to MP 18.09 Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/14/11 Date

Marcus Ruccinski Printed Name

_____ MDEQ 4-14-11 Date

James Gamble Printed Name 4-14-11

Chris Bauer
Chris Bauer

_____ Enbridge 4-14-11 Date

Hans Wronka Printed Name

Segment 18.00 – 18.25

MP 18.00 to MP 18.25

The LDB of segment 18.25 is bisected by North 20th Street and consists of a low vegetated bank along the shoreline. The reassessment identified one linear transect along the entire length of the segment. Traces of surface oil residue on the ground surface, as well as oil staining and coating on debris, were identified along the linear transect.

The RDB of segment 18.25 is bisected by North 20th Street and consists of a low vegetated bank. The reassessment identified four linear transects. Trace or sporadic distributions of tar and oil that stained and/or coated trunks and stems, vegetation, and/or debris were identified at all locations. Tree rings were observed at Linear Transect 2 RDB, and horizontal staining above the water level was observed on the concrete bridge abutment (on the side facing the RDB) at this location.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

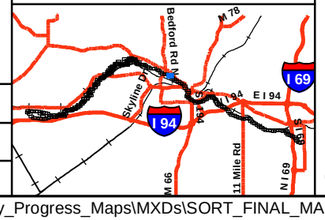
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP18.00-MP18.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 18.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank		observation from boat	**Enbridge Team Lead**
																					Muccianti, Marcus
																					Bauer, Chris
4/14/2011	15:21																	42.33548	-85.22254		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 18.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	S	Low Vegetated Bank		TAR COATED DEBRIS AND BRANCHES; 1 PHOTO	Johnson, Rex / Conn, Chris
4/15/2011	08:28																	42.33474	-85.21797		Kytta, Ken
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED VEGETATION; TREE RINGS; 2 PHOTOS; STAINING ON BRIDGE PILONS	Johnson, Rex / Conn, Chris
4/15/2011	08:41																	42.33528	-85.21891		Kytta, Ken
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS/BRANCHES; 3 PHOTOS	Johnson, Rex / Conn, Chris
4/15/2011	09:11																	42.33608	-85.22166		Kytta, Ken
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATED VEGETATION	Johnson, Rex / Conn, Chris
4/15/2011	09:18																	42.33613	-85.22217		Kytta, Ken

Photo Logs

Field Photographs MP 18.00 – MP 18.25

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 18.00 – MP 18.25

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 18.00 – MP 18.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 18.00 – MP 18.25

RDB Zone ID 3, Photo 003



RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 18.0 to MP 18.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle Delong	MDEQ	6/6/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/6/2011 Date
Dave Barsham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.00 to MP 18.25, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/14/11 Date

Marcus Mucciano Printed Name

Chris Bauer MDEQ 4-14-11 Date

Chris Bauer Printed Name

James Gamble 4-14-11

James Gamble

[signature] Enbridge 4-14-11 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.00 to MP 18.25, Bank or Island: RB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/15/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 4/15/11 — Date

Chris Cowx — Printed Name

[signature] — Enbridge — 4/15/11 — Date

KEN KYITA — Printed Name

Segment 18.25 – 18.50

MP 18.25 to MP 18.50

The LDB of segment 18.50 consists of a low vegetated bank along the shoreline. The reassessment identified one point and one linear transect along most of the length of the segment. Traces of surface oil residue on the ground surface, as well as oil stained and coated debris, were identified along the linear transect. A broken cover of asphalt pavement was identified at Point 2 LDB.

The RDB of segment 18.50 consists of a low vegetated bank along the shoreline. The reassessment identified two linear transects. Trace or sporadic distribution oil stained and coated debris, trunks, and stems, were identified in both areas.

One island is located within segment 18.50 and consists of a scrub-shrub wetland. The reassessment identified one polygon. A sporadic distribution of covered and coated trunks and stems was identified on the island. In addition, patties were sporadically distributed throughout the island and small areas of asphalt pavement were identified.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP18.25-MP18.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 18.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank		observation from boat	Muccianti, Marcus
																					Bauer, Chris
4/14/2011	15:45																	42.33594	-85.22660		Wronka, Hans
2	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	B	Low Vegetated Bank			Muccianti, Marcus
																					Bauer, Chris
4/14/2011	15:50																	42.33589	-85.22609		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 18.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank	TAR COATED TREES/BRANCHES
4/15/2011	09:37																	42.33619 / -85.22287	
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank	TAR COATED DEBRIS AND BRANCHES
4/15/2011	10:03																	42.33673 / -85.22707	

START
MDEQ
Enbridge Team Lead
Johnson, Rex
Conn, Chris
Kytta, Ken
Johnson, Rex
Conn, Chris
Kytta, Ken

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 18.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☑	S	Wetland-scrub/shrub		ISLAND WITH TAR PATTIES, COVERED SHRUBS, SMALL ASPHALT PAVEMENT SPOTS	Johnson, Rex
																					Conn, Chris
4/15/2011	10:11																	42.33610	-85.22692		Kytta, Ken

Photo Logs

Field Photographs MP 18.25 – MP 18.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 18.25 – MP 18.50

LDB Zone ID 2, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 18.25 – MP 18.50

RDB Zone ID 2, Photo 001



I Zone ID 1, Photo 001



Field Photographs MP 18.25 – MP 18.50

I Zone ID 1, Photo 002



I Zone ID 1, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 18.25 to MP 18.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011	Date
John Powell	Printed Name		
Michelle Delong	MDEQ	6/6/11	Date
Michelle DeLong	Printed Name		
	Enbridge	6/6/2011	Date
Dave Barcham	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.25 to MP 18.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/14/11	Date
MARCUS MUCCIANTI	Printed Name		
James Gamble	MDEQ	4-14-11	Date
James Gamble	Printed Name	4-14-11	
Chris Bauer			
Chris Bauer			
[signature]	Enbridge	4-14-11	Date
Hans Wronka	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.25 to MP 18.50, Bank ~~or~~ AND Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/15/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/15/11 — Date

Chris Conn — Printed Name

Ken Kytta — Enbridge — 4/15/11 — Date

KEN KYTTA — Printed Name

Segment 18.50 – 18.75

MP 18.50 to MP 18.75

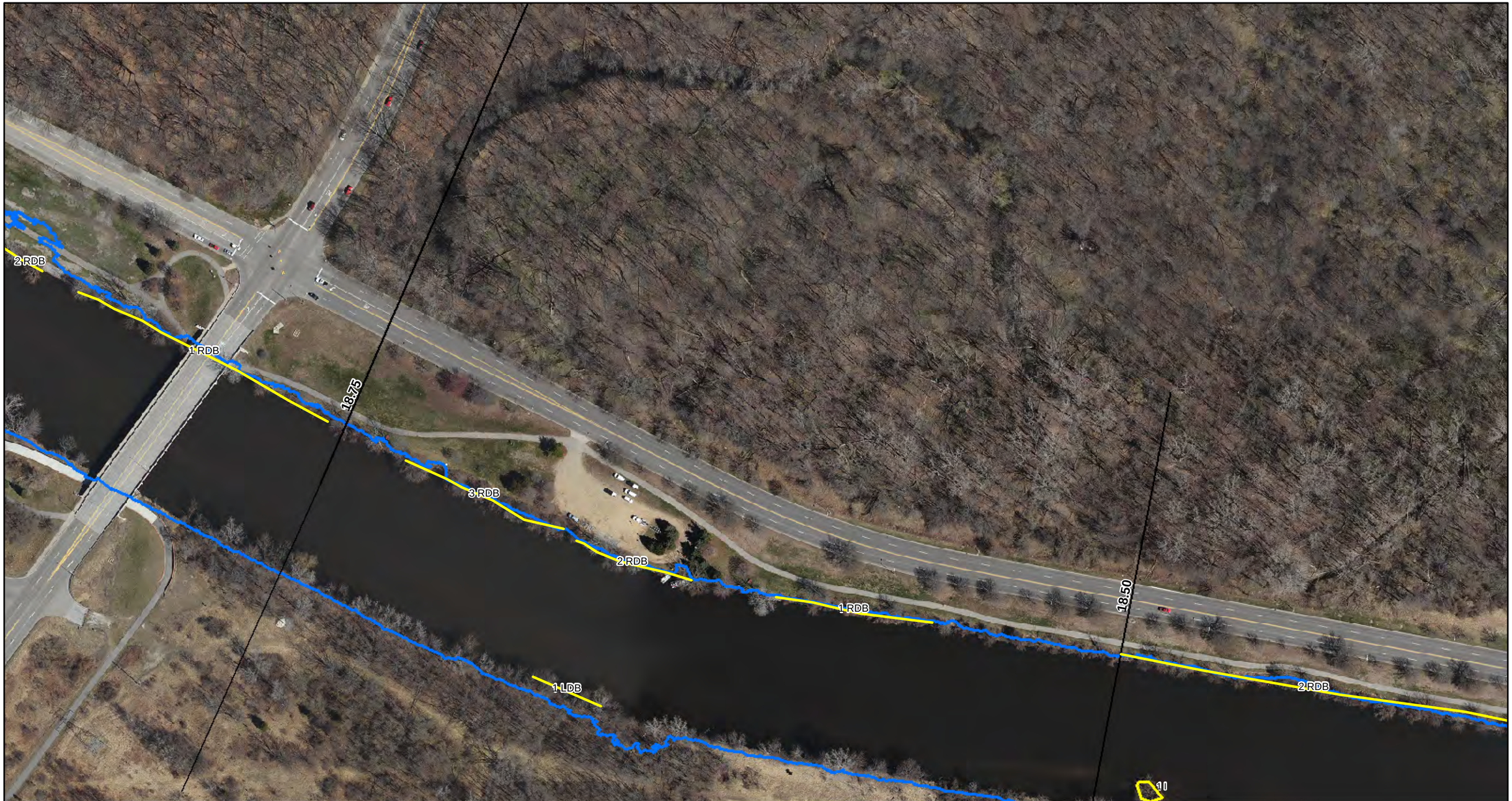
The LDB of segment 18.75 consists of a low vegetated bank along the shoreline. The reassessment identified one linear transect. Traces of surface oil residue, as well as staining and coatings, were identified on debris along the linear transect.

The RDB of segment 18.75 consists of a low vegetated bank along the shoreline. The reassessment identified three linear transects. Trace and sporadic distributions of oil stained and coated debris, trunks, and stems, were identified at all locations. Traces of tar coated debris were identified at Linear Transect 1 RDB, and a sporadic distribution of asphalt pavement and patties, as well as oil-stained tree rings were observed at Linear Transect 2 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

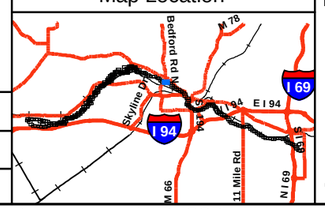
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP18.50-MP18.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 18.75																					MDEQ
Source: 2011 Reassessment		Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
Oil Zone ID	**Feature**																				
Date	**Time**																				
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Low Vegetated Bank		observed from boat	Muccianti, Marcus
																					Bauer, Chris
4/14/2011	16:07																	42.33690	-85.23152		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 18.75																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATED BRANCHES/STEMS AND DEBRIS	Johnson, Rex
																					Conn, Chris
4/15/2011	11:00																	42.33696	-85.22912		Kytta, Ken
2	Shoreline	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	☑	☑	S	Low Vegetated Bank		TAR COATED DEBRIS; TAR PATTIES; ASPHALT PAVEMENT; TREE RINGS	Johnson, Rex
																					Conn, Chris
4/15/2011	11:16																	42.33718	-85.23027		Kytta, Ken
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND BRANCHES	Johnson, Rex
																					Conn, Chris
4/15/2011	11:31																	42.33757	-85.23135		Kytta, Ken

Photo Logs

Field Photographs MP 18.50 – MP 18.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 18.50 – MP 18.75

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 18.50 – MP 18.75

RDB Zone ID 2, Photo 003



RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 18.5 to MP 18.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	BAB	Enbridge	
SOTF	START	JDP	MDEQ	BAB	Enbridge	
PI	START	JDP	MDEQ	BAB	Enbridge	
FLS	START	JDP	MDEQ	BAB	Enbridge	
Inundation Model	START	JDT	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JD Powell — START — 6/6/2011 Date

John Powell — Printed Name

Michelle Delong — MDEQ — 6/6/11 Date

Michelle Delong — Printed Name

Dave Bal — Enbridge — 6/6/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.50 to MP 18.75, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/14/11 Date

MARCUS MUCCIANTI Printed Name

_____ MDEQ — 4-14-11 Date

James Gamble Printed Name — 4-14-11

Chris Bauer
Chris Bauer

_____ Enbridge — 4-14-11 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.50 to MP 18.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Roy Johnson — START — 9/15/11 — Date

Rex Johnson — Printed Name

MDEQ — _____ — Date

Chris Conn — Printed Name

Enbridge — 9/15/11 — Date

KEN KUTTA — Printed Name

Segment 18.75 – 19.00

MP 18.75 to MP 19.00

The LDB of segment 19.00 is bisected by South Bedford Road and consists of a low vegetated bank along the shoreline. A back channel is present within the LDB. The reassessment identified one linear transect. Traces of surface oil residue were identified on the ground surface along the linear transect.

Poling of the back channel on the LDB within this segment was completed at six locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 19.00 is bisected by South Bedford Road and consists of a low vegetated bank along the shoreline. The reassessment identified three linear transects. Trace distributions of oil and tar that stained to covered debris, trunks, and stems, were identified at all the locations. Traces of small tar patties and oil-stained tree rings were identified at Linear Transect 1 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

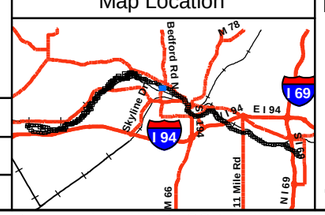
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP18.75-MP19.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 19																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
																					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank			Muccianti, Marcus
																					Bauer, Chris
4/14/2011	16:49																	42.33884	-85.23653		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 19																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS, TREES; SMALL TAR PATTIES; TREE RINGS	Johnson, Rex
																					Conn, Chris
4/15/2011	12:52																	42.33828	-85.23328		Kytta, Ken
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND BRANCHES	Johnson, Rex
																					Conn, Chris
4/15/2011	13:07																	42.33878	-85.23442		Kytta, Ken
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND TREES	Johnson, Rex
																					Conn, Chris
4/15/2011	13:23																	42.33940	-85.23598		Kytta, Ken

Photo Logs

Field Photographs MP 18.75 – MP 19.00

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 18.75 – MP 19.00

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 18.75 – MP 19.00

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 18.75 – MP 19.00

RDB Zone ID 3, Photo 002



RDB Zone ID 3, Photo 003



Field Photographs MP 18.75 – MP 19.00

RDB Zone ID 3, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 18.75 to MP 19.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge QB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/6/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.75 to MP 19.00, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/14/11 Date

MARCUS WILLIAMS Printed Name

_____ MDEQ — 4-14-11 Date

James Gamble Printed Name — 4-14-11

Chris Bauer

_____ Enbridge — 4-14-11 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 18.75 to MP 19.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/15/11 — Date

Rex Johnson — Printed Name

MDEQ — 4/15/11 — Date

Chris Conn — Printed Name

Enbridge — 4/15/11 — Date

KEN KATTA — Printed Name

Segment 19.00 – 19.25

MP 19.00 to MP 19.25

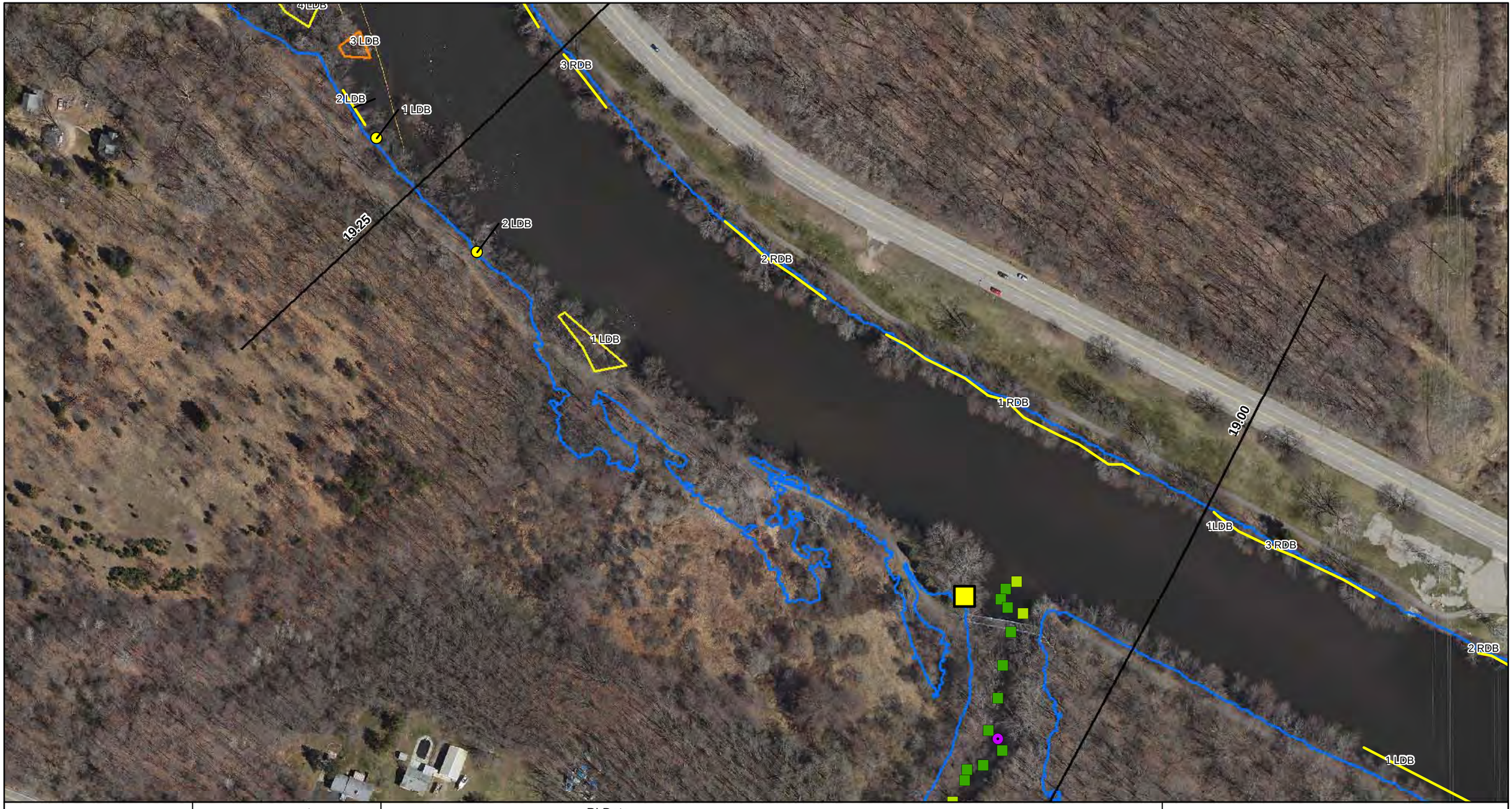
The LDB of segment 19.25 consists of a forested wetland swamp along the shoreline and within the overbank. A back channel is present within the LDB. The reassessment identified one point and one polygon. Traces of surface oil residue on the ground surface and oil coated and stained debris were documented at Point 2 LDB and Polygon 1 LDB. A PI observation noted as an Unconfirmed Area of Interest was identified approximately 200 feet up the reach of a small tributary. The FLS data identified a suspected oil signature at the confluence of the tributary and Kalamazoo River. The SORT program did not identify surface oil at these locations.

Poling of the back channel on the LDB within this segment was completed at twenty-four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 19.25 consists of a low vegetated bank along the shoreline. The reassessment identified three linear transects. Trace distributions of tar and oil, which stained and coated debris, overhanging vegetation, trunks, and stems, were identified at all locations.

The attachments provide additional details on this segment.

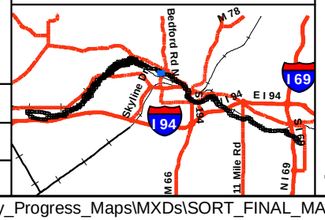
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

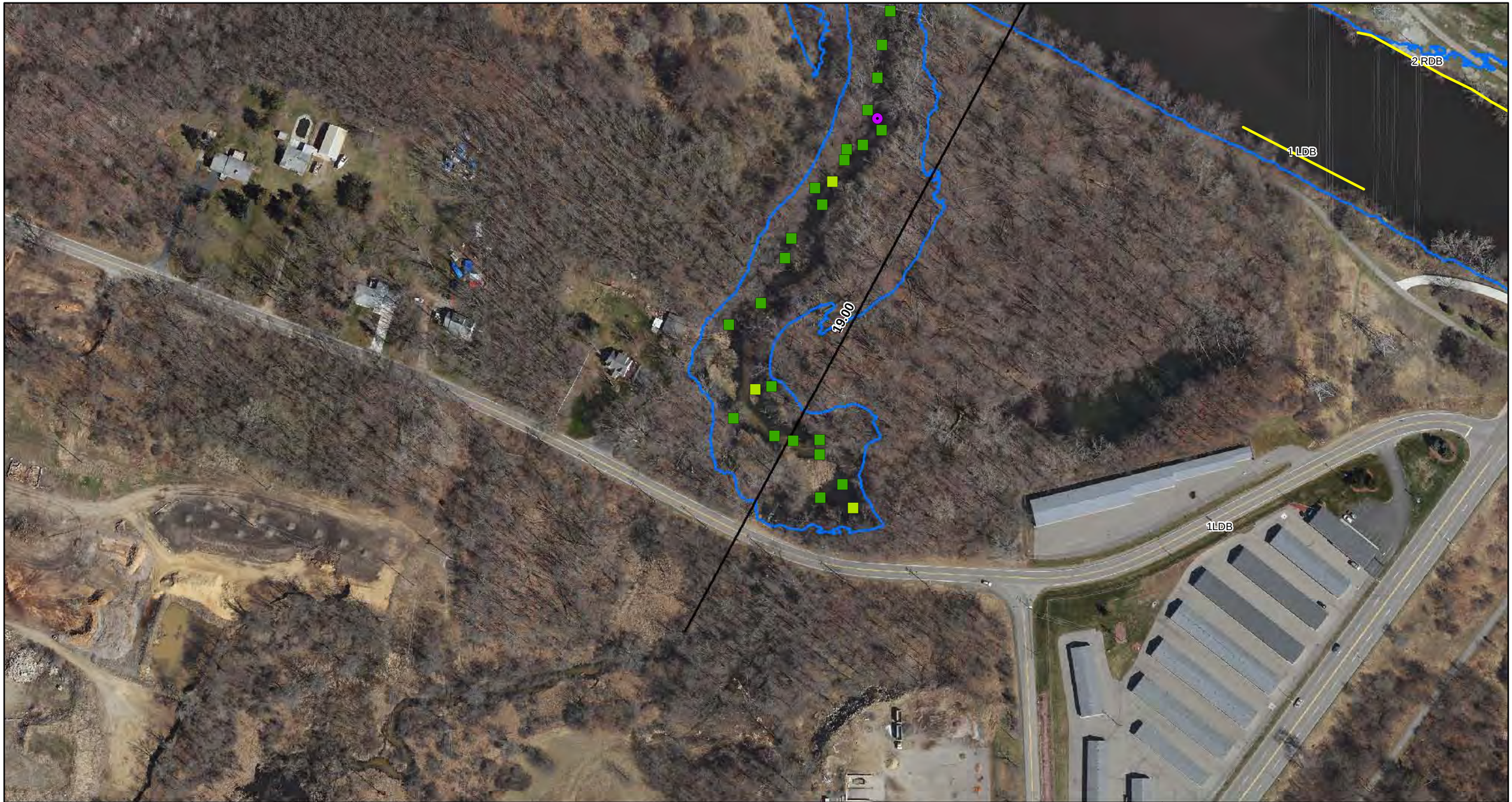
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP19.00-MP19.25 North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

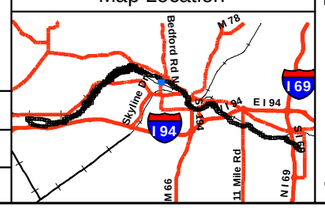
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP19.00-MP19.25 South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 19.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/14/2011	17:34																	42.34017	-85.23980		Wronka, Hans
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/14/2011	17:43																	42.34041	-85.24032		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 19.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND VEGETATION	Johnson, Rex
																					Conn, Chris
4/15/2011	14:14																	42.34007	-85.23793		Kytta, Ken
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS, TREES; OVERHANGING VEGETATION	Johnson, Rex
																					Conn, Chris
4/15/2011	14:26																	42.34061	-85.23896		Kytta, Ken
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS, OVERHANGING VEGETATION	Johnson, Rex
																					Conn, Chris
4/15/2011	14:41																	42.34125	-85.23976		Kytta, Ken

Photo Logs

Field Photographs MP 19.00 – MP 19.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 19.00 – MP 19.25

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 19.00 – MP 19.25

RDB Zone ID 1, Photo 003



RDB Zone ID 1, Photo 004



Field Photographs MP 19.00 – MP 19.25

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 19.00 – MP 19.25

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 19.0 to MP 19.25 Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	[initials]	Enbridge	[initials]
SOTF	START	[initials] 5/23/2011	MDEQ	[initials]	Enbridge	[initials]
PI	START	[initials]	MDEQ	[initials]	Enbridge	[initials]
FLS	START	[initials]	MDEQ	[initials]	Enbridge	[initials]
Inundation Model	START	[initials]	MDEQ	[initials]	Enbridge	[initials]

not complete 5/20 [initials]

Action Items

Action Item Description	Date Resolved
Poling at entrance to back water on LDB also pole up channel.	May 25/11

Completeness Check Acknowledged

[signature] START 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

Michelle DeLong MDEQ 6/7/11 Date

Michelle DeLong Printed Name

[signature] Enbridge 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.00 to MP 19.25, Bank or Island: LBD Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/14/11 Date

Matthias Maccoux Printed Name

_____ MDEQ — 4-14-11 Date

James Gamble Printed Name — 4-14-11

Chris Bauer
Chris Bauer

_____ Enbridge — 4-14-11 Date

Hans Wronkiewicz Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 19.0 to MP 19.25, Unique ID LDB KK, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Grann START 5/21/11 Date

THOMAS P. GRANN Printed Name

Matt Goddard MDEQ 5/21/11 Date

Matt Goddard Printed Name

Gregory H New Enbridge 05-21-2011 Date

Gregory H New Printed Name

Strike points collected by YUMA (29 pts)

Point #20 should be changed from "none" to "light" sheen.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.0 to MP 19.25 Bank or Island: LDB, Segment Length: 0.25 mile
(Polygon LDB1) (1)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 6/5/2011 Date

Gregory D. Wagner Printed Name

Craig Oakley MDEQ 6-5-11 Date

Craig Oakley Printed Name

[signature] Enbridge 6-5-11 Date

John W. Juntilla Printed Name

1 Zone Identified (No oil observed)

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.00 to MP 19.25, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/15/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 4/15/11 — Date

Chris Conn — Printed Name

Ken Kytta — Enbridge — 4/15/11 — Date

Ken Kytta — Printed Name

Segment 19.25 – 19.50

MP 19.25 to MP 19.50

The LDB of segment 19.50 consists of a forested wetland swamp and scrub-shrub wetland. The reassessment identified two points, two polygons, and one linear transect. Traces of surface oil residue on the ground surface and oil coated and stained debris were identified at all locations. A film was also identified at Polygon 3 LDB.

The RDB of segment 19.50 consists of a low vegetated bank along the shoreline. The reassessment identified four linear transects. Trace distributions of oil and tar, which stained and coated debris, trunks, and stems, were identified at all locations.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

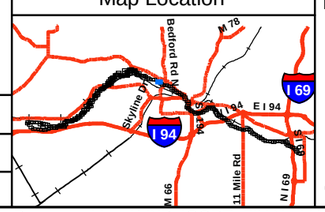
The attachments provide additional details on this segment.

Segment Figures



Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

- Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP19.25-MP19.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 19.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/15/2011	08:51																	42.34091	-85.24092		Wronka, Hans
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/15/2011	08:59																	42.34112	-85.24113		Wronka, Hans
3	Shoreline and Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-scrub/shrub			Muccianti, Marcus Bauer, Chris
4/15/2011	09:07																	42.34136	-85.24102		Wronka, Hans
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Bauer, Chris
4/15/2011	09:24																	42.34193	-85.24151		Wronka, Hans
5	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub			Muccianti, Marcus Bauer, Chris
4/15/2011	09:48																	42.34290	-85.24245		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 19.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COVERED DEBRIS AND BRANCHES	Johnson, Rex / Washburn, Bruce
4/19/2011	09:31																	42.34216	-85.24059		Kytta, Ken
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND BRANCHES	Johnson, Rex / Washburn, Bruce
4/19/2011	09:44																	42.34251	-85.24091		Kytta, Ken
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND BRANCHES	Johnson, Rex / Washburn, Bruce
4/19/2011	09:52																	42.34276	-85.24108		Kytta, Ken
4	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED TREES AND DEBRIS; TREE RINGS	Johnson, Rex / Washburn, Bruce
4/19/2011	10:18																	42.34379	-85.24343		Kytta, Ken

Photo Logs

Field Photographs MP 19.25 – MP 19.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 19.25 – MP 19.50

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001

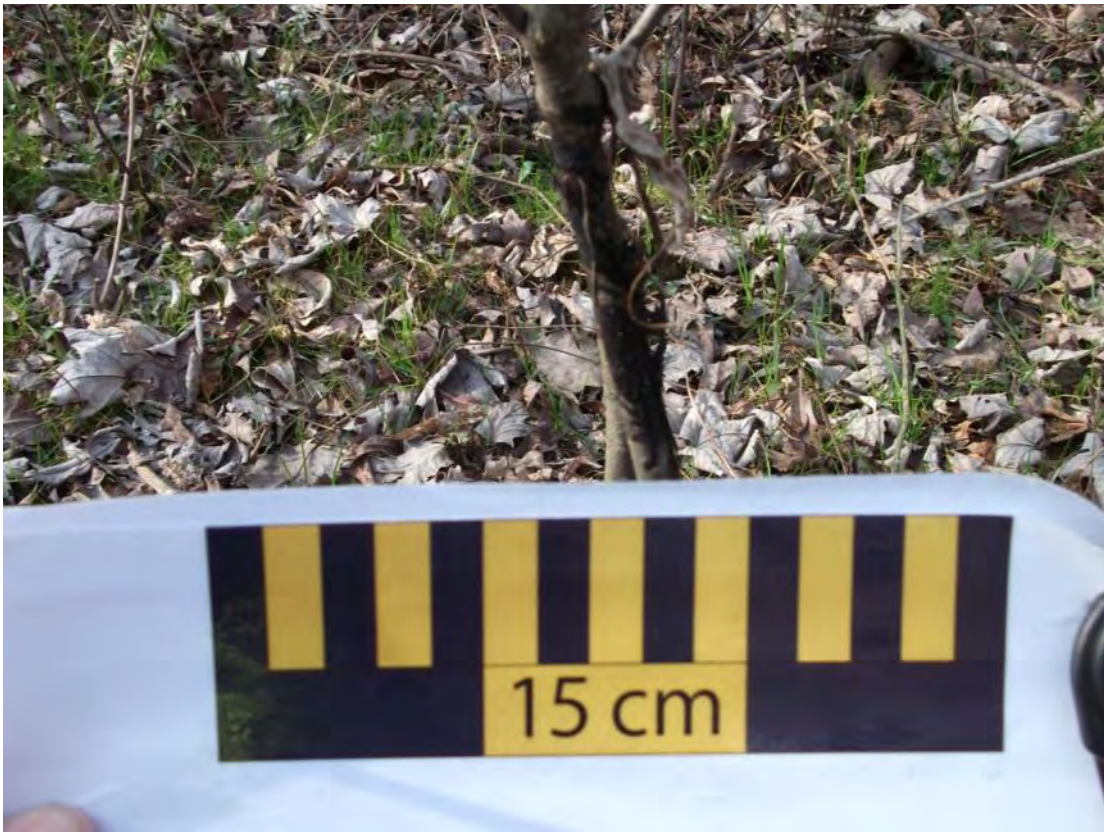


Field Photographs MP 19.25 – MP 19.50

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001

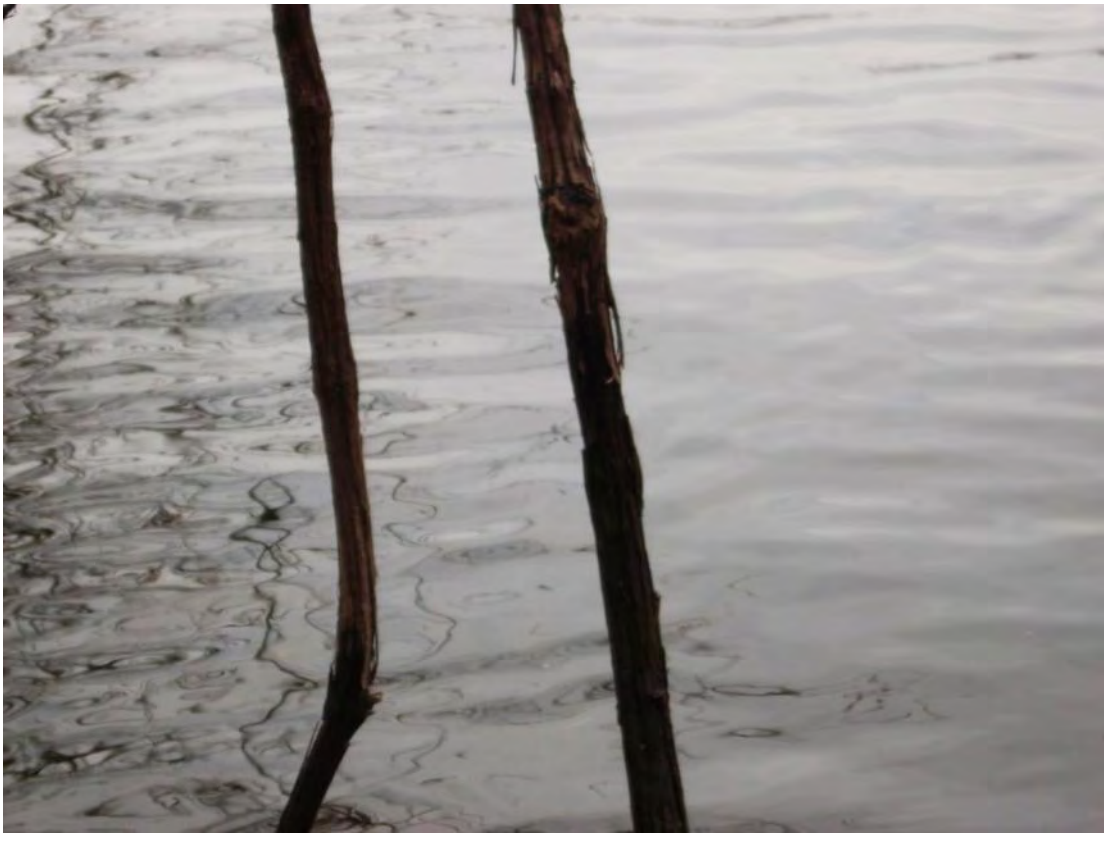


Field Photographs MP 19.25 – MP 19.50

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 19.25 – MP 19.50

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 19.25 – MP 19.50

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 19.25 – MP 19.50

RDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 9.25 to MP 19.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/6/2011 Date
John Powell	Printed Name	
Michelle Delong	MDEQ	6/6/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/6/2014 Date
Dan Basham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.25 to MP 19.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/15/11	Date
Marcus Mulligan	Printed Name		
[signature]	MDEQ	4-15-11	Date
James Gamble	Printed Name	4-15-11	
Chris Bauer Chris Bauer			
[signature]	Enbridge	4-15-11	Date
Hans Weonker	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.25 to MP 19.50, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/19/11 Date

Rex Johnson Printed Name

_____ MDEQ — 4/19/11 Date

Bruce S. Washburn Printed Name

_____ Enbridge — 4/19/11 Date

KEN KITTA Printed Name

Segment 19.50 – 19.75

MP 19.50 to MP 19.75

The LDB of segment 19.75 consists of a forested wetland swamp along the shoreline. The reassessment identified one point and one linear transect. Traces of surface oil residue coated and/or stained the ground surface at both locations. Traces of stained and coated debris were identified along Linear Transect 2 LDB.

The RDB of segment 19.75 consists of a low vegetated bank along the shoreline. The reassessment identified three linear transects. Trace to sporadic distributions of oil and tar, which stained and coated debris and/or trunks and stems, were identified at all locations, as well as overhanging vegetation at Linear Transect 3 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

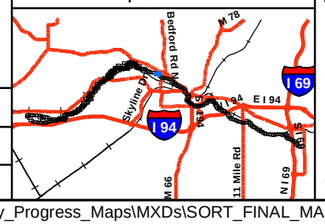
Segment Figures



ENBRIDGE

Drawn:	DP	6/6/2011
Approved:	PS	6/6/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Final Inundation Model

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP19.50-MP19.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 19.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/15/2011	10:32																	42.34335	-85.24666		Wronka, Hans
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/15/2011	10:43																	42.34388	-85.24831		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 19.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		TAR COATED VEGETATION	Johnson, Rex / Washburn, Bruce / Kytta, Ken
4/19/2011	10:31																	42.34377	-85.24383		
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATED STEMS AND CEMENT DEBRIS	Johnson, Rex / Washburn, Bruce / Kytta, Ken
4/19/2011	10:49																	42.34380	-85.24521		
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND OVERHANGING VEGETATION	Johnson, Rex / Washburn, Bruce / Kytta, Ken
4/19/2011	11:46																	42.34426	-85.24723		

Photo Logs

Field Photographs MP 19.50 – MP 19.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 19.50 – MP 19.75

RDB Zone ID 1, Photo 001

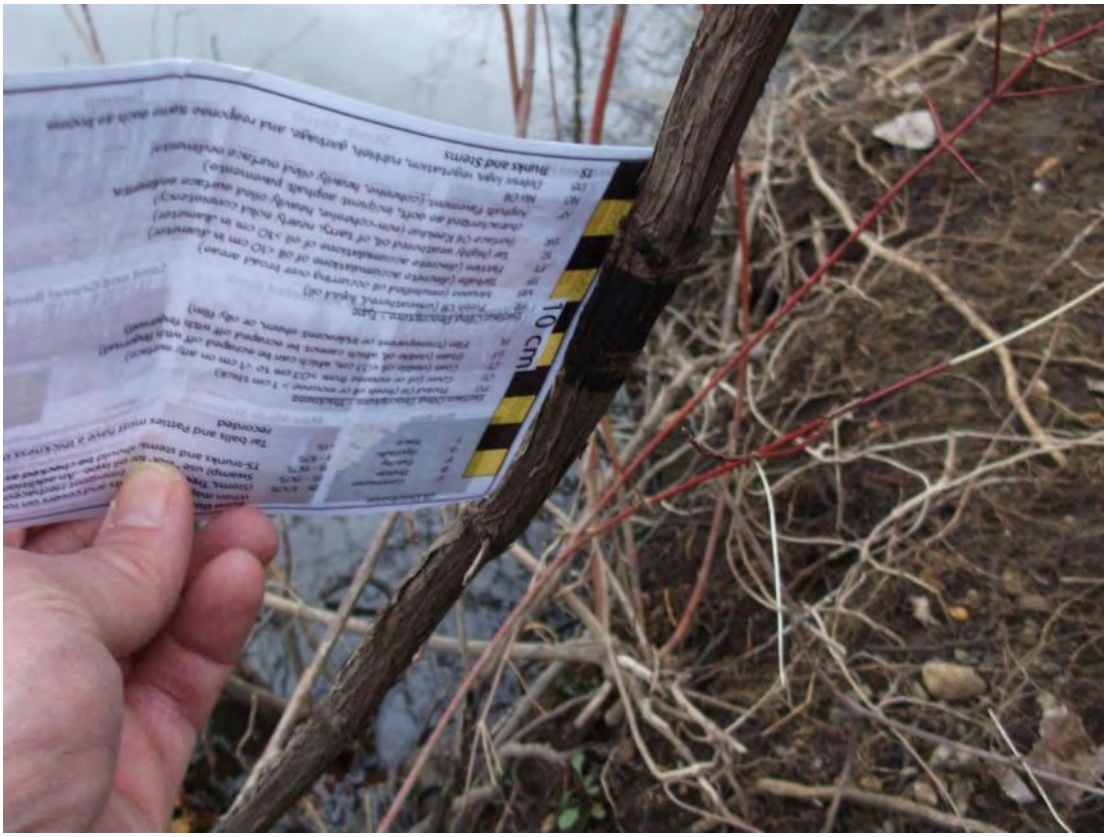


RDB Zone ID 1, Photo 002



Field Photographs MP 19.50 – MP 19.75

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 19.50 – MP 19.75

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 19.5 to MP 19.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	GAB	Enbridge [initials]
SOTF	START	[initials]	MDEQ	GAB	Enbridge [initials]
PI	START	[initials]	MDEQ	GAB	Enbridge [initials]
FLS	START	[initials]	MDEQ	GAB	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/6/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/6/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/6/2011 Date

Dave Barnhem Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.5 to MP 19.75, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/15/11	Date
Marcus Murciano	Printed Name		
James Gamble	MDEQ	4-15-11	Date
James Gamble	Printed Name	4.15 11	
[signature]	Enbridge	4-15-11	Date
Hans Wronka	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 1950 to MP 1975, Bank or Island: 608, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/19/11 Date

Rex Johnson Printed Name

_____ MDEQ — 4/19/11 Date

Bruce J Washburn Printed Name

_____ Enbridge — 4/19/11 Date

KEN KYTTA Printed Name

Segment 19.75 – 20.00

MP 19.75 to MP 20.00

The LDB of segment 20.00 consists of forested wetland swamp with back channels present in the overbank. The reassessment identified one point and two linear transects. In general, traces of surface oil residue coated and stained the ground surface at all locations. Oil coated and stained debris at Linear Transect 2 LDB and Point 3 LDB was documented.

Poling of the back channel on the LDB within this segment was completed at three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 20.00 consists of a low vegetated bank. A small tributary flows into the river near the beginning of the segment. The reassessment identified one point and three linear transects. In general, trace to sporadic distributions of oil and tar, which stained and coated debris, trunks, stems and overhanging branches were documented at the areas.

Poling of the tributary on the RDB within this segment was completed at three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

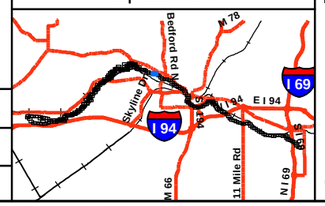
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP19.75-MP20.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 20																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus / Bauer, Chris
4/15/2011	11:10																	42.34421	-85.24927		Wronka, Hans
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus / Bauer, Chris
4/15/2011	11:29																	42.34482	-85.25165		Wronka, Hans
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus / Bauer, Chris
4/15/2011	11:32																	42.34486	-85.25191		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 20																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR COATED DEBRIS AND BRANCHES	Johnson, Rex / Washburn, Bruce
4/19/2011	12:15																	42.34477	-85.24872		Kytta, Ken
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank		TAR COATED OVERHANGING BRANCHES	Johnson, Rex / Washburn, Bruce
4/19/2011	12:21																	42.34487	-85.24910		Kytta, Ken
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND BRANCHES	Johnson, Rex / Washburn, Bruce
4/19/2011	12:57																	42.34536	-85.25027		Kytta, Ken
4	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED DEBRIS AND VEGETATION	Johnson, Rex / Washburn, Bruce
4/19/2011	13:30																	42.34565	-85.25253		Kytta, Ken

Photo Logs

Field Photographs MP 19.75 – MP 20.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 19.75 – MP 20.00

LDB Zone ID 3, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 19.75 – MP 20.00

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 19.75 – MP 20.00

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 19.75 – MP 20.00

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 19.75 to MP 20.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MCD	Enbridge
SOTF	START		MDEQ	MCD	Enbridge
PI	START		MDEQ	MCD	Enbridge
FLS	START		MDEQ	MCD	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

MDEQ — 6/7/11 Date

Michelle DeLong Printed Name

Enbridge — 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.75 to MP 20.00 Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/15/11	Date
Marcus Morgan	Printed Name		
James Gamble	MDEQ	4-15-11	Date
James Gamble	Printed Name	4-15-11	
Chris Bauer			
[signature]	Enbridge	4-15-11	Date
Hans Wronker	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.75 to MP 20.00, Bank or Island: LDB1, Segment Length: 0.25 mile

MP 20.00 LDB1 Polygon Reassessment

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	6/5/2011 Date
Gregory D. Wagner	Printed Name	
Craig Oakley	MDEQ	6-5-11 Date
Craig Oakley	Printed Name	
[signature]	Enbridge	6-5-11 Date
John W. Juntilla	Printed Name	

3 poling Points Identified

No Oil Observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.75 to MP 20.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/19/11 — Date

Rex Johnson — Printed Name

Bruce J Washburn — MDEQ — 4/19/11 — Date

Bruce J Washburn — Printed Name

[signature] — Enbridge — 4/19/11 — Date

KEN KYTTA — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 19.75 to MP 20.00, Bank or Island: RDB 1, Segment Length: 0.25 mile

MP 20 RDB 1 Culvert/Drainage Ditch

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 6/5/2011 Date

Gregory D. Wagner Printed Name

Craig Oakley MDEQ — 6-5-11 Date

Craig Oakley Printed Name

[signature] Enbridge — 6-5-11 Date

John W. Juntilla Printed Name

3 Poling Points

No O.Y observed

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Addendum to the Shoreline and Overbank Reassessment
MP 0.00 through MP 40.00
and
Submerged Oil Reassessment
MP 0.00 through MP 37.8
Report

(Binder 5 of 7)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: August 12, 2011

Segment 20.00 – 20.25

MP 20.00 to MP 20.25

The LDB of segment 20.25 consists of forested wetland swamp on the shoreline and within the overbank. The reassessment, done partially from the boat, identified one point and one polygon. In general, traces of surface oil residue coated and stained the ground surface at both locations. Oil coated and stained debris was identified at Polygon 1 LDB.

The RDB of segment 20.25 consists of a low vegetated bank. The reassessment identified one linear transect toward the end of the segment. In general, trace distributions of oil and tar, which stained or coated debris, trunks (including tree rings) and stems, were documented at the Linear Transect 1 RDB.

Two islands are located within segment 20.25 and consist of low vegetated banks. The reassessment identified one polygon on the eastern portion of the largest island and one polygon over almost the entire area of the smaller island. In general, sporadic distributions of oil and tar coated and stained debris, trunks and stems were observed on both islands. One PI observation was identified in this segment on the small island. The observation was noted as an Unconfirmed Area of Interest and corresponds to a known area of oil occurrence.

The FLS did not detect any oil signatures in this segment.

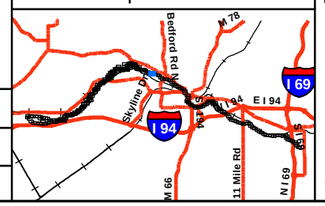
The attachments provide additional details on this segment.

Segment Figures



Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP20.00-MP20.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 20.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)	
4/15/2011	13:16																	42.34491 / -85.25348	
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	observations from boat
4/15/2011	13:29																	42.34532 / -85.25647	

START	
MDEQ	
Enbridge Team Lead	
Muccianti, Marcus	
Bauer, Chris	
Wronka, Hans	
Muccianti, Marcus	
Bauer, Chris	
Wronka, Hans	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 20.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED VEGETATION; TREE RINGS	**Enbridge Team Lead**
																					Johnson, Rex
																					Washburn, Bruce
4/19/2011	14:22																	42.34587	-85.25542		Kytta, Ken

2011 Reassessment

Bank: I		Oil Thickness					Oil Character													
Mile Marker: 20.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		TAR COATED VEGETATION ON ISLAND	Johnson, Rex / Washburn, Bruce
4/19/2011	13:58																	42.34520	-85.25463		Kytta, Ken
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Low Vegetated Bank		TAR COATED VEGETATION ON ISLAND	Johnson, Rex / Washburn, Bruce
4/19/2011	14:09																	42.34534	-85.25626		Kytta, Ken

Photo Logs

Field Photographs MP 20.00 – MP 20.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 20.00 – MP 20.25

RDB Zone ID 1, Photo 001



I Zone ID 1, Photo 001



Field Photographs MP 20.00 – MP 20.25

I Zone ID 1, Photo 002



I Zone ID 2, Photo 001



Field Photographs MP 20.00 – MP 20.25

I Zone ID 2, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 20.0 to MP 20.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MCD	Enbridge	[signature]
SOTF	START	[signature]	MDEQ	MCD	Enbridge	[signature]
PI	START	[signature]	MDEQ	MCD	Enbridge	[signature]
FLS	START	[signature]	MDEQ	MCD	Enbridge	[signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

Michelle DeLong MDEQ 6/7/11 Date

Michelle DeLong Printed Name

[signature] Enbridge 6/7/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.00 to MP 20.25, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/15/11	Date
Marcus Mulliana	Printed Name		
James Gamble	MDEQ	4-15-11	Date
James Gamble	Printed Name	4 15 11	
Chris Bauer Chris Bauer			
[signature]	Enbridge	4-15-11	Date
Hans Wrotka	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.00 to MP 20.25, Bank ~~of~~ AND Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/19/11 — Date

Rex Johnson — Printed Name

Bruce J Wadsworth — MDEQ — 4/19/11 — Date

Bruce J Washburn — Printed Name

[signature] — Enbridge — 4/19/11 — Date

KEN KITZKE — Printed Name

Segment 20.25 – 20.50

MP 20.25 to MP 20.50

The LDB of segment 20.50 consists of forested wetland swamp along the shoreline. A back channel that extends for half the segment and flows into segment 20.75 is located approximately 150 feet off the river. The reassessment identified two points and four linear transects along the river, and two points along the back channel. In general, trace to sporadic distributions of surface oil residue coated and stained the ground surface at all locations. Traces of oil coated and stained debris were identified at Linear Transects 2 LDB, 3 LDB and 4 LDB. A trace and sporadic oil film was identified on ponded water within the back channel at Points 6 LDB and 8 LDB, respectively.

Poling of the back channel on the LDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 20.50 consists of a low vegetated bank. The reassessment identified one linear transect that basically extends the length of the segment. A meander scar and ponded water are present in the overbank. In general, trace distributions of oil and tar, which stained or coated debris, trunks (including tree rings) and stems, were documented throughout the linear transect.

Poling of the ponded water on the RDB within this segment was completed at three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP20.25-MP20.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 20.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	09:24																	42.34541	-85.25880		Wronka, Hans
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	09:33																	42.34544	-85.25932		Wronka, Hans
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	09:42																	42.34535	-85.26001		Wronka, Hans
4	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	09:56																	42.34567	-85.26105		Wronka, Hans
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	10:06																	42.34585	-85.26164		Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 20.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Other (comments)	possible film. unable to determine. no other signs	Muccianti, Marcus Fairchild, Katie
4/19/2011	10:12																	42.34541 / -85.26169		Wronka, Hans
8	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Other (comments)	pooled creek bed	Muccianti, Marcus Fairchild, Katie
4/19/2011	10:24																	42.34583 / -85.26276		Wronka, Hans
9	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Muccianti, Marcus Fairchild, Katie
4/19/2011	10:29																	42.34612 / -85.26235		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 20.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED VEGETATION; STAINED TREE RINGS	Johnson, Rex
																					Washburn, Bruce
4/19/2011	15:15																	42.34681	-85.26196		Kytta, Ken

Photo Logs

Field Photographs MP 20.25 – MP 20.50

LDB Zone ID 1, Photo 001

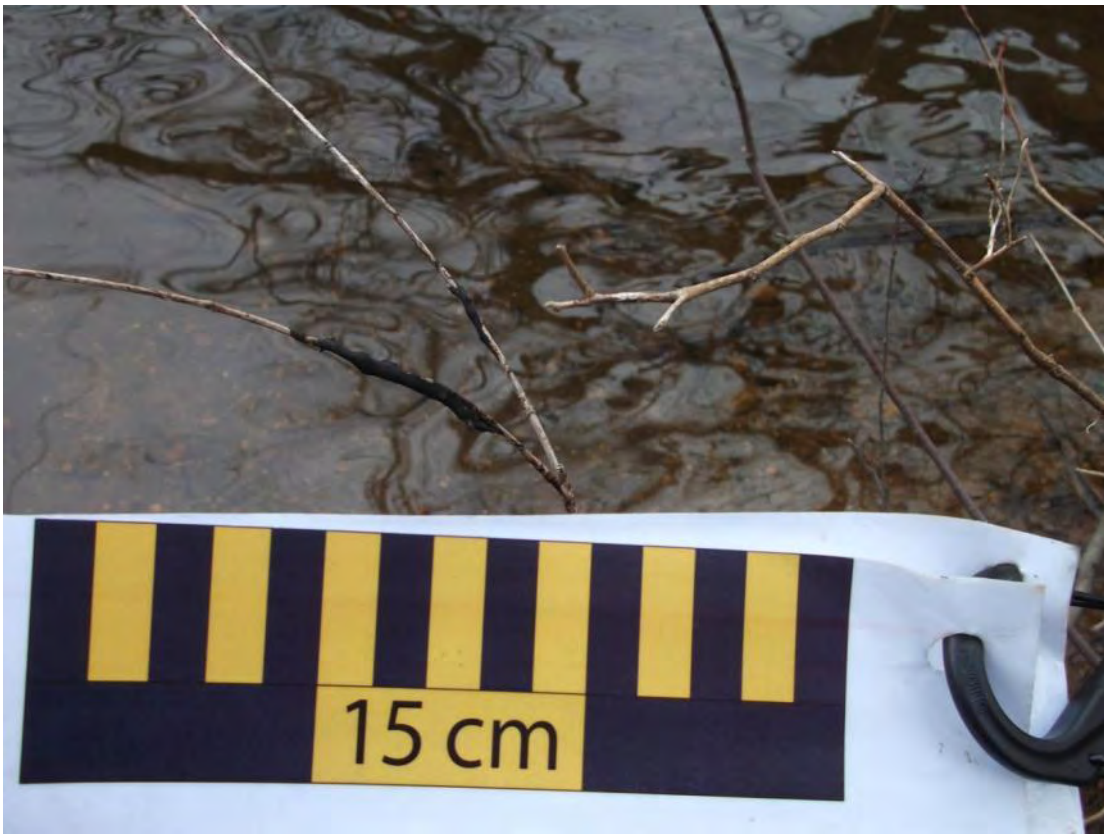


LDB Zone ID 2, Photo 001



Field Photographs MP 20.25 – MP 20.50

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001

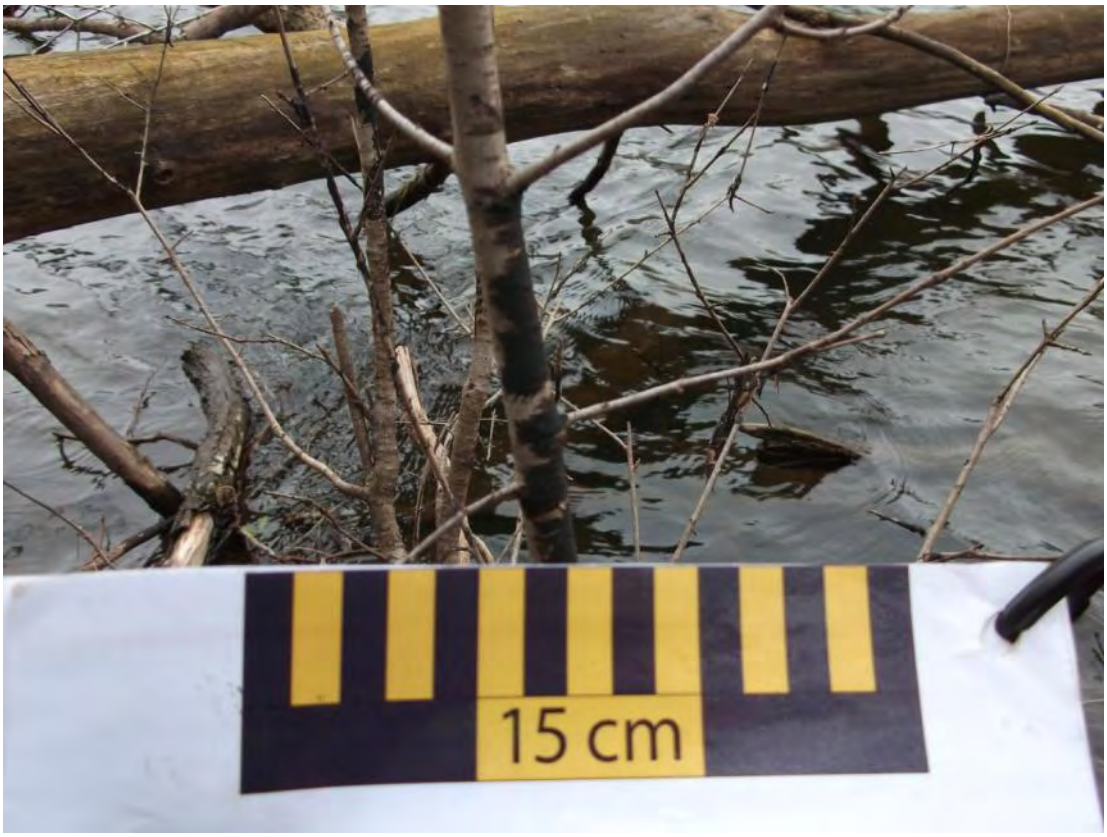


Field Photographs MP 20.25 – MP 20.50

LDB Zone ID 5, Photo 001

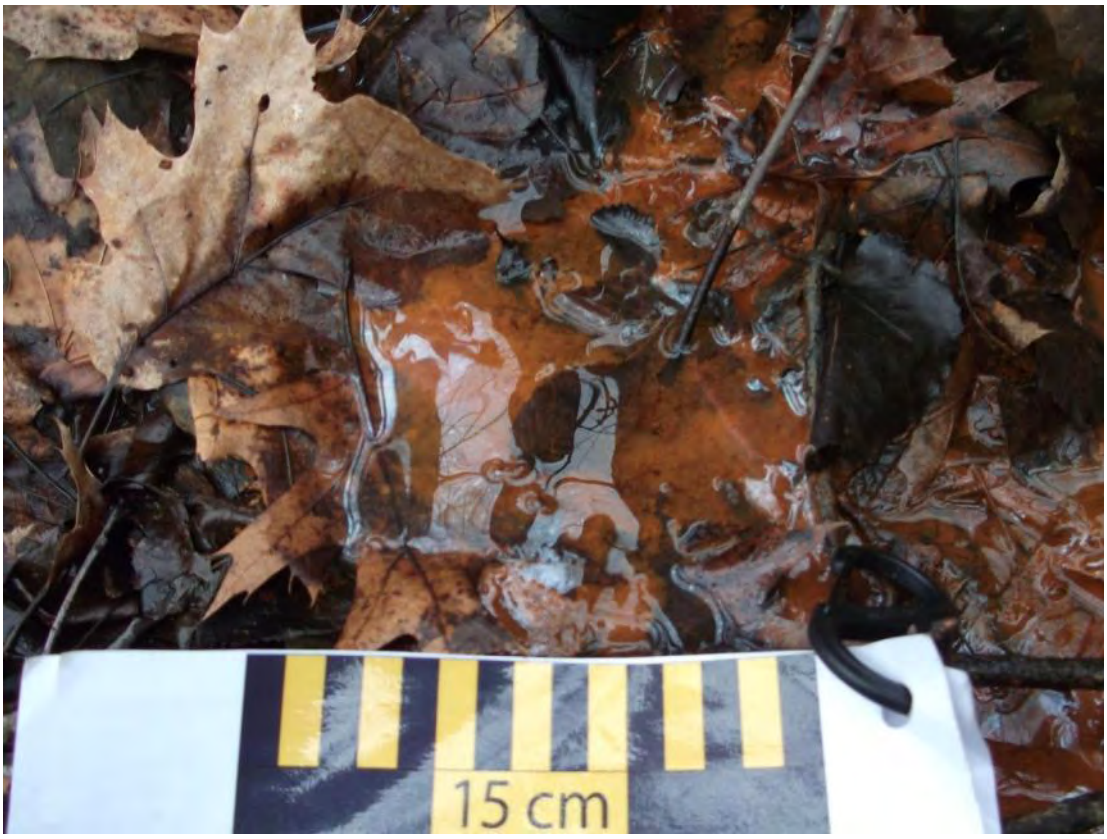


LDB Zone ID 5, Photo 002



Field Photographs MP 20.25 – MP 20.50

LDB Zone ID 6, Photo 001



LDB Zone ID 8, Photo 001



Field Photographs MP 20.25 – MP 20.50

LDB Zone ID 9, Photo 001



LDB Zone ID 9, Photo 002



Field Photographs MP 20.25 – MP 20.50

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 20.25 to MP 20.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	GAB	Enbridge
SOTF	START	JDP	MDEQ	GAB	Enbridge
PI	START	JDP	MDEQ	GAB	Enbridge
FLS	START	JDP	MDEQ	GAB	Enbridge
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Follow up w/ poling re: light green slight sheen observation – petroleum vs. organic sheen?	6/8/2011

Completeness Check Acknowledged

John Darrell	START	6/8/2011 Date
John Darrell	Printed Name	
Michelle DeLong	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
Dave Barcham	Enbridge	6/8/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.25 to MP 20.50, Bank or Island: ROS, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/19/11 — Date

Rex Johnson — Printed Name

Bruce J Wahlburn — MDEQ — 4/19/11 — Date

Bruce J Wahlburn — Printed Name

[signature] — Enbridge — 4/19/11 — Date

KEN KOTH — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.25 to MP 20.50, Bank or Island: RDB 1, Segment Length: 0.25 mile

20.50 RDB 1 Polygon Reassessment

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 6/5/2011 Date

Gregory D. Wagner Printed Name

Craig Oakley MDEQ — 6-5-11 Date

Craig Oakley Printed Name

[signature] Enbridge — 6-5-11 Date

John W. Juntilla Printed Name

3 Poling Points Logged

No Oil Observed

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.25 to MP 20.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/19/11 Date

Marcus Mucciani Printed Name

Kathleen Fairchild MDEQ — 4-19-11 Date

Kat Fairchild Printed Name

[signature] Enbridge — 4-19-11 Date

Hans Wronker Printed Name

9 Zones Identified

Segment 20.50 – 20.75

MP 20.50 to MP 20.75

The LDB of segment 20.75 consists of forested wetland swamp along the shoreline of the river and back channel flowing from segment 20.50, and maintained land along the LDB of the back channel that leads from a waste water treatment plant. The reassessment identified one point along the shoreline of the river (Point 1 LDB) and one point at the bank of the back channel (Point 2 LDB). Trace surface oil residue and staining of the ground surface was observed at Point 1 LDB. Surface oil residue on the ground surface and a film on ponded water were observed downgradient of the waste water treatment plant at Point 2 LDB.

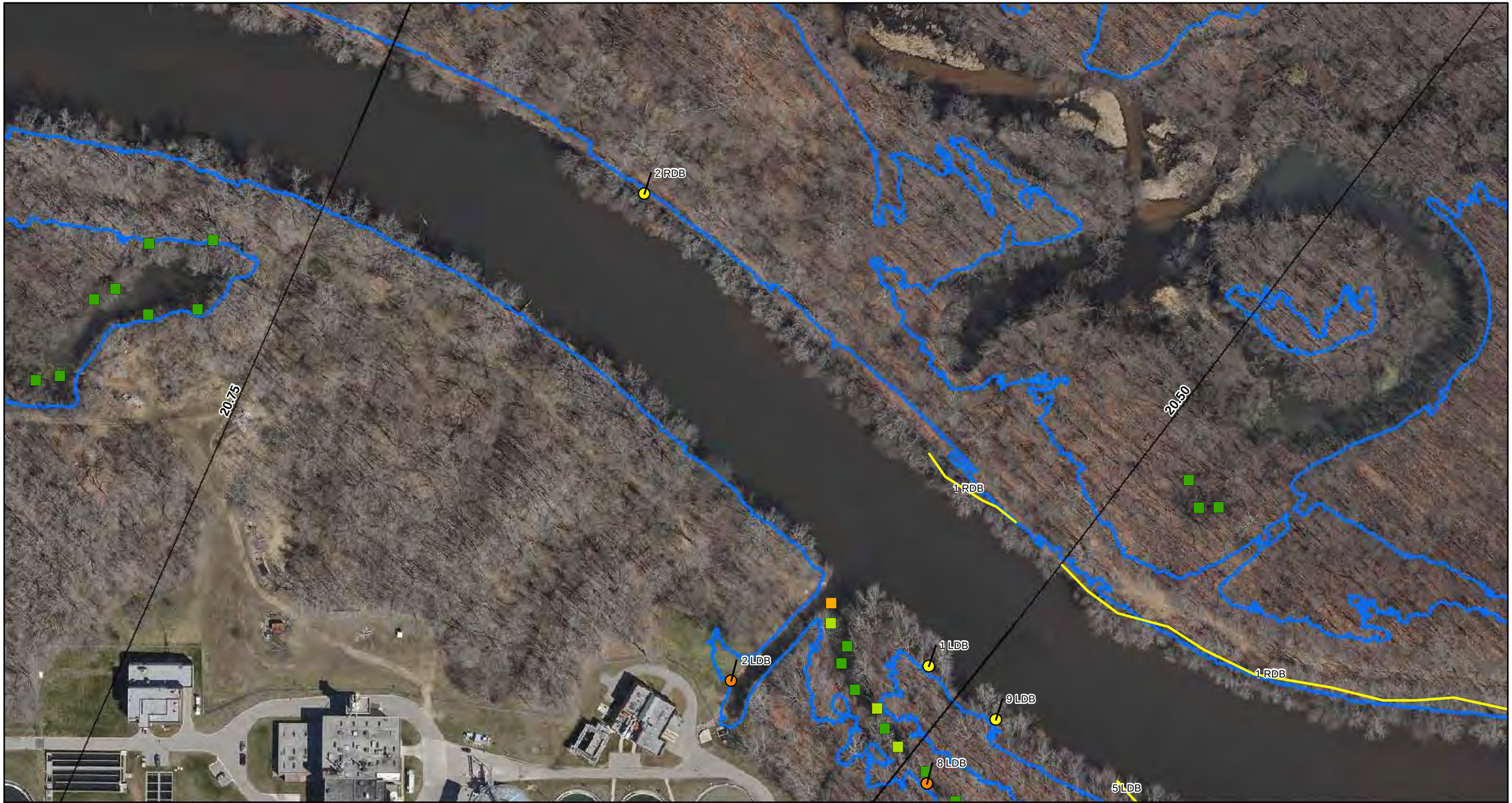
Poling of the back channel on the LDB within this segment was completed at eight locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 20.75 consists of a low vegetated bank. The reassessment identified one point and one linear transect. In general, trace distributions of oil coated and stained debris, vegetation, and trunks (including tree rings) and stems were identified along the shoreline at Linear Transect 1 RDB. Tar coated trunks, stems and branches were observed at Point 2 RDB located on the shoreline.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

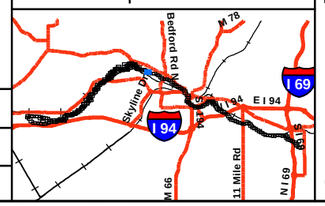
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP20.50-MP20.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 20.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	10:38																	42.34637	-85.26275		Wronka, Hans
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Other (comments)		next to sewage treatment plant	Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	10:57																	42.34628	-85.26391		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 20.75

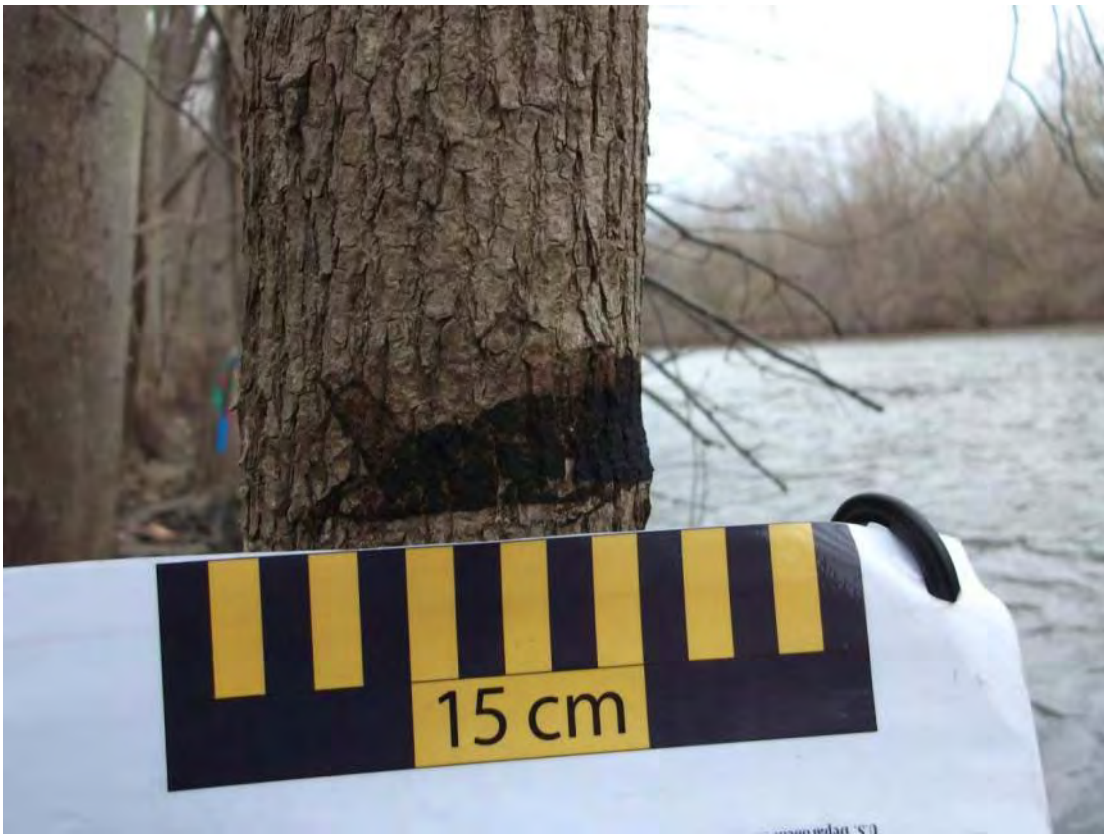
Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR COATED VEGETATION; STAINED TREE RINGS	Johnson, Rex
																					Washburn, Bruce
4/19/2011	15:30																	42.34741	-85.26292		Kytta, Ken
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Low Vegetated Bank		TAR COATED BRANCH	Johnson, Rex
																					Washburn, Bruce
4/19/2011	15:53																	42.34843	-85.26444		Kytta, Ken

Photo Logs

Field Photographs MP 20.50 – MP 20.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 20.50 – MP 20.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 20.50 – MP 20.75

RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 20.5 to MP 20.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

Michelle Delong — MDEQ — 6/7/11 Date

Michelle Delong Printed Name

Dave Bal — Enbridge — 6/7/2011 Date

Dave Barham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.50 to MP 20.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson START — 4/19/11 Date

Rex Johnson Printed Name

Bruce J Washburn MDEQ — 4/19/11 Date

Bruce J Washburn Printed Name

Enbridge — 4/19/11 Date

KEN KNITT Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.50 to MP 20.75, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/19/11 Date

Marcus Mueller Printed Name

_____ MDEQ 4-19-11 Date

Kathleen Fairchild Printed Name

_____ Enbridge 4-19-11 Date

Hans Wilson Printed Name

2 ZONES IDENTIFIED

Segment 20.75 – 21.00

MP 20.75 to MP 21.00

The LDB of segment 21.00 consists of forested wetland swamp along the shoreline. A back channel is present in the segment. The reassessment identified two points on the LDB. Trace distributions of stained trunks and stems were documented at both locations.

Poling of the back channel on the LDB within this segment was completed at eight locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 21.00 consists of forested wetland swamp along the shoreline. A back channel is present in the segment. The reassessment did not identify any evidence of surface oil in the segment. A PI observation noted as an Unconfirmed Area of Interest was identified in the back channel on the RDB approximately 100 feet down from the beginning of the segment.

Poling of the back channel on the RDB within this segment was completed at eleven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment.

The attachments provide additional details on this segment.

Segment Figures

21.00

20.75

2 LDB

1 LDB

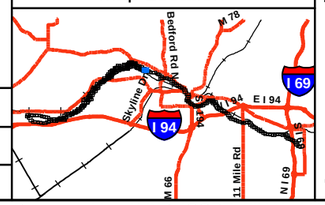
1LDB

2 RDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP20.75-MP21.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character															
Mile Marker: 21																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**	
																					MDEQ	
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**	
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna	
																					Goddard, Matt	
4/21/2011	09:41																	42.34818	-85.26989		VanLoan, Mike	
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna	
																					Goddard, Matt	
4/21/2011	10:23																	42.34873	-85.27066		VanLoan, Mike	

Photo Logs

Field Photographs MP 20.75 – MP 21.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 20.75 to MP 21.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ		Enbridge

Action Items

	Action Item Description	Date Resolved
(1)	Discuss backwater on LDB with team lead to ensure assessment was completed as indicated.	May 27/11

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.75 to MP 21.0, Bank or Island: LDIS, Segment Length: 0.25 mile

2 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/21/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 4/21/11 Date

Matt Cauldwell Printed Name

[signature] Enbridge — 4/21/2011 Date

Michael Van Loan Printed Name

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.75 to MP 21.00, Bank or Island: LDB 1, Segment Length: 0.25 mile

MP 21.00 LDB 1 Polygon

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 6/6/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ 6-6-11 Date

Craig Oakley Printed Name

[signature] Enbridge 6-6-11 Date

John W. Juntilla Printed Name

8 Poling Points

1 Polygon Identifying Poling Area

No O.I observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.75 to MP 21.00, Bank or (Island): _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson _____ START — 05/9/2011 Date

Kevin Johnson _____ Printed Name

_____ MDEQ — 5/9/11 Date

Ryan P. Blazic _____ Printed Name

_____ Enbridge — 9 May 11 Date

Derek Senn _____ Printed Name

Note: Only assessed the small area of the island that was in segment 21.00. No oil observed.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 20.75 to MP 21.00 (Bank) or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 05/9/2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/19/11 Date

Ryan D. Blazic Printed Name

[signature] Enbridge — May 11 Date

Derek Senn Printed Name

Note: Two polygons of standing water were mapped as unassessable.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 20.75 to MP 21.00, Unique ID 1, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/13/11 — Date

THOMAS P. GRAAN — Printed Name

William Keiper — MDEQ — 5-13-11 — Date

Printed Name

Enbridge — 5/13/11 — Date

Nate Hehir — Printed Name

- Polling data recorded by Yuma

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 20.75 to MP 21.00, Unique ID 2, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/13/11 — Date

THOMAS P. GRAAN — Printed Name

William Keiper — MDEQ — 5-13-11 — Date

Printed Name

Enbridge — 5/13/11 — Date

Nate Hehir — Printed Name

- Polling data recorded by Yuma.

Segment 21.00 – 21.25

MP 21.00 to MP 21.25

The LDB of segment 21.25 consists of a low vegetated bank. The reassessment identified two points along the LBD shoreline of the river. Trace oil staining on trunks and stems was identified at both locations. A film on ponded water was also documented at Point 2 LDB.

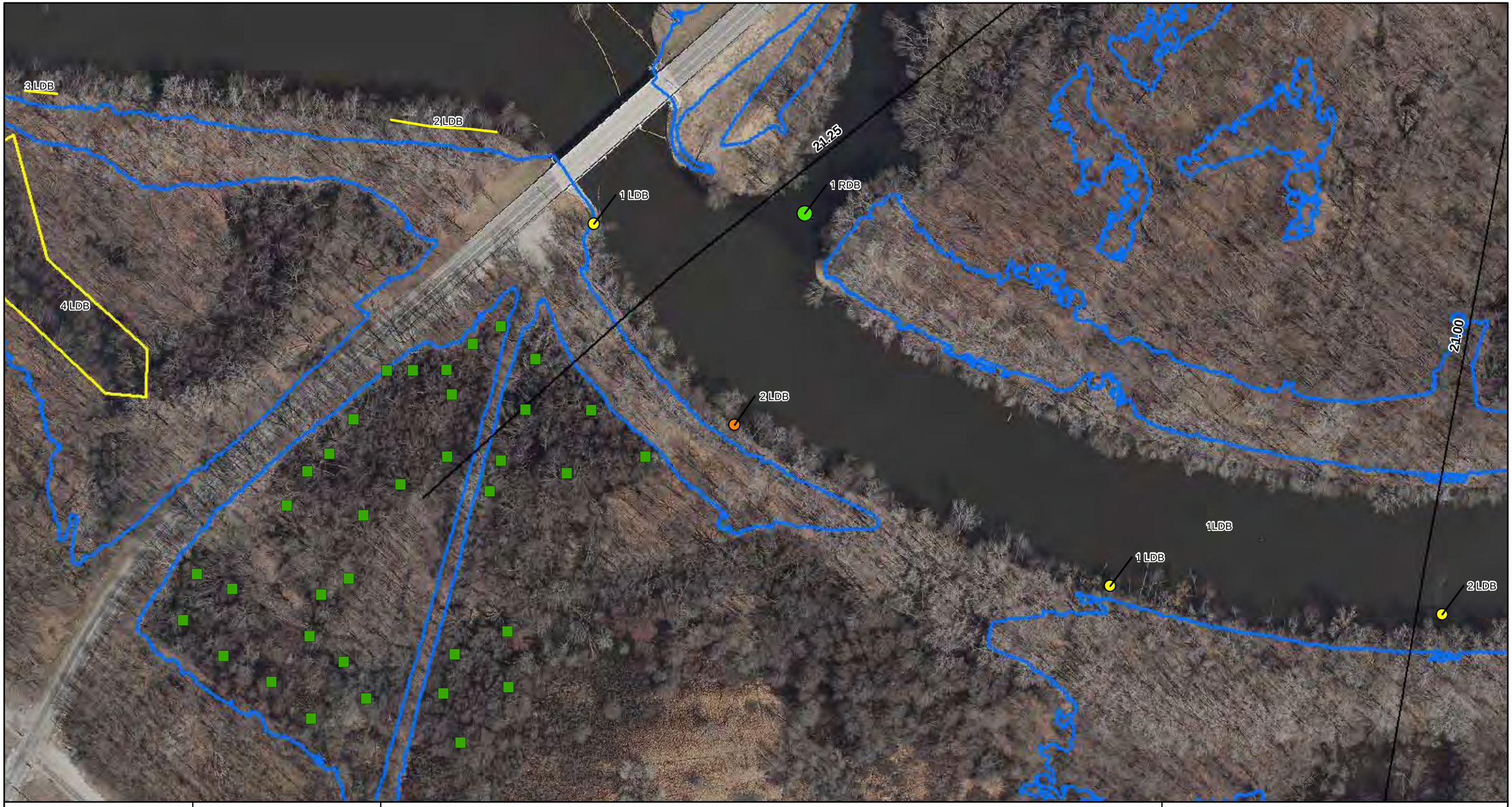
Poling in the overbank on the LDB within this segment was completed at nineteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 21.25 consists of a low vegetated bank and an oxbow lake that extends from segment 21.00 into segment 21.50 and then enters the river at the 21.25 segment line. The reassessment did not identify surface oil in the RDB of this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

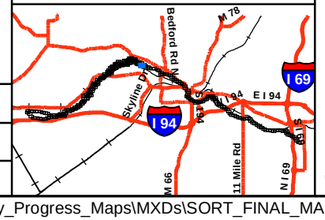
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.00-MP21.25 Left Bank West

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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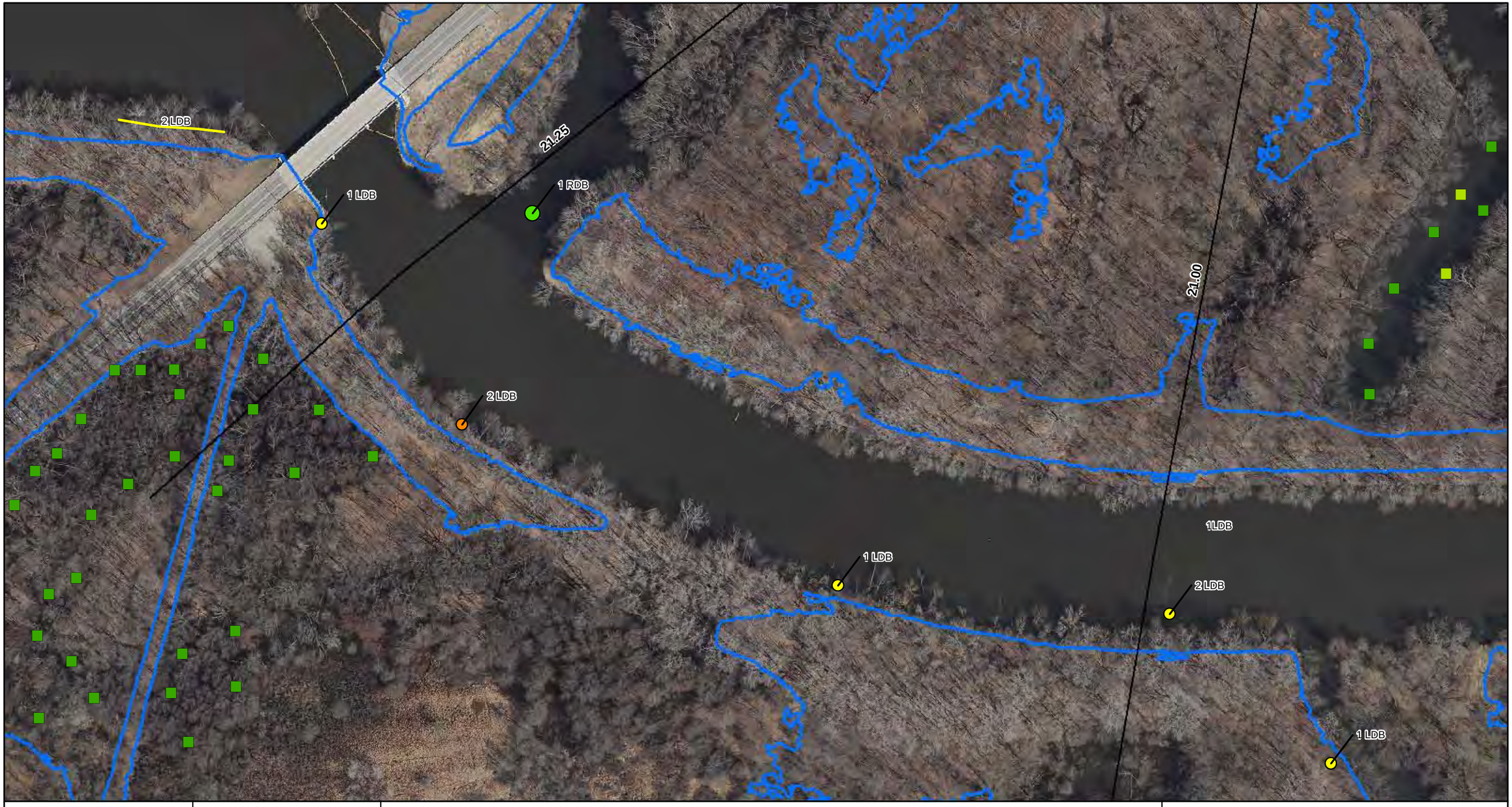
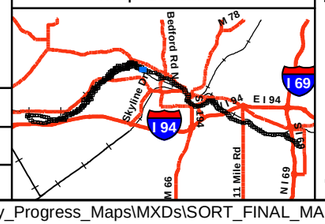
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.00-MP21.25 Left Bank East

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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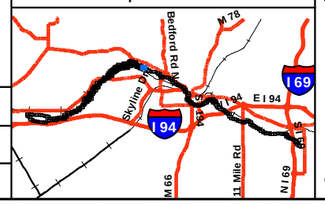
Aerial Photography Date: April 2011



Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.00-MP21.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 21.25																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna
																					Goddard, Matt
4/21/2011	10:30																	42.34892	-85.27283		VanLoan, Mike
2	Shoreline	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna
																					Goddard, Matt
4/21/2011	10:51																	42.34958	-85.27504		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 21.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Low Vegetated Bank	
5/9/2011	13:02																	42.35068	-85.27494

Comments	**START**
	MDEQ
	Enbridge Team Lead
	Johnson, Kevin
	Blazic, Ryan
	Senn, Derreck

Photo Logs

Field Photographs MP 21.00 – MP 21.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 21.00 – MP 21.25

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 21.0 to MP 21.25; Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	GAB	Enbridge
SOTF	START	JDP	MDEQ	GAB	Enbridge
PI	START	JDP	MDEQ	GAB	Enbridge
FLS	START	JDP	MDEQ	GAB	Enbridge
Inundation Model	START	JDP	MDEQ	MJD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/10/2011 — Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/10/11 — Date

Michelle DeLong — Printed Name

Dan Bk — Enbridge — 6/10/2011 — Date

Dave Barham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.0 to MP 21.25, Bank or Island: LDB, Segment Length: 0.25 mile

2 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

Shawna Marie Ross Printed Name

_____ MDEQ 4/21/11 Date

Matt Goddard Printed Name

_____ Enbridge 4/21/2011 Date

Michael Van Loon Printed Name

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.00 to MP 21.25 Bank or Island: LDBZ Segment Length: 0.25 mile

MP 21.25 LBDZ Polygon

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	6/7/2011 Date
Gregory D. Wegner	Printed Name	
Craig Oakley	MDEQ	6-7-11 Date
Craig Oakley	Printed Name	
[signature]	Enbridge	7 June 11 Date
Brad Senn	Printed Name	

This sign off covers the whole polygon located in parcel 45-0-483. This polygon is in segments 21.25 and 21.50, but is mostly in 21.25.

24 Polys were completed in this polygon.

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.00 to MP 21.25 Bank or Island: LDB Segment Length: 0.25 mile

MP-21.25 LDB-2 Polygon

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 6/9/2011 Date

Gregory D. Wagner Printed Name

Craig Oakley MDEQ 6-9-11 Date

Craig Oakley Printed Name

[signature] Enbridge 9 June 11 Date

Derek Senn Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.00 to MP 21.25, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 05/9/2011 Date

Kevin Johnson — Printed Name

[signature] — MDEQ — 5/9/11 Date

Ryan N. Blazic — Printed Name

[signature] — Enbridge — 9 May 11 Date

Derek Senn — Printed Name

Note: No oil was observed in segment.

Segment 21.25 – 21.50

MP 21.25 to MP 21.50

The LDB of segment 21.50 is bisected by Custer Drive approximately 200 feet west of the beginning of the segment at MP 21.25. A back channel is present that extends along Custer Drive and flows into the river at MP 21.50. The LDB of segment 21.50 consists of a low vegetated bank along the shoreline of the river and a forested wetland swamp along the back channel. The reassessment identified one point, one polygon and two linear transects. Trace distributions of stained trunks and stems were identified at all locations. Trace occurrences of coated and stained debris and/or trunks and stems were also identified at Linear Transect 2 LDB.

Poling of a back channel on the LDB within this segment was completed at eighteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 21.50 is bisected by Custer Drive approximately 200 feet west of the beginning of the segment at MP 21.25. A meander loop has created an island on the RDB and several back channels are present that flow into the meander loop or river. The RDB of segment 21.50 consists of maintained land along Custer Drive which transitions to a forested wetland swamp around the perimeter of the meander. The island is considered to have a low vegetated bank along the shoreline. The reassessment identified two polygons and one linear transect along the RDB and three points on the island. A sporadic distribution of oil coated and covered tree trunks were identified at Polygon 1 RDB. Trace film was identified on the river along the meander loop shoreline at Linear Transect 2 RDB. Tar coated and stained stems and stockpile debris were identified at Polygon 6 RDB. Trace occurrences of coated trunks and stems were identified on the island at Points 3 RDB and 5 RDB. A film was identified along approximately 20 feet of shoreline at Point 4 RDB.

Poling of a back channel on the RDB within this segment was completed at twenty-five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

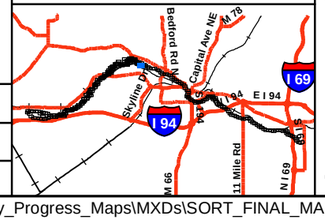
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.25-MP21.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP21.25-MP21.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 21.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	4/21/2011	10:58	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	42.35048	-85.27590		Ross, Shauna Goddard, Matt VanLoan, Mike
2	Shoreline	4/21/2011	11:11	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank	42.35090	-85.27704		Ross, Shauna Goddard, Matt VanLoan, Mike
3	Shoreline	4/21/2011	11:25	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	42.35102	-85.27930		Ross, Shauna Goddard, Matt VanLoan, Mike
4	Shoreline and Overbank	4/21/2011	12:09	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35070	-85.27991		Ross, Shauna Goddard, Matt VanLoan, Mike

2011 Reassessment

Bank: RDB

Mile Marker: 21.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Lawn (maintained land)		6 TREE TRUNKS	Johnson, Kevin
																					Blazic, Ryan
5/9/2011	14:08																	42.35223	-85.27523		Senn, Derreck
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Other (comments)		SPOTTY SHEEN ON THE WATER NOTHING OBSERVED ON THE VEGETATION OR BANK	Johnson, Kevin
																					Blazic, Ryan
5/9/2011	14:44																	42.35184	-85.27839		Senn, Derreck
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Johnson, Kevin
																					Blazic, Ryan
5/9/2011	15:02																	42.35257	-85.27707		Senn, Derreck
4	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		~20FT OF SHORELINE	Johnson, Kevin
																					Blazic, Ryan
5/9/2011	15:17																	42.35150	-85.27588		Senn, Derreck
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Johnson, Kevin
																					Blazic, Ryan
5/9/2011	15:24																	42.35161	-85.27646		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 21.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
																					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
6	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED STEMS AND PILED DEBRIS	Hadwin, Eric
																					Washburn, Bruce
5/18/2011	13:07																	42.35181	-85.27877		Kytta, Ken

Photo Logs

Field Photographs MP 21.25 – MP 21.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 21.25 – MP 21.50

LDB Zone ID 2, Photo 002



LDB Zone ID 3, Photo 001



Field Photographs MP 21.25 – MP 21.50

LDB Zone ID 4, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 21.25 – MP 21.50

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 21.25 – MP 21.50

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 21.25 – MP 21.50

RDB Zone ID 2, Photo 004



RDB Zone ID 3, Photo 001



Field Photographs MP 21.25 – MP 21.50

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 21.25 – MP 21.50

RDB Zone ID 6, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 21.25 to MP 21.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ		Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Bareham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.25 to MP 21.5, Bank or Island: LDB, Segment Length: 0.25 mile

4 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/21/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 4/21/11 Date

Matt Goddard Printed Name

[signature] Enbridge — 4-21-2011 Date

Michael Van Loon Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 2125 to MP 2150, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/9/11 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/9/11 Date

Ryan D Blazic Printed Name

[signature] Enbridge — 9 May 11 Date

Derek Senn Printed Name

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.25 to MP 21.50, Bank or Island: RDB1, Segment Length: 0.25 mile

MP 21.50 RDB1 Polygon

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Gregory D. Wagner	START	6/6/2011 Date
Gregory D. Wagner	Printed Name	
Craig Oakley	MDEQ	6-6-11 Date
Craig Oakley	Printed Name	
John W. Juntilla	Enbridge	6-6-11 Date
John W. Juntilla	Printed Name	

3 Poling locations

No oil observed

Sheen observed surrounding Island

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.25 to MP 21.50, Bank or (Island): _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/9/11 Date

Kevin Johnson Printed Name

_____ MDEQ — 5/9/11 Date

Ryan D. Blaic Printed Name

_____ Enbridge — 9 May 11 Date

Derek Sean Printed Name

Segment 21.50 – 21.75

MP 21.50 to MP 21.75

The LDB of segment 21.75 consists of a low vegetated bank along the shoreline and within the overbank. The reassessment did not identify any evidence of oil occurrences on the LDB in this segment.

The RDB of segment 21.75 consists of forested wetland swamp at the shoreline and within the overbank. An oxbow lake is present within the overbank of the RDB as well as meandering back channels that flow into the oxbow lake or into the river. The reassessment identified five points, six polygons and three linear transects. Trace distributions of oil coated and/or oil stained debris, trunks and stems were documented at all locations.

Poling of the oxbow lake and back channels on the RDB within this segment was completed at thirty-four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One island, located in the center of the river and characterized as a forested wetland swamp, is located in the segment. The reassessment identified a polygon over most of the island and a point within the polygon. Traces of oil coated debris, trunks and stems were identified within Polygon 2 I. A sporadic distribution of tar patties was documented at Point 1 I, located within Polygon 2 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

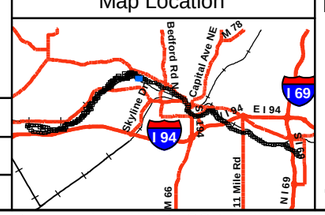
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.50-MP21.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

14 RDB
17 RDB
12 RDB
25 RDB
10 RDB
23 RDB
24 RDB
14 RDB
22.00
16 RDB
15 RDB
17 RDB
18 RDB
13 RDB
11
21.75
8 RDB
7 RDB
10 RDB
12 RDB
6 RDB
14 RDB
21.50
2 RDB
3 RDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

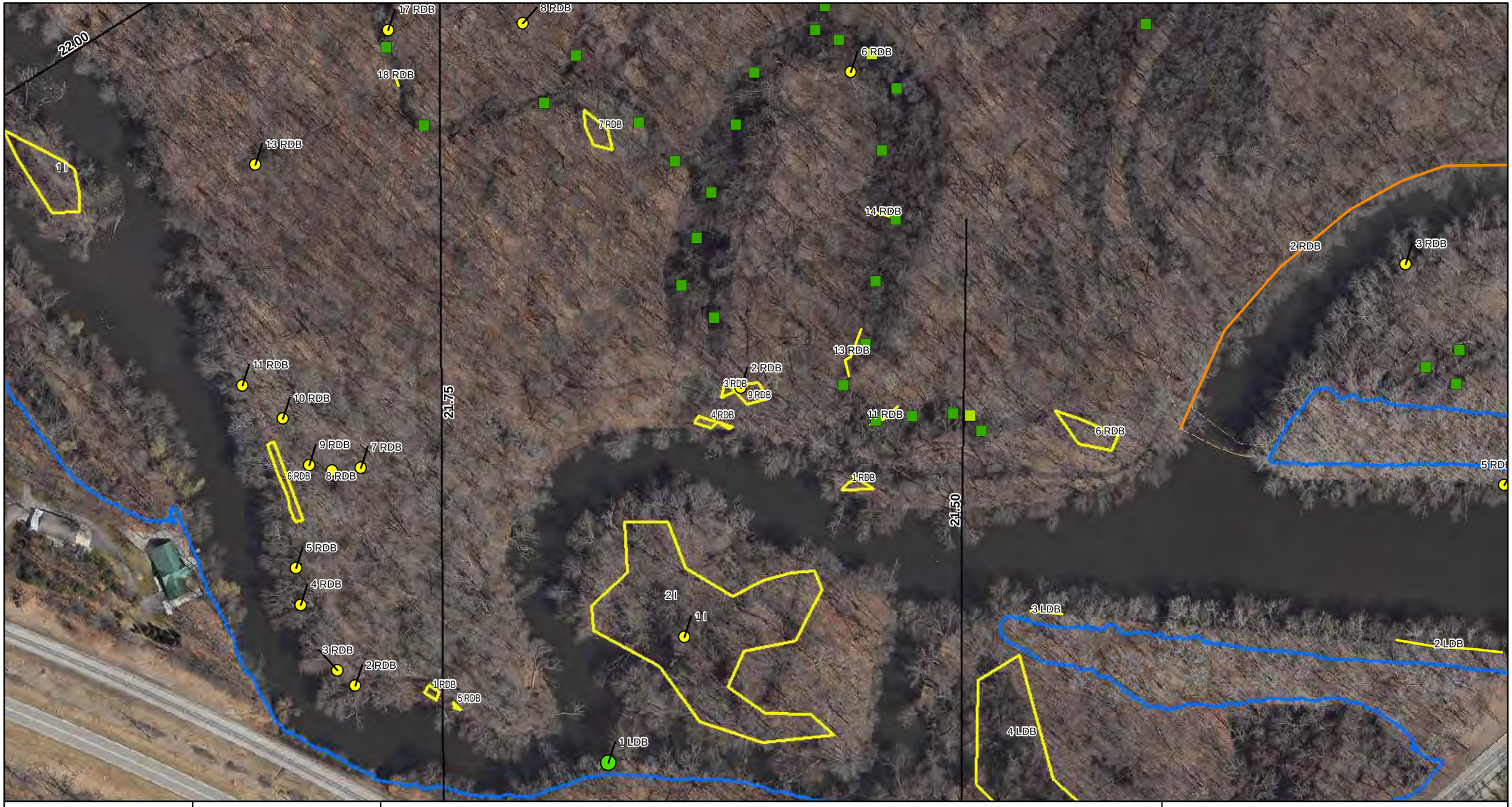
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.50-MP21.75 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

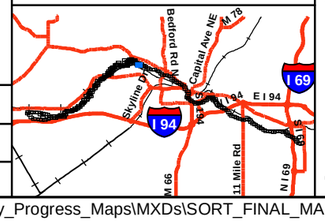
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.50-MP21.75 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 21.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Low Vegetated Bank	
4/21/2011	12:41																	42.35033	-85.28175

Comments	**START**
	MDEQ
	Enbridge Team Lead
no product found	Ross, Shauna
	Goddard, Matt
	VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 21.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin / Blazic, Ryan
5/9/2011	15:47																	42.35156 / -85.28035		Senn, Derreck
10	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	TAR COATED STEM	Hadwin, Eric / Washburn, Bruce
5/18/2011	11:47																	42.35422 / -85.28051		Kytta, Ken
11	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	TAR COATED AND STAINED TREES AND DEBRIS	Hadwin, Eric / Washburn, Bruce
5/17/2011	16:06																	42.35189 / -85.28010		Kytta, Ken
12	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	TAR COATED/STAINED OVERHANGING BRANCHES	Hadwin, Eric / Washburn, Bruce
5/18/2011	12:01																	42.35414 / -85.28022		Kytta, Ken
13	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	TAR COATED AND STAINED STEMS	Hadwin, Eric / Washburn, Bruce
5/17/2011	16:16																	42.35214 / -85.28032		Kytta, Ken

2011 Reassessment

Bank: RDB

Mile Marker: 21.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character											Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
14	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		TREE RING AND TAR COATED STEMS	Hadwin, Eric
																					Washburn, Bruce
5/17/2011	16:28																	42.35278	-85.28025		Kytta, Ken
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Blazic, Ryan
5/9/2011	16:01																	42.35199	-85.28099		Senn, Derreck
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Blazic, Ryan
5/9/2011	16:06																	42.35198	-85.28112		Senn, Derreck
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Blazic, Ryan
5/9/2011	16:19																	42.35187	-85.28124		Senn, Derreck
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Blazic, Ryan
5/9/2011	16:43																	42.35059	-85.28267		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 21.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Wetland-swamp (forested)		TAR COATED DEBRIS	Hadwin, Eric / Washburn, Bruce
5/17/2011	16:38																	42.35339	-85.28035		Kytta, Ken
7	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED/STAINED STEMS AND DEBRIS	Hadwin, Eric / Washburn, Bruce
5/17/2011	14:44																	42.35311	-85.28169		Kytta, Ken
8	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)		TAR COATED AND STAINED DEBRIS; INCLUDES PICTURES OF FAWN - NOT OILED	Hadwin, Eric / Washburn, Bruce
5/18/2011	11:16																	42.35357	-85.28231		Kytta, Ken
9	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED STEMS AND DEBRIS	Hadwin, Eric / Washburn, Bruce
5/17/2011	15:11																	42.35191	-85.28096		Kytta, Ken

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 21.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	
5/10/2011	10:08																	42.35090 / -85.28131	
2	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	
5/10/2011	10:55																	42.35111 / -85.28051	

START
MDEQ
Enbridge Team Lead
Johnson, Kevin
Washburn, Bruce
Senn, Derreck
Johnson, Kevin
Washburn, Bruce
Senn, Derreck

Photo Logs

Field Photographs MP 21.50 – MP 21.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 8, Photo 001



RDB Zone ID 8, Photo 002



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 8, Photo 003



RDB Zone ID 9, Photo 001



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 9, Photo 002



RDB Zone ID 10, Photo 001



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 11, Photo 001



RDB Zone ID 12, Photo 001



Field Photographs MP 21.50 – MP 21.75

RDB Zone ID 13, Photo 001



RDB Zone ID 14, Photo 001



Field Photographs MP 21.50 – MP 21.75

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs MP 21.50 – MP 21.75

I Zone ID 2, Photo 002



I Zone ID 2, Photo 003



Field Photographs MP 21.50 – MP 21.75

I Zone ID 2, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 21.5 to MP 21.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

MDEQ — 6/7/11 Date

Michelle DeLong Printed Name

Enbridge — 6/7/2011 Date

Dave Barham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.5 to MP 21.75, Bank or Island: ~~Bank~~ OSB, Segment Length: 0.25 mile

0 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Pass — START — 4/21/2011 — Date

Shawna Marie Pass — Printed Name

Matt Goddard — MDEQ — 4/21/11 — Date

Matt Goddard — Printed Name

Michael Van Loon — Enbridge — 4.21.2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.50 to MP 21.75, (Bank) or Island: I, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/9/11 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/9/11 Date

Ryan D. Blazic Printed Name

[signature] Enbridge — 9 May 11 Date

Derek Senn Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.50 to MP 21.75, Bank or (Island): _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson _____ START — May 10 2011 Date

Kevin Johnson _____ Printed Name

Bruce Washburn _____ MDEQ — 5/10/11 Date

Bruce Washburn _____ Printed Name

_____ Enbridge — 10 May 11 Date

Derek Senn _____ Printed Name

Segment 21.75 – 22.00

MP 21.75 to MP 22.00

The LDB of segment 22.00 consists of a forested wetland swamp within the overbank and a back channel is present approximately 50 to 75 feet off of the river. The reassessment identified one polygon within the back channel. Trace distributions of oil stained trunks and stems were documented within the polygon.

The RDB of segment 22.00 consists of a forested wetland swamp along the shoreline and within the overbank. Back channels that flow into the river are present throughout the overbank. The reassessment identified oil occurrences at thirteen points, two polygons and one linear transect along the RDB. In general, oil or tar coated to stained trunks and stems were present in all areas. Tar coated and covered debris was also identified at Point 4 RDB.

Poling of the back channels on the RDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One island, located in the center of the river and characterized as a forested wetland swamp, is located in the segment. The reassessment identified a polygon on the island. A trace distribution of oil coated trunks and stems was identified within the Polygon 1 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

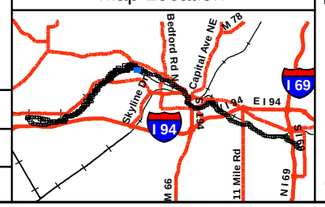
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

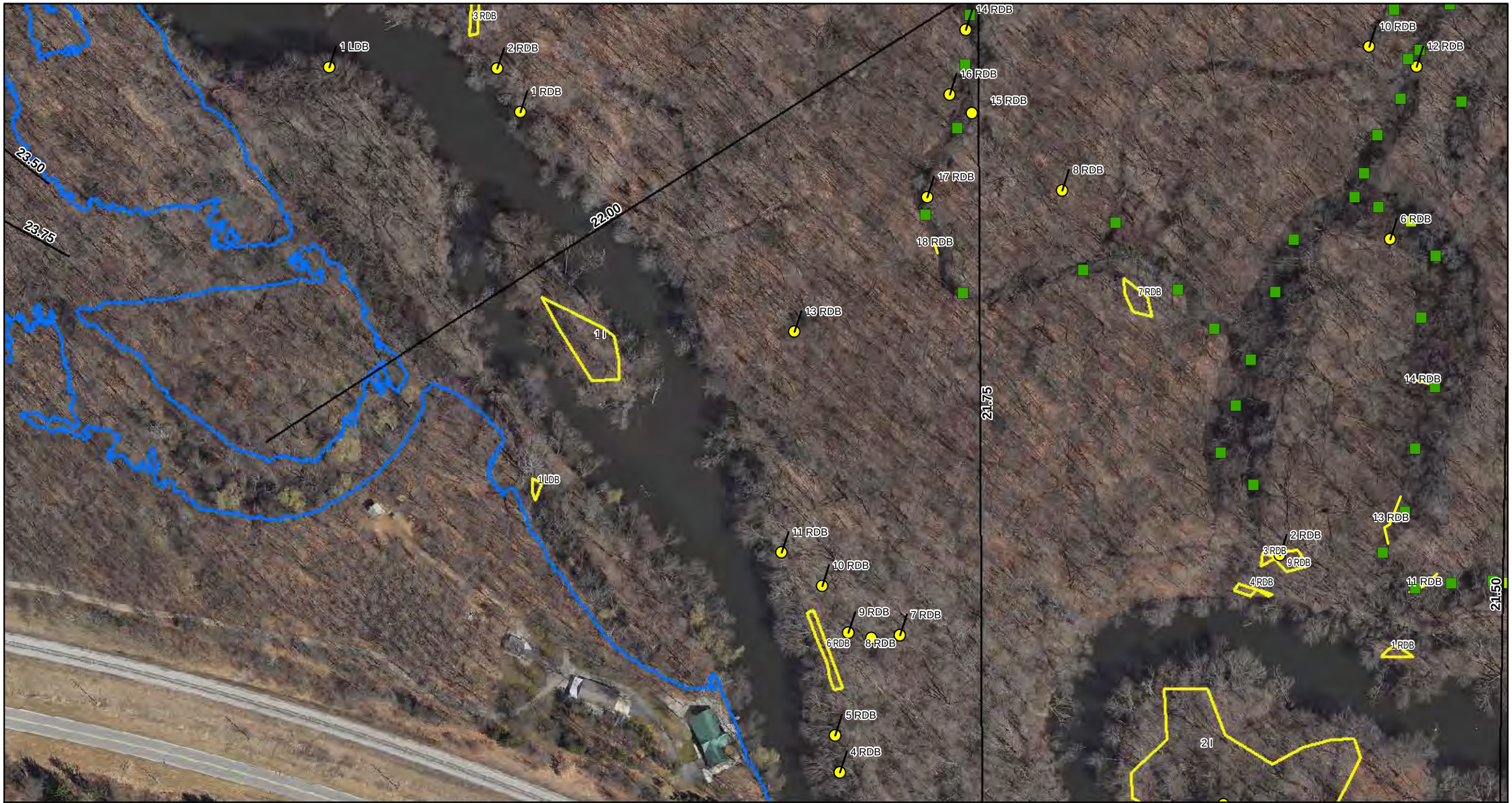
Scale in Feet

SORT ASSESSMENT
MP21.75-MP22.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

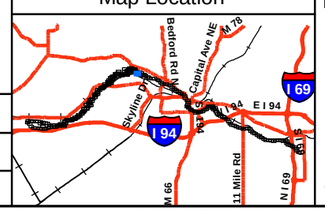
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP21.75-MP22.00 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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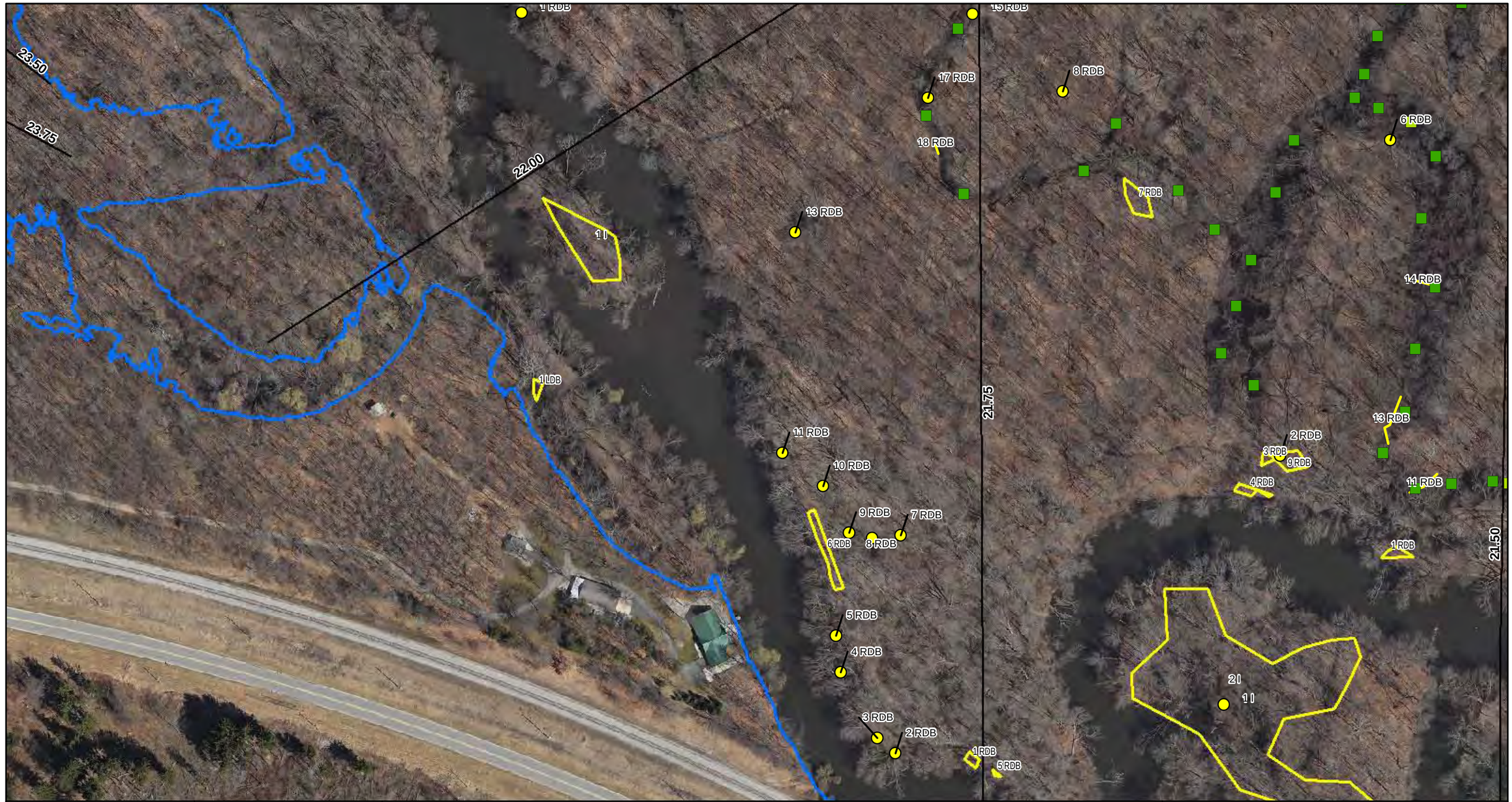
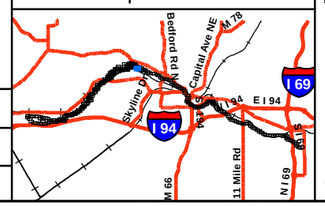
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP21.75-MP22.00 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 22																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/21/2011	13:09																	42.35232	-85.28538		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 22																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin	Blazic, Ryan
5/9/2011	16:49																	42.35065	-85.28283		Senn, Derreck	
10	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin	Blazic, Ryan
5/9/2011	17:37																	42.35185	-85.28370		Senn, Derreck	
11	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin	Blazic, Ryan
5/9/2011	17:40																	42.35198	-85.28393		Senn, Derreck	
13	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		poly 12: no impact observed	Graan, Tom	Keiper, Bill
5/13/2011	12:49																	42.35295	-85.28386		Hehir, Nate	
14	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		TAR COATED/STAINED STEM	Hadwin, Eric	Washburn, Bruce
5/17/2011	14:09																	42.35431	-85.28287		Kytta, Ken	

2011 Reassessment

Bank: RDB

Mile Marker: 22

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
15	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		TAR COATED STEM	Hadwin, Eric
																					Washburn, Bruce
5/18/2011	10:54																	42.35392	-85.28284		Kytta, Ken
16	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		ONE STAINED STEM	Hadwin, Eric
																					Washburn, Bruce
5/17/2011	14:16																	42.35405	-85.28293		Kytta, Ken
17	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		ONE (1) TAR COATED STEM	Hadwin, Eric
																					Washburn, Bruce
5/18/2011	10:59																	42.35355	-85.28309		Kytta, Ken
18	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		TAR COATED AND STAINED STEMS	Hadwin, Eric
																					Washburn, Bruce
5/17/2011	14:24																	42.35330	-85.28303		Kytta, Ken
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Blazic, Ryan
5/9/2011	16:55																	42.35067	-85.28325		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 22																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin / Blazic, Ryan
5/9/2011	16:57																	42.35074 / -85.28336		Senn, Derreck
4	Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		Johnson, Kevin / Blazic, Ryan
5/9/2011	17:00																	42.35102 / -85.28358		Senn, Derreck
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin / Blazic, Ryan
5/9/2011	17:03																	42.35118 / -85.28361		Senn, Derreck
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin / Blazic, Ryan
5/9/2011	17:18																	42.35174 / -85.28382		Senn, Derreck
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin / Blazic, Ryan
5/9/2011	17:28																	42.35162 / -85.28322		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 22																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	**START** / **MDEQ** / **Enbridge Team Lead**
8	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	Johnson, Kevin / Blazic, Ryan / Senn, Derreck
5/9/2011	17:31																	42.35161 / -85.28340	
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	Johnson, Kevin / Blazic, Ryan / Senn, Derreck
5/9/2011	17:32																	42.35164 / -85.28354	

2011 Reassessment

Bank: I	Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 22																			
Source: 2011 Reassessment																			
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**	**Comments**	**START**
Date / **Time**																	**Latitude** / **Longitude**		**MDEQ**
1 / Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin
																			Blazic, Ryan
5/9/2011 / 18:17																	42.35279 / -85.28496		Senn, Derreck

Photo Logs

Field Photographs MP 21. 75 – MP 22.00

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RDB Zone ID 4, Photo 002



RDB Zone ID 5, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 21. 75 – MP 22.00

RDB Zone ID 7, Photo 001



RDB Zone ID 8, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RDB Zone ID 9, Photo 001



RDB Zone ID 10, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RDB Zone ID 11, Photo 001



RDB Zone ID 13, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RBD Zone ID 14, Photo 001



RBD Zone ID 15, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RBD Zone ID 16, Photo 001



RBD Zone ID 17, Photo 001



Field Photographs MP 21. 75 – MP 22.00

RBD Zone ID 18, Photo 001



I Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 21.75 to MP 22.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MCD	Enbridge
SOTF	START		MDEQ	MCD	Enbridge
PI	START		MDEQ	MCD	Enbridge
FLS	START		MDEQ	MCD	Enbridge
Inundation Model	START		MDEQ	MCD	Enbridge JB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/9/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/9/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/9/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.75 to MP 22.00, Bank or (Island): _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/9/11 Date

Kevin Johnson Printed Name

_____ MDEQ — 5/9/11 Date

Ryan D. Blaric Printed Name

_____ Enbridge — 9 May 11 Date

Derek Senn Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.75 to MP 22.0 (Bank or Island: LDB), Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/21/2011 Date
Shawna Marie Ross	Printed Name	
[signature]	MDEQ	4/21/11 Date
Matt Caddell	Printed Name	
[signature]	Enbridge	4-21-2011 Date
Michael Van Laan	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.75 to MP 22.00 (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/9/11 Date

Kevin Johnson Printed Name

_____ MDEQ — 5/9/11 Date

Ryan D. Blaric Printed Name

_____ Enbridge — 9 May 11 Date

Derek Sean Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 21.75 to MP 22.00, Unique ID 12, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/13/11 — Date

THOMAS P. GRAAN — Printed Name

William Kreiger — MDEQ — 5/13/11 — Date

Printed Name

Nate Hehir — Enbridge — 5/13/11 — Date

Printed Name

– SORT INVESTIGATION

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 21.75 to MP 22.00, Unique ID RDS1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. COMPLETED OVER TWO DAYS, 6/6 & 6/7/11.

_____ START 6/7/11 Date

Erik Hawn Printed Name

_____ MDEQ 6/7/11 Date

MATT WESENER Printed Name

_____ Enbridge 6/7/11 Date

KEN KUTTA Printed Name

Segment 22.00 – 22.25

MP 22.00 to MP 22.25

The LDB of segment 22.25 consists of a forested wetland swamp along the shoreline and overbank which transitions to a low vegetated bank along the shoreline in the middle of the segment. The reassessment identified two points along the shoreline. A sporadic distribution of oil coated debris was documented at Point 1 LDB and a trace distribution of oil stained trunks and stems was documented at Point 2 LDB.

The RDB of segment 22.25 consists of a low vegetated bank along the shoreline and a forested wetland swamp within the overbank. Sand-gravel shoreline was observed at the end of the segment, across from an island. An oxbow lake is present within the overbank of the RDB as well as back channels that flow into the oxbow lake or into the river. The reassessment identified fourteen points, seven polygons and one linear transect. In general, tar coated to oil stained debris and/or trunks and stems were identified in all the areas. A sporadic distribution of oil covered debris was documented at Point 6 RDB.

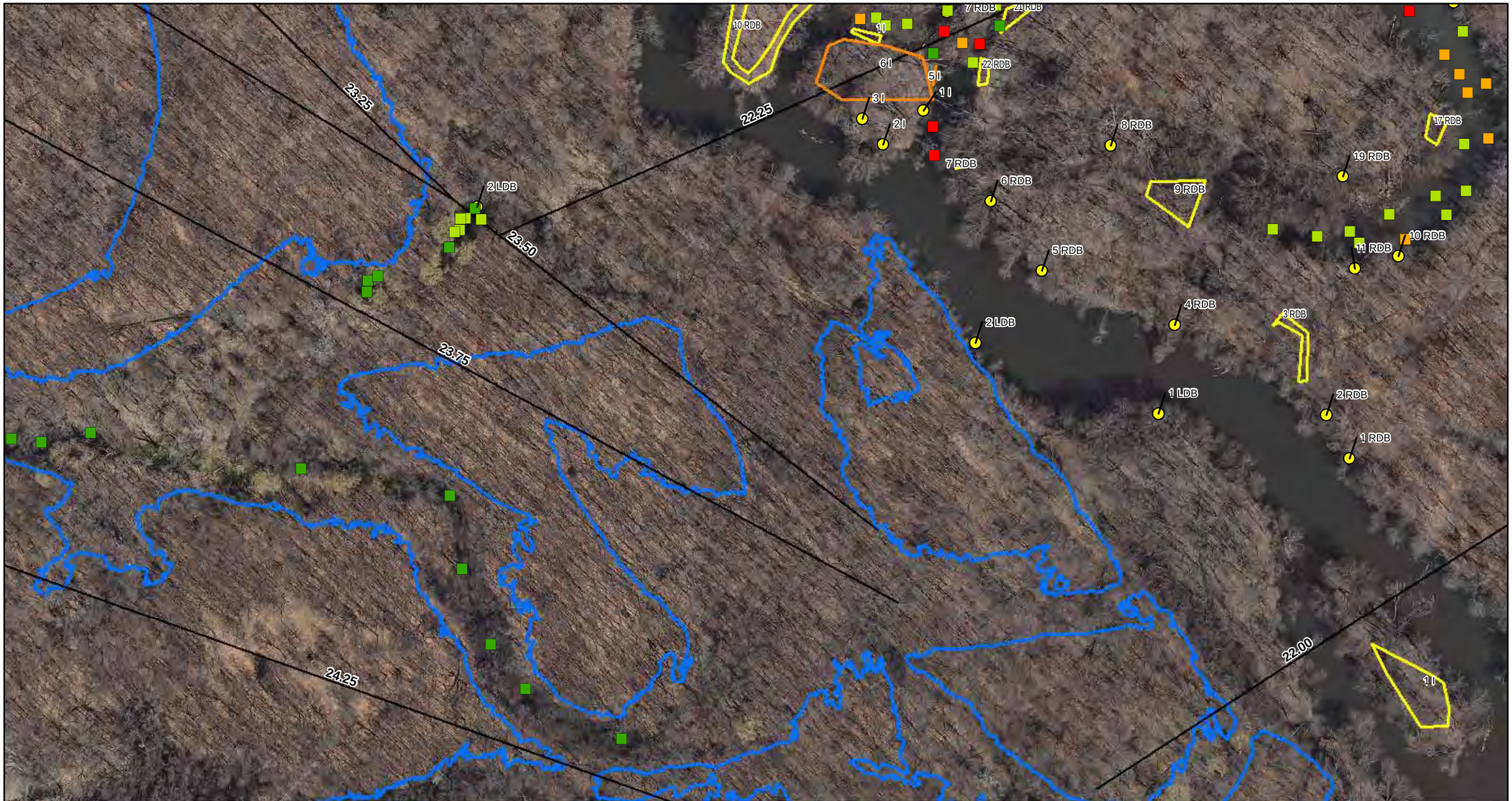
Poling of the oxbow lake and back channels on the RDB within this segment was completed at fifty-five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One island located along the RDB straddles MP 22.25 and is characterized as a low vegetated bank along the shoreline that transitions to a forested wetland swamp within the overbank. The reassessment identified three points, one polygon and one linear transect. A trace distribution of oil coated trunks and stems were identified at Points 1 I, 2 I and 3 I. Sporadic occurrences of tar balls that covered the ground surface and an oil film on ponded water were present at Polygon 6 I and Linear Transect 5 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

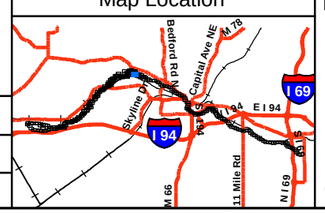
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

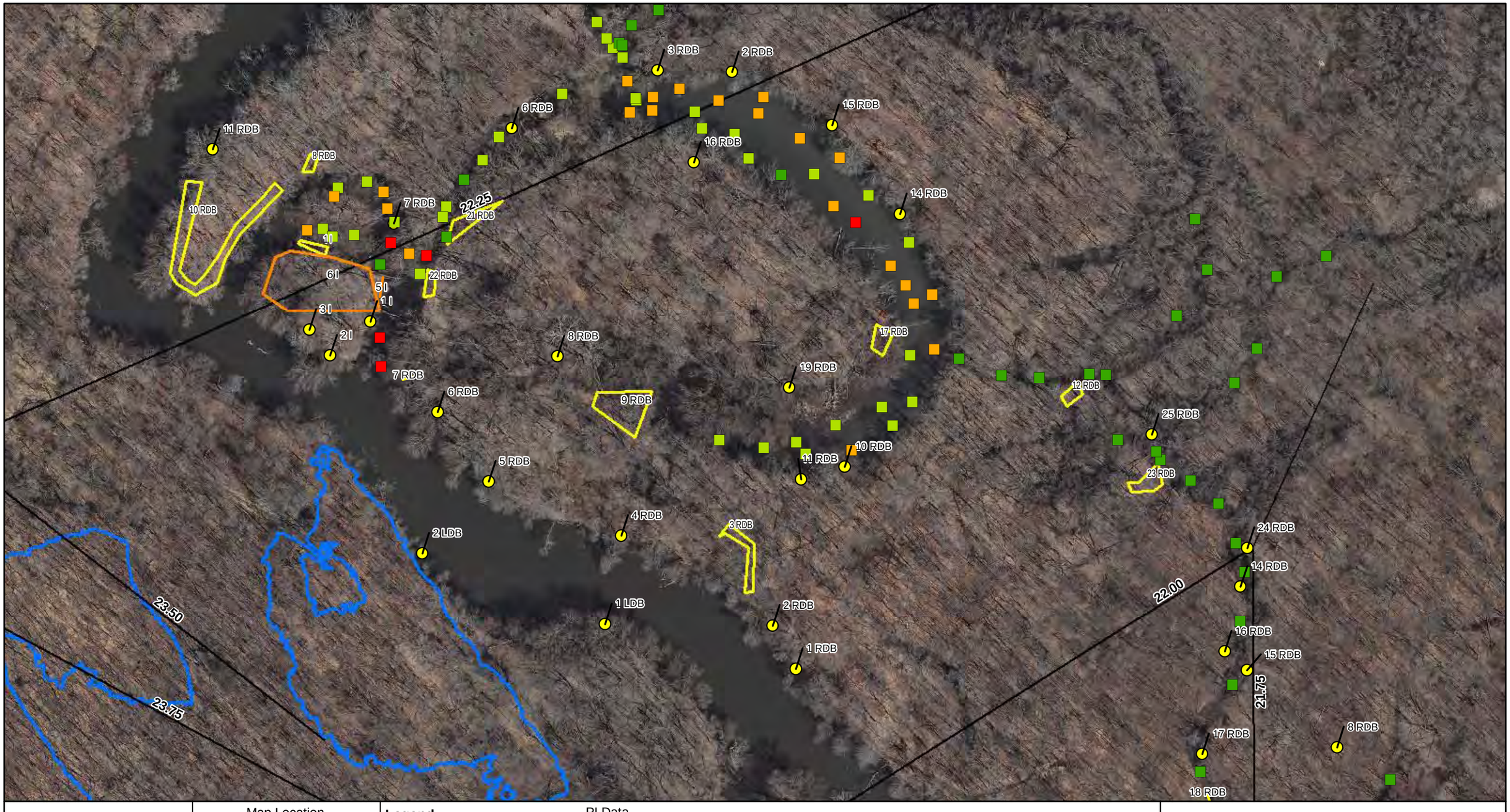
Scale in Feet

SORT ASSESSMENT
MP22.00-MP22.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP22.00-MP22.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 22.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Wetland-swamp (forested)	
4/21/2011	13:34																	42.35409 / -85.28664	
2	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	
4/21/2011	13:52																	42.35439 / -85.28772	

START
MDEQ
Enbridge Team Lead
Ross, Shauna
Goddard, Matt
VanLoan, Mike
Ross, Shauna
Goddard, Matt
VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 22.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	
5/10/2011	11:38																	42.35391 / -85.28550	
10	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	
5/10/2011	13:07																	0.00000 / 0.00000	
11	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	
5/10/2011	13:57																	42.35473 / -85.28549	
12	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	
5/10/2011	14:22																	42.35508 / -85.28395	
14	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	TREE OVERHANGING IN PONDED AREA/OXBOW
5/10/2011	14:43																	42.35589 / -85.28491	

START	
MDEQ	
Enbridge Team Lead	
Johnson, Kevin	
Washburn, Bruce	
Senn, Derreck	
Johnson, Kevin	
Washburn, Bruce	
Senn, Derreck	
Johnson, Kevin	
Washburn, Bruce	
Senn, Derreck	
Johnson, Kevin	
Washburn, Bruce	
Senn, Derreck	
Johnson, Kevin	
Washburn, Bruce	
Senn, Derreck	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 22.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
15	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
Date 5/10/2011	Time 14:50																	42.35629	-85.28532		Senn, Derreck
16	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	15:25																	42.35611	-85.28614		Senn, Derreck
17	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	15:43																	42.35535	-85.28506		Senn, Derreck
19	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	15:56																	42.35514	-85.28556		Senn, Derreck
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		overhanging vines and debris into river	Johnson, Kevin
																					Washburn, Bruce
5/10/2011	11:43																	42.35410	-85.28565		Senn, Derreck

2011 Reassessment

Bank: RDB

Mile Marker: 22.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ Enbridge Team Lead
21	Overbank			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			EXTENT NOT FULLY DELINEATED, BECAUSE OUTSIDE INUNDATION MODEL	Johnson, Kevin Washburn, Bruce
		5/10/2011	16:25																		42.35575	-85.28759		Senn, Derreck
22				☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Sand-Gravel shoreline				Johnson, Kevin Washburn, Bruce
		5/10/2011	16:35																		42.35564	-85.28771		Senn, Derreck
23	Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			TAR COATED AND STAINED STEMS AND DEBRIS	Hadwin, Eric Washburn, Bruce
		5/17/2011	14:01																		42.35482	-85.28346		Kytta, Ken
24	Overbank			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Wetland-swamp (forested)			TAR COATED DEBRIS	Hadwin, Eric Washburn, Bruce
		5/17/2011	17:18																		42.35445	-85.28285		Kytta, Ken
25	Overbank			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)			TAR COATED STEMS	Hadwin, Eric Washburn, Bruce
		5/18/2011	09:57																		42.35495	-85.28341		Kytta, Ken

2011 Reassessment

Bank: RDB

Mile Marker: 22.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	11:52																	42.35450	-85.28593		Senn, Derreck
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	11:59																	42.35448	-85.28655		Senn, Derreck
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		OVERHANGING TREE	Johnson, Kevin
																					Washburn, Bruce
5/10/2011	12:11																	42.35472	-85.28733		Senn, Derreck
6	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	S	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	12:17																	42.35501	-85.28764		Senn, Derreck
7	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Sand-Gravel shoreline			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	12:22																	42.35516	-85.28780		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 22.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
8	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	
5/10/2011	12:30																	42.35527 / -85.28694	
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	ALSO SHEEN ON STANDING WATER PROBABLE BIOLOGIC
5/10/2011	12:56																	42.35488 / -85.28605	

START
MDEQ
Enbridge Team Lead
Johnson, Kevin
Washburn, Bruce
Senn, Derreck
Johnson, Kevin
Washburn, Bruce
Senn, Derreck

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 22.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		OVERHANGING TREES	Johnson, Kevin
																					Washburn, Bruce
5/10/2011	17:02																	42.35541	-85.28804		Senn, Derreck
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	17:08																	42.35526	-85.28828		Senn, Derreck
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	17:10																	42.35536	-85.28841		Senn, Derreck
5	Shoreline	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank		bank sediments exhibiting strong sheen & < 1/4 inch TB's	Johnson, Rex
																					Strouse, Dana
6/6/2011	16:27																	42.35553	-85.28798		Hehir, Nate
6	Shoreline and Overbank	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		sheen & random tar balls in interior, heavy at banks & interior mud flats	Johnson, Rex
																					Strouse, Dana
6/6/2011	16:44																	42.35545	-85.28854		Hehir, Nate

Photo Logs

Field Photographs MP 22. 00 – MP 22.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 8, Photo 001



RDB Zone ID 9, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 9, Photo 002



RDB Zone ID 10, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 11, Photo 001



RDB Zone ID 12, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 12, Photo 002



RDB Zone ID 12, Photo 003



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 14, Photo 001



RDB Zone ID 15, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 16, Photo 001



RDB Zone ID 17, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 17, Photo 002



RDB Zone ID 17, Photo 003



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 19, Photo 001



RDB Zone ID 21, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 21, Photo 002



RDB Zone ID 21, Photo 003



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 22, Photo 001



RDB Zone ID 22, Photo 002



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 22, Photo 003



RDB Zone ID 23, Photo 001



Field Photographs MP 22. 00 – MP 22.25

RDB Zone ID 24, Photo 001



RDB Zone ID 25, Photo 001



Field Photographs MP 22. 00 – MP 22.25

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs MP 22. 00 – MP 22.25

I Zone ID 3, Photo 001



I Zone ID 5, Photo 001



Field Photographs MP 22. 00 – MP 22.25

I Zone ID 5, Photo 002



I Zone ID 6, Photo 001



Field Photographs MP 22. 00 – MP 22.25

I Zone ID 6, Photo 002



I Zone ID 6, Photo 003



Field Photographs MP 22. 00 – MP 22.25

I Zone ID 6, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 22.0 to MP 22.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[redacted]	MDEQ	MD	Enbridge DB
SOTF	START	[redacted]	MDEQ	MD	Enbridge DB
PI	START	[redacted]	MDEQ	MD	Enbridge DB
FLS	START	[redacted]	MDEQ	MD	Enbridge DB
Inundation Model	START	[redacted]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[redacted] START — 6/15/2011 Date

John Poole II Printed Name

Michelle DeLong MDEQ — 6/15/11 Date

Michelle DeLong Printed Name

[redacted] Enbridge — 6/15/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.0 to MP 22.25, Bank or Island: LDB, Segment Length: 0.25 mile

* Fence in segment - only able to assess on river side of fence
* 2 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/21/2011 Date

Shawna Marie Ross — Printed Name

Matt Goddard — MDEQ — 4/21/11 Date

Matt Goddard — Printed Name

Michael Van Loon — Enbridge — 4-21-2011 Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.00 to MP 22.25, Bank or (Island): ____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____	START	5/9/11 Date
Kevin Johnson	Printed Name	
_____	MDEQ	5/9/11 Date
Lynn D. Blazic	Printed Name	
_____	Enbridge	9 May 11 Date
Derek Senn	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.00 to MP 22.25, Unique ID LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START 5/9/11 Date

THOMAS P. GRAAN Printed Name

[signature] MDEQ 5-9-11 Date

William Keiper Printed Name

[signature] Enbridge 5/9/2011 Date

Laura Neumeier Printed Name

"No oil" point collected by YUMA

TCan 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.00 to MP 22.25, Bank or (Island), Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — May 10 2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/10/11 Date

Bruce Washburn Printed Name

[signature] Enbridge — 10 May 11 Date

Derek Senn Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.00 to MP 22.25, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — May 10 2011 — Date

Kevin Johnson — Printed Name

Bruce L. Washburn — MDEQ — 5/10/11 — Date

Bruce Washburn — Printed Name

Enbridge — 10 May 11 — Date

Derek Sean — Printed Name

- Two areas of standing water mapped as not being assessable by SORT
- Obvious areas of inundation model inaccuracies were observed, i.e. low areas and standing water outside of the inundation boundary. Oil impacts were noted and mapped outside of the inundation boundary. This segment will require further assessment once a more accurate inundation boundary or limit of assessment is determined.

Enbridge Line 6B MP 608 Pipeline Release

Team 1

Shoreline and Overbank Reassessment Technique (SORT)

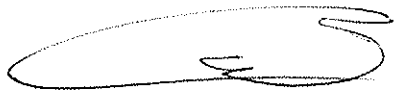
and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

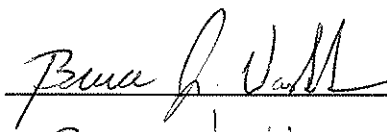
Segment ID: From MP 22.00 to MP 22.25, Unique ID 13, Bank: ROB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.



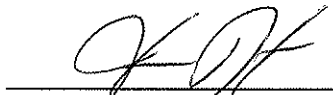
START 5/18/11 Date

Printed Name



MDEQ 5/18/11 Date

Bruce Washburn Printed Name



Enbridge 5/18/11 Date

Printed Name



Tetra Tech

Craig A Wiegman

5/19/2011

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.00 to MP 22.25, Unique ID 22.25 RDB 18, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/19/11 Date

ERIK HADWIN Printed Name

_____ MDEQ — 5/17/11 Date

Bruce Washburn Printed Name

_____ Enbridge — 5/A/11 Date

KEN KATTA Printed Name

_____ Tetra Tech — 5/14/2011

Craig A Wieman

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 2200 to MP 2225, Unique ID LDB1, Bank: LDB and/or Island ____.
Segment Length: 0.25 mile
This polygon was completed in conjunction w/Team 3. Included evaluation of area between river and Legacy Game Preserve fence.

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-14-11 Date
Sean Kane	Printed Name	
Ray Spaulding	MDEQ	6/14/11 Date
Ray Spaulding	Printed Name	
David Strand	Enbridge	6/14/11 Date
David Strand	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 22.00 to MP 22.25, Unique ID 20, Bank: ROB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/7/11 Date
Rex Johnson — Printed Name

Dana Stroege — MDEQ — 6/7/11 Date
Dana Stroege — Printed Name

Nate Hehir — Enbridge — 6/7/11 Date
Nate Hehir — Printed Name

— Completed 5 poling assessment locations

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 22.0 to MP ~~22.5~~ 22.25 (MP 6/6/11), Unique ID 41, Bank: — and/or Island I.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/6/11 — Date
Rex Johnson — Printed Name

Dana Strouse — MDEQ — 6/6/11 — Date
Dana Strouse — Printed Name

[signature] — Enbridge — 6/6/11 — Date
Nate Hehir — Printed Name

- Assessed entire Island feature

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.0 to MP 22.25 Unique ID LDB 2, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/14/2011 Date

Marcus Mueller Printed Name

Chris Bauer MDEQ 6/14/11 Date

Chris Bauer Printed Name

_____ Enbridge 6/14/11 Date

Laura Neumeier Printed Name

No oil point collected by YUMA

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.0 to MP 22.25, Unique ID LDB 1 Eastern portion*, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 6/14/2011 Date

Marcus Mueller Printed Name

Chris Bauer MDEQ 6/14/11 Date

Chris Bauer Printed Name

[signature] Enbridge 6/14/11 Date

Laura Neumeier Printed Name

'No oil' point collected by YUMA

* Team 3 assessed eastern portion of polygon as identified in YUMA #3 track log. Team 1 assessed western portion to complete this polygon.

Segment 22.25 – 22.50

MP 22.25 to MP 22.50

The LDB of segment 22.50 consists of forested wetland swamp along the shoreline and within the overbank. A meander scar is located in this segment. The reassessment identified one point on the LDB, a stained tree within a back channel at Point 2 LDB. No other surface oil areas were identified; however, most of the segment was blocked off for wildlife propagation.

Poling of a meander scar on the LDB within this segment was completed at one location to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 22.50 consists of forested wetland swamp along the shoreline and within the overbank, and a low vegetated bank along the shoreline at Point 14 RDB. Oxbow lakes skirt both segment lines and numerous back channels that flow into the oxbows or river are present. The reassessment identified ten points and three polygons. In general, traces of oil coated debris and/or trunks and stems were identified at all locations. Traces of tar covered debris, trunks and stems were also documented at Polygon 10 RDB.

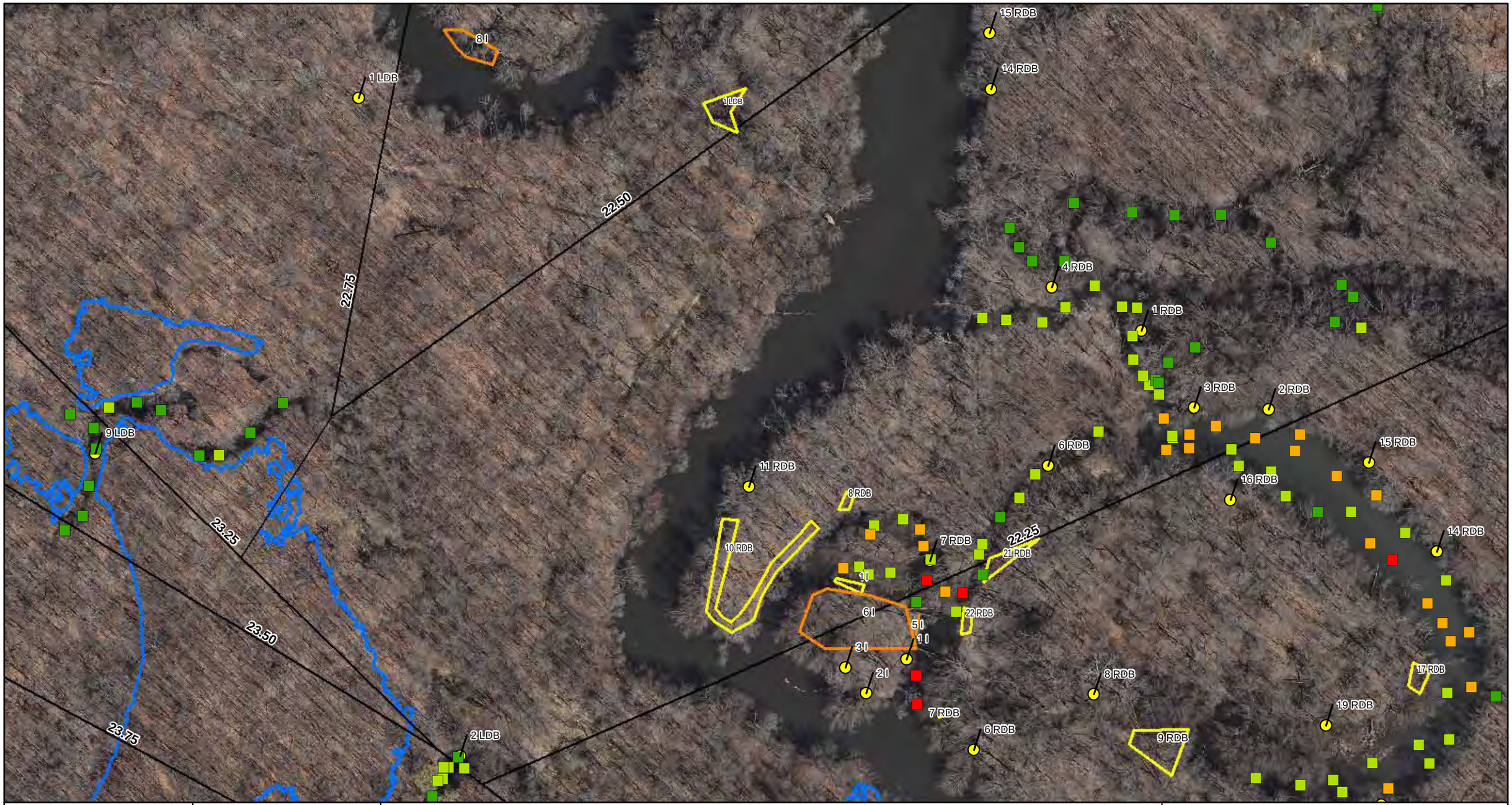
Poling of the oxbow lakes and back channels on the RDB within this segment was completed at fifty-nine locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

One island straddles MP 22.25 along the RDB of this segment and is characterized as forested wetland swamp along the shoreline and within the overbank. The reassessment identified one polygon (Polygon 1 I) on the portion of the island within segment 22.50 (a second polygon identified and discussed on segment 22.25 extends into segment 22.50). A trace distribution of oil coated debris, trunks and stems was identified at Polygon 1 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

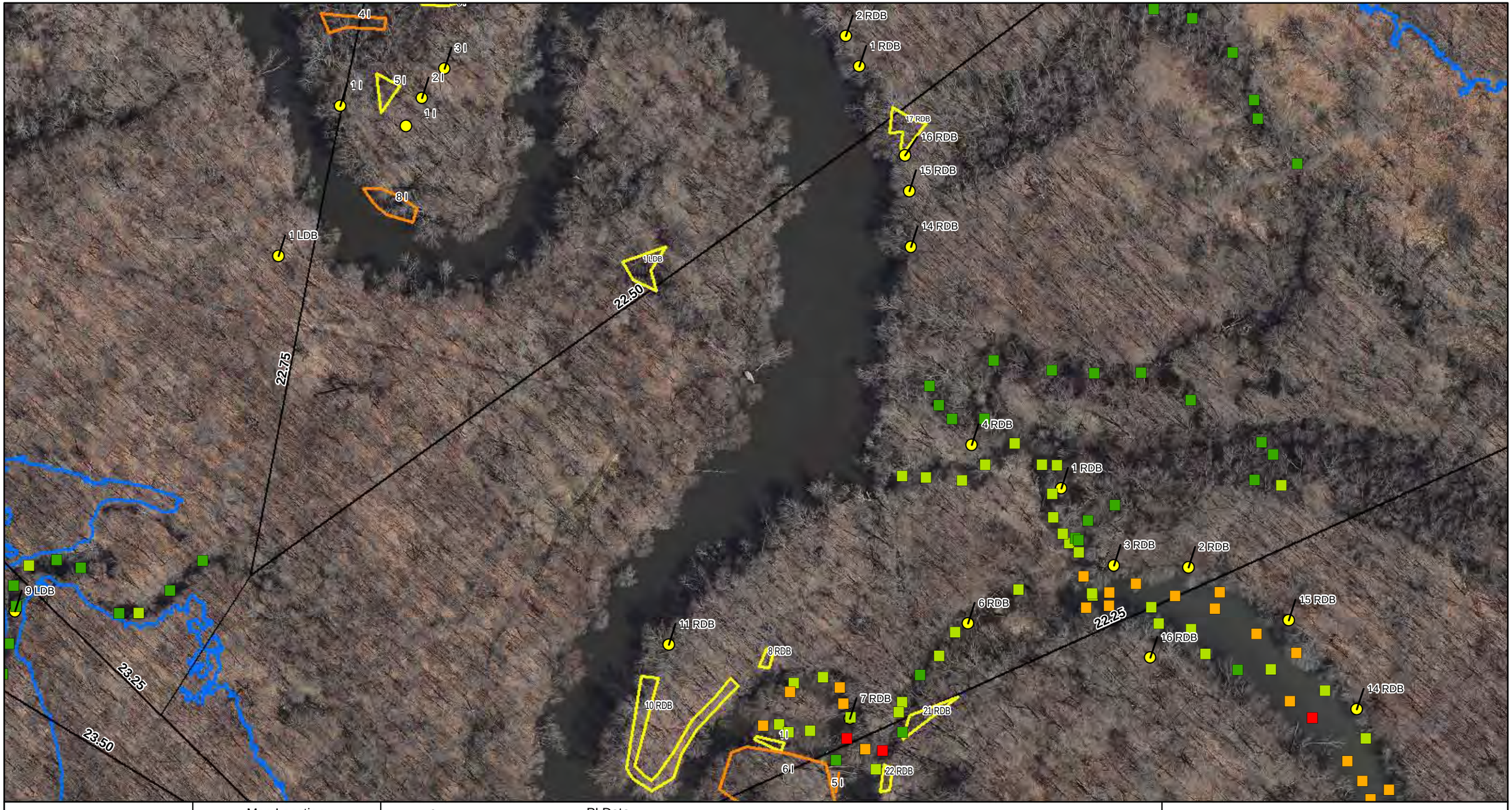
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP22.25-MP22.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP22.25-MP22.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	22.5																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T			Added Manually per Laura Neumeier, one stained tree	Graan, Tom
																					Keiper, Bill
5/9/2011																					Neumeier, Laura

2011 Reassessment

Bank: RDB

Mile Marker: 22.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	15:03																	42.35685	-85.28668		Senn, Derreck
10	Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	11:31																	42.35594	-85.28910		Senn, Derreck
11	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	11:39																	0.00000	0.00000		Senn, Derreck
14		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	12:07																	42.35790	-85.28758		Senn, Derreck
15	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	12:09																	42.35815	-85.28760		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 22.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
16	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)		Johnson, Kevin
																				VanDelfzijl, Sarah
5/11/2011	12:12																	42.35830 / -85.28762		Senn, Derreck
17	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Johnson, Kevin
																				VanDelfzijl, Sarah
5/11/2011	12:18																	42.35845 / -85.28756		Senn, Derreck
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	OVERHANGING TREE	Johnson, Kevin
																				VanDelfzijl, Sarah
5/11/2011	09:54																	42.35651 / -85.28594		Senn, Derreck
3		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	OVERHANGING TREE	Johnson, Kevin
																				VanDelfzijl, Sarah
5/11/2011	10:01																	42.35652 / -85.28636		Senn, Derreck
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin
																				VanDelfzijl, Sarah
5/11/2011	10:10																	42.35704 / -85.28721		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 22.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	10:34																	42.35626	-85.28722		Senn, Derreck
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	10:45																	42.35583	-85.28791		Senn, Derreck
8	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	10:58																	42.35607	-85.28847		Senn, Derreck

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 22.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Washburn, Bruce
5/10/2011	16:53																	42.35571	-85.28847		Senn, Derreck

Photo Logs

Field Photographs MP 22. 25 – MP 22.50

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 4, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 7, Photo 001



RDB Zone ID 8, Photo 001



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 8, Photo 002



RDB Zone ID 8, Photo 003



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 10, Photo 001



RDB Zone ID 10, Photo 002



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 10, Photo 003



RDB Zone ID 10, Photo 004



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 11, Photo 001



RDB Zone ID 14, Photo 001



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 15, Photo 001



RDB Zone ID 16, Photo 001



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 16, Photo 002



RDB Zone ID 17, Photo 001



Field Photographs MP 22. 25 – MP 22.50

RDB Zone ID 17, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 22. 25 – MP 22.50

I Zone ID 1, Photo 002



I Zone ID 1, Photo 003



Field Photographs MP 22. 25 – MP 22.50

I Zone ID 1, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 22.25 to MP 22.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/7/2014 Date
ISAAC ABOVLAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/14 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2014 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.5, Bank or Island: LDB, Segment Length: 0.25 mile

* Fence in segment - Only able to assess on river side of fence.
* 0 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/21/2011 — Date

Shawna Marie Ross — Printed Name

MDEQ — 4/21/11 — Date

Matt Goddard — Printed Name

Enbridge — 4-21-2011 — Date

Michael Van Loon — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.50, Unique ID 22.50 LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/9/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5-9-11 — Date

William Keiper — Printed Name

[signature] — Enbridge — 5/9/2011 — Date

Lara Neumeier — Printed Name

New Polygon created and signed off w/in this segment and No oil observed outside polygon.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.50, Unique ID 22.50 * Polygon, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/9/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5-9-11 — Date

William Keiper — Printed Name

[signature] — Enbridge — 5/9/11 — Date

Laura Neumeier — Printed Name

* This was a new polygon created for a pond outside inundation area, but within LDB Access L (spans 22.50 and 23.75)

Poling points collected by YUMA

1 SORT point for stain on tree.

Team

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.50, Bank or (Island) _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson _____ START — May 10 2011 Date

Kevin Johnson Printed Name

Bruce J Washburn _____ MDEQ — 5/10/11 Date

Bruce Washburn Printed Name

_____ Enbridge — 10 May 11 Date

Derek Senn Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 22.50, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 11 May 2011 — Date

Kevin Johnson — Printed Name

Sarah VanDeWiele — MDEQ — 5/11/11 — Date

Sarah VanDeWiele — Printed Name

Enbridge — 11 May 11 — Date

Derek Senn — Printed Name

Note: Channel / Inundated area at upstream segment marker requires assessment by STRIKE Team.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.50, Unique ID E,13,20, Bank: ROB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	5/18/11 Date
Erik Hawman	Printed Name	
_____	MDEQ	5/18/11 Date
Bruce Washburn	Printed Name	
_____	Enbridge / Tetra Tech	5/18/2011 Date
Craig A Wiseman	Printed Name	

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

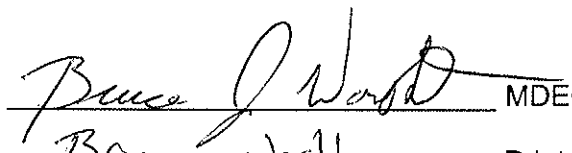
Segment ID: From MP 22.25 to MP 22.50, Unique ID RDS 19, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.



START — 5/19/11 Date

ERIK HANSEN Printed Name



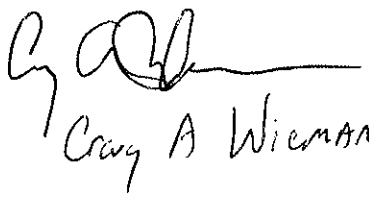
MDEQ — 5/19/11 Date

Bruce Washburn Printed Name



Enbridge — 5/19/11 Date

KEN KYTTA Printed Name



Tetra Tech — 5-19-2011

Craig A Wieman

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.50, Unique ID RDB 18, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/19/11 Date

Erik Hanson Printed Name

_____ MDEQ — 5/19/11 Date

Bruce Washburn Printed Name

_____ Enbridge — 5/19/11 Date

Ken Kytta Printed Name

_____ — 5/19/2011

Craig A Wieman Tetra Tech

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.50, Unique ID 22.50 RDB 5, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/19/11 Date

ERIK HADWIN Printed Name

_____ MDEQ 5/19/11 Date

Bruce Washburn Printed Name

_____ Enbridge 5/19/11 Date

KEN KYTTA Printed Name

_____ Tetra Tech

Craig A Wieman 5/19/2011

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.25 to MP 22.50, Unique ID RDB 9, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/20/11 Date

ERIC HADWIN Printed Name

_____ MDEQ 5/20/11 Date

Bruce Washburn Printed Name

_____ Enbridge/Tetra Tech 5/20/11 Date

Craig A Wireman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 22.0 to MP 22.5, Unique ID 4, Bank: — and/or Island I.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/06/11 — Date

Rex Johnson — Printed Name

Dana Strouse — MDEQ — 6/6/11 — Date

Dana Strouse — Printed Name

[signature] — Enbridge — 6/6/11 — Date

Nate Hehir — Printed Name

- Assessed entire Island feature

Segment 22.50 – 22.75

MP 22.50 to MP 22.75

The LDB of segment 22.75 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment identified one polygon with oil stained trunks and stems observed (Polygon 1 LDB).

The RDB of segment 22.75 consists of forested wetland swamp along the shoreline and within the overbank, with a meander present in this segment. The reassessment identified three points, three polygons and one linear transect. In general, traces of oil coated debris and/or trunks and stems were identified in most areas. A trace of film on ponded water was observed at Linear Transect 7 RDB, and an oil film, most likely biological, was observed at Polygon 6 RDB.

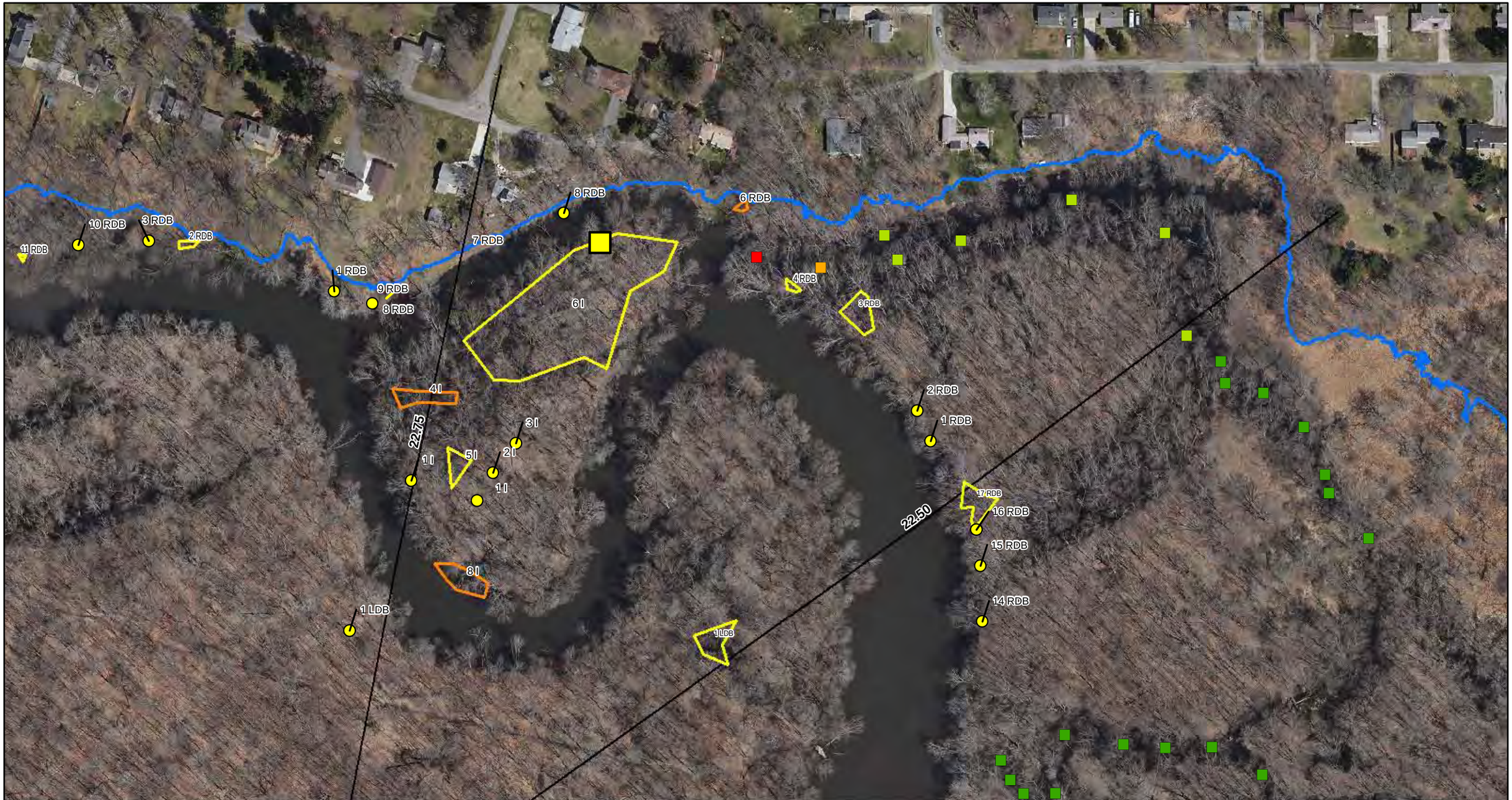
Poling of the meander on the RDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

A large island straddles MP 22.75 and forces the river into two meanders. The island is characterized as a forested wetland swamp along the shoreline and within the overbank. A portion of the south end of the island was classified as a sand-gravel shoreline. The reassessment identified three points and four polygons on the island. Trace distributions of oil coated trunks and stems, and/or debris were identified at most locations. A small tar ball and a trace of an oil film on ponded water were identified at Polygon 8 I. An oil film, most likely biological, was identified at Polygon 4 I. The FLS data identified a suspected oil signature in close proximity to an oil occurrence at Polygon 6 I.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

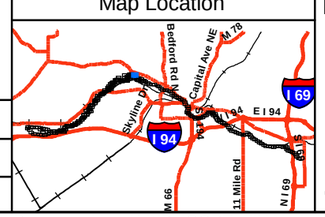
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP22.50-MP22.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 22.75																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Latitude**	**Longitude**		**Enbridge Team Lead**
Date	**Time**																				
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Goddard, Matt
4/21/2011	14:41																	42.35776	-85.28926		VanLoan, Mike

2011 Reassessment

Bank: RDB

Mile Marker: 22.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	5/11/2011	12:25	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35869	-85.28791		Johnson, Kevin VanDelfzijl, Sarah Senn, Derreck
2	Overbank	5/11/2011	12:29	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35882	-85.28798		Johnson, Kevin VanDelfzijl, Sarah Senn, Derreck
3	Overbank	5/11/2011	12:36	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.35926	-85.28844		Johnson, Kevin VanDelfzijl, Sarah Senn, Derreck
4	Overbank	5/11/2011	12:43	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.35936	-85.28869		Johnson, Kevin VanDelfzijl, Sarah Senn, Derreck
6	Shoreline	5/13/2011	13:27	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.35976	-85.28902	PROBABLE BIOLOGICAL SHEEN	Johnson, Kevin Strouse, Dana Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 22.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
7	Shoreline and Overbank	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Strouse, Dana
5/13/2011	14:00																	42.35961	-85.29036		Senn, Derreck
8	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		RDB condition assessed from north shore of island, reference feature 7I. No impact o served.	Johnson, Rex
																					Strouse, Dana
6/7/2011	15:26																	42.35948	-85.29009		Hehir, Nate

2011 Reassessment

Bank: l

Mile Marker: 22.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START MDEQ Enbridge Team Lead
1	Overbank	5/13/2011	09:51	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35840	-85.29057		Johnson, Kevin Strouse, Dana Senn, Derreck
2	Overbank	5/13/2011	09:55	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35853	-85.29048		Johnson, Kevin Strouse, Dana Senn, Derreck
3	Overbank	5/13/2011	09:59	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.35874	-85.29040		Johnson, Kevin Strouse, Dana Senn, Derreck
4	Shoreline and Overbank	5/13/2011	10:18	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.35885	-85.29074	POSSIBLE MIXED OR BIOLOGICAL SHEEN	Johnson, Kevin Strouse, Dana Senn, Derreck
5	Overbank	5/13/2011	10:26	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35862	-85.29075		Johnson, Kevin Strouse, Dana Senn, Derreck

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 22.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		NEW DEBRIS IS OBSCURING VIEW OF COATED SURFACES	Johnson, Kevin
																					Strouse, Dana
5/13/2011	11:02																	42.35910	-85.29065		Senn, Derreck
8		☐	☐	☑	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	T	Sand-Gravel shoreline		TB <0.5 CM DIAMETER SHOULD BE 22.75I7	Johnson, Kevin
																					Strouse, Dana
5/13/2011	10:44																	42.35809	-85.29073		Senn, Derreck

Photo Logs

Field Photographs MP 22.50 – MP 22.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 22.50 – MP 22.75

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 22.50 – MP 22.75

RDB Zone ID 3, Photo 002



RDB Zone ID 3, Photo 003



Field Photographs MP 22.50 – MP 22.75

RDB Zone ID 4, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 22.50 – MP 22.75

RDB Zone ID 6, Photo 002



RDB Zone ID 7, Photo 001



Field Photographs MP 22.50 – MP 22.75

RDB Zone ID 7, Photo 002



I Zone ID 1, Photo 001



Field Photographs MP 22.50 – MP 22.75

I Zone ID 2, Photo 001



I Zone ID 3, Photo 001



Field Photographs MP 22.50 – MP 22.75

I Zone ID 4, Photo 001



I Zone ID 4, Photo 002



Field Photographs MP 22.50 – MP 22.75

I Zone ID 5, Photo 001



I Zone ID 5, Photo 002



Field Photographs MP 22.50 – MP 22.75

I Zone ID 6, Photo 001



I Zone ID 6, Photo 002



Field Photographs MP 22.50 – MP 22.75

I Zone ID 8, Photo 001



I Zone ID 8, Photo 002



Field Photographs MP 22.50 – MP 22.75

I Zone ID 8, Photo 003



I Zone ID 8, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 22.5 to MP 22.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JM	MDEQ	MD	Enbridge DB
SOTF	START	JM	MDEQ	MD	Enbridge DB
PI	START	JM	MDEQ	MD	Enbridge DB
FLS	START	JM	MDEQ	MD	Enbridge DB
Inundation Model	START	JM	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JM — START — 6/9/2011 Date

ISAAC ABDULAFIA — Printed Name

Michelle Delong — MDEQ — 6/9/11 Date

Michelle Delong — Printed Name

Dc Bc — Enbridge — 6/9/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.5 to MP 22.75, Bank or Island: LDB, Segment Length: 0.25 mile

X Fence in segment - Only able to assess on river side of fence

* 1 feature

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/21/2011 — Date

Shawna Marie Ross — Printed Name

Matt Goddard — MDEQ — 4/21/11 — Date

Matt Goddard — Printed Name

for Mike VanLoan.

Enbridge — 4-21-2011 — Date

Michael Van Loan — Printed Name

- Had phone conversation with Mike and he indicated no issue with signing he simply forgot to sign this MP.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.50 to MP 22.75, Unique ID 22.75 LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Grasan _____ START 5/9/11 Date

THOMAS P. GRASAN Printed Name

_____ MDEQ 5-9-11 Date

William Keiper Printed Name

_____ Enbridge 5/9/11 Date

Laura Neumeier Printed Name

"Nood" point collected by YUMA

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.50 to MP 22.75 (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 11 May 2011 Date

Kevin Johnson — Printed Name

Sarah VanDeHey — MDEQ — 5/11/11 Date

Sarah VanDeHey — Printed Name

[signature] — Enbridge — 11 May 11 Date

Derek Senn — Printed Name

Note: Area ~~required~~ ORS requiring assessment by STRIKE mapped on 11 May 11.

Parcel KMD-312 not assessed due to access issues and uncertainty regarding property boundaries (island?)

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.50 to MP 24.75, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 13 MAY 2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/13/11 Date

Dana Strousz Printed Name

[signature] Enbridge — 13 May 11 Date

Derek Senn Printed Name

- one unassesble shoreline/bank mapped
- portions of this segment were assessed/mapped previously and signed off on at that time. This sign off covers the portion of the segment assessed on 13 May 11, as documented on the YUMA track log.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 22.50 to MP 22.75, Unique ID 5, Bank: RDB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/7/11 — Date
Rex Johnson — Printed Name

Dana Stroube — MDEQ — 6/7/11 — Date
Dana Stroube — Printed Name

Nate Hehir — Enbridge — 6/7/11 — Date
Nate Hehir — Printed Name

- Assessed 9 poling locations.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.50 to MP 22.75, Bank or (Island), Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	13 May 2011 Date
Kevin Johnson	Printed Name	
[signature]	MDEQ	5/13/11 Date
Dana Strouse	Printed Name	
[signature]	Enbridge	13 May 11 Date
Derek Senn	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 22.5 to MP 22.75, Unique ID 7, Bank: — and/or Island I.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 6/7/11 Date

Rex Johnson Printed Name

Dana Struse MDEQ 6/7/11 Date

Dana Struse Printed Name

Enbridge 6/7/11 Date

Nate Hehir Printed Name

- Conducted visual assessment of 7I feature from Northern shoreline of Island. Due to numerous trees down in river channel and steep bank along RDB.

Segment 22.75 – 23.00

MP 22.75 to MP 23.00

The LDB of segment 23.00 consists of forested wetland swamp along the shoreline and within the overbank. Meander scars are located approximately 900 feet south of the river. The reassessment identified one point and one polygon. A sporadic occurrence of oil coated debris was documented at Point 1 LDB and traces of stained trunks and stems were identified at Polygon 2 LDB.

The RDB of segment 23.00 generally consists of scrub-shrub wetland immediately downstream of MP 22.75 and then transitions into a forested wetland swamp. A small area of maintained lawn is located between the two wetland habitats. The reassessment identified six points, seven polygons and one linear transect. In general, traces of oil coated debris and/or trunks and stems were identified in most areas. Tar covered debris, trunks and stems were also documented at Polygon 12 RDB. A film, most likely biological, was observed at Point 13 RDB, and a film (sheen) was observed on pooled water and sediment in Polygon 14 RDB.

A large island straddles MP 22.75 and forces the river into two meanders. The island is characterized as a forested wetland swamp along the shoreline and within the overbank. The reassessment identified one point on the island in segment 23.00. A trace distribution of oil coated trunks and stems were identified at Point 1 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP22.75-MP23.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

| Bank: LDB | | Oil Thickness | | | | | Oil Character | | | | |

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 23																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Lawn (maintained land)			Johnson, Kevin	VanDelfzijl, Sarah
5/11/2011	15:08																	42.35932	-85.29143		Senn, Derreck	
10	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Kevin	Strouse, Dana
5/13/2011	14:13																	42.35950	-85.29294		Senn, Derreck	
11	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin	Strouse, Dana
5/13/2011	14:18																	42.35947	-85.29333		Senn, Derreck	
12	Overbank	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)			Johnson, Kevin	Strouse, Dana
5/13/2011	14:24																	42.35946	-85.29368		Senn, Derreck	
13	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		MUCKY AREAS OUTDISE INUNTION MODEL HAVE SHEEN PROBABLE BIOLOGICAL	Johnson, Kevin	Strouse, Dana
5/13/2011	14:26																	42.35960	-85.29350		Senn, Derreck	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 23																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
14	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		FILM/SHEEN ON MUD AND POOLED WATER	Hadwin, Erik Washburn, Bruce
6/10/2011	11:31																	42.35984	-85.29520		Kytta, Ken
2		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin VanDelfzijl, Sarah
5/11/2011	15:18																	42.35953	-85.29238		Senn, Derreck
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin VanDelfzijl, Sarah
5/11/2011	15:21																	42.35953	-85.29253		Senn, Derreck
4		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin VanDelfzijl, Sarah
5/11/2011	15:40																	42.35906	-85.29471		Senn, Derreck
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin VanDelfzijl, Sarah
5/11/2011	15:42																	42.35915	-85.29453		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 23																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / VanDelfzijl, Sarah
5/11/2011	15:50																	42.35925	-85.29393		Senn, Derreck
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / VanDelfzijl, Sarah
5/11/2011	16:11																	42.35946	-85.29452		Senn, Derreck
8	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		NEEDS RENUNBERED	Johnson, Kevin / Strouse, Dana
5/13/2011	13:43																	42.35927	-85.29120		Senn, Derreck
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Strouse, Dana
5/13/2011	13:50																	42.35933	-85.29108		Senn, Derreck

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 23																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		SHOULD BE 23.00I1	Johnson, Kevin
																					Strouse, Dana
5/13/2011	10:55																	0.00000	0.00000		Senn, Derreck

Photo Logs

Field Photographs MP 22.75 – MP 23.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 22.75 – MP 23.00

LDB Zone ID 2, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 4, Photo 002



RDB Zone ID 5, Photo 001



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 6, Photo 003



RDB Zone ID 6, Photo 004



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 6, Photo 005



RDB Zone ID 6, Photo 006



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 6, Photo 007



RDB Zone ID 6, Photo 008



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 8, Photo 001



RDB Zone ID 9, Photo 001



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 9, Photo 002



RDB Zone ID 10, Photo 001



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 11, Photo 001



RDB Zone ID 11, Photo 002



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 12, Photo 001



RDB Zone ID 12, Photo 002



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 12, Photo 003



RDB Zone ID 13, Photo 001



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 13, Photo 002



RDB Zone ID 13, Photo 003



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 13, Photo 004



RDB Zone ID 13, Photo 005



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 13, Photo 006



RDB Zone ID 13, Photo 007



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 13, Photo 008



RDB Zone ID 13, Photo 009



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 13, Photo 010



RDB Zone ID 13, Photo 011



Field Photographs MP 22.75 – MP 23.00

RDB Zone ID 14, Photo 001



RDB Zone ID 14, Photo 002



Field Photographs MP 22.75 – MP 23.00

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 22.75 – MP 23.00

I Zone ID 1, Photo 003



I Zone ID 1, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 22.75 to MP 23.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[illegible]	MDEQ	GAB	Enbridge	[illegible]
SOTF	START	[illegible]	MDEQ	GAB	Enbridge	[illegible]
PI	START	[illegible]	MDEQ	GAB	Enbridge	[illegible]
FLS	START	[illegible]	MDEQ	GAB	Enbridge	[illegible]
Inundation Model	START	[illegible]	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[illegible] START 6/7/2011 Date

ISAAC ABOULAFIA Printed Name

Michelle DeLong MDEQ 6/7/11 Date

Michelle DeLong Printed Name

[illegible] Enbridge 6/7/2011 Date

Dave Burcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 23.0, Bank or Island: ODB, Segment Length: 0.25 mile

* Fence in segment - Only able to assess river side of fence
* 2 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Foss — START — 4/21/2011 — Date

Shawna Marie Foss — Printed Name

Matt Goddard — MDEQ — 4/21/11 — Date

Matt Goddard — Printed Name

Michael Vin Lenn — Enbridge — 4.21.2011 — Date

Michael Vin Lenn — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 23.00, Unique ID 23.00 LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START 5/9/11 Date

THOMAS P. GRAAN _____ Printed Name

_____ MDEQ 5-9-11 Date

William Keiper _____ Printed Name

_____ Enbridge 5/9/2011 Date

Laura Neumeier _____ Printed Name

Poling points collected by YUMA

"No oil" point collected by YUMA

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 23.00, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson START — 11 May 2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/11/11 Date

SARAH VanDelft Printed Name

[signature] Enbridge — 11 May 11 Date

Derek Senn Printed Name

Did not assess KN-0-322 and KN-0-323 due to access issues. Will need to assess these two properties and the ROW between them at a later date.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 23.00, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 13 May 2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/13/11 Date

Dana Strouse Printed Name

[signature] Enbridge — 13 May 11 Date

Derek Senn Printed Name

Portions of this segment were assessed/mapped previously and signed off on at that time. This sign-off covers the portion of the segment assessed on 13 May 11, as documented on the RUMA tracklog

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 23.00, Bank or Island: _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson START 13 May 2011 Date

Kevin Johnson Printed Name

Dana Strouse MDEQ 5/13/11 Date

Dana Strouse Printed Name

Enbridge 13 May 11 Date

Deceh Senn Printed Name

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

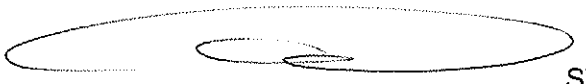
Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 23.00, Unique ID 23.00 RDB9, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

POLYGON CREATED NAMED 23.00 RDB14

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.



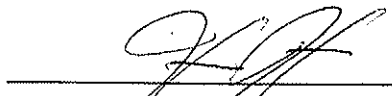
_____ START 6/10/11 Date

Erik Howin Printed Name



_____ MDEQ 6/10/11 Date

MATT WESENER Printed Name



_____ Enbridge 6/10/11 Date

KEN KYTA Printed Name

Segment 23.00 – 23.25

MP 23.00 to MP 23.25

The LDB of segment 23.25 consists of a forested wetland swamp along the shoreline and overbank. The reassessment identified one point and two linear transects. In general, surface oil residue was identified at all three areas and trace occurrences of coated debris were observed at Linear Transects 2 LDB and 3 LDB.

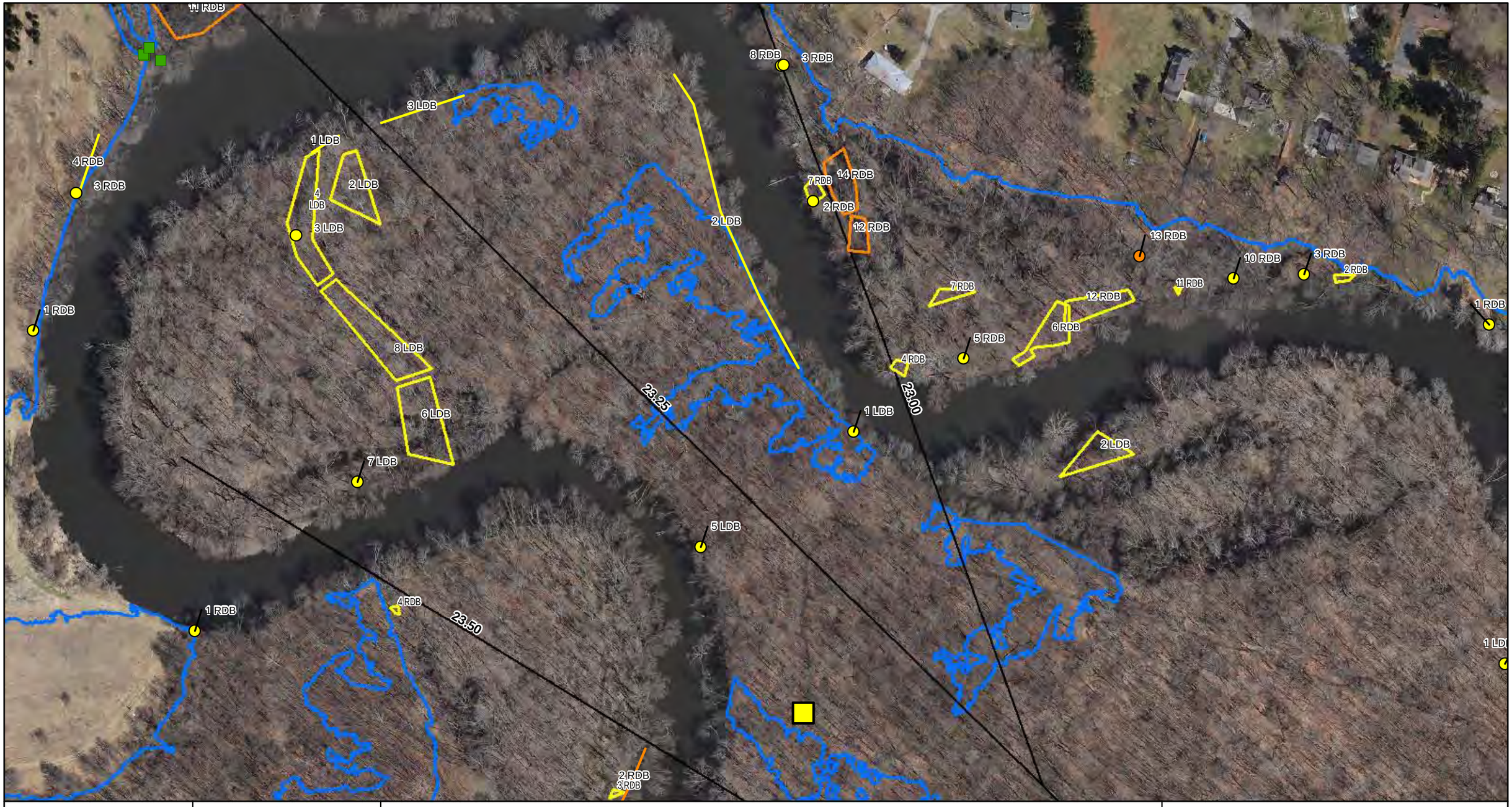
The RDB of segment 23.25 generally consists of forested wetland swamp and maintained land (lawn). Ponded water and a tributary are present in the overbank. The reassessment identified four points, three polygons and one linear transect. Traces of tar covered trunks and stem were identified at Points 2 RDB, 3 RDB and 5 RDB. Trace to sporadic distribution of oil coated and covered debris, and/or trunks and stems was identified at Point 8 RDB, Polygons 7 RDB and 12 RDB, and Linear Transect 1 RDB. Sporadic occurrences of tar balls were observed at Polygons 11 RDB and 12 RDB (shown east of the 23.00 segment line), and trace tar patties were identified along Linear Transect RDB 1. An oil film on ponded water was identified at Polygons 11 RDB and 12 RDB.

Poling of a stream that flows into the river from the RDB within this segment was completed at seven locations within Polygon 11 RDB to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

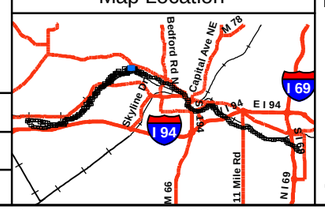
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

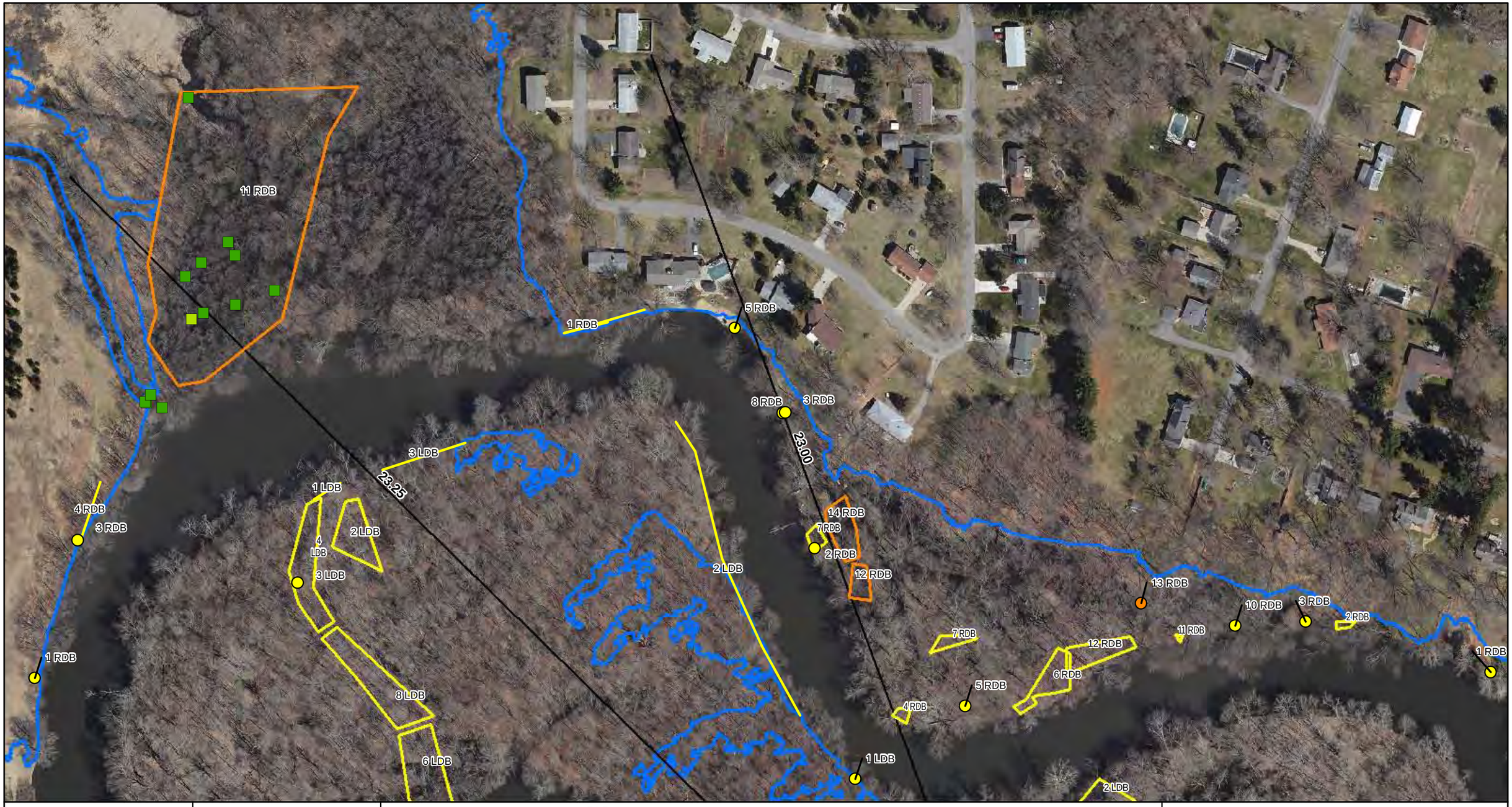
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP23.00-MP23.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

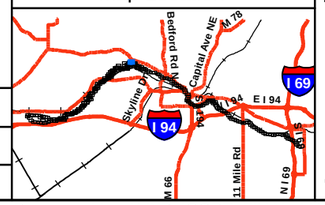
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP23.00-MP23.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 23.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	13:12																	42.35882	-85.29517		Wronka, Hans
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	13:30																	42.36044	-85.29646		Wronka, Hans
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	13:39																	42.36010	-85.29802		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 23.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1		6/8/2011	10:35	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.36087	-85.29645	reference feature 23.25RDB4. Steep bank, assessed by boat.	Johnson, Rex / Strouse, Dana / Hehir, Nate
11	Overbank	6/8/2011	15:18	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.36050	-85.29921	Feature 23.25RDB1: oil sheen and tar balls observed on wetted overbank soils following recent flooding	Johnson, Rex / Strouse, Dana / Hehir, Nate
12	Overbank	6/7/2011	16:02	☐	☑	☑	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)	42.35974	-85.29525	observed moderate to heavy sheen and tar balls on shallow ponded water and surface of saturated soils.	Johnson, Rex / VanDelfzijl, Sarah / Hehir, Nate
2	Shoreline	5/21/2011	14:19	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35983	-85.29544		Johnson, Rex / Gamble, James (Matt) / Senn, Derreck
3	Shoreline	5/21/2011	14:26	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Lawn (maintained land)	42.36044	-85.29565		Johnson, Rex / Gamble, James (Matt) / Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 23.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
5	Shoreline	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Lawn (maintained land)			Johnson, Rex
																					Gamble, James (Matt)
5/21/2011	14:38																	42.36079	-85.29592		Senn, Derreck
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Lawn (maintained land)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	16:25																	42.35994	-85.29542		Senn, Derreck
8	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Lawn (maintained land)			Johnson, Kevin
																					VanDelfzijl, Sarah
5/11/2011	16:31																	42.36041	-85.29563		Senn, Derreck

Photo Logs

Field Photographs – MP 23.00 – 23.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs – MP 23.00 – 23.25

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002

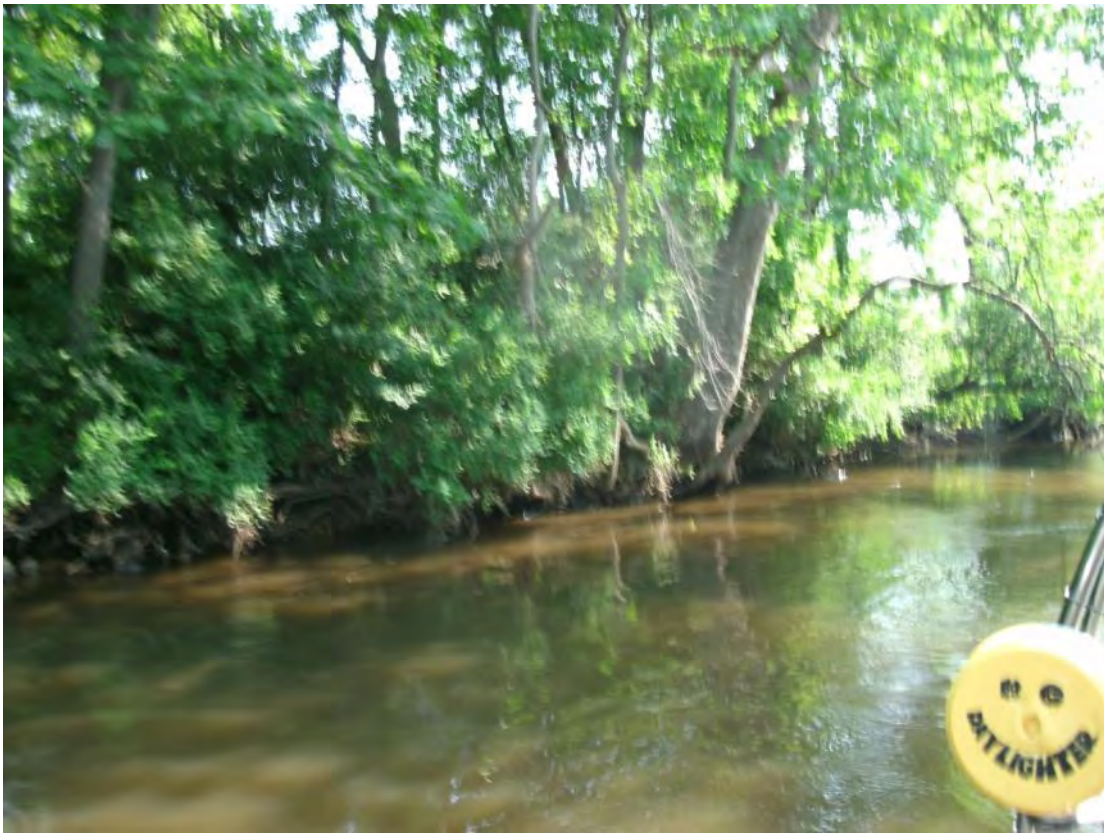


Field Photographs – MP 23.00 – 23.25

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002

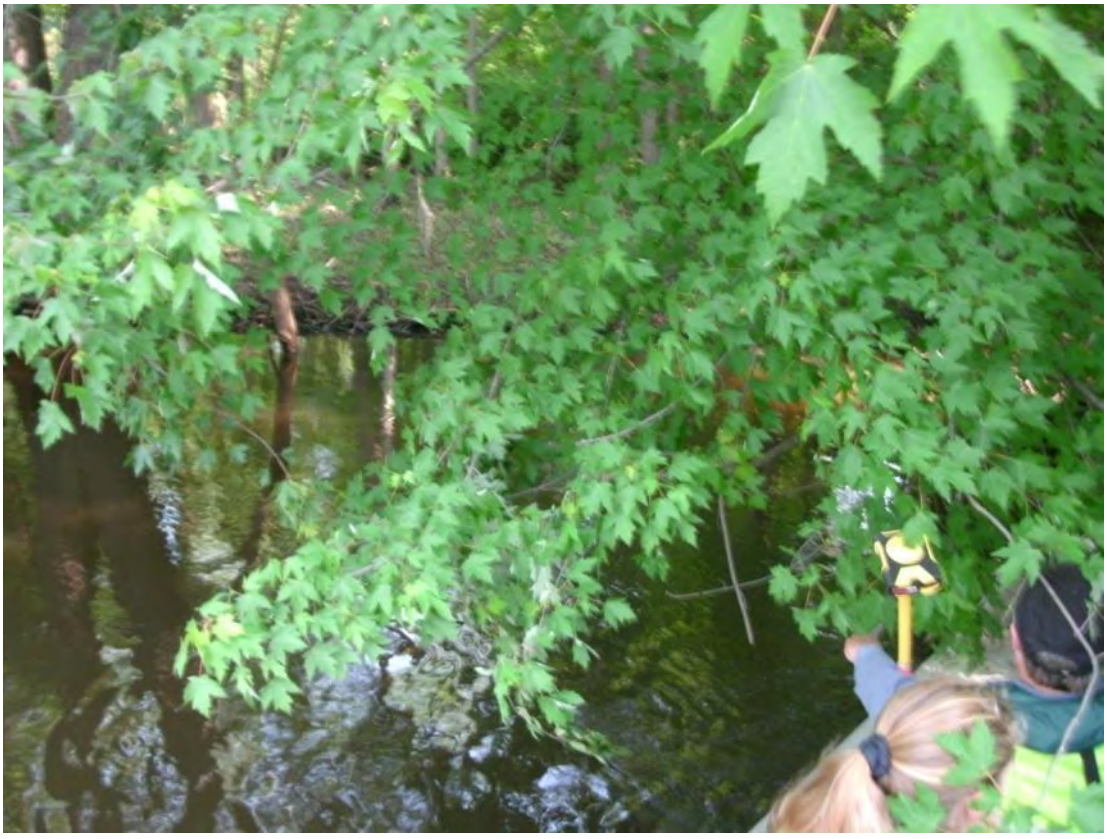


Field Photographs – MP 23.00 – 23.25

RDB Zone ID 1, Photo 003

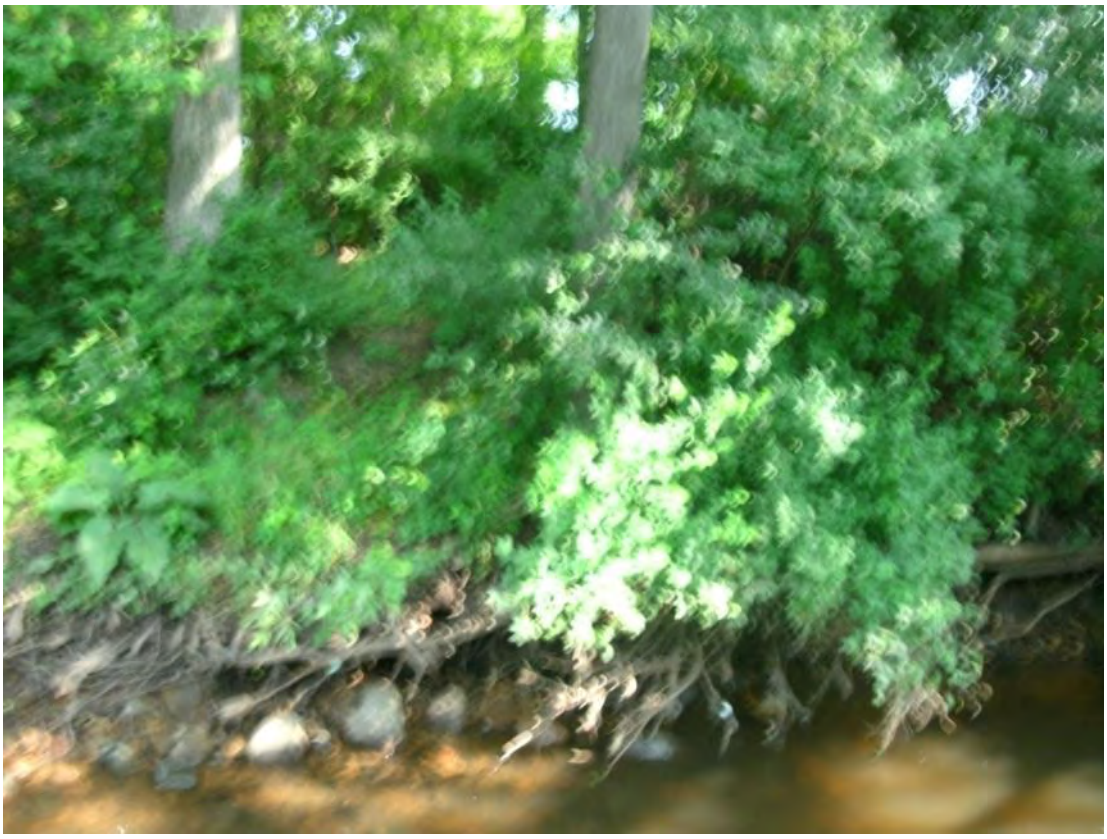


RDB Zone ID 1, Photo 004



Field Photographs – MP 23.00 – 23.25

RDB Zone ID 1, Photo 005



RDB Zone ID 2, Photo 001



Field Photographs – MP 23.00 – 23.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs – MP 23.00 – 23.25

RDB Zone ID 5 Photo 001



RDB Zone ID 7, Photo 001



Field Photographs – MP 23.00 – 23.25

RDB Zone ID 7, Photo 002



RDB Zone ID 8, Photo 001



Field Photographs – MP 23.00 – 23.25

RDB Zone ID 11, Photo 001



RDB Zone ID 11, Photo 002



Field Photographs – MP 23.00 – 23.25

RDB Zone ID 11, Photo 003



RDB Zone ID 11, Photo 004



Field Photographs – MP 23.00 – 23.25

RDB Zone ID 11, Photo 005



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 23.0 to MP 23.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[ ]	MDEQ	[ ]	Enbridge [ ]
SOTF	START	[ ]	MDEQ	[ ]	Enbridge [ ]
PI	START	[ ]	MDEQ	[ ]	Enbridge [ ]
FLS	START	[ ]	MDEQ	[ ]	Enbridge [ ]
Inundation Model	START	[ ]	MDEQ	[ ]	Enbridge [ ]

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[ ] START — 6/9/2011 Date

ISAAC ABOULAFIA Printed Name

[ ] MDEQ — 6/9/11 Date

Michelle DeLong Printed Name

[ ] Enbridge — 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 23.00 to MP 23.25, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/19/11 Date

Matthew Mucciarone Printed Name

_____ MDEQ — 4/19/11 Date

Kathleen Fairchild Printed Name

_____ Enbridge — 4-19-11 Date

Hans Wranka Printed Name

8 Zones Identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.00 to MP 23.25, Unique ID 23.25 LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START — 5/9/11 Date

THOMAS P. GRAAN Printed Name

MDEQ — 5-9-11 Date

William Keiper Printed Name

Enbridge — 5/9/2011 Date

Laura Neumeier Printed Name

"Nooil" point collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP ~~23.25~~ 23.00 OTS to MP ~~23.50~~ 23.25 OTS, Unique ID —, Bank R and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5-21-11 Date

Rex Johnson — Printed Name

James M. Gamble — MDEQ — 5-21-11 Date

James M. Gamble — Printed Name

[signature] — Enbridge — 21 May 11 Date

Mark Sera — Printed Name

This signoff covers the portion of the segment documented by the YUMA track dated 21 May 11. Additional assessment will be conducted once river safety restrictions are lifted

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.25 (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 11 May 2011 — Date

Kevin Johnson — Printed Name

[signature] — MDEQ — 5/11/11 — Date

SARAH VAN DELFZIJL — Printed Name

[signature] — Enbridge — 11 May 11 — Date

Derek Senn — Printed Name

The area mapped by the YUMA track log on 11 May 11 was adequately assessed based on the inundation model. The remaining portion of the segment will be assessed at a later date with different team members.

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.00 to MP 23.25, Unique ID –, Bank R and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START — 5/26/11 Date

Rex Johnson Printed Name

Dana Stroven MDEQ — 5/26/11 Date

Dana Stroven Printed Name

Enbridge — 26 May 11 Date

Derek Senn Printed Name

This signoff covers the portion of the segment assessed on 26 May 11, as documented by the YUMA trackleg. This segment contains a large inundated area (at the downstream end) that was not shown by the model. This area contained water upto 5.5 feet deep. This inundated area was partially assessed by airboat and poling, but a complete assessment of the entire inundated area could not be done. A second inundated area (water upto three feet deep) was present at the upstream end of the segment. The inundated area extends out side the model boundary, and was documented with a SORT point. This area will dry out and could be further assessed then

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 23.00 to MP 23.25, Unique ID 1, Bank: RDB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6/7/11 Date
Rex Johnson	Printed Name	
[signature]	MDEQ	6/7/11 Date
Dana Strouse	Printed Name	
[signature]	Enbridge	6/7/11 Date
Nate Hehir	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 23.00 to MP 23.25, Unique ID 6, Bank RDB and/or Island —

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/8/11 — Date

Rex Johnson — Printed Name

Dana Strouse — MDEQ — 6/8/11 — Date

Dana Strouse — Printed Name

Enbridge — 6/8/11 — Date

Nate Hehir — Printed Name

- Assessed MP 23.25 Feature 6 RDB

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 23.00 to MP 23.25, Unique ID RDB1, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/8/11 Date

Rex Johnson Printed Name

[signature] MDEQ — 6/8/11 Date

Dana Strouse Printed Name

[signature] Enbridge — 6/8/11 Date

Nate Hehir Printed Name

- Assessed 23.25 RDB1 feature

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 23.00 to MP 23.25, Unique ID 41, Bank: RDB and/or Island —.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/08/11 — Date
Rex Johnson — Printed Name

Dana Stroze — MDEQ — 6/8/11 — Date
Dana Stroze — Printed Name

Nate Hehir — Enbridge — 6/8/11 — Date
Nate Hehir — Printed Name

- completed visual assessment from boat due to steep bank.

Segment 23.25 – 23.50

MP 23.25 to MP 23.50

The LDB of segment 23.50 consists of forested wetland swamp along the shoreline and within the overbank. Meander scars located approximately 900 feet southeast from the river are present within the overbank. The reassessment identified four points, four polygons and one linear transect. In general, a trace occurrence of oil coated and/or stained debris was documented at most locations. Trace distributions of oil covered debris were documented within Polygon 4 LDB. Traces of surface oil residue on the ground surface were observed at Point 7 LDB, Linear Transect 1 LDB, and Polygons 2 LDB, 4 LDB, 6 LDB and 8 LDB. Trace occurrences of tar patties were observed at Polygon 4 LDB and Point 3 LDB located within Polygon 4 LDB. The FLS data identified a suspected oil signature, although the SORT program did not identify surface oil at this location.

Poling of the meander scars on the LDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 23.50 consists of forested wetland swamp on the shoreline and within the overbank at the beginning of the segment which transitions to a low vegetated bank at the shore line and farmland at the overbank. The reassessment identified two points and one linear transect. In general, traces of tar coated or oil stained trunks and stems were documented at all locations.

Poling of the back channel on the RDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

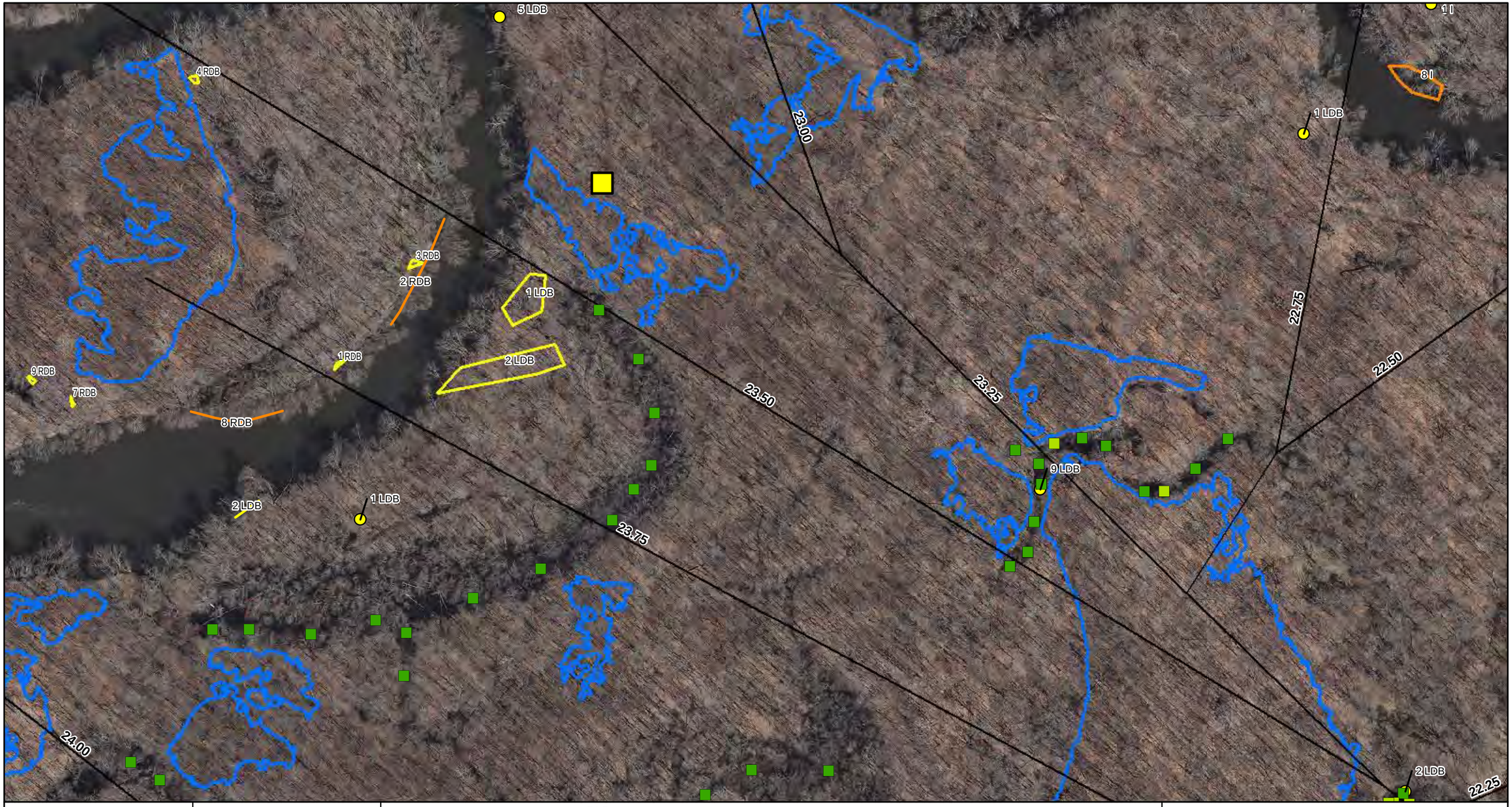
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP23.25-MP23.50 North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

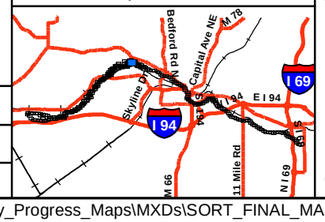
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP23.25-MP23.50 South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 23.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)				Muccianti, Marcus
																								Fairchild, Katie
		4/19/2011	13:46																		42.36002	-85.29840		Wronka, Hans
2	Overbank			☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)				Muccianti, Marcus
																								Fairchild, Katie
		4/19/2011	13:54																		42.35953	-85.29796		Wronka, Hans
3	Overbank			☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)				Muccianti, Marcus
																								Fairchild, Katie
		4/19/2011	14:06																		42.35965	-85.29848		Wronka, Hans
4	Overbank			☐	☑	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)				Muccianti, Marcus
																								Fairchild, Katie
		4/19/2011	14:16																		42.35965	-85.29838		Wronka, Hans
5	Shoreline			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)				Muccianti, Marcus
																								Fairchild, Katie
		4/19/2011	14:55																		42.35831	-85.29607		Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution				
Mile Marker: 23.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Fairchild, Katie
4/19/2011	15:08																	42.35871	-85.29781		Wronka, Hans
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Fairchild, Katie
4/19/2011	15:13																	42.35858	-85.29810		Wronka, Hans
8	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)		merge polygons	Muccianti, Marcus Fairchild, Katie
4/19/2011	15:30																	42.35926	-85.29812		Wronka, Hans
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Graan, Tom Keiper, Bill
5/9/2011	15:56																	42.35705	-85.29525		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 23.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Low Vegetated Bank		possibly tar ciated tree overgangung river	Johnson, Rex / Gamble, James (Matt)
5/22/2011	14:38																	42.35922	-85.30004		Senn, Derreck
3	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Johnson, Rex / Gamble, James (Matt)
5/22/2011	14:52																	42.35982	-85.29978		Senn, Derreck
4	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Johnson, Rex / Gamble, James (Matt)
5/22/2011	14:56																	42.35982	-85.29977		Senn, Derreck

Photo Logs

Field Photographs MP 23.25 – MP 23.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 23.25 – MP 23.50

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 23.25 – MP 23.50

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 23.25 – MP 23.50

LDB Zone ID 7, Photo 001



LDB Zone ID 8, Photo 001



Field Photographs MP 23.25 – MP 23.50

LDB Zone ID 9, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 23.25 – MP 23.50

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 23.25 – MP 23.50

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 23.25 to MP 23.50, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MCD	Enbridge DB
SOTF	START	[signature]	MDEQ	MCD	Enbridge DB
PI	START	[signature]	MDEQ	MCD	Enbridge DB
FLS	START	[signature]	MDEQ	MCD	Enbridge DB
Inundation Model	START	[signature]	MDEQ	MCD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/19/11 Date

Marcus Muccione Printed Name

[signature] MDEQ — 4-19-11 Date

Kathleen Fairchild Printed Name

[signature] Enbridge — 4-19-11 Date

Hans Wronka Printed Name

3 zones Identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.50, Unique ID 23.50 LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/9/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5-9-11 — Date

William Keiper — Printed Name

Laura Neumeier — Enbridge — 5/9/2011 — Date

Laura Neumeier — Printed Name

Poling points collected by YUMA

One sort point collected by YUMA

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.50, Unique ID ~, Bank R and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — Date 5/22/11 (RJ) 1535

Rex Johnson — Printed Name

James M. Gamble — MDEQ — Date 5/22/11

James M. Gamble — Printed Name

[signature] — Enbridge — Date 22 May 11

Dave Sea — Printed Name

Two Unassessable areas were mapped near the upstream segment make (An inundated channel and a flooded overbank area). This signoff covers the portion of the segment documented by the YUMA Track log dated 22 May 11, which extends from segment line 23.50 upstream to the inundated areas that were mapped.

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.50, Unique ID —, Bank R and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START — 5/26/11 Date

Rex Johnson Printed Name

Dana Strouse MDEQ — 5/26/11 Date

Dana Strouse Printed Name

Enbridge — 5/26/11 Date

Printed Name

This sign off covers the portion of the segment assessed on 26 May 11, as documented by the YUMA tracking. This segment contains a large inundated area that was not shown by the model. This area contained water upto 5.5 feet deep. This inundated area was partially assessed by airboat and poling, but a complete assessment was not done.

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.50, Unique ID RDB2, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

Nothing to assess. Location on high ground on a grassy field road.

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5/26/11 Date
Jonathan E Sauck	Printed Name	
[signature]	MDEQ	5/26/11 Date
Ryan N. Williams	Printed Name	
David Straud	Enbridge	5/26/11 Date
David Straud	Printed Name	

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.50, Unique ID RDB6, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/26/11 Date

Jonathan Sandz Printed Name

_____ MDEQ — 5/26/11 Date

Ryan R. Bloch Printed Name

David Strand Enbridge — 5/26/11 Date

David Stanco Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.25 to MP 23.50, Unique ID RDB 7, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/26/11 Date

Jonathan E Sands Printed Name

[signature] MDEQ — 5/26/11 Date

Ryan P. [signature] Printed Name

David Strand Enbridge — 5/26/11 Date

[signature] Printed Name

Segment 23.50 – 23.75

MP 23.50 to MP 23.75

The LDB of segment 23.75 consists of forested wetland swamp along the shoreline and within the overbank. An oxbow lake is located southeast of the river that extends from MP 23.50 into segment 24.00. Meander scars are located beyond the oxbow lake. The reassessment identified two polygons on the LDB. A trace occurrence of surface oil residue and coated and stained debris was identified on the ground surface in both polygons. A trace distribution of tar patties was also observed on the ground surface within Polygon 2 LDB.

Poling of the oxbow lake and meander scar on the LDB within this segment was completed at sixteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 23.75 generally consists of forested wetland swamp with sand-gravel shoreline noted at the beginning of the segment. The reassessment identified three polygons and one linear transect. In general, traces of oil coated debris and/or trunks and stems were identified within the three polygons. A trace distribution of tar balls and a film on ponded water were documented at Linear Transect 2 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP23.50-MP23.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP23.50-MP23.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 23.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)		used tracklog backup	Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	16:49																	42.35705	-85.29602		Wronka, Hans
2	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/19/2011	17:00																	42.35668	-85.29635		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 23.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Strouse, Dana
5/12/2011	14:37																	42.35681	-85.29695		Hehir, Nate
2		☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	T	Sand-Gravel shoreline		TAR BALLS OBSERVED <0.2 CM DIAMETER MAX	Johnson, Kevin
																					Strouse, Dana
5/12/2011	14:50																	42.35741	-85.29639		Hehir, Nate
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Strouse, Dana
5/12/2011	15:00																	42.35721	-85.29658		Hehir, Nate
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		NEEDS RENUMBERED	Johnson, Kevin
																					Strouse, Dana
5/13/2011	15:19																	42.35801	-85.29784		Senn, Derreck

Photo Logs

Field Photographs MP 23.50 – MP 23.75

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 23.50 – MP 23.75

LDB Zone ID 2, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 23.50 – MP 23.75

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 23.50 – MP 23.75

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001



Field Photographs MP 23.50 – MP 23.75

RDB Zone ID 3, Photo 002



RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 23.5 to MP 23.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MCD	Enbridge
SOTF	START		MDEQ	MCD	Enbridge
PI	START		MDEQ	MCD	Enbridge
FLS	START		MDEQ	MCD	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOUCAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 23.50 to MP 23.75, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/19/11 Date

Lamus Mueller Printed Name

Kat Fairchild MDEQ — 4-19-11 Date

Kathleen Fairchild Printed Name

[signature] Enbridge — 4-19-11 Date

Hans Wienkus Printed Name

2 Zones Identified

Limited Access Due to High Property Fence

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.50 to MP 23.75, Unique ID ACCESS 23.75, Bank LOB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/09/11 — Date

Rex Johnson — Printed Name

MDEQ — 5/9/11 — Date

MATT WERSNER — Printed Name

Enbridge — 5/9/11 — Date

KEN KATTA — Printed Name

Tetra Tech — 5/9/2011

Craig A Wiemann

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.50 to MP 23.75, Unique ID LDB1, Bank LOB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. CREATED TODAY.

Rex Johnson START — 5/09/11 Date

Rex Johnson Printed Name

MDEQ — 5/9/11 Date

MATT WESCHER Printed Name

Enbridge / TT — 5/9/2011 Date

Craig A Wiemann Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.50 to MP 23.75, Unique ID LOB2, Bank LOB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. CREATED TOMY

[signature] START — 5/09/11 Date

Lex Johnson Printed Name

[signature] MDEQ — 5/9/11 Date

MATT D WESENER Printed Name

[signature] Enbridge/TT — 5/9/2011 Date

Craig A Wieman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

WK TG WK TG

Segment ID: From MP ~~22.25~~ 23.50 to MP ~~22.50~~ 23.75, Unique ID ~~Polygon~~ ~~22.50~~ * 23.75 LDB2 **, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

This is the original sign-off.

Can we change the MP labeling to 23.75 LDB2?

rerun report & map

Thomas P. Graan 5/9/11 Date

THOMAS P. GRAAN

[signature] 9-11 Date

William Keiper

[signature] 5/9/11 Date

Laura Neumeier Printed Name

* This was a new polygon created for a pond outside inundation area, but within LDB Access L (spans 22.50 and 23.75)

Poling points collected by YUMA

1 SORT point for stain on tree.

5/11/11 ** Unique ID was changed from "22.50 Polygon" to "23.75 LDB 2". JN

5/11/11 Noted in STRIKE 2 log book.
Thomas P. Graan
[signature] 5-11-11

X:\2011_Reassessment\Sign-Off Sheets

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 23.50 to MP 23.75, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 13 May 2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/13/11 Date

Dana Strouse Printed Name

[signature] Enbridge — 13 May 11 Date

Derek Senn Printed Name

Portions of this segment were assessed/mapped previously and signed off on at that time. This sign-off covers the portion of the segment assessed on 13 May 11, as documented on the RUNA Tracking

Segment 23.75 – 24.00

MP 23.75 to MP 24.00

The LDB of segment 24.00 consists of forested wetland swamp along the shoreline and within the overbank. An oxbow lake is located southeast of the river that extends from MP 23.75 and onto segment 24.00, and meander scars are located along MP 24.00. The reassessment identified one point and one linear transect. A trace coating of surface oil residue was documented on the ground surface at both locations.

Poling of the oxbow lake and meander scars on the LDB within this segment was completed at twenty-three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 24.00 generally consists of forested wetland swamp on the shoreline and within the overbank. A low vegetated bank is present at Point 1 RDB. The reassessment identified six points, two polygons, and one linear transect. Traces of oil sheen (film) were observed on sediment and ponded water at Linear Transect 8 RDB. An oil film, most likely biological, was observed at Point 4 RDB, and a mixture of biological and petroleum film was observed at Point 5 RDB. In general, traces of oil coated debris or trunks and stems were identified at all other locations.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

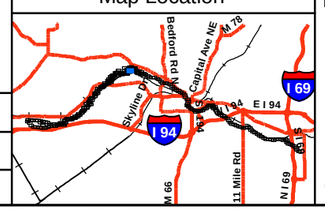
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP23.75-MP24.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP23.75-MP24.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 24																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	
4/19/2011	17:13																	42.35609 / -85.29685	
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	
4/19/2011	17:23																	42.35610 / -85.29761	

START
MDEQ
Enbridge Team Lead
Muccianti, Marcus
Fairchild, Katie
Wronka, Hans
Muccianti, Marcus
Fairchild, Katie
Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 24																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank		Johnson, Kevin / Strouse, Dana
5/12/2011	10:23																	42.35792 / -85.29906		Hehir, Nate
10	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin / Strouse, Dana
5/12/2011	13:15																	42.35670 / -85.29960		Hehir, Nate
11	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Johnson, Kevin / Strouse, Dana
5/12/2011	13:19																	42.35664 / -85.30001		Hehir, Nate
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)	PROBABLE BIOLOGIC SHEEN	Johnson, Kevin / Strouse, Dana
5/12/2011	11:43																	42.35681 / -85.30053		Hehir, Nate
5	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Sand-Gravel shoreline	POSSIBLE BIOLOGIC SHEEN, POSSIBLE MIX, SHEEN IN RIVER WATER	Johnson, Kevin / Strouse, Dana
5/12/2011	11:48																	42.35682 / -85.30074		Hehir, Nate

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 24																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Kevin / Strouse, Dana
5/12/2011	11:57																	42.35636	-85.29947		Hehir, Nate
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Strouse, Dana
5/12/2011	12:09																	42.35664	-85.29854		Hehir, Nate
8		☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Sand-Gravel shoreline		SHEEN ON SEDIMENT AND WATER	Johnson, Kevin / Strouse, Dana
5/12/2011	12:53																	42.35658	-85.29732		Hehir, Nate
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Strouse, Dana
5/12/2011	13:08																	42.35671	-85.29885		Hehir, Nate

Photo Logs

Field Photographs MP 23.75 – MP 24.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 23.75 – MP 24.00

RDB Zone ID 1, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 23.75 – MP 24.00

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 23.75 – MP 24.00

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 23.75 – MP 24.00

RDB Zone ID 8, Photo 001



RDB Zone ID 9, Photo 001



Field Photographs MP 23.75 – MP 24.00

RDB Zone ID 10, Photo 001



RDB Zone ID 11, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 23.75 to MP 24.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge [initials]
SOTF	START	[initials]	MDEQ	MD	Enbridge [initials]
PI	START	[initials]	MDEQ	MD	Enbridge [initials]
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
FLS observation #37 within pink polygon requires investigation.	6/7/11

Completeness Check Acknowledged

[signature] START — 6/7/2011 Date

ISAAC ABOUCAFIA Printed Name

Michelle DeLong MDEQ — 6/7/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/7/2011 Date

Dave Barnham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 23.75 to MP 24.00, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/19/11 Date

Marcus Williams Printed Name

[signature] MDEQ — 4-19-11 Date

Kathleen Fairchild Printed Name

[signature] Enbridge — 4-19-11 Date

Hans Wronka Printed Name

2 zones Identified

Limited Access Due to High Property Fence

[signature]

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.75 to MP 24.00, Unique ID LDB ACCESS, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5/09/11 Date

Rex Johnson Printed Name

[signature] MDEQ 5/9/11 Date

MATT WESENER Printed Name

[signature] Enbridge 5/9/11 Date

KEN KYTTA Printed Name

[signature] Tetra Tech 5/9/11

Craig A Wieman

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.75 to MP 24.00, Unique ID LDB3 Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. CREATED TODAY.

Rex Johnson START 5/09/11 Date

Rex Johnson Printed Name

MDEQ 5/9/11 Date

MATT WIENER Printed Name

Enbridge/TT 5/9/2011 Date

Craig A Wieman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.75 to MP 24.00, Unique ID L06L, Bank LOB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. CREATED TODAY

Rex Johnson START 5/9/11 Date

Rex Johnson Printed Name

MDEQ 5/9/11 Date

MATT WIEGNER Printed Name

Enbridge / TT 5/9/2011 Date

Craig A Wieman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 23.75 to MP 24.00, Unique ID LOB2, Bank LOB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. CRIENTED TODAY

[signature] START — 5/9/11 Date

Rex Johnson Printed Name

[signature] MDEQ — 5/9/11 Date

MATT WESENER Printed Name

[signature] Enbridge/TT — 5/9/2011 Date

Craig A Wiemann Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 23.75 to MP 24.00, (Bank) or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 12 MAY 2011 — Date

Kevin Johnson — Printed Name

Dana Strouse — MDEQ — 5/12/11 — Date

Dana Strouse — Printed Name

[signature] — Enbridge — 5/12/11 — Date

Nate Hebir — Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

Polygon 24.00 RDB I - no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Vlm _____ START 6/6/11 Date

John Verlac _____ Printed Name

_____ MDEQ 6/6/11 Date

Ben A. Zimmt _____ Printed Name

_____ Enbridge 6/6/11 Date

Michael Von Loon _____ Printed Name

Segment 24.00 – 24.25

MP 24.00 to MP 24.25

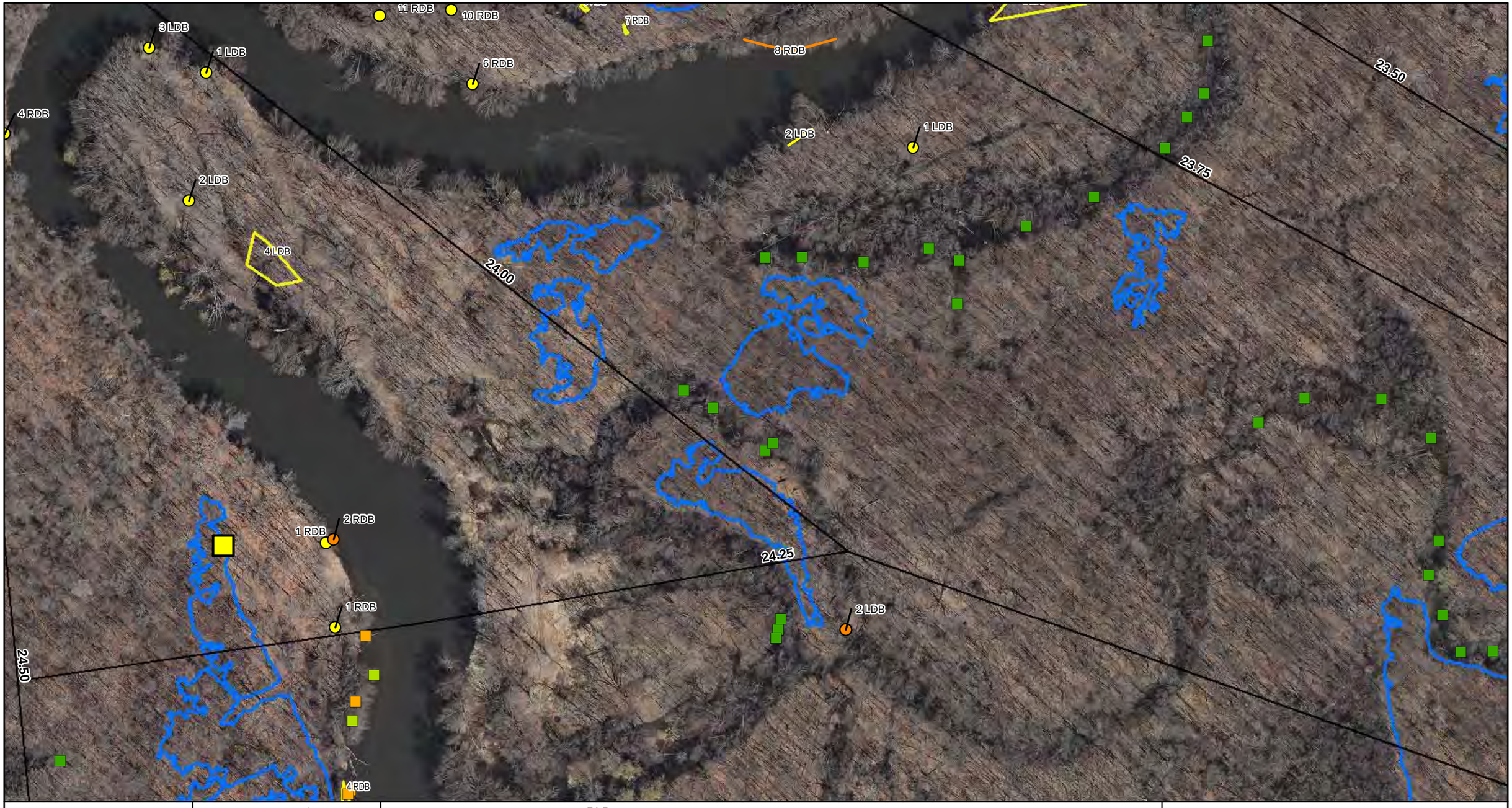
The LDB of segment 24.25 consists of forested wetland swamp along the shoreline and overbank. The reassessment identified three points and one polygon. A trace or sporadic coating of surface oil residue coated the ground surface at all locations.

The RDB of segment 24.25 generally consists of forested wetland swamp. A sand-gravel shoreline was characterized at Point 2 RDB. The reassessment identified three points and one polygon. Trace occurrences of oil coated trunks and stems were documented at Point 1 RDB and Polygon 3 RDB. A trace distribution of tar patties was observed on the ground surface at Point 4 RDB, and trace film on ponded water was observed at Point 2 RDB. The FLS data identified a suspected oil signature approximately 150 feet west of Points 1 RDB and 2 RDB.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

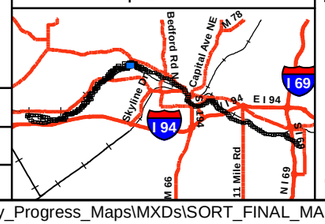
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.00-MP24.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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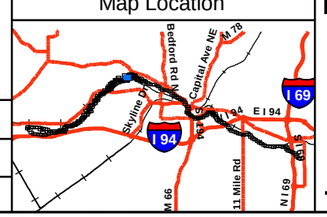
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP24.00-MP24.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 24.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)			Muccianti, Marcus Fairchild, Katie
4/20/2011	09:59																	42.35639	-85.30105		Wronka, Hans
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Fairchild, Katie
4/20/2011	10:07																	42.35584	-85.30114		Wronka, Hans
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Fairchild, Katie
4/20/2011	10:11																	42.35650	-85.30138		Wronka, Hans
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Fairchild, Katie
4/20/2011	10:20																	42.35555	-85.30048		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 24.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			1 PHOTO	Johnson, Kevin Strouse, Dana
		5/14/2011	15:41																		42.35435	-85.30031		Senn, Derreck
2	Overbank			☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Sand-Gravel shoreline			1 PHOTO SHEEN COMES TO SURFACE WHEN DISTURBING SEDIMENTS ALONG SHORELINE	Johnson, Kevin Strouse, Dana
		5/14/2011	15:45																		42.35436	-85.30026		Senn, Derreck
3				☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			NEEDS RENUMBERED	Wagner, Greg Strouse, Dana
		5/17/2011	13:46																		0.00000	0.00000		Senn, Derreck
4	Overbank			☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)				Wagner, Greg Strouse, Dana
		5/17/2011	13:54																		42.35612	-85.30223		Senn, Derreck

Photo Logs

Field Photographs MP 24. 00 – MP 24.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 24. 00 – MP 24.25

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 24. 00 – MP 24.25

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 24. 00 – MP 24.25

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 24. 00 – MP 24.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 24. 00 – MP 24.25

RDB Zone ID 3, Photo 003



RDB Zone ID 3, Photo 004



Field Photographs MP 24. 00 – MP 24.25

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 24. 00 – MP 24.25

RDB Zone ID 4, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 24.0 to MP 24.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge DB
SOTF	START		MDEQ		Enbridge DB
PI	START		MDEQ		Enbridge DB
FLS	START		MDEQ		Enbridge DB
Inundation Model	START		MDEQ		Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/8/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/8/11 Date

Michelle DeLong — Printed Name

Dave Bacham — Enbridge — 6/8/2011 Date

Dave Bacham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.00 to MP 24.25, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/20/11 Date

Marcus Mueller Printed Name

_____ MDEQ 4-20-11 Date

Kathleen Fairchild Printed Name

_____ Enbridge 4-20-11 Date

Hans Winkler Printed Name

4 ~~Points~~ Zones Identified

Limited Access Due to High Property Fence

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.0 to MP 24.25; Unique ID LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/9/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5-9-11 — Date

William Keiper — Printed Name

[signature] — Enbridge — 5/9/2011 — Date

Laura Neumeier — Printed Name

No oil point collected by YUMA

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.00 to MP 24.25, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 14 May 2011 Date

Kevin Sahnow Printed Name

[signature] MDEQ — 5/14/11 Date

Dana Strouse Printed Name

[signature] Enbridge — 14 May 11 Date

Derek Sem Printed Name

Segment 24.25 – 24.50

MP 24.25 to MP 24.50

The LDB of segment 24.50 consists of forested wetland swamp. Meander scars and a pond are located east of the river in this segment. The reassessment identified one point located in a meander scar. A broken occurrence of a mix of biological and petroleum film was identified at Point 2 LDB.

Poling of the meander scars, a pond, and shoreline on the LDB within this segment was completed at twelve locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 24.50 generally consists of a low vegetated bank along the shoreline and forested wetland swamp within the overbank. Back channels that flow into the river and segment 24.75 are present in the overbank. The reassessment identified one point and one polygon on the RDB in this segment. An oil stained stem was identified at Point 1 RDB and traces of oil coated and stained trunks and stems were documented at Polygon 4 RDB.

Poling of the back channels on the RDB within this segment was completed at eleven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.25-MP24.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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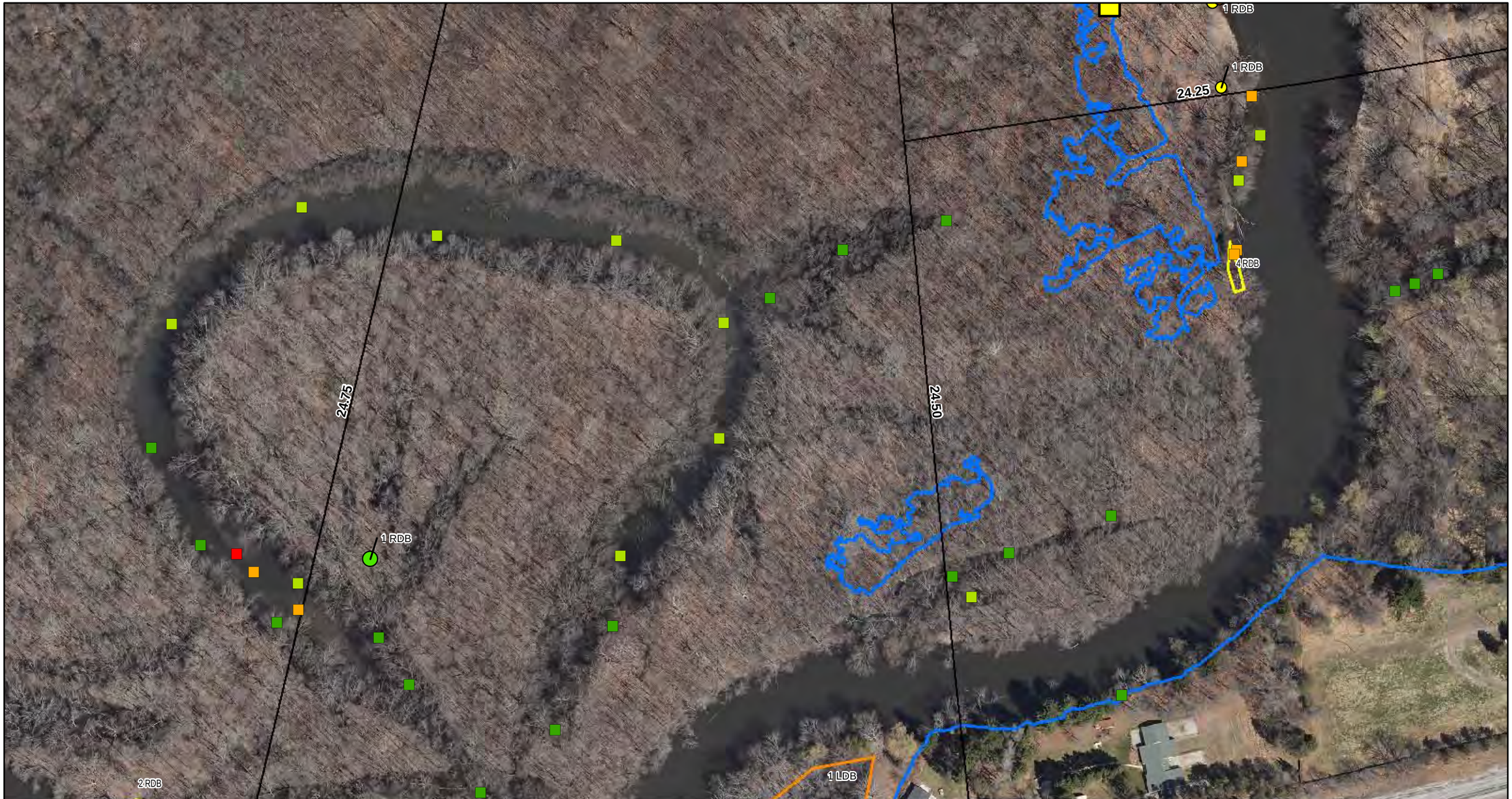
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.25-MP24.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 24.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-swamp (forested)		mix of oil/organic film disurbed sediments showed negative results	Graan, Tom
																					Keiper, Bill
5/9/2011	12:00																	42.35399	-85.29723		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 24.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	**START** / **MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	OL STAINED STEM
5/20/2011	13:02																	42.35397 / -85.30024	Hadwin, Eric / Washburn, Bruce / Kytta, Ken
4	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	OIL COATED AND STAINED TREES AND STEMS
5/20/2011	13:37																	42.35323 / -85.30023	Hadwin, Eric / Washburn, Bruce / Kytta, Ken

Photo Logs

Field Photographs MP 24.25– MP 24.50

LDB Zone ID 2, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 24.25– MP 24.50

RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 24.25 to MP 24.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle DeJong MDEQ — 6/13/11 Date

Michelle DeJong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Bank or Island: MRD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/20/11 Date

Marcus Marcum Printed Name

_____ MDEQ 4-20-11 Date

Kathleen Fairchild Printed Name

_____ Enbridge 4-20-11 Date

Hans Wranka Printed Name

One zone Identified for Reassessment when H2O Recedes

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID LDB1, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. POND POLYGONNED WITHIN EXISTING POLYGON. CREATED POINT.

Rex Johnson — START — 5/09/11 Date

Rex Johnson — Printed Name

[signature] — MDEQ — 5/9/11 Date

MATT WESSNER — Printed Name

[signature] — Enbridge IT — 5/9/11 Date

Craig A Wiemann — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID LDB Access L, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/9/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5/9/11 — Date

William Keiper — Printed Name

[signature] — Enbridge — 5/9/2011 — Date

Laura Neumeier — Printed Name

Strike/Poling points collected by YUMA

1 SORT point collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID LDB1 24.50, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Grann _____ START _____ 5/11/11 Date

THOMAS P. GRANN _____ Printed Name

~~Matt~~ _____ MDEQ _____ 5/11/11 Date

William Keiper _____ Printed Name

_____ Enbridge _____ 5/11/11 Date

Laura Neumeier _____ Printed Name

1 "no oil" point collected by YUMA

3 poling points collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 16 May 2011 Date

Kevin Johnson Printed Name

[signature] MDEQ — 5/16/11 Date

Dana Shreve Printed Name

[signature] Enbridge — 16 May 11 Date

Derek Sern Printed Name

This assessment was completed on 15 May 11.

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID RDB 1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/20/11 Date

Erik Hawman Printed Name

_____ MDEQ 5/20/11 Date

Bruce Washburn Printed Name

_____ Enbridge 5/20/11 Date

KEN KYTTA Printed Name

_____ Tetra Tech 5/20/11

Craig A Wieman

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID 2RDB, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5-25-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	5/25/11 Date
Ryan D. Blazic	Printed Name	
David Strand	Enbridge	5/25/11 Date
David Strand	Printed Name	

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID RDB3, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

No Oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/26/2011 Date

Jonathan Sowles Printed Name

_____ MDEQ — 5/26/11 Date

Ryan D. Blazic Printed Name

David Strand Enbridge — 5/26/11 Date

David Strand Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

Polygon 24.50RDBI - no 0.1

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 6/6/11 Date

John Verlanc Printed Name

_____ MDEQ 6/6/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 6/6/11 Date

Michael Van Loon Printed Name

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID RD82, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 6/10/11 Date

ERIK HADWIN Printed Name

_____ MDEQ — 6/10/11 Date

MATT WESENER Printed Name

_____ Enbridge — 6/10/11 Date

KEN KOTTA Printed Name

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

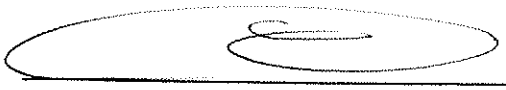
and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.25 to MP 24.50, Unique ID RDB 1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

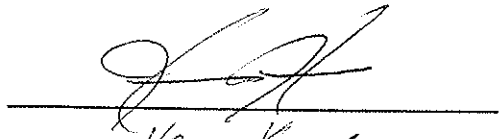
The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.


START — 6/10/11 Date

ERIK HADWIN Printed Name


MDEQ — 6/10/11 Date

MATT WESENER Printed Name


Enbridge — 6/10/11 Date

KEN KITA Printed Name

Segment 24.50 – 24.75

MP 24.50 to MP 24.75

The LDB of segment 24.75 consists of forested wetland swamp within the overbank. A back channel is located immediately off the LDB. The reassessment identified one point and one polygon. A trace and sporadic distribution of surface oil residue was identified on the ground surface at Point 2 LDB and Polygon 1 LDB, respectively. A sporadic coating of oil was also observed on trunks and stems within Polygon 1 LDB.

Poling of the back channel on the LDB within this segment was completed at six locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 24.75 generally consists of forested wetland swamp on the shoreline and within the overbank. A back channel, meander scar, and oxbow lake are present on the RDB of this segment. The reassessment did not identify any evidence of oil occurrences along the RDB. The FLS data identified a suspected oil signature near a back channel approximately 2,100 feet from the river and 75 feet from the 24.50 segment line. The SORT program did not identify surface oil at this location.

Poling of the back channels, meander scars, and oxbow lake on the RDB within this segment was completed at twenty-three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted in the segment.

The attachments provide additional details on this segment.

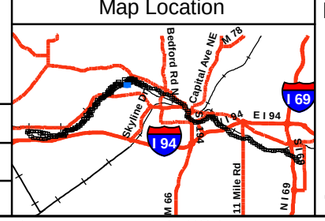
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

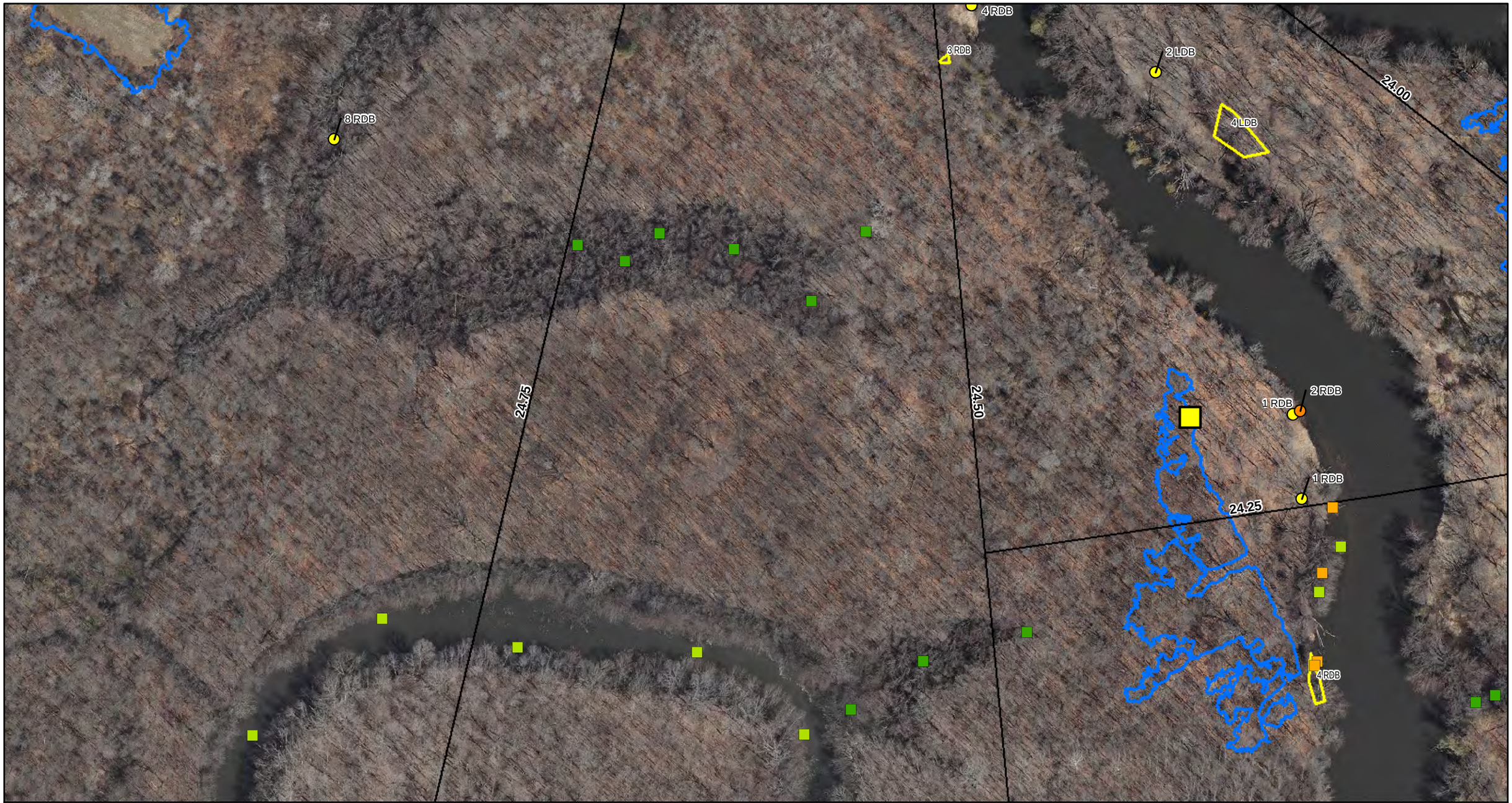
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.50-MP24.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

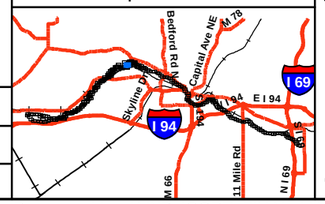
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.50-MP24.75 Right Bank Middle

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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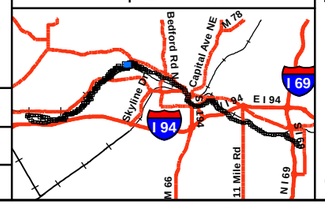
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.50-MP24.75 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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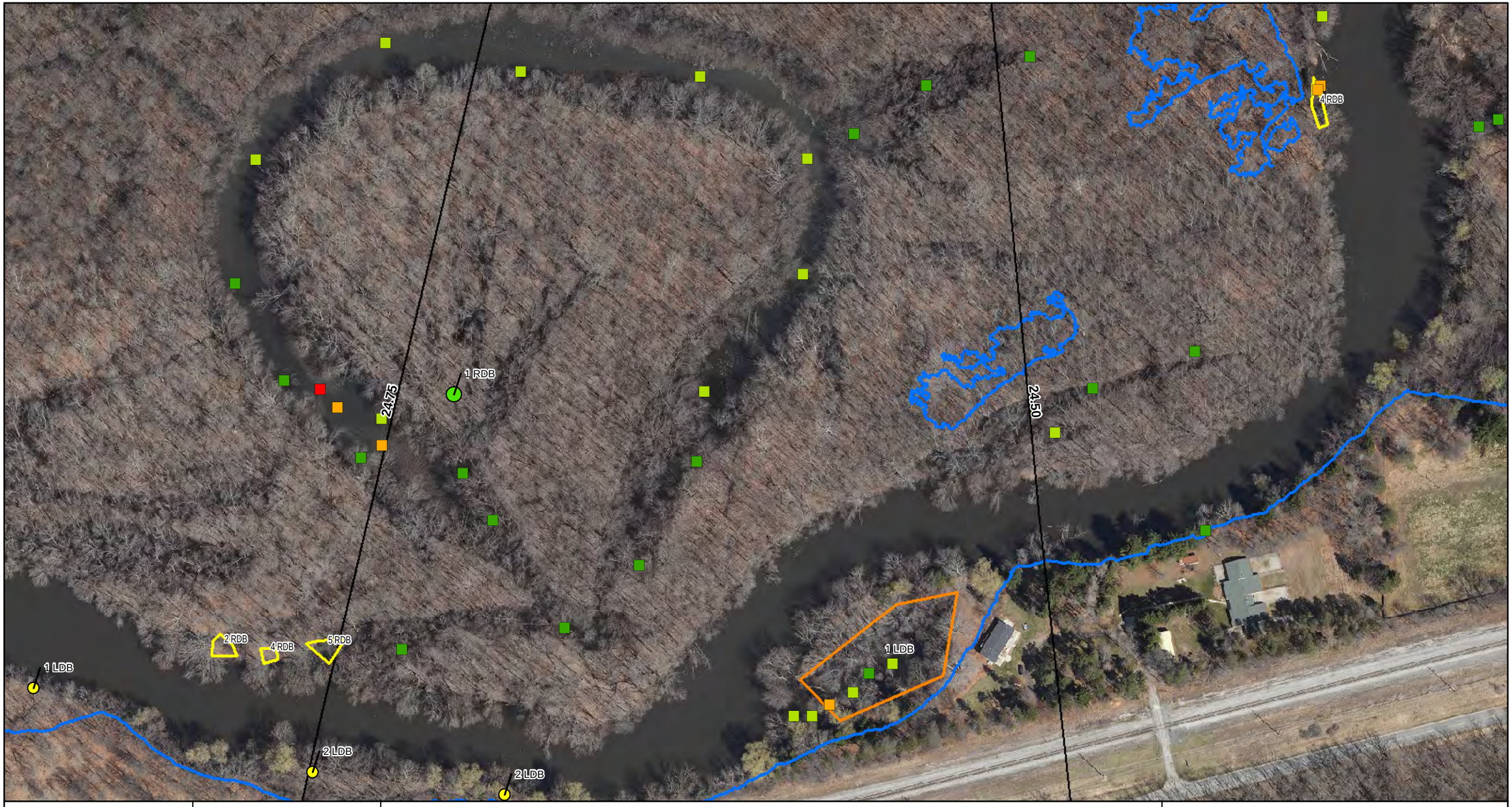
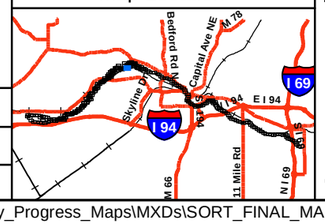
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.50-MP24.75 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 24.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	S	Wetland-swamp (forested)		TAR COATS ON TREES; FILM ON SOIL	Johnson, Rex
																					Wesener, Matt
5/8/2011	14:50																	42.35073	-85.30310		Kytta, Ken
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus
																					Fairchild, Katie
4/20/2011	11:48																	42.35012	-85.30492		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character									Oil Distribution				
Mile Marker: 24.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Wetland-swamp (forested)		applies to polygon 24.75rdb1. no oil.	verlack, john
																				Zimont, Ben
6/7/2011	13:03																42.35189	-85.30523		VanLoan, Mike

Photo Logs

Field Photographs MP 24.50 – MP 24.75

LDB Zone ID 1, Photo 001

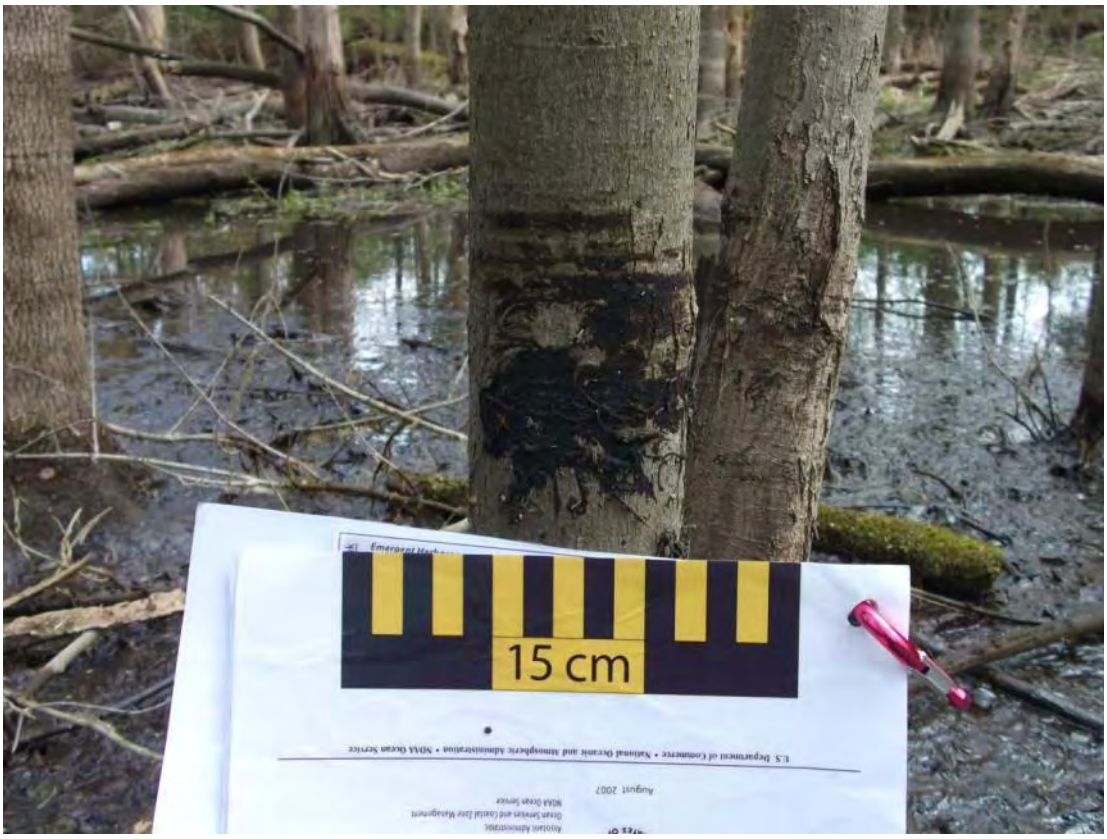


LDB Zone ID 1, Photo 002



Field Photographs MP 24.50 – MP 24.75

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001



Field Photographs MP 24.50 – MP 24.75

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 24.5 to MP 24.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[ ]	MDEQ	MD	Enbridge	DB
SOTF	START	[ ]	MDEQ	MD	Enbridge	DB
PI	START	[ ]	MDEQ	MD	Enbridge	DB
FLS	START	[ ]	MDEQ	MD	Enbridge	DB
Inundation Model	START	[ ]	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/9/2011 Date

ISAAC ABOULAFIA Printed Name

[signature] MDEQ — 6/9/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.50 to MP 24.75, Bank or Island: LBI, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/20/11 Date

Markus Muccione Printed Name

_____ MDEQ 4-20-11 Date

Kathleen Fairchild Printed Name

_____ Enbridge 4-20-11 Date

Hans Vronten Printed Name

2 Zones Identified (1 - Reassessment)

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24,50 to MP 24,75, Unique ID LOB 1, Bank ____ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/8/11 Date

Rex Johnson — Printed Name

[signature] — MDEQ — 5/8/11 Date

MATTHEW D WESENER — Printed Name

[signature] — Enbridge — 5/8/11 Date

KEN KUNTA — Printed Name

[signature] Tetra Tech — 5/8/2011

Craig A Wierman

X:\2011_Reassessment\Sign-Off Sheets

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.50 to MP 24.75, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 16 May 2011 — Date

Kevin Johnson — Printed Name

Dana Strouse — MDEQ — 5/16/11 — Date

Dana Strouse — Printed Name

[signature] — Enbridge — 16 May 11 — Date

Derek Senn — Printed Name

Inaccessible areas of standing water were mapped.

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.50 to MP 24.75, Unique ID RDB1, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

No Oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Jonathan Sanders — START — 5/26/2011 — Date

Jonathan Sanders — Printed Name

Ryan D Blazi — MDEQ — 5/26/11 — Date

Ryan D Blazi — Printed Name

David Strand — Enbridge — 5/26/11 — Date

David Strand — Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.50 to MP 24.75, Unique ID RDB2, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/26/11 Date

Jonathan E Santos Printed Name

_____ MDEQ — 5/26/11 Date

Ryan V Blazic Printed Name

David Strand Enbridge — 5/26/11 Date

David Strand Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.50 to MP 24.75, Unique ID RDB4, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/26/11 Date

Jonathan E Sandoz Printed Name

_____ MDEQ — 5/26/11 Date

Ryan P. Blazic Printed Name

David Strand Enbridge — 5/26/11 Date

David Strand Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.50 to MP 24.75, Unique ID RDB5, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

No Oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	5/26/2011 Date
Jonathan E Sauer	Printed Name	
_____	MDEQ	5/26/11 Date
Ryan D Blatz	Printed Name	
David Strand	Enbridge	5/26/11 Date
David Strand	Printed Name	

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 6/7/11 Date

John Vaske Printed Name

_____ MDEQ 6/7/11 Date

Ben A Zimont Printed Name

_____ Enbridge 6/7/11 Date

Michael Van Loan Printed Name

Completed polygons:

25.00 LDB I - no oil

25.00 3LDB - no oil

25.00 RDB 3 - no oil

24.75 RDB I - no oil

25.00 6RDB - no oil

25.00 7RDB - no oil

25.00 8RDB - no oil

25.00 9RDB - no oil

25.00 I RDB - no oil

25.00 3RDB → walked areas around points.

24.75 3RDB → No oil observed. Believe points are refreshing area polling has previously been done.

Segment 24.75 – 25.00

MP 24.75 to MP 25.00

The LDB of segment 25.00 consists of a forested wetland swamp along the shoreline and overbank. A back channel aligned parallel to the river flows into the river at the end of the segment. The reassessment identified oil occurrences at four points and one polygon. In general, traces of oil coated trunks and stems were documented at all locations and oil coated debris was also documented at Polygon 4 LDB.

Poling of the back channel on the LDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 25.00 consists of a forested wetland swamp along the shoreline and within the overbank. An oxbow lake that bisects segment 24.75 and numerous back channels that flow into the oxbow lake or river are present on the RDB. The reassessment identified three polygons, all within approximately 200 feet of the beginning of the segment. A trace occurrence of oil coated debris and/or trunks and stems were identified at all polygons. The FLS data identified a suspected oil signature approximately 1,200 feet northwest of the river and 100 feet from segment 25.00. The SORT program did not identify surface oil at this location.

Poling of the oxbow lake, back channels and tributaries on the RDB within this segment was completed at thirty-four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted in the segment.

The attachments provide additional details on this segment.

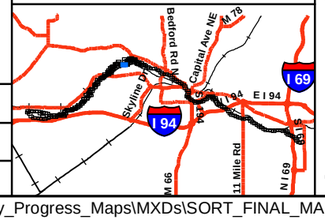
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.75-MP25.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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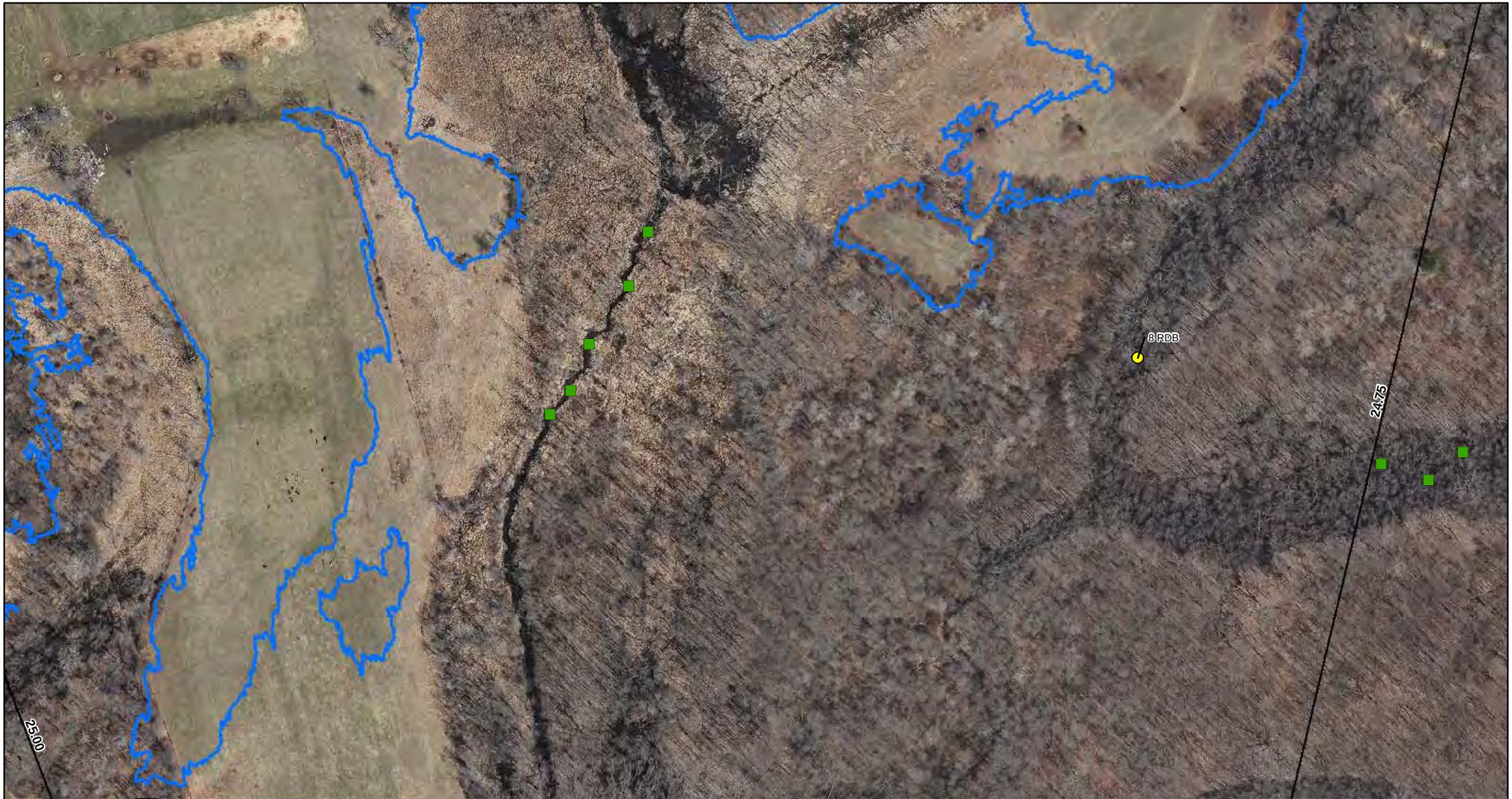
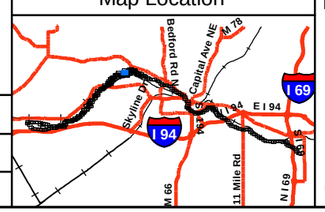
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.75-MP25.00 Right Bank Middle

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP24.75-MP25.00 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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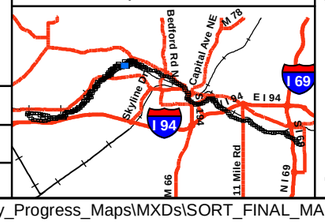
Aerial Photography Date: April 2011

25.50
25.00
24.75
1 RDB
2 RDB
4 RDB
5 RDB
7 RDB
1 RDB
3 RDB
8 RDB
6 LDB
7 LDB
4 LDB
1 LDB
2 RDB
4 RDB
5 RDB
2 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP24.75-MP25.00 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 25																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Strouse, Dana
5/16/2011	16:51																	42.35056	-85.30770		Senn, Derreck
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Strouse, Dana
5/16/2011	16:42																	42.35021	-85.30604		Senn, Derreck
4	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Strouse, Dana
5/16/2011	17:03																	0.00000	0.00000		Senn, Derreck
6	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Wagner, Greg / Strouse, Dana
5/17/2011	10:18																	42.35040	-85.30940		Senn, Derreck
7	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Wagner, Greg / Strouse, Dana
5/17/2011	10:21																	42.35045	-85.30921		Senn, Derreck

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution				
Mile Marker: 25																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
8	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		impounded wateron south side of rr grade, team agrees there is no connectio with river, no need to reassess	None Present
5/22/2011	11:16																	42.34952	-85.31001		Clampitt, Chris
																					Kytta, Ken

2011 Reassessment

| Bank: RDB | | Oil Thickness | | | | | Oil Character | | | | |

Photo Logs

Field Photographs – MP 24.75-25.00

LDB Zone ID 1; Photo 001



LDB Zone ID 2; Photo 001



Field Photographs – MP 24.75-25.00

LDB Zone ID 4; Photo 001



LDB Zone ID 4; Photo 002



Field Photographs – MP 24.75-25.00

LDB Zone ID 4; Photo 003



LDB Zone ID 6; Photo 001



Field Photographs – MP 24.75-25.00

LDB Zone ID 7; Photo 001



LDB Zone ID 8; Photo 001



Field Photographs – MP 24.75-25.00

RDB Zone ID 2; Photo 001



RDB Zone ID 2; Photo 002



Field Photographs – MP 24.75-25.00

RDB Zone ID 2; Photo 003



RDB Zone ID 2; Photo 004



Field Photographs – MP 24.75-25.00

RDB Zone ID 2; Photo 005



RDB Zone ID 2; Photo 006



Field Photographs – MP 24.75-25.00

RDB Zone ID 4; Photo 001



RDB Zone ID 4; Photo 002



Field Photographs – MP 24.75-25.00

RDB Zone ID 5; Photo 001



RDB Zone ID 5; Photo 002



Field Photographs – MP 24.75-25.00

RDB Zone ID 5; Photo 003



RDB Zone ID 5; Photo 004



Field Photographs – MP 24.75-25.00

RDB Zone ID 8; Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 24.75 to MP 25.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Areas within segment with no tract ID - and includes a FLS observation. Send team to cover area.	6/13/2011

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.75 to MP 25.00, (Bank) or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 16 May 2011 — Date

Kevin Johnson — Printed Name

Dana Strouse — MDEQ — 5/16/11 — Date

Dana Strouse — Printed Name

[signature] — Enbridge — 5/16/11 — Date

Derek Sean — Printed Name

Assessed the portion of the segment from 24.75 to the most property line of parcel K5-E-41Q.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 24.75 to MP 25.00, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 16 May 2011 — Date

Kevin Johnson — Printed Name

Dana Strouse — MDEQ — 5/16/11 — Date

Dana Strouse — Printed Name

[signature] — Enbridge — 16 May 11 — Date

Derek Senn — Printed Name

This sign-off only covers the portion of the segment documented by the RUMA track log dated 16 May 11. The remainder of the segment will be completed by different team members at a later date when property access is granted.

Inaccessible Areas were mapped requiring follow up assessment.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.75 to MP 25.00, Unique ID 25.00 LDB5, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	05.23.11 Date
Tori Gomez	Printed Name	
_____	MDEQ	5/23/11 Date
Christopher Clampitt	Printed Name	
_____	Enbridge	5/23/11 Date
KEN KUTA	Printed Name	
_____ Tetra Tech		5/23/2011
Craig A Wiemann		

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island: _____, Segment Length: 0.25 mile

Polygon 25.00 RDB4 - no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlac _____ START 6/6/11 Date

John Verlac Printed Name

_____ MDEQ 6/6/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 6/6/11 Date

Michael Van Laan Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

25.00 RDB I polygon. no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlac _____ START 6/6/11 Date

John Verlac Printed Name

_____ MDEQ 6/6/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 6/6/11 Date

Michael Van Laan Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island: _____, Segment Length: 0.25 mile

25.00RDB2 polygon - no oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlac _____ START 6/6/11 Date

John Verlac Printed Name

_____ MDEQ 6/6/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 6/6/11 Date

Michael Van Loon Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 6/7/11 Date

John Vaske Printed Name

_____ MDEQ 6/7/11 Date

Ben A Zimont Printed Name

_____ Enbridge 6/7/11 Date

Michael Van Loan Printed Name

Completed polygons:

25.00 LDB I - no oil

25.00 3LDB - no oil

25.00 RDB 3 - no oil

24.75 RDB I - no oil

25.00 6RDB - no oil

25.00 7RDB - no oil

25.00 8RDB - no oil

25.00 9RDB - no oil

25.00 I RDB - no oil

25.00 3RDB → walked areas around points.

24.75 3RDB → No oil observed. Believe points are refreshing area polling has previously been done.

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

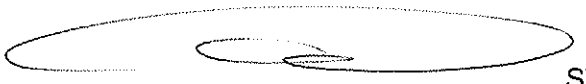
Strike Team

SIGN-OFF SHEET

Segment ID: From MP 22.75 to MP 23.00, Unique ID 23.00 RDB9, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

POLYGON CREATED NAMED 23.00 RDB14

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.



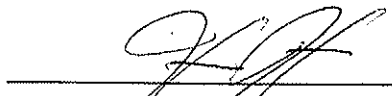
_____ START 6/10/11 Date

Erik Hoover Printed Name



_____ MDEQ 6/10/11 Date

MATT WESENER Printed Name



_____ Enbridge 6/10/11 Date

KEN KYTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 24.75 to MP 25.00, Unique ID MM, Bank RDB and/or Island —

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/10/11 Date

Rex Johnson — Printed Name

Dana Shouse — MDEQ — 6/10/11 Date

Dana Shouse — Printed Name

Nate Hehr — Enbridge — 6/10/11 Date

Nate Hehr — Printed Name

- Completed partial assessment of segment along with Team 3.
- Refer to YUMA track log for assessed area detail.
- No oil observed in area assessed.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 24.75 to MP 25.00, Unique ID NN, Bank RDB and/or Island —

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/10/11 Date

Rex Johnson — Printed Name

Dana Strouse — MDEQ — 6/10/11 Date

Dana Strouse — Printed Name

Nate Hehir — Enbridge — 6/10/11 Date

Nate Hehir — Printed Name

- No oil observed.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 24.75 to MP 25.00, Unique ID 25.00 RDB MM, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graham — START — 6/10/11 — Date

THOMAS P. GRAHAM — Printed Name

[signature] — MDEQ — 6/10/11 — Date

Christopher Clampitt — Printed Name

[signature] — Enbridge — 6/10/2011 — Date

Laura Neumeier — Printed Name

Strike points collected by YUMA.
Also refer to Strike Team 2 sign off for track log West of poled channel for completion of this segment. Combined track logs of Team 2 and Team 3 complete assessment of this polygon.

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island: _____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 06/10/2011 Date

John Verlee Printed Name

_____ MDEQ — 6/10/11 Date

Ben A. Zimmt Printed Name

_____ Enbridge — 6-10-11 Date

Michael Van Loan Printed Name

Completed:

Segment 36.00 LDB - 2 features today, 3 total

Polygons 36.50 RDB PP - 2 features

25.00 RDB OO - completed in conjunction w/ Ken Kittle team. Team 5 found no oil.

Segment 25.00 – 25.25

MP 25.00 to MP 25.25

The LDB of segment 25.25 consists of forested wetland swamp along the shoreline and within the overbank. A low vegetated bank is present at Point 4 LDB. A stream flows into the river near MP 25.00 and a back channel aligned parallel to the river is located within the small point bar on the LDB. The reassessment identified two points and one polygon. In general, traces of oil coated and stained debris and/or trunks and stems were identified at all locations.

Poling of the back channel and confluence of the stream on the LDB within this segment was completed at thirteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 25.25 consists of forested wetland swamp along the shoreline and within the overbank. Several back channels that flow into the river within this segment are present on the RDB. The reassessment identified five points and three polygons. A sporadic distribution of oil coated to stained debris and/or trunks and stems were identified in most areas. Trace to sporadic occurrences of sheen (film) on ponded water were identified at Point 1 RDB and Polygons 3 RDB and 8 RDB. A PI observation noted as an Unconfirmed Area of Interest was identified within the river along the RDB and approximately 100 feet west of Point 4 LDB.

Poling of the back channels on the RDB within this segment was completed at nineteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in the segment.

The attachments provide additional details on this segment.

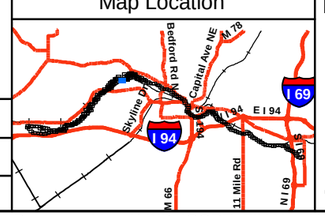
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP25.00-MP25.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP25.00-MP25.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 25.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
2	Overbank	5/23/2011	15:31	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.34945	-85.31297	COATED/STAINED STEM	Gomez, Tori / Clampitt, Chris / Kytta, Ken
3	Shoreline and Overbank	5/23/2011	15:40	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.34930	-85.31315	COATED AND STAINED BRANCHES AND DEBRIS	Gomez, Tori / Clampitt, Chris / Kytta, Ken
4	Shoreline	5/23/2011	16:13	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	42.34890	-85.31358	COATED/STAINED OVERHANGING VEGETATION ALONG SHORELINE	Gomez, Tori / Clampitt, Chris / Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 25.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON PONDED WATER	Johnson, Rex / Wesener, Matt
5/8/2011	15:15																	42.35033	-85.31126		Kytta, Ken
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)		TAR COATED STICKS	Johnson, Rex / Washburn, Bruce
4/20/2011	10:52																	42.35093	-85.31108		Kytta, Ken
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		FILM AND SHEEN ON WATER/MUD	Johnson, Rex / Wesener, Matt
5/8/2011	15:26																	42.35026	-85.31150		Kytta, Ken
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)		TAR COATED STEMS	Johnson, Rex / Washburn, Bruce
4/20/2011	16:32																	42.35074	-85.31172		Kytta, Ken
5	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)		STAINED TREES	Johnson, Rex / Washburn, Bruce
4/20/2011	16:39																	42.35060	-85.31257		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 25.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-swamp (forested)		TAR COATED DEBRIS AND STAINED TREES	Johnson, Rex
																					Washburn, Bruce
4/20/2011	16:54																	42.35042	-85.31343		Kytta, Ken
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)		TAR COAT ON TREE	Johnson, Rex
																					Wesener, Matt
5/8/2011	15:19																	42.35046	-85.31148		Kytta, Ken
8	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		surface water sheen. sheen emererges from footprints.	Muccianti, Marcus
																					Veldkamp, Chris
5/25/2011	10:20																	42.35018	-85.31138		VanLoan, Mike

Photo Logs

Field Photographs MP 25.00 – MP 25.25

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 25.00 – MP 25.25

LDB Zone ID 4, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 25.00 – MP 25.25

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 25.00 – MP 25.25

RDB Zone ID 3, Photo 002



RDB Zone ID 4, Photo 001



Field Photographs MP 25.00 – MP 25.25

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 25.00 – MP 25.25

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 25.00 – MP 25.25

RDB Zone ID 7, Photo 001



RDB Zone ID 8, Photo 001



Field Photographs MP 25.00 – MP 25.25

RDB Zone ID 8, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 25.0 to MP 25.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge
SOTF	START		MDEQ	MD	Enbridge
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Assess PI observation point KR 58. Cove team PI photo to ensure they cover area to rivers edge.	6/8/2011

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.00 to MP 25.25, Unique ID _____, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	05.23.11 Date
Tori Gomez	Printed Name	
_____	MDEQ	5/23/11 Date
Christopher Clampitt	Printed Name	
_____	Enbridge	5/23/11 Date
KEN KATTA	Printed Name	
_____ Tetra Tech		5/23/2011
Craig A Wiekman		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 25.0 to MP 25.25, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

W/ EXCEPTION OF AREAS COVERED BY WATER WHICH WERE DOCUMENTED ON YUMA.

Roy Johnson — START — 4/20/11 — Date

Rex Johnson — Printed Name

Bruce L Washburn — MDEQ — 4/20/11 — Date

Bruce Washburn — Printed Name

Enbridge — 4/20/11 — Date

KEN KYTTA — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.00 to MP 25.25, Unique ID 25,25 RDB 1, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/8/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 5/8/11 — Date

MATT WESENER — Printed Name

[signature] — Enbridge — 5/8/11 — Date

KEN KYTTA — Printed Name

by [signature] — 5/9/2011

Craig A. Wieman

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.10 to MP 25.25, Unique ID ROB3, Bank ROB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5/8/11 Date

Rex Johnson Printed Name

MDEQ 5/8/11 Date

MATT WESSNER Printed Name

Enbridge/TT 5/8/2011 Date

Craig A Wieman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.00 to MP 25.25, Unique ID RDB4 (25.25), Bank ROB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. CHANNEL SEGMENT CREATED TODAY (NOT PREVIOUSLY POLYGONED).

Rex Johnson — START — 5/8/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 5/8/11 — Date

MATT WESENER — Printed Name

[signature] — Enbridge/TT — 5/8/2011 — Date

Craig A Wieman — Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 25.0 to MP 25.25, Bank or Island: RDB, Segment Length: 0.25 mile

Area KR58 on peninsula | 1 feature (sheen on standing water)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/25/11 Date

Marcus Marcuse Printed Name

Chris Veldkamp MDEQ — 5/25/11 Date

Chris Veldkamp Printed Name

[signature] Enbridge — 5-25-11 Date

Michael Van Loon Printed Name

Segment 25.25 – 25.50

MP 25.25 to MP 25.50

The LDB of segment 25.50 is a cut bank that consists of a sand-gravel shoreline and forested wetland swamp within the overbank. A back channel located in segment 25.75 flows into the river at the 25.50 segment line. The reassessment identified two linear transects on the LDB. In general, traces of oil coated and stained debris, trunks and stems, and vegetation overhanging the river were observed at these locations.

Poling of the back channel on the LDB within this segment was completed at eleven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

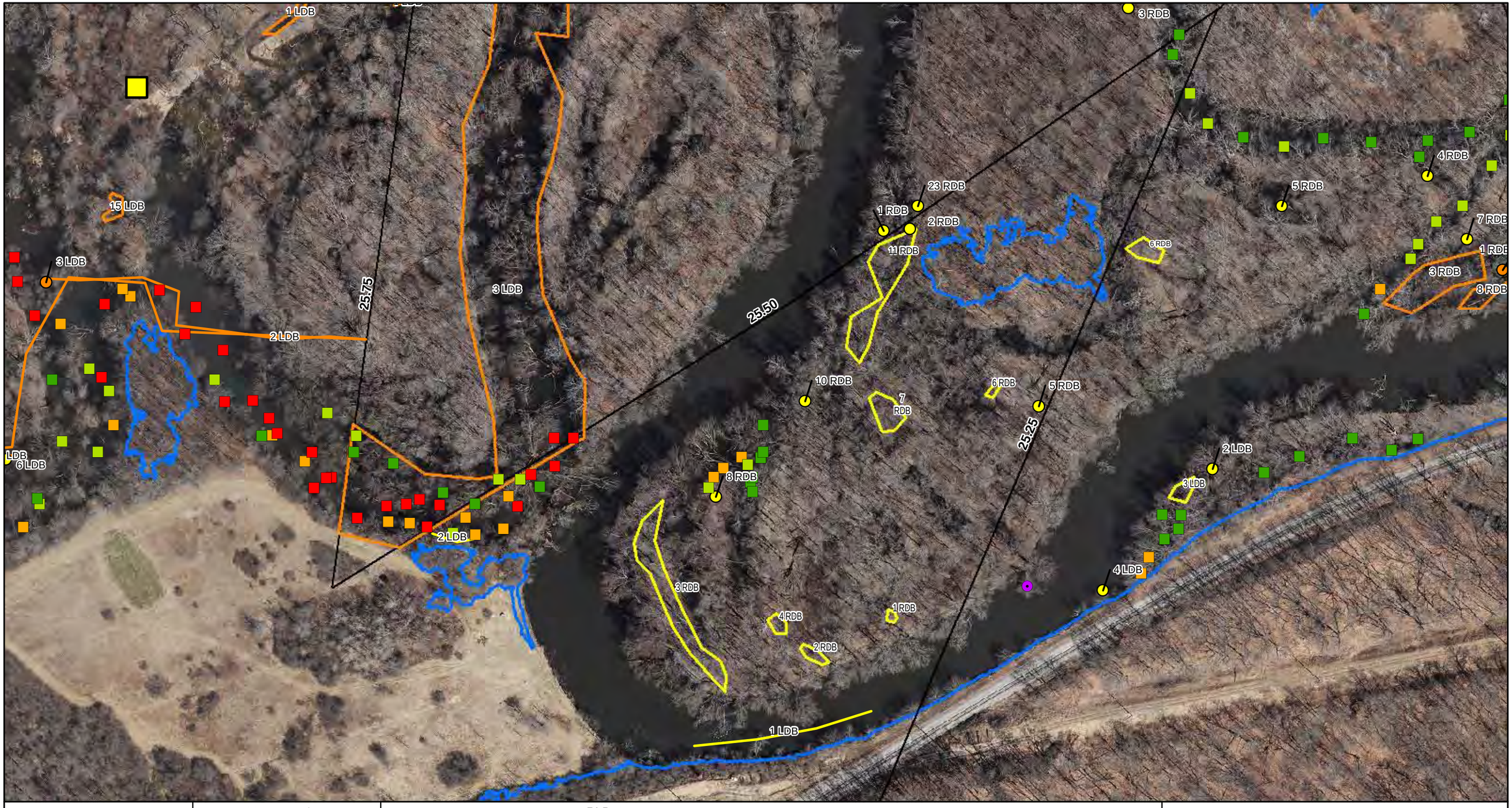
The RDB of segment 25.50 is a point bar that consists of a forested wetland swamp along the shoreline and within the overbank. Scrub-shrub wetlands are also present on the point bar at the beginning of the segment. Several back channels within the point bar are connected to the river. The reassessment identified three points and seven polygons. A trace to patchy distribution of tar-coated to oil-stained debris and/or trunks and stems was identified in all areas.

Poling of the back channels on the RDB point bar within this segment was completed at twelve locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted

The attachments provide additional details on this segment.

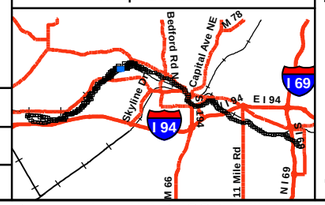
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP25.25-MP25.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 25.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Sand-Gravel shoreline	COATED/STAINED OVERHANGING VEGETATION ALONG SHORELINE	Gomez, Tori Clampitt, Chris
5/23/2011	16:42																	42.34840 / -85.31671		Kytta, Ken
2	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	COATED/STAINED TREES AND DEBRIS	Gomez, Tori Wesener, Matt
5/24/2011	11:06																	42.34911 / -85.31737		Kytta, Ken

2011 Reassessment

Bank: RDB

Mile Marker: 25.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	4/20/2011	12:19	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-scrub/shrub	42.34878	-85.31483	SMALL AREA WITH COATED STEMS AND BRANCHES	Johnson, Rex / Washburn, Bruce / Kytta, Ken
10	Overbank	4/20/2011	15:06	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)	42.34972	-85.31538	TAR STAINED TREE TRUNK	Johnson, Rex / Washburn, Bruce / Kytta, Ken
11	Overbank	4/20/2011	15:26	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.35033	-85.31503	TAR COATED STEMS AND DEBRIS; STAINED TREES	Johnson, Rex / Washburn, Bruce / Kytta, Ken
2	Overbank	4/20/2011	12:29	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-scrub/shrub	42.34857	-85.31527	SMALL BACK CHANNEL WITH COATED VEGETATION	Johnson, Rex / Washburn, Bruce / Kytta, Ken
3	Shoreline and Overbank	4/20/2011	13:20	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.34847	-85.31565	TAR COATED AND STAINED DEBRIS AND STEMS	Johnson, Rex / Washburn, Bruce / Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 25.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
4	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	S	Wetland-scrub/shrub		TAR COATED/STAINED DEBRIS AND STEMS; BACK CHANNEL AREA	Johnson, Rex / Washburn, Bruce
4/20/2011	13:33																	42.34874	-85.31551		Kytta, Ken
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	P	Wetland-swamp (forested)		TAR COATED STEMS	Johnson, Rex / Washburn, Bruce
4/20/2011	13:55																	42.34972	-85.31399		Kytta, Ken
6	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		STAINED TREE AND STEM	Johnson, Rex / Washburn, Bruce
4/20/2011	14:12																	42.34982	-85.31429		Kytta, Ken
7	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		TAR COATED/STAINED STEMS AND DEBRIS	Johnson, Rex / Washburn, Bruce
4/20/2011	14:26																	42.34959	-85.31484		Kytta, Ken
8	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)		TAR STAINED STEMS	Johnson, Rex / Washburn, Bruce
4/20/2011	14:47																	42.34936	-85.31587		Kytta, Ken

Photo Logs

Field Photographs MP 25.25 – MP 25.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 7, Photo 003



RDB Zone ID 8, Photo 001



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 10, Photo 001



RDB Zone ID 11, Photo 001



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 11, Photo 002



RDB Zone ID 11, Photo 003



Field Photographs MP 25.25 – MP 25.50

RDB Zone ID 11, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 25.25 to MP 25.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	[initials]	Enbridge DB
SOTF	START	[initials]	MDEQ	[initials]	Enbridge DB
PI	START	[initials]	MDEQ	[initials]	Enbridge DB
FLS	START	[initials]	MDEQ	[initials]	Enbridge DB
Inundation Model	START	[initials]	MDEQ	[initials]	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 25.25 to MP 25.50, Bank or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.
W/ EXCEPTION OF AREAS COVERED BY WATER WHICH WERE DOCUMENTED IN YUMA.

Rex Johnson START 4/20/11 Date

Rex Johnson Printed Name

Bruce J. Washburn MDEQ 4/20/11 Date

Bruce J. Washburn Printed Name

Enbridge 4/20/11 Date

KEN KUTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.25 to MP 25.50, Unique ID RDB1, Bank ____ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. CHANNEL SEGMENT CREATED TODAY (NOT PREVIOUSLY POLYGONED).

Rex Johnson _____ START 5/8/11 Date

Rex Johnson Printed Name

_____ MDEQ 5/8/11 Date

MATT WESENER Printed Name

_____ Enbridge / TT 5/8/2011 Date

Craig A Wieman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.25 to MP 25.50, Unique ID RDB 9, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/13/11 — Date

THOMAS P. GRAAN — Printed Name

William Keiper — MDEQ — 5/13/11 — Date

Matt Kerr — Printed Name

Nate Hebir — Enbridge — 5/13/11 — Date

Nate Hebir — Printed Name

- Polling assessment

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 25.25 to MP 25.50, Bank or Island: LOB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 05.24.11 Date

Tori Gomez Printed Name

_____ MDEQ 5/24/11 Date

MATT WESERVER Printed Name

_____ Enbridge 5/24/11 Date

Printed Name

_____ Tetra Tech 5/24/11

Craig A Wireman

Segment 25.50 – 25.75

MP 25.50 to MP 25.75

The LDB of segment 25.75 is a point bar that consists of a sand-gravel shoreline and forested wetland swamp within the overbank. Back channels and a large meander scar are present in the point bar. The reassessment identified one point and two polygons. Polygon 3 LDB encompasses the large meander scar. In general, traces of surface oil residue on the ground surface and a film on pooled water were identified at all three locations. The film identified at Polygons 1 LDB and 3 LDB appears to be a mixture of biological and petroleum sheens.

Poling of the back channel on the LDB within this segment was completed at fifteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 25.75 is a cut bank that consists of a low vegetated bank at both ends of the segment and forested wetland swamp along the remaining shoreline and within the overbank. Several back channels within the RDB are connected to the river. The reassessment identified twenty-one points and two polygons. In general, trace distributions of tar covered to coated debris and/or trunks and stems were identified at all points. Traces of tar covered debris were identified at Point 9 RDB and asphalt pavement was also documented at Point 15 RDB. A film on pooled water was documented at Point 8 RDB. An oil film (sheen) was observed on soil in two recently flooded areas (Polygons 24 RDB and 26 RDB). The FLS data identified a suspected oil signature approximately 150 feet northeast of Point 14 RDB.

Poling of the back channels on the RDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP25.50-MP25.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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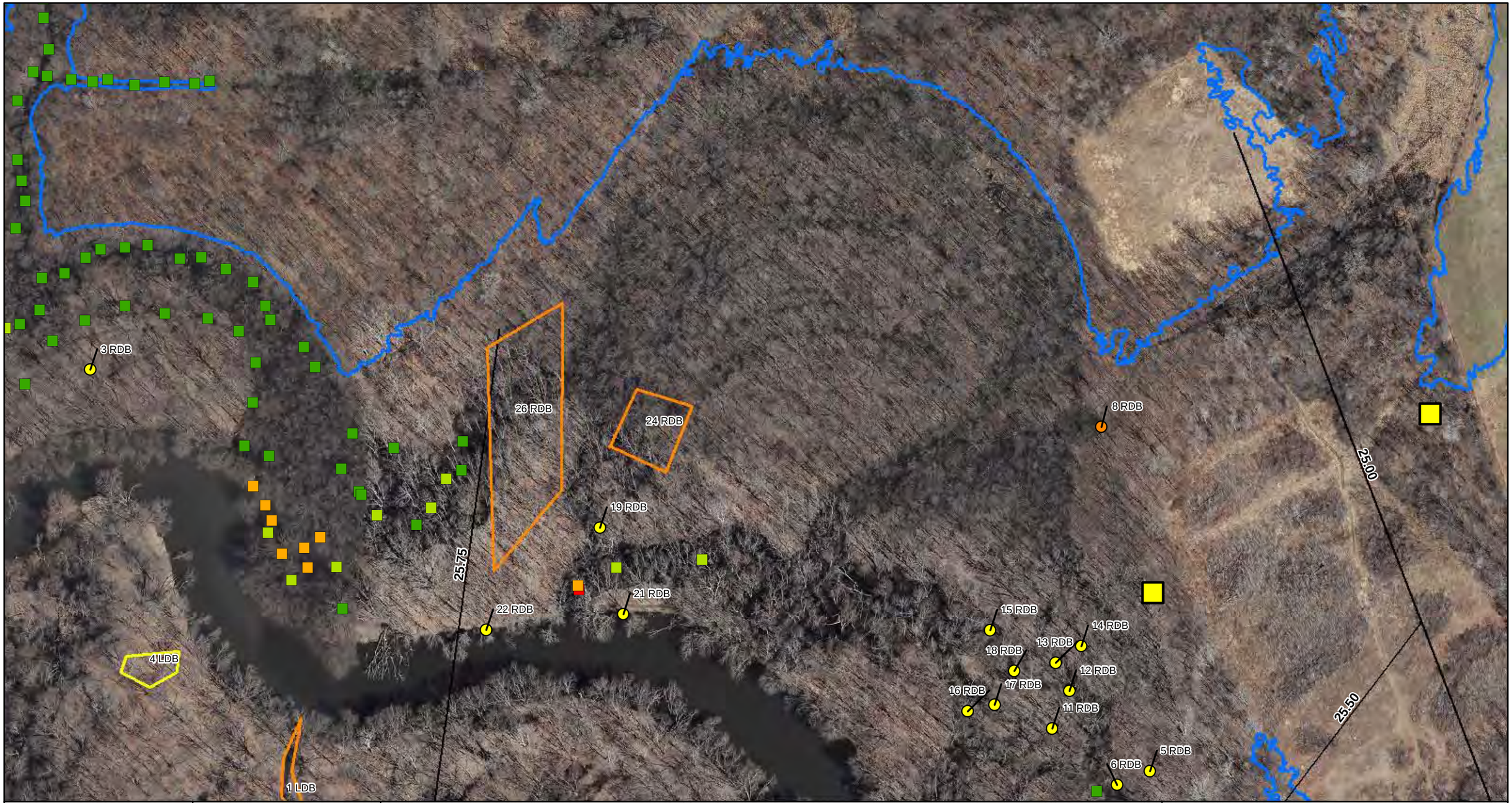
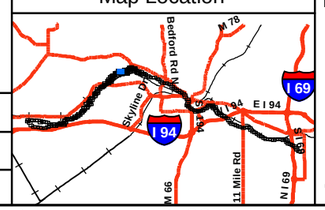
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP25.50-MP25.75 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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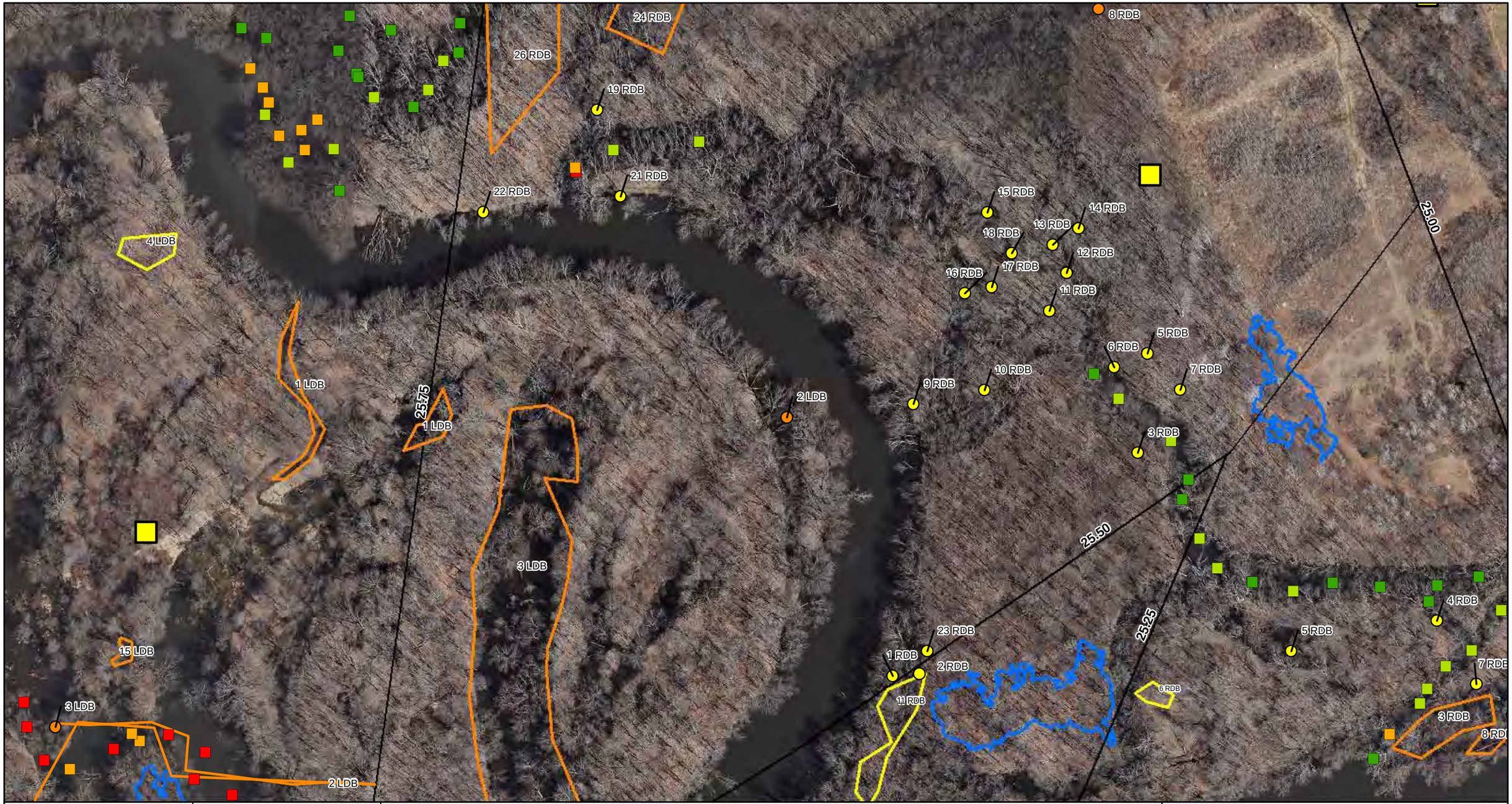
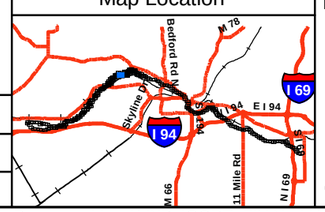
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP25.50-MP25.75 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 25.75																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Pooled water with mixture of biological & hydrocarbons.	Muccianti, Marcus
																					Bauer, Chris
5/13/2011	13:45																	0.00000	0.00000		Wronka, Hans
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Hydrocarbon film in diminishing pool of water.	Muccianti, Marcus
																					Bauer, Chris
5/13/2011	11:50																	0.00000	0.00000		Wronka, Hans
3	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Mixture of hydrocarbons & biological. Identtify with GIS. Reassess with small boat.	Muccianti, Marcus
																					Bauer, Chris
5/13/2011	13:26																	42.34948	-85.31784		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 25.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Low Vegetated Bank		Stebbins in for Fuller, Bacon as YUMA op	Johnson, Rex
																					Washburn, Bruce
4/21/2011	08:47																	42.35054	-85.31491		Kytta, Ken
10	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Rex
																					Washburn, Bruce
4/21/2011	14:32																	42.35179	-85.31427		Kytta, Ken
11	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Rex
																					Washburn, Bruce
4/21/2011	14:41																	42.35207	-85.31403		Kytta, Ken
12	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐		Wetland-swamp (forested)			Johnson, Rex
																					Washburn, Bruce
4/21/2011	14:49																	42.35224	-85.31393		Kytta, Ken
13	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐		Wetland-swamp (forested)			Johnson, Rex
																					Washburn, Bruce
4/21/2011	14:52																	42.35236	-85.31400		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 25.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
14	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Johnson, Rex / Washburn, Bruce
4/21/2011	15:06																	42.35243	-85.31399		Kytta, Ken
15	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐		Wetland-swamp (forested)			Johnson, Rex / Washburn, Bruce
4/21/2011	15:22																	42.35250	-85.31438		Kytta, Ken
16	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑		Wetland-swamp (forested)			Johnson, Rex / Washburn, Bruce
4/21/2011	15:38																	42.35218	-85.31454		Kytta, Ken
17	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐		Low Vegetated Bank			Johnson, Rex / Washburn, Bruce
4/21/2011	15:43																	42.35217	-85.31436		Kytta, Ken
18	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐		Wetland-swamp (forested)			Johnson, Rex / Washburn, Bruce
4/21/2011	15:48																	42.35232	-85.31427		Kytta, Ken

2011 Reassessment

Bank: RDB

Mile Marker: 25.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character											Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
19	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Rex
																					Washburn, Bruce
4/21/2011	16:17																	42.35294	-85.31670		Kytta, Ken
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		spot cover on branch/stem. Photos to be spec	Johnson, Rex
																					Washburn, Bruce
4/21/2011	09:26																	42.35047	-85.31477		Kytta, Ken
21	Shoreline	☐	☑	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Low Vegetated Bank			Johnson, Rex
																					Washburn, Bruce
4/21/2011	16:50																	42.35268	-85.31638		Kytta, Ken
22	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Low Vegetated Bank			Johnson, Rex
																					Washburn, Bruce
4/21/2011	17:15																	42.35251	-85.31721		Kytta, Ken
23	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Low Vegetated Bank		spot cover on trunk/branch; staining with sheen; photos to be added.	Johnson, Rex
																					Washburn, Bruce
4/21/2011	09:34																	42.35098	-85.31478		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 25.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
24	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		oily film sheen observed on soils from recent flood event	Johnson, Rex / Strouse, Dana
6/9/2011	13:23																	42.35306	-85.31652		Hehir, Nate
26	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		film oibserved on recebtly flooded soils	Johnson, Rex / Strouse, Dana
6/9/2011	10:51																	42.35283	-85.31695		Hehir, Nate
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		point off back-chan.	Johnson, Rex / Washburn, Bruce
4/21/2011	10:45																	42.35145	-85.31350		Kytta, Ken
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐		Wetland-swamp (forested)			Johnson, Rex / Washburn, Bruce
4/21/2011	11:43																	42.35190	-85.31342		Kytta, Ken
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐		Wetland-swamp (forested)		back-water bank debris	Johnson, Rex / Washburn, Bruce
4/21/2011	11:50																	42.35165	-85.31335		Kytta, Ken

2011 Reassessment

Bank: RDB

Mile Marker: 25.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		veg debris	Johnson, Rex
																					Washburn, Bruce
4/21/2011	11:57																	42.35173	-85.31325		Kytta, Ken
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Johnson, Rex
																					Washburn, Bruce
4/21/2011	12:28																	42.35336	-85.31374		Kytta, Ken
9	Shoreline and Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)		oiled debris	Johnson, Rex
																					Washburn, Bruce
4/21/2011	14:24																	42.35156	-85.31480		Kytta, Ken

Photo Logs

Field Photographs MP 25.50-25.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 25.50-25.75

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 25.50-25.75

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 25.50-25.75

RDB Zone ID 3, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 5, Photo 002



RDB Zone ID 6, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 6, Photo 002

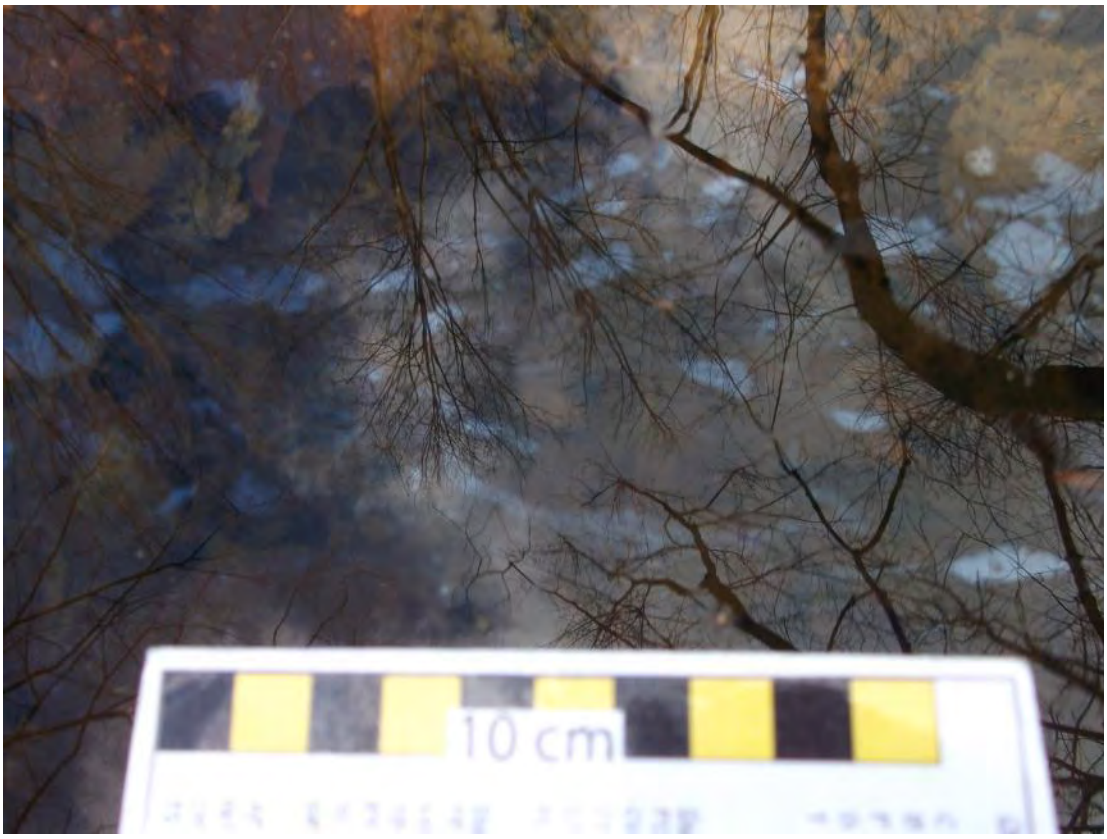


RDB Zone ID 7, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 8, Photo 001



RDB Zone ID 9, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 10, Photo 001



RDB Zone ID 10, Photo 002

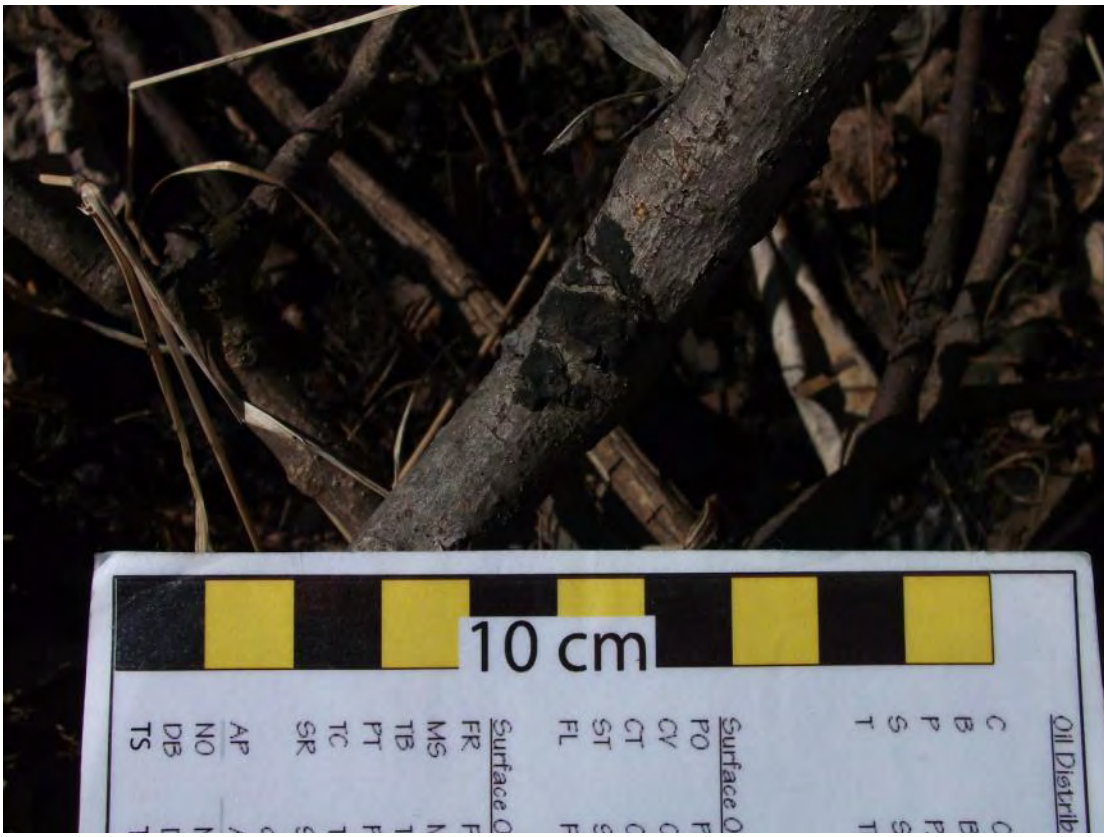


Field Photographs MP 25.50-25.75

RDB Zone ID 11, Photo 001



RDB Zone ID 12, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 13, Photo 001



RDB Zone ID 14, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 14, Photo 002



RDB Zone ID 15, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 16, Photo 001



RDB Zone ID 17, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 18, Photo 001



RDB Zone ID 19, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 19, Photo 002



RDB Zone ID 19, Photo 003



Field Photographs MP 25.50-25.75

RDB Zone ID 21, Photo 001



RDB Zone ID 21, Photo 002



Field Photographs MP 25.50-25.75

RDB Zone ID 22, Photo 001



RDB Zone ID 22, Photo 002

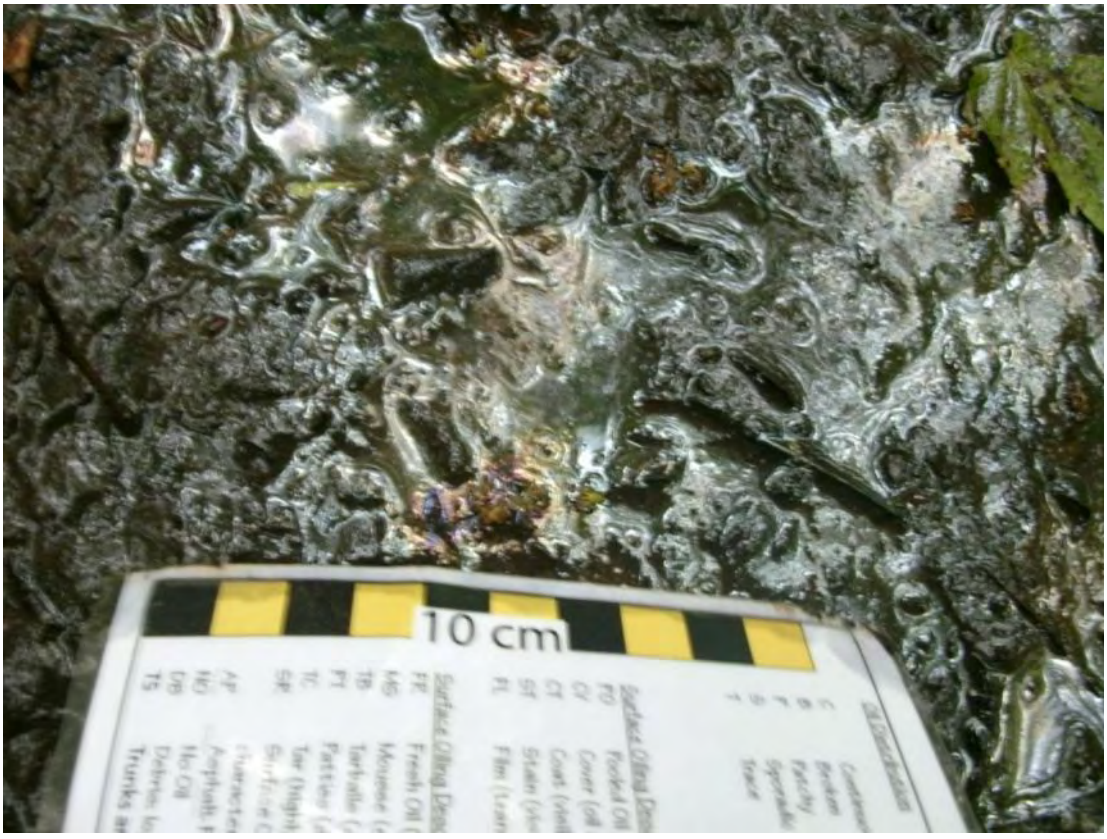


Field Photographs MP 25.50-25.75

RDB Zone ID 23, Photo 001



RDB Zone ID 24, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 24, Photo 002



RDB Zone ID 26, Photo 001



Field Photographs MP 25.50-25.75

RDB Zone ID 26, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 25.5 to MP 25.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/10/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/10/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/10/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 25.50 to MP 25.75 Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 5/15/11 Date

Marcus Mucciant Printed Name

Chris Bauer MDEQ 5/13/11 Date

Chris Bauer Printed Name

[signature] Enbridge _____ Date

Hans Wionka Printed Name

3 Zones Identified

1- To be Reassessed waders/small Jon Boat

2 Pooled water w/ Film

Discuss QX - Bow w/GIS/Team Lead

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 25.50 to MP 25.75, Unique ID 4 RDB, Bank RDB and/or Island —

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Roy Johnson — START — 6/09/11 — Date

Roy Johnson — Printed Name

Dana Shrouse — MDEQ — 6/9/11 — Date

Dana Shrouse — Printed Name

Nate Hehr — Enbridge — 6/9/11 — Date

Nate Hehr — Printed Name

- Completed 3 poling assessment locations.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 25.50 to MP 25.75, Unique ID 20, Bank RDB and/or Island —

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/09/11 Date

Rex Johnson Printed Name

[signature] MDEQ — 6/9/11 Date

Dana Struse Printed Name

[signature] Enbridge — 6/9/11 Date

Nate Hehir Printed Name

- Conducted poling reassessment of MP-25.75 ID=20RDB
  4 Poling Points Completed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Team 2

Segment ID: From MP 25.50 to MP 25.75, Unique ID RDB1A & RDB1B, Bank RDB and/or Island —

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 6/9/11 — Date

Rex Johnson — Printed Name

Dana Straza — MDEQ — 6/9/11 — Date

Dana Straza — Printed Name

Nate Helin — Enbridge — 6/9/11 — Date

Nate Helin — Printed Name

- Assessed 25.75 RDB1A & RDB1B

Segment 25.75 – 26.00

MP 25.75 to MP 26.00

The LDB of segment 26.00 consists of forested wetland swamp along the shoreline of the river and within the overbank. A low vegetated bank was identified along some of the back channels. Several meander scars and back channels are present in the LDB. The reassessment identified six points, five polygons, and four linear transects. In general, a trace to sporadic occurrence of surface oil residue on the ground surface was identified at most locations, and a film on pooled water was identified in many of these locations. Traces of oil coated vegetation and a tree ring were observed at Polygon 4 LDB; oil coated debris and/or trunks and stems was observed at Points 6 LDB and 9 LDB; and oil coated and stained trunks and stems were observed at Point 3 LDB. Sporadic occurrences of oil sheen and globules were observed on pooled water and/or sediment at Polygons 13 LDB and 14 LDB. The FLS data identified two suspected oil signatures: one located just north of Polygon 15 LDB and the second located in close proximity to Linear Transect 10 LDB.

Poling of the meander scars and back channels on the LDB within this segment was completed at forty-six locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

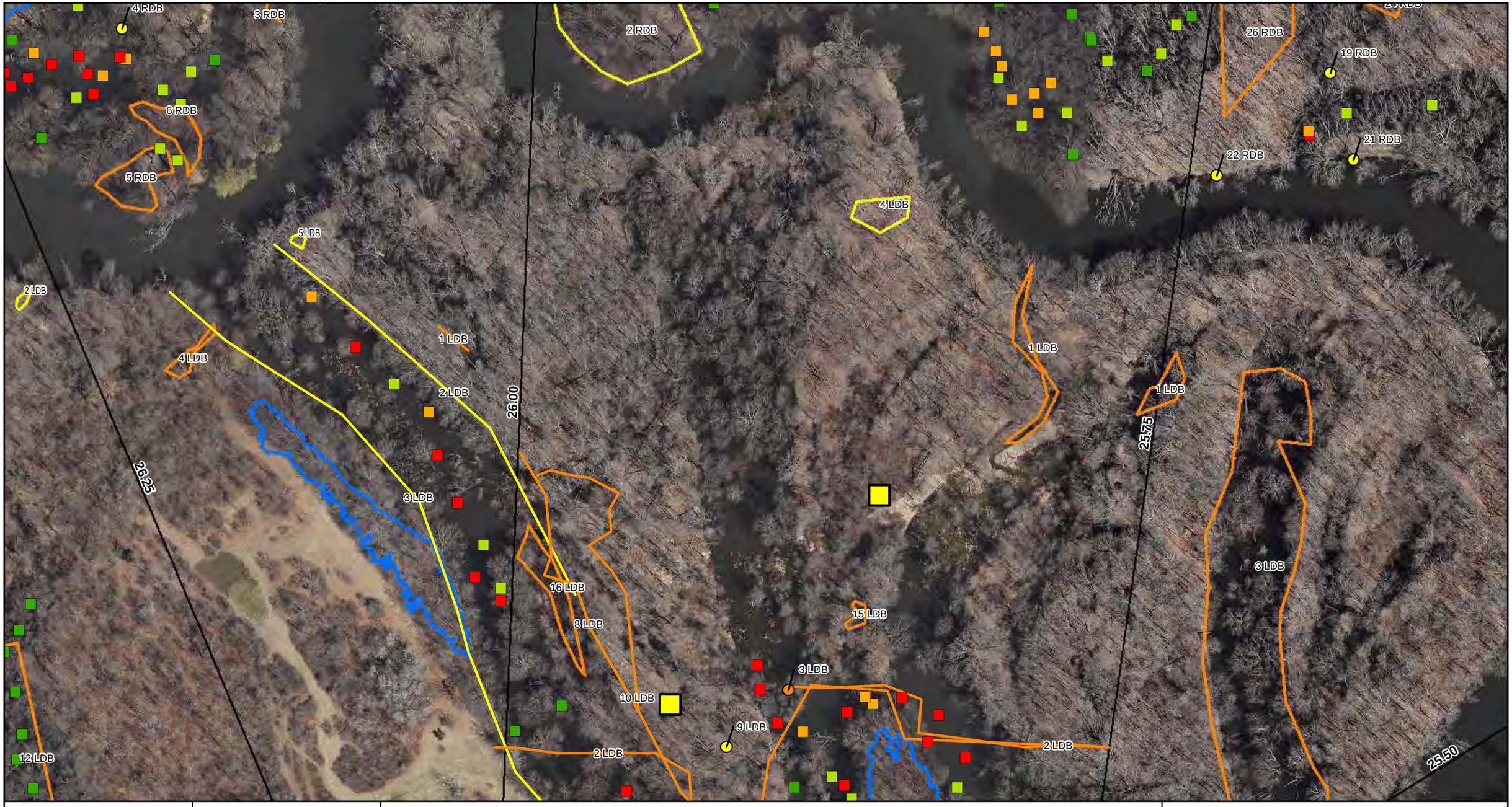
The RDB of segment 26.00 consists of a low vegetated bank along the shoreline with forested wetland swamp within the overbank. An oxbow lake with back channels located within the RDB is connected to the river at both legs. The reassessment identified oil occurrences at one point (Point 3 RDB) which had traces of oil coated and stained stems observed.

Poling of the oxbow lake and back channels on the RDB within this segment was completed at seventy-three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted in this segment.

The attachments provide additional details on this segment.

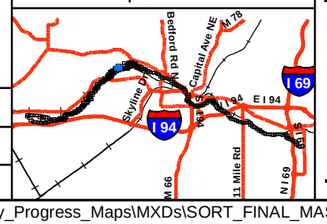
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP25.75-MP26.00 Left Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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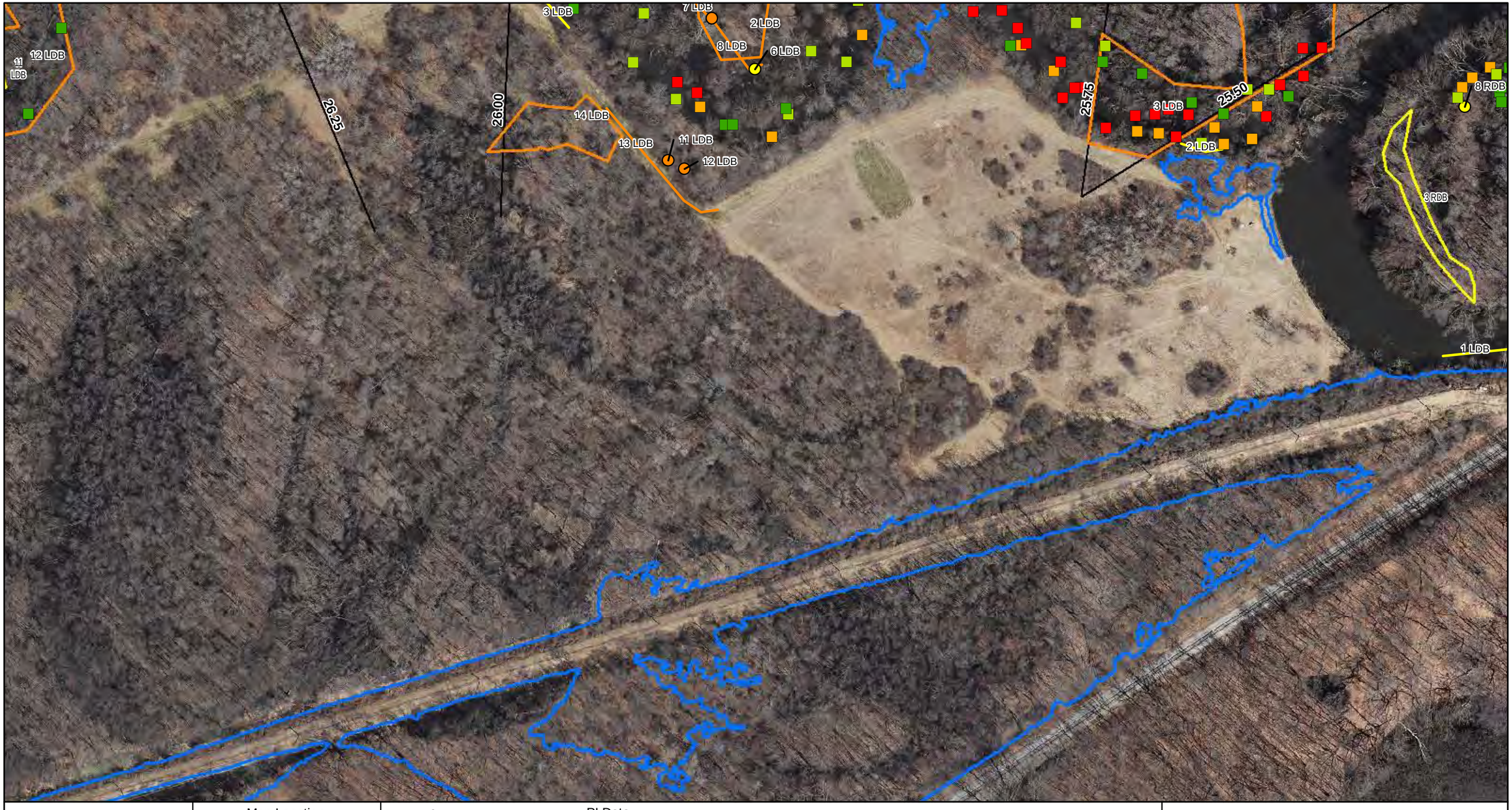
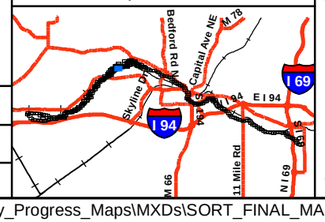
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP25.75-MP26.00 Left Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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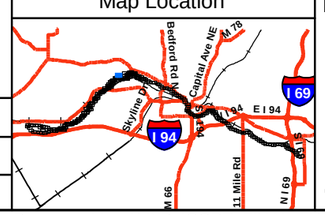
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP25.75-MP26.00 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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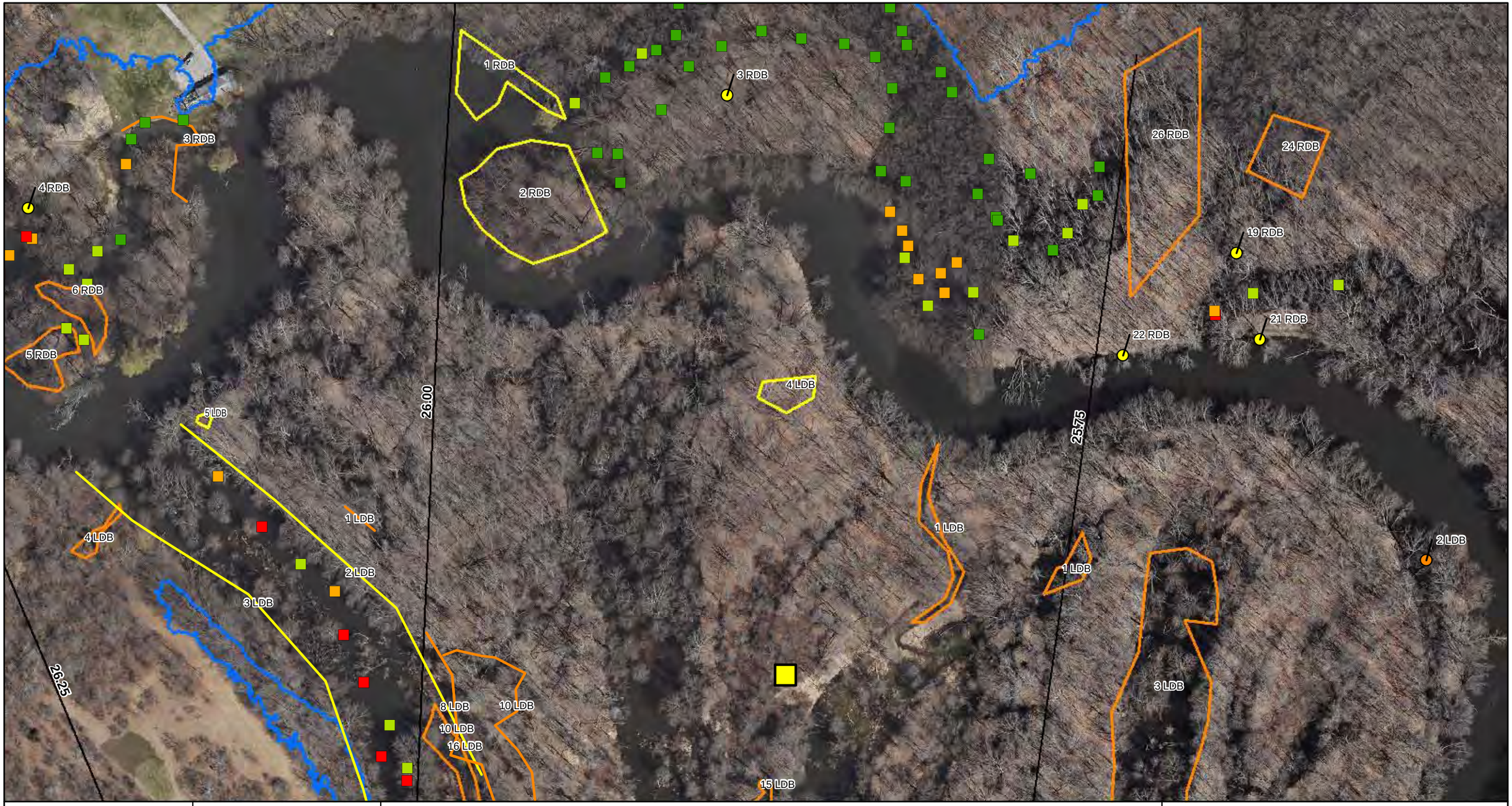
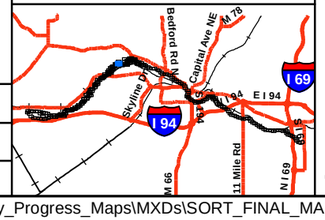
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP25.75-MP26.00 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 26																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Pooled water, sheen contained few globs less than 1 mm.	Childs, Jessica
																					Schaefer, Scott
5/14/2011	13:56																	0.00000	0.00000		Wronka, Hans
10	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Film observed on shallow pooled water.	Muccianti, Marcus
																					Schaefer, Scott
5/16/2011	13:35																	0.00000	0.00000		Wronka, Hans
11	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub		metallic sheen on mud	Graan, Tom
																					Clampitt, Chris
6/5/2011	11:10																	42.34902	-85.32059		mike zambetis
12	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub		metallic sheen on mud	Graan, Tom
																					Clampitt, Chris
6/5/2011	11:18																	42.34898	-85.32050		mike zambetis
13	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-scrub/shrub		sheen and gobules on the water	Graan, Tom
																					Clampitt, Chris
6/5/2011	11:42																	42.34926	-85.32096		mike zambetis

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 26																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
																					Enbridge Team Lead
14		☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		sheen and gobules on water and mud	Graan, Tom
																					Clampitt, Chris
6/5/2011	12:15																	42.34909	-85.32137		mike zambetis
15	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)		Surface sheen observed. No oil observed after aggitation.	Graan, Tom
																					Clampitt, Chris
6/9/2011	10:55																	42.35053	-85.31946		Neumeier, Laura
16	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Graan, Tom
																					Clampitt, Chris
6/9/2011	14:27																	42.35068	-85.32149		Neumeier, Laura
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Low Vegetated Bank		See notes associated with pictures.	Childs, Jessica
																					Schaefer, Scott
5/14/2011	15:01																	42.35021	-85.31986		Wronka, Hans
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		Example of transition between shoreline & pooled water where film is present of wet sediment.	Childs, Jessica
																					Schaefer, Scott
5/14/2011	15:05																	42.35022	-85.31987		Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 26																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Coat on vegetation & tree ring prevelent in low topography.	Childs, Jessica / Schaefer, Scott
5/14/2011	16:33																	42.35238	-85.31923		Wronka, Hans
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)		Debris with oil on surface & hydrocarbon film on surface water.	Graan, Tom / Schaefer, Scott
5/15/2011	16:33																	0.00000	0.00000		Wronka, Hans
7	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Sheen on pooled water.	Childs, Jessica / Schaefer, Scott
5/15/2011	16:56																	0.00000	0.00000		Wronka, Hans
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Water within polygon has flow, surfrace oil sheen on edge of polyline	Muccianti, Marcus / Schaefer, Scott
5/16/2011	12:30																	42.34945	-85.32003		Wronka, Hans
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Muccianti, Marcus / Schaefer, Scott
5/16/2011	13:01																	0.00000	0.00000		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 26																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Ponded Water - Reassess		Flooded shoreline may need to reassess during drier conditions.	Graan, Tom / Fairchild, Katie
5/26/2011	14:29																	42.35355	-85.32129		Neumeier, Laura
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Ponded Water - Reassess		Flooded shoreline may need to reassess during drier conditions. No oil observed on visible vegetation.	Graan, Tom / Fairchild, Katie
5/26/2011	15:02																	0.00000	0.00000		Neumeier, Laura
3	Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		COATED/STAINED STEMS	Gomez, Tori / Wesener, Matt
5/26/2011	14:33																	42.35360	-85.31972		Kytta, Ken

Photo Logs

Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002

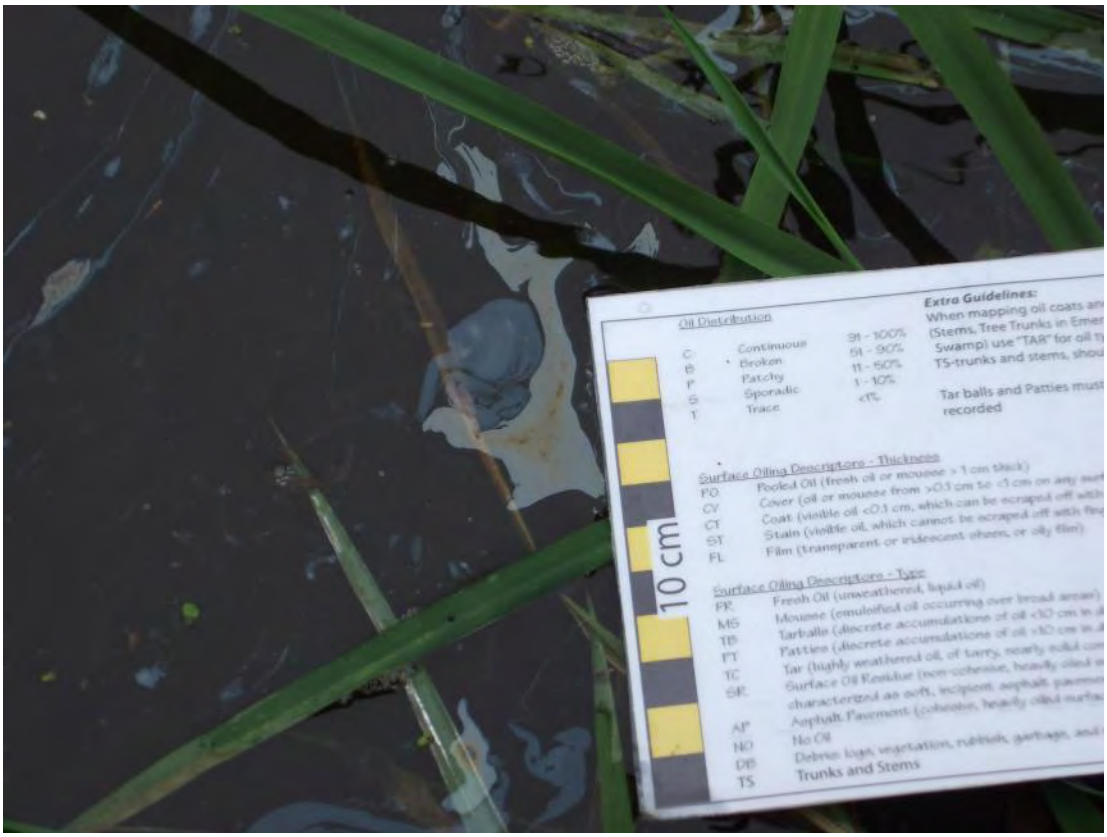


Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 2, Photo 003

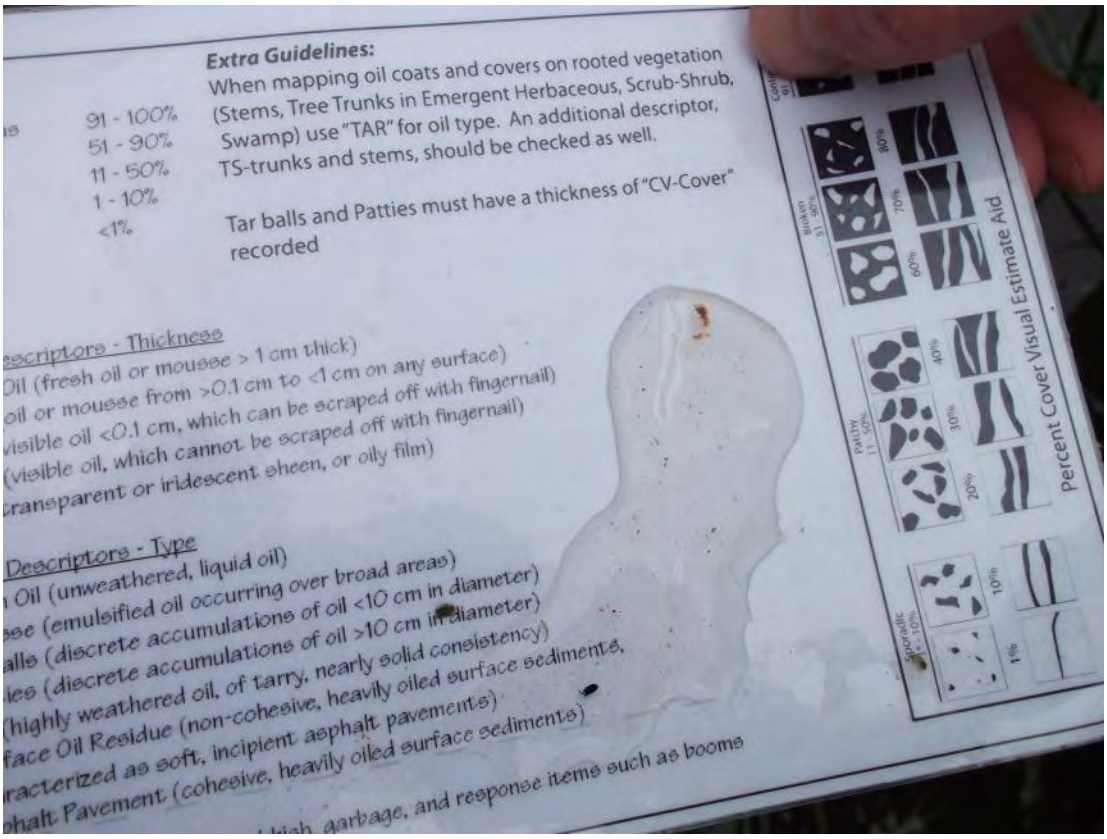


LDB Zone ID 2, Photo 004



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 2, Photo 005



LDB Zone ID 3, Photo 001



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002

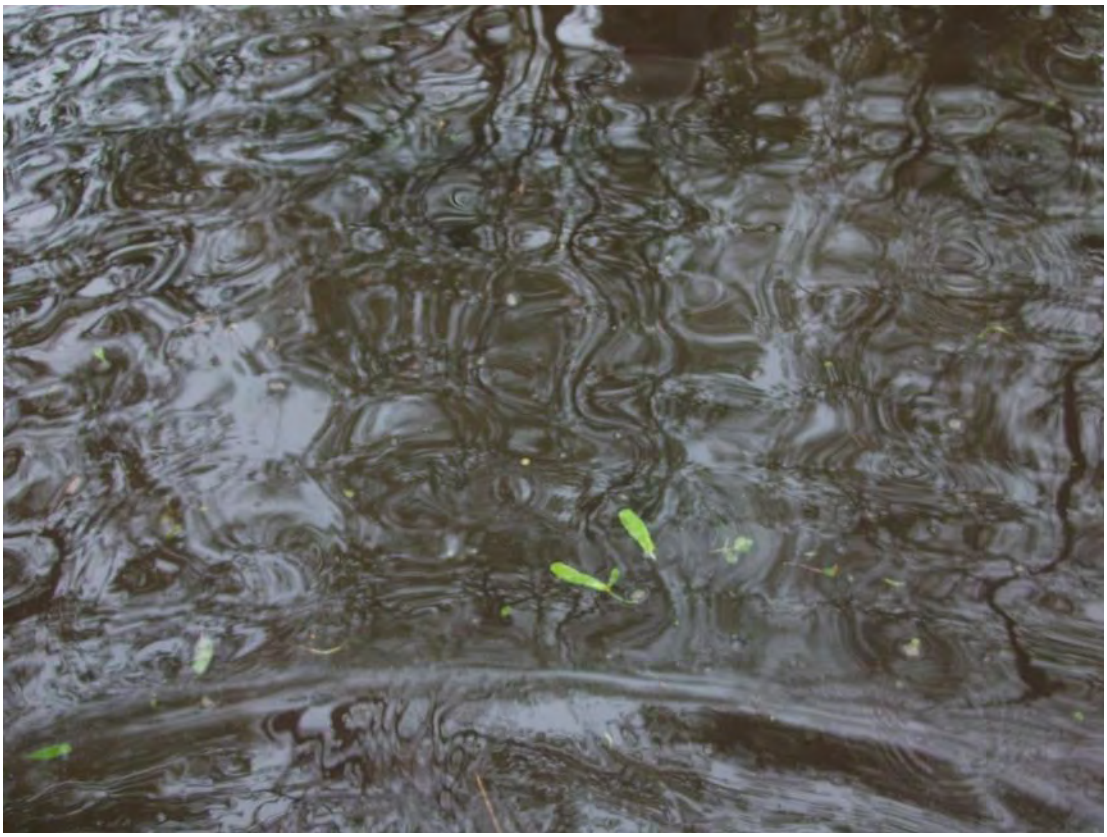


Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 6, Photo 001



LDB Zone ID 7, Photo 001



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 8, Photo 001



LDB Zone ID 9, Photo 001



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 9, Photo 002



LDB Zone ID 10, Photo 001



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 10, Photo 002



LDB Zone ID 10, Photo 003



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 11, Photo 001



LDB Zone ID 12, Photo 001



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 13, Photo 001



LDB Zone ID 13, Photo 002



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 14, Photo 001



LDB Zone ID 14, Photo 002



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 14, Photo 003



LDB Zone ID 15, Photo 001



Field Photographs MP 25.75 – MP 26.00

LDB Zone ID 16, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 25.75 – MP 26.00

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 25.75 – MP 26.00

RDB Zone ID 3, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 25.75 to MP 26.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge	DB
SOTF	START		MDEQ		Enbridge	DB
PI	START		MDEQ		Enbridge	DB
FLS	START		MDEQ		Enbridge	DB
Inundation Model	START		MDEQ		Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/10/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/10/11 Date

Michelle DeLong — Printed Name

Dave Bacham — Enbridge — 6/10/2011 Date

Dave Bacham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP ~~25.75~~ to MP ~~26.00~~, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ 5/13/11 Date 5/16/11

Marcus Mueller Printed Name Marcus Mueller

Chris Bauer MDEQ 5/13/11 Date

Chris Bauer Printed Name

_____ Enbridge _____ 5-13-11 Date 5/16/11

Hans Wronka Printed Name Hans Wronka

Approx. 1/2 of segment (upstream) Complete (Time Constraint)
No Zones Identified as of 5.13.11

5.14.11 → 5.16.11

10 zones Identified including Globules, film, ~~and~~ Debris, and Coat.

→ Scott Schaefer MDEQ } for 2nd half of segment 5/14 - 5/16

C:\Documents and Settings\bluem\Desktop\SORT signoff.docx

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.75 to MP 26.00, Unique ID LDB5, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Green _____ START 6/8/11 Date

THOMAS P. GREEN Printed Name

_____ MDEQ 6-8-2011 Date

Rachel Matthews Printed Name

Bethany Hand Enbridge 6-8-11 Date

Bethany Hand Printed Name

Strike points collected by YUMA.

Sign off is for poling data only. Seperate sign off will follow with SORT data due to a change in MDEQ personnel.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.75 to MP 26.00, Unique ID LDB5 (26.00), Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 6/9/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 6/9/11 — Date

Christopher Campbell — Printed Name

[signature] — Enbridge — 6/9/2011 — Date

Laura Neumeier — Printed Name

STRIKE points collected by YUMA* (sign off is for strike points and SORT data collected on 6/8/11, Seperate sign off was created for Strike points collected on 6/8/11)

2 SORT ~~points~~ features collected by YUMA

** This signoff now completes this polygon.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.75 to MP 26.00, Unique ID UPSTREAM RDB, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

DOWNSTREAM SECTION ASSESSED BY STRIKE TEAM 3.

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 05.26.11 Date

Tari Gomez Printed Name

_____ MDEQ — 5/26/11 Date

MATT WESENER Printed Name

_____ Enbridge — 5/26/11 Date

KEN KUTTA Printed Name

_____ Tetra Tech — 5/26/11

Craig A Wiehan

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 25.75 to MP 26.00, Unique ID _____, Bank RDB and/or Island ____

Downstream end of segment

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START 5/26/11 Date

THOMAS P. GRAAN Printed Name

Kathleen Fairchild _____ MDEQ 5-26-11 Date

Kathleen Fairchild Printed Name

Laura Neumeier _____ Enbridge 5/26/2011 Date

Laura Neumeier Printed Name

2 sort features in YUMA – flooded shoreline/overbank areas

Strike points in YUMA

Upstream end of segment assessed by Strike Team 1

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Addendum to the Shoreline and Overbank Reassessment
MP 0.00 through MP 40.00
and
Submerged Oil Reassessment
MP 0.00 through MP 37.8
Report

(Binder 6 of 7)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: August 12, 2011

Segment 26.00 – 26.25

MP 26.00 to MP 26.25

The LDB of segment 26.25 consists of forested wetland swamp along the shoreline and within the overbank. Several meander scars and back channels are present in the LDB. The reassessment identified oil observations at two polygons and one linear transect. Trace occurrences of oil coated debris, trunks and stems were observed at Polygons 4 LDB and 5 LDB. Surface oil residue was observed on the ground surface and a film was observed on pooled water at Linear Transect 1 LDB and Polygon 4 LDB. High water areas were noted parallel to both shorelines of a side channel on the LDB.

Poling of the side channel on the LDB within this segment was completed at ten locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 26.25 consists of forested wetland swamp along the shoreline and within the overbank. Several back channels are located within the RDB and connected to the river. The reassessment identified one point, two polygons, and one linear transect. Oil covered to stained debris and/or trunks and stems were identified at Point 4 RDB and Linear Transect 3 RDB. A film on pooled water was identified at Polygon 5 RDB and 6 RDB and Linear Transect 3 RDB. Sporadic areas of surface oil residue were identified at Polygon 5 RDB and a patchy occurrence of tar balls was observed at Polygon 6 RDB.

Poling of the back channels on the RDB within this segment was completed at twenty-five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

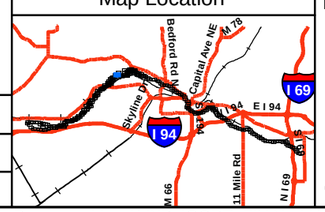
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.00-MP26.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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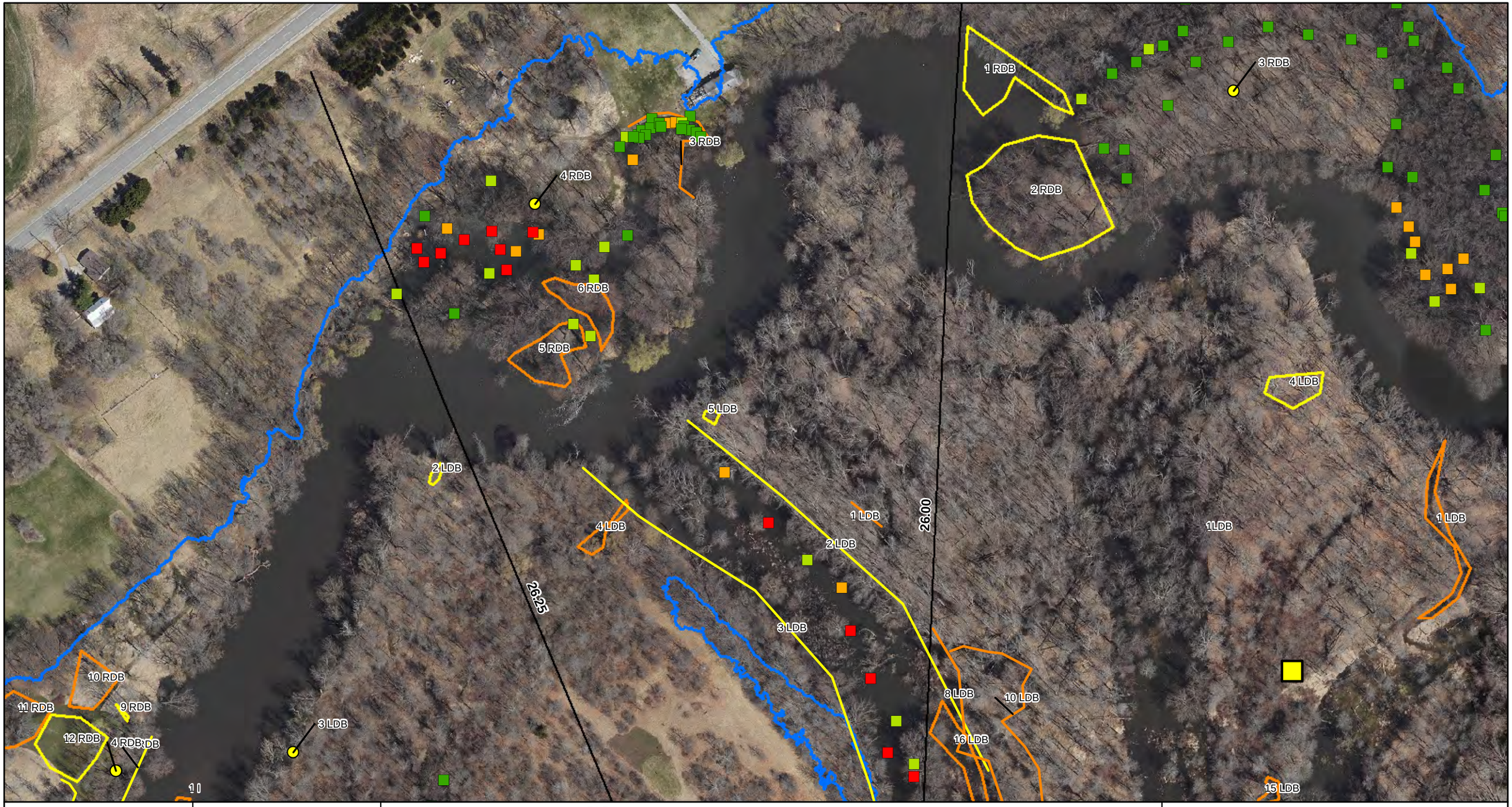
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.00-MP26.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

| Bank: LDB | | Oil Thickness | | | | | Oil Character | | | | |

2011 Reassessment

Bank: RDB

Mile Marker: 26.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START	MDEQ	Enbridge Team Lead
3	Shoreline and Overbank	5/23/2011	12:36	☐	☑	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.35341	-85.32329	impact along Shore off river and oxbow Sheen on water	Beckett, Chris	Keiper, Bill	Standen, John
4		5/24/2011	11:33	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.35307	-85.32384		Childs, Jessica	Keiper, Bill	Standen, John
5	Shoreline and Overbank	6/7/2011	15:58	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.35247	-85.32365		Graan, Tom	Clampitt, Chris	Neumeier, Laura
6	Shoreline and Overbank	6/7/2011	16:12	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	P	Wetland-swamp (forested)	42.35254	-85.32345	Closer to20% distribution	Graan, Tom	Clampitt, Chris	Neumeier, Laura

Photo Logs

Field Photographs MP 26.00 – MP 26.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 26.00 – MP 26.25

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001



Field Photographs MP 26.00 – MP 26.25

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs MP 26.00 – MP 26.25

LDB Zone ID 3, Photo 003



LDB Zone ID 3, Photo 004



Field Photographs MP 26.00 – MP 26.25

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002



Field Photographs MP 26.00 – MP 26.25

LDB Zone ID 5, Photo 001



LDB Zone ID 5, Photo 002



Field Photographs MP 26.00 – MP 26.25

LDB Zone ID 5, Photo 003



RDB Zone ID 3, Photo 001



Field Photographs MP 26.00 – MP 26.25

RDB Zone ID 3, Photo 002

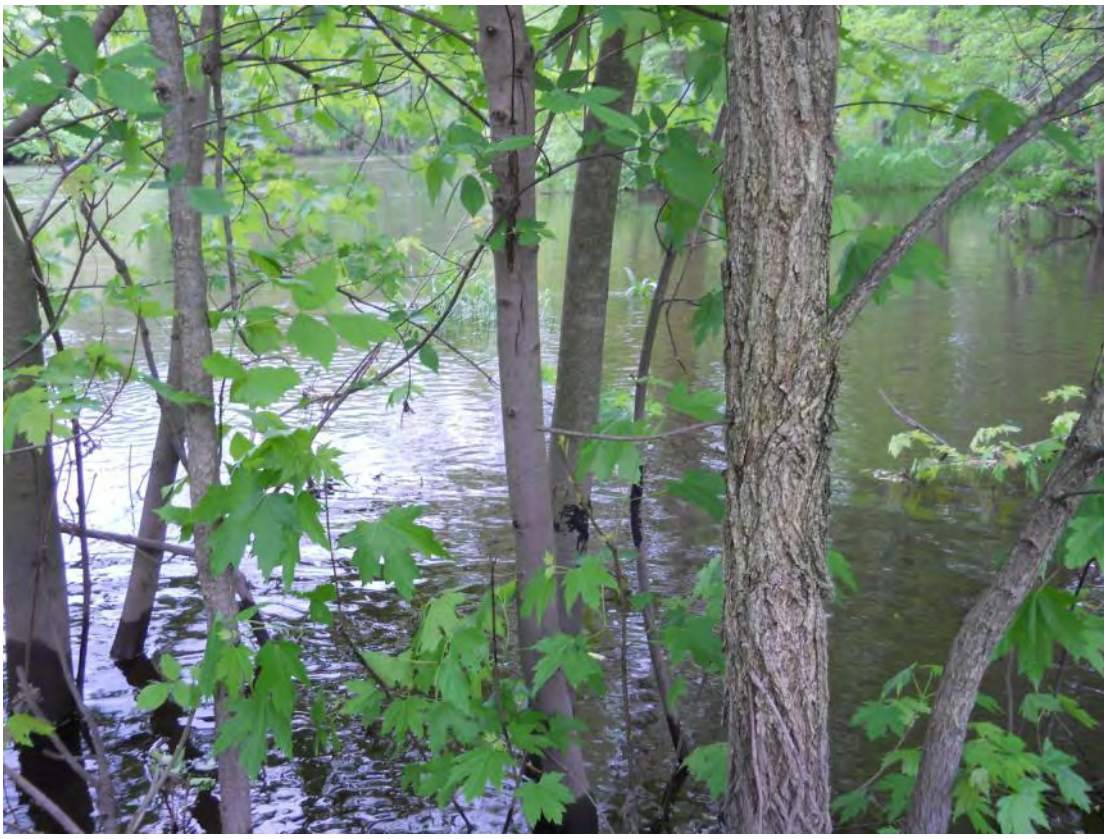


RDB Zone ID 3, Photo 003



Field Photographs MP 26.00 – MP 26.25

RDB Zone ID 3, Photo 004



RDB Zone ID 3, Photo 005



Field Photographs MP 26.00 – MP 26.25

RDB Zone ID 3, Photo 006



RDB Zone ID 3, Photo 007



Field Photographs MP 26.00 – MP 26.25

RDB Zone ID 3, Photo 008



RDB Zone ID 3, Photo 009



Field Photographs MP 26.00 – MP 26.25

RDB Zone ID 3, Photo 010



RDB Zone ID 4, Photo 001



Field Photographs MP 26.00 – MP 26.25

RDB Zone ID 4, Photo 002



RDB Zone ID 5, Photo 001



Field Photographs MP 26.00 – MP 26.25

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 26.0 to MP 26.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JWD	MDEQ	MD	Enbridge DB
SOTF	START	JWD	MDEQ	MD	Enbridge DB
PI	START	JWD	MDEQ	MD	Enbridge DB
FLS	START	JWD	MDEQ	MD	Enbridge DB
Inundation Model	START	JWD	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/10/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/10/11 Date

Michelle DeLong — Printed Name

D. Bch — Enbridge — 6/10/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.00 to MP 26.25, Unique ID LDB, Bank X ~~and/or Island~~ ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/17/2011 Date

MARCUS MULLIANT Printed Name

SCOTT SCHAEFER MDEQ — 5/17/11 Date

[signature] Printed Name

Hans Wronka Enbridge — 5-17-11 Date

[signature] Printed Name

3 Zones Identified → Coat, Film

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.00 to MP 26.25, Unique ID RDB 1 (26.25), Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Gramm — START — 6/9/11 — Date

THOMAS P. GRAMM — Printed Name

[signature] — MDEQ — 6/9/11 — Date

Christopher Campbell — Printed Name

[signature] — Enbridge — 6/9/2011 — Date

Laura Neumeier — Printed Name

Strikepoints collected by YUMA

2 SORT ~~points~~ features collected by YUMA

Data collected on 6/7/2011 and 6/9/2011 to complete this polygon.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.00 to MP 26.25, Unique ID *, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/13/2011 Date

Marcus Mueller Printed Name

Chris Bauer MDEQ 6/13/11 Date

Chris Bauer Printed Name

Roy J. Wagner Enbridge 6/13/2011 Date

Roy J Wagner Printed Name

* Assessed pond as an actim item from multi-agency review.

Strike points collected by YUMA

Pre existing sheen was noted (mix of hydrocarbon and organic) - heavier sheen collecting near steel bridge.

Segment 26.25 – 26.50

MP 26.25 to MP 26.50

The LDB of segment 26.50 consists of forested wetland swamp along the shoreline which transitions to a scrub-shrub wetland and a low vegetated bank further down the shoreline. The overbank consists of forested wetland swamp. An oxbow lake and back channels are present in the overbank. The reassessment identified one point, five polygons and two linear transects. In general, oil coated debris and/or trunks and stems were identified at most locations. A trace to broken occurrence of film on pooled water was observed at Polygons 12 LDB, 13 LDB, and 6 LDB. Surface oil residue was also identified at Polygons 13 LDB and 6 LDB and Linear Transect 10 LDB. The FLS data identified a suspected oil signature in close proximity to Polygon 13 LDB.

Poling of the oxbow lake and back channels within this segment was completed at fifteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 26.50 consists of a low vegetated bank along the shoreline and forested wetland swamp, scrub-shrub wetlands and maintained land (lawn) in the overbank. A back channel was present in the segment. The reassessment identified two points, four polygons, and two linear transects. In general, oil covered to stained debris and/or trunks and stems were identified in most areas during the reassessment. Surface oil residue was documented in Points 4 RDB and 5 RDB and Polygons 10 RDB and 11 RDB. A film observed on pooled water at Polygons 10 RDB and 11 RDB is believed to be primarily biological.

Poling of the back channel within this segment was completed at one location to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

A small island located in the center of the river within this segment is characterized as having a sand-gravel shoreline. The reassessment identified a polygon on the island. A sheen (film) was observed on pooled water on the shoreline in Polygon 1 I.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

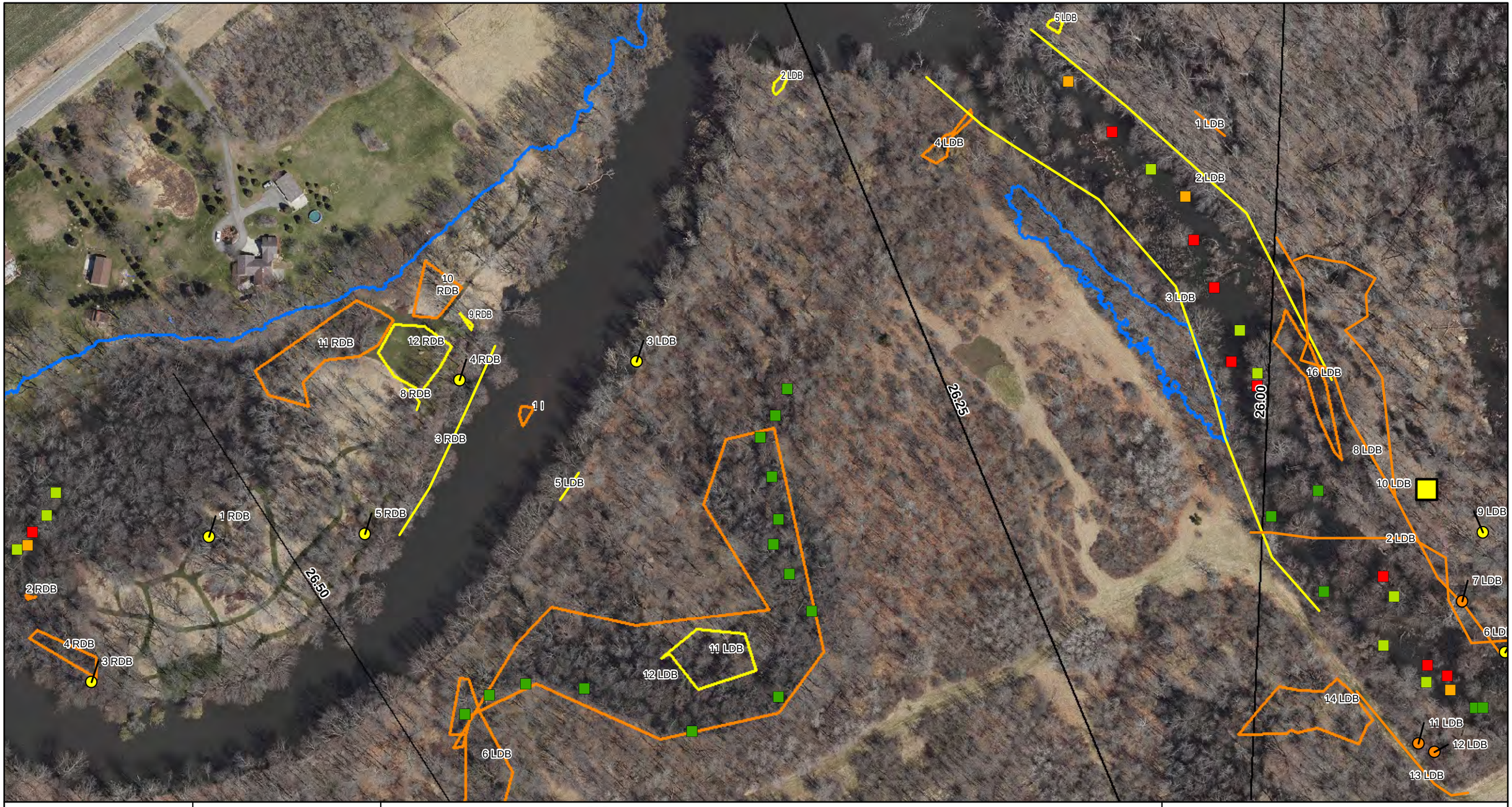
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.25-MP26.50 Left Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

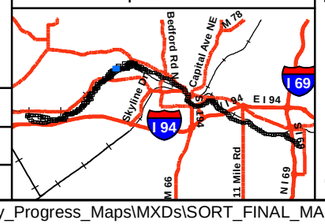
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.25-MP26.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

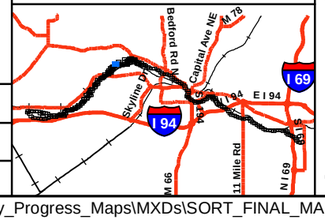
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP26.25-MP26.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 26.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
10	Overbank	5/20/2011	12:16	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.34833	-85.32543	Grassy two track with pooled water.	Muccianti, Marcus Schaefer, Scott VanLoan, Mike
11	Overbank	5/23/2011	13:09	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Low Vegetated Bank	42.34957	-85.32484	Oil on tree trunks. 6-8 trees.	Childs, Jessica Bauer, Chris None Present
12	Overbank	5/23/2011	14:40	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-swamp (forested)	42.34939	-85.32570	point to be assigned to area of entire pink polygon. Sheen is a light mix of biological and petroleum sheen. Sheen not bottom aggitation. Area anticipated to dry out . Reassess area during drier conditions.	Graan, Tom Fairchild, Katie Neumeier, Laura
13	Overbank	5/23/2011	11:24	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.34827	-85.32525	Pockets of pooled water with both bio and hydrocarbon sheen.	Childs, Jessica Bauer, Chris None Present
2	Shoreline and Overbank	5/17/2011	16:11	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	42.35184	-85.32445		Muccianti, Marcus Schaefer, Scott Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 26.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-scrub/shrub		heavy overhanging vegetation in the bank	Muccianti, Marcus
																					Schaefer, Scott
5/17/2011	16:37																	42.35065	-85.32524		Wronka, Hans
5	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		Low Vegetated Bank		includes staining on tree	Muccianti, Marcus
																					Schaefer, Scott
5/17/2011	17:05																	42.35004	-85.32566		Wronka, Hans
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Pooled water connected to larger area of pooled water that was previously identified as unaccesible.	Muccianti, Marcus
																					Schaefer, Scott
5/20/2011	11:24																	42.34910	-85.32622		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 26.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
10		☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub		Trace sheen observed by team and believed to be bio.	Childs, Jessica / Bauer, Chris
5/24/2011	17:00																	42.35086	-85.32639		None Present
11	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Primaily bio but mix of bio and hydrocarbon on downstream end of polygon.	Childs, Jessica / Bauer, Chris
5/24/2011	17:17																	42.35089	-85.32696		None Present
12	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Lawn (maintained land)		Landowner expressed concern of oil on maintained lawn.Team reassessed and witnessed no oil.	Childs, Jessica / Bauer, Chris
5/24/2011	17:44																	0.00000	0.00000		None Present
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		STAINED AND COATED OVERHANGING VEGETATION OBSERVED ALONG SHORE; GROUND ACCESS NOT POSSIBLE BECAUSE OF RESTRICTED PROPERTY; NO OTHER OIL OBSERVED DURING PERIMETER ASSESSMENT OF PROPERTY	Hadwin, Eric / Wesener, Matt
5/12/2011	13:51																	42.35000	-85.32697		Kytta, Ken
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	T	Low Vegetated Bank			Muccianti, Marcus / Schaefer, Scott
5/20/2011	13:17																	42.35059	-85.32632		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 26.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
5		☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐		Low Vegetated Bank			Muccianti, Marcus
																					Schaefer, Scott
5/20/2011	13:32																	42.34987	-85.32683		Wronka, Hans
8	Overbank	☐	☑	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-scrub/shrub		Along boundary of maintained lawn and scru shrub.	Childs, Jessica
																					Bauer, Chris
5/24/2011	15:46																	42.35045	-85.32652		None Present
9	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-scrub/shrub		Rubbery debris deposited by flood waters.	Childs, Jessica
																					Bauer, Chris
5/24/2011	16:16																	42.35078	-85.32621		None Present

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 26.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Sand-Gravel shoreline	SHEEN ON POOLED WATER
5/12/2011	14:28																	42.35045 / -85.32584	

START
MDEQ
Enbridge Team Lead
Hadwin, Eric
Wesener, Matt
Kytta, Ken

Photo Logs

Field Photographs MP 26.25 – MP 26.50

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 26.25 – MP 26.50

LDB Zone ID 3, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 26.25 – MP 26.50

LDB Zone ID 5, Photo 002



LDB Zone ID 10, Photo 001



Field Photographs MP 26.25 – MP 26.50

LDB Zone ID 11, Photo 001



LDB Zone ID 11, Photo 002



Field Photographs MP 26.25 – MP 26.50

LDB Zone ID 12, Photo 001



LDB Zone ID 13, Photo 001



Field Photographs MP 26.25 – MP 26.50

LDB Zone ID 13, Photo 002



LDB Zone ID 13, Photo 003



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 3, Photo 003



RDB Zone ID 3, Photo 004



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 3, Photo 005



RDB Zone ID 3, Photo 006



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 3, Photo 007



RDB Zone ID 3, Photo 008



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 3, Photo 009



RDB Zone ID 3, Photo 010



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 5, Photo 002



RDB Zone ID 8, Photo 001



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 8, Photo 002



RDB Zone ID 8, Photo 003



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 8, Photo 004



RDB Zone ID 8, Photo 005



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 8, Photo 006



RDB Zone ID 8, Photo 007



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 8, Photo 008



RDB Zone ID 8, Photo 009



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 8, Photo 010



RDB Zone ID 8, Photo 011



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 8, Photo 012



RDB Zone ID 9, Photo 001



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 9, Photo 002



RDB Zone ID 9, Photo 003



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 10, Photo 001



RDB Zone ID 10, Photo 002



Field Photographs MP 26.25 – MP 26.50

RDB Zone ID 11, Photo 001



RDB Zone ID 11, Photo 002



Field Photographs MP 26.25 – MP 26.50

I Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 26.25 to MP 26.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[ ]	MDEQ	MD	Enbridge	DB
SOTF	START	[ ]	MDEQ	MD	Enbridge	DB
PI	START	[ ]	MDEQ	MD	Enbridge	DB
FLS	START	[ ]	MDEQ	MD	Enbridge	DB
Inundation Model	START	[ ]	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[ ] START — 6/5/2011 Date

ISAAC ABOULAFIA Printed Name

Michelle DeLong MDEQ — 6/9/11 Date

Michelle DeLong Printed Name

[ ] Enbridge — 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.25 to MP 26.50, Unique ID LDB 1, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/23/11 — Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5·23·11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/23/2011 — Date

Laura Neumeier — Printed Name

1 sort point collected in YUMA. Data assigned to point is for entire "pink" polygon. Reassessment of area is prudent in dryer conditions.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 26.25 to MP 26.50, Bank or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team. w/ EXCEPTION OF PROPERTY KN-E-342 WITH ACCESS DENIED. SEE SEPARATE SIGN-OFF FOR KN-E-342.

_____ START 5/12/11 Date

ERIK HADWIN Printed Name

_____ MDEQ 5/12/11 Date

MATT WIESNER Printed Name

_____ Enbridge 5/12/11 Date

KEN KUNTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

PROPERTY I.D. KN-E-342

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been ~~adequately reassessed and areas requiring future consideration have been located and~~ documented by the SORT team. GA KOK FROM THE RIVER AND ON THE UPSTREAM AND DOWNSTREAM PROPERTY BOUNDARY. SEE NOTES BELOW.

_____ START — 5/12/11 Date

ERIK HADWIN Printed Name

_____ MDEQ — 5/12/11 Date

MATT WESENER Printed Name

_____ Enbridge — 5/12/11 Date

KEN KYTTA Printed Name

1300 ARRIVED AT PROPERTY.

PERFORMED SORT ASSESSMENT ON PROPERTY SEGMENTS UPSTREAM AND DOWNSTREAM OF THE PROPERTY. VIEWED PROPERTY FROM THE UPSTREAM AND DOWNSTREAM PROPERTY BOUNDARIES (SEE PICTURES ATTACHED TO HUMAN DOCUMENTATION). THE PROPERTY HAS SIMILAR HABITAT TO UPSTREAM AND DOWNSTREAM. PROPERTY IS LOCATED ON A RELATIVELY STRAIGHT SECTION OF RIVER IN RELATION TO UPSTREAM & DOWNSTREAM PROPERTIES. ~~MOVED~~ STAINING ON TREE BRANCHES OVERHANGING RIVER (SEE MP 606.50 LDB 3 TIMES PHOTOS).

1410 ASSESSMENT COMPLETE

team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.25 to MP 26.50, Unique ID LDB, Bank X and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/24/11 ~~5/23/11~~ Date

Jessica Childs Printed Name

Chris Bauer MDEQ — 5/24/11 ~~5/23/11~~ Date

Chris Bauer Printed Name

[signature] Enbridge — 5/24/11 ~~5/23/11~~ Date

Daniel DeJoode Printed Name

[signature] THEC — 5-23-11

Cory Graves

First part of segment surveyed 5/20 by Team 4 with Hans Wronka (Enbridge) Scott Schaeffer (DEQ), and Marcus Mucciante (EPA/start). Segment was completed 5/23 by new Team 4 as listed above. the tracke log from 5/20 was reviewed prior to signoff when segment was complete. 5/23 survey included poling mundated area and transect surveys over remainder of segment.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 26.25 to MP 26.5, Bank or Island: RDD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 5/24/11 Date

Jessica Childs Printed Name

_____ MDEQ 5/24/11 Date

Chris Bauer Printed Name

_____ Enbridge 5/24/11 Date

Daniel DeJoode Printed Name

Segment was partially surveyed Friday 5/20/11 w/ Hans Wronka (Cambridge), Scott Shaefer (DEQ) and Marcus Mucciarelli (EPA/START). Segment was completed 5/24/11 after reviewing track logs from 5/20/11.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

TG MA2 25.50 TG MA2 27.00

Polygon Segment ID: From MP ~~25.50~~ to MP ~~27.00~~ Unique ID 26.5LDB! Bank: LDB and/or Island _____.
Segment Length: ~~0.25~~ 1.5 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START TG 6/5/11 Date

THOMAS P. GRAAN Printed Name

_____ MDEQ 6/5/11 Date

Christopher Campbell Printed Name

_____ Enbridge 6/5/11 Date

MICHAEL A. ZAMBETIS Printed Name

TRANSECT RUN ALONG RIVERS EDGE OF POLYGON FROM 25.75 TO POWER LINE AT WEST END OF POLYGON (+/- 26.80). EVIDENCE OF OIL OBSERVED & LOGGED ON YUNK. NO FURTHER EVIDENCE OBSERVED ALONG THE REST OF TRANSECT DOWNSTREAM OF 26.00. OBVIOUS DEPOSITION AREAS CLOSEST TO THE RIVER WERE OBSERVED, WITH NO EVIDENCE OF OIL FOUND. OBSERVATIONS WERE SUFFICIENT TO CONCLUDE THAT OIL OCCURENCES WERE LIMITED TO THOSE OBSERVED & DID NOT EXTEND FURTHER OVERBANK.

Segment 26.50 – 26.75

MP 26.50 to MP 26.75

The LDB of segment 26.75 consists of forested wetland swamp within the overbank. A portion of an oxbow lake and back channels are present in the overbank. The reassessment identified five points on the LDB. In general, tar covered to coated debris and/or trunks and stems were identified at all locations. A small island was identified within the overbank of the LDB and consists of forested wetland swamp. The reassessment identified traces of tar covered debris at Point 1 I.

Poling of the back channel on the LDB within this segment was completed at thirteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 26.75 consists of forested wetland swamp and back channels within the overbank. The reassessment identified two points and two polygons. Traces of oil stained and/or coated trunks and stems were identified at Point 1 RDB and Polygon 2 RDB. Sporadic occurrences of possible surface oil residue were identified at Point 3 RDB and trace film was observed on pooled water at Polygon 2 RDB. Trace sheen (film) was identified on ponded water in Polygon 4 RDB when sediment was disturbed.

Poling of the back channel on the RDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.50-MP26.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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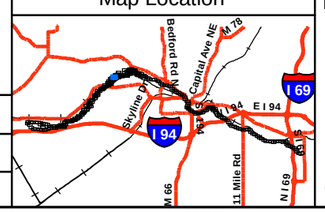
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.50-MP26.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 26.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
2	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)		Oswald, John Pisarkiewicz, Jake
4/19/2011	11:38																	42.34857 / -85.32921		Schaefer, Scott
3	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Oswald, John Pisarkiewicz, Jake
4/19/2011	12:15																	42.34929 / -85.33047		Schaefer, Scott
4	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)		Oswald, John Pisarkiewicz, Jake
4/19/2011	12:27																	42.34930 / -85.32977		Schaefer, Scott
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		Oswald, John Pisarkiewicz, Jake
4/19/2011	12:35																	42.34854 / -85.32865		Schaefer, Scott
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)		Oswald, John Pisarkiewicz, Jake
4/19/2011	12:51																	42.34891 / -85.32909		Schaefer, Scott

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character															
Mile Marker: 26.75																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**	
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**	**Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Childs, Jessica	Keiper, Bill
5/24/2011	13:14																	42.34984	-85.32778		Standen, John	
2	Overbank	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Childs, Jessica	Keiper, Bill
5/24/2011	13:47																	42.34963	-85.32880		Standen, John	
3	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		possible surface oil residue	Childs, Jessica	Keiper, Bill
5/24/2011	14:04																	42.34917	-85.32847		Standen, John	
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		turned up when sediment was disturbed in a temporary pool	Childs, Jessica	Keiper, Bill
5/24/2011	14:14																	42.34945	-85.32861		Standen, John	

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 26.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			john oswald jake pisarkiewicz
4/19/2011	12:04																	42.34897	-85.32988		scott schaefer

Photo Logs

Field Photographs MP 26.50 – MP 26.75

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 26.50 – MP 26.75

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 26.50 – MP 26.75

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 26.50 – MP 26.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 26.50 – MP 26.75

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 26.50 – MP 26.75

RDB Zone ID 2, Photo 002



RDB Zone ID 3, Photo 001

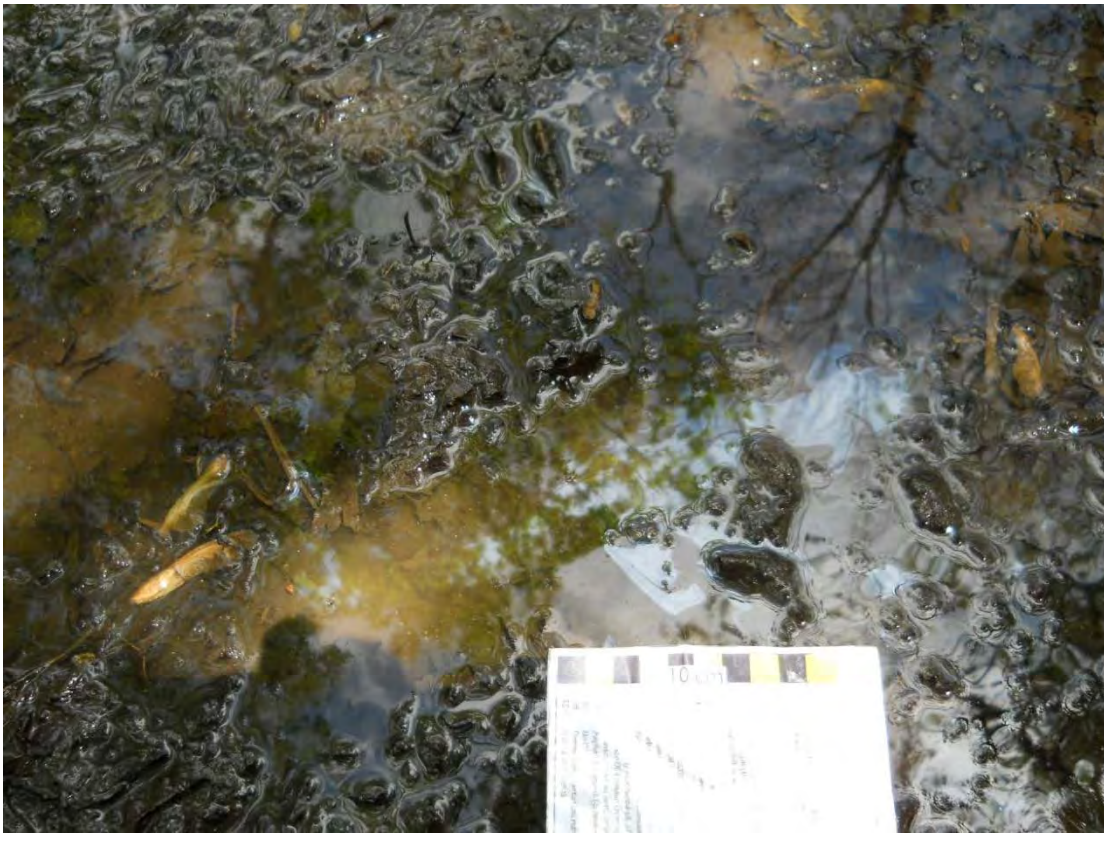


Field Photographs MP 26.50 – MP 26.75

RDB Zone ID 3, Photo 002



RDB Zone ID 4, Photo 001



Field Photographs MP 26.50 – MP 26.75

RDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 26.5 to MP 26.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JP	MDEQ	MD	Enbridge DB
SOTF	START	JP	MDEQ	MD	Enbridge DB
PI	START	JP	MDEQ	MD	Enbridge DB
FLS	START	JP	MDEQ	MD	Enbridge DB
Inundation Model	START	JP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JP Powell — START — 6/8/2011 — Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/8/11 — Date

Michelle DeLong — Printed Name

Dan Bal — Enbridge — 6/8/2011 — Date

Dan Barham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 26.5 to MP 26.75, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 4/19/11 Date

Kevin Johnson — Printed Name

[signature] — MDEQ — 4/19/11 Date

SCOTT SCHAEFER — Printed Name

John Oswald — Enbridge — 4/19/11 Date

JOHN OSWALD — Printed Name

John T Radis

John T Radis

* WE WERE WALKING 5 - WIDE THROUGH MOST AREAS

SMALL AREA IN BACK OF SEGMENT WITH NO PROPERTY ACCESS INFORMATION SO IT WAS SKIPPED.

NO OIL FOR AT LEAST 50 YDS SO NO OIL ANTICIPATED IN UNCHECKED SECTION.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 26.5 to MP 26.75, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 4/19/11 Date

Kevin Johnson — Printed Name

MDEQ — 4/19/11 Date

SCOTT SCHAEFER — Printed Name

John Oswald — Enbridge — 4/19/11 Date

JOHN OSWALD — Printed Name

John T Radig

John T Radig

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.50 to MP 26.75, Unique ID LDB 26.75 8, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Grean — START — 5/10/11 Date

Thomas P. Grean — Printed Name

[signature] — MDEQ — 5-10-11 Date

William Heiper — Printed Name

[signature] — Enbridge — 5/10/2011 Date

Laura Newmeier — Printed Name

1 "no oil" point collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.5 to MP 26.75, Unique ID LDB-26.75 * Access M, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Gran ____ START ____ 5/5/11 Date

THOMAS P. GRAN Printed Name

Kathleen Fairchild ____ MDEQ ____ 5-5-11 Date

Kathleen Fairchild Printed Name

Laura Neumeier ____ Enbridge ____ 5/5/2011 Date

Laura Neumeier Printed Name

* Polled channel only. Remainder of polygon determined will dry out. A new polygon created in YUMA to capture area needing reassessment.

Team also reassessed road in original polygon. YUMA created a polyline for this feature – No oil.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.5 to MP 26.75, Unique ID 26.75 LDB 1, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Green _____ START _____ 5/5/11 Date

THOMAS P. GREEN _____ Printed Name

Kathleen Fairchild _____ MDEQ _____ 5-5-11 Date

Kathleen Fairchild _____ Printed Name

Don DeWitt _____ Enbridge _____ 5-5-11 Date

~~Lt~~ Don DeWitt _____ Printed Name

team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 26.50 to MP 26.75, Bank or Island: ROB 7, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 05/24/11 Date

CHRIS BECKETT Printed Name

[signature] MDEQ — 5/24/11 Date

William Keiper Printed Name

[signature] Enbridge — 5/24/11 Date

JOSEPH STANDEN Printed Name

COMPLETED REASSESSMENT OVER TWO DAYS. POLED AT THREE LOCATIONS AND SUBMERGED OIL WAS IDENTIFIED AT ONE LOCATION (STREAM INTO RIVER). FILM WAS IDENTIFIED ON WATER SURFACE PRIOR TO POLING AT ALL THREE LOCATIONS. IDENTIFIED BARD W/ NUMEROUS 55-GALLON DRUMS & 500-GALLON AST LOCATED UPGRADIENT OF PONDED WATER W/ FILM. DOCUMENTED POLYLINE(S) AND POLYGON WITH STANDEN TO COATED DEBRIS AND FILM ON WATER.

Segment 26.75 – 27.00

MP 26.75 to MP 27.00

The LDB of segment 27.00 consists of forested wetland swamp within the overbank. Back channels are present in the overbank. The reassessment identified two points and five polygons. A trace occurrence film on ponded water was identified at Point 5 LDB and Polygon 2 LDB. Traces of tar coated debris and/or trunks and stems were identified at all other locations.

Poling on the LDB was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 27.00 is a point bar consisting of maintained land along the shoreline and overbank, and is the location of Shady Bend Campgrounds. Two man-made ponds are located in this segment. The reassessment identified two polygons on the RDB. Traces of oil staining and coating on man-made structures, debris, trunks and stems were identified at Polygon 3 RDB. A trace occurrence of film on ponded water was identified at Polygon 2 RDB.

Poling of the campground ponds on the RDB was completed at nineteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

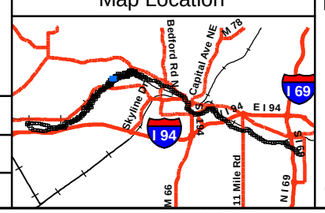
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.75-MP27.00 Left Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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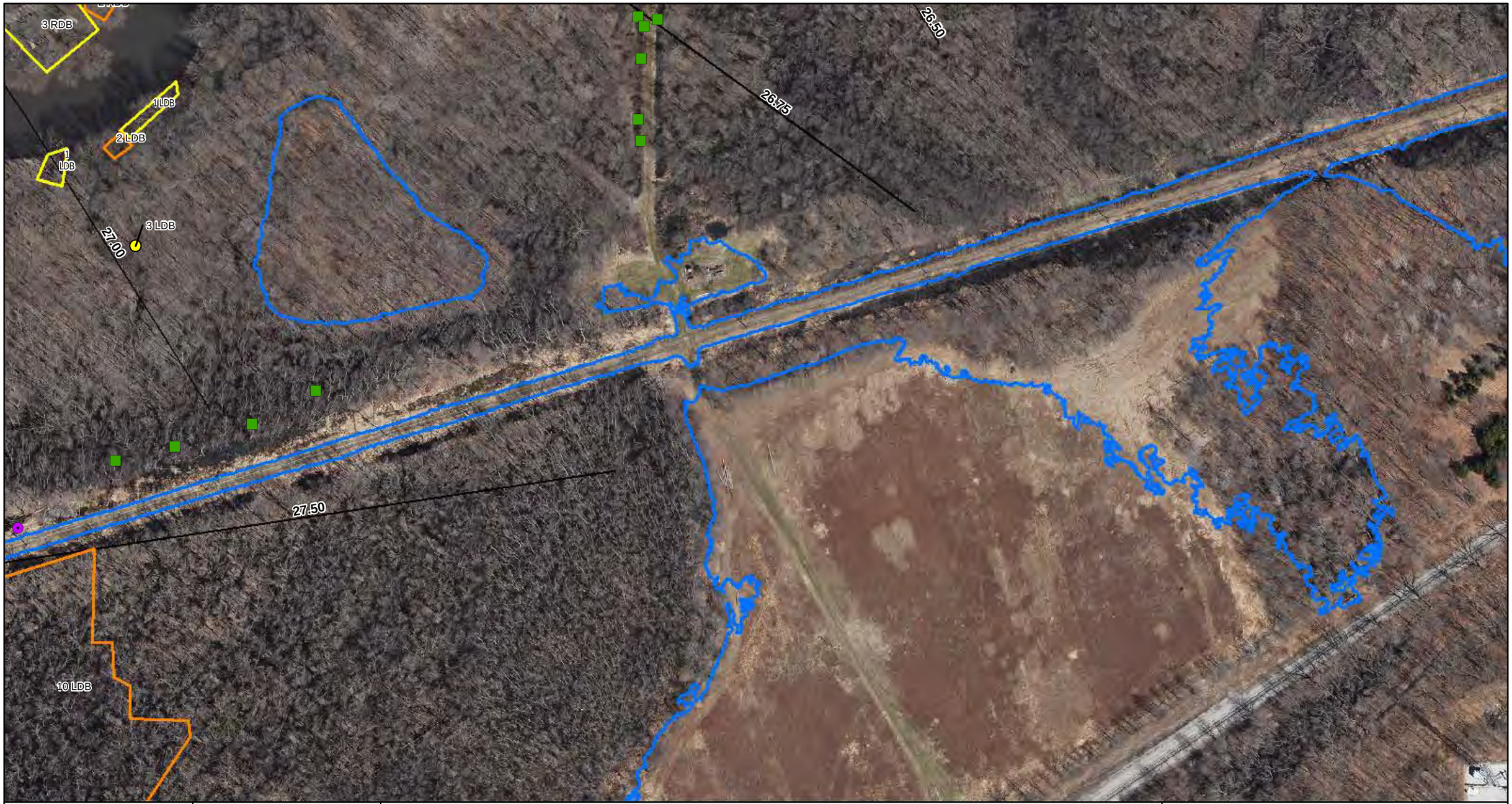
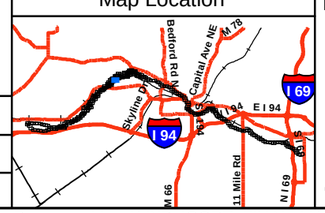
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.75-MP27.00 Left Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP26.75-MP27.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 27																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
																					Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	14:18																	42.34659	-85.32962		scott schaefer
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		trace sheen in pooled water	john oswald
																					jake pisarkiewicz
4/19/2011	14:26																	42.34652	-85.32955		scott schaefer
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	14:38																	42.34607	-85.32952		scott schaefer
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	15:34																	42.34855	-85.32989		scott schaefer
5	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	15:39																	42.34868	-85.32992		scott schaefer

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 27																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Oswald, John
																					Pisarkiewicz, Jake
4/19/2011	15:53																	42.34841	-85.32955		Schaefer, Scott
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Oswald, John
																					Pisarkiewicz, Jake
4/19/2011	16:00																	42.34841	-85.32916		Schaefer, Scott

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 27																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Lawn (maintained land)			Ross, Shauna
																					Zimont, Ben
5/14/2011	15:12																	42.34719	-85.32961		VanLoan, Mike
3	Shoreline and Overbank	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Lawn (maintained land)		man made structures with coats and stains	Ross, Shauna
																					Zimont, Ben
5/14/2011	15:36																	42.34751	-85.32965		VanLoan, Mike

Photo Logs

Field Photographs MP 26.75 – MP 27.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 26.75 – MP 27.00

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 26.75 – MP 27.00

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 26.75 – MP 27.00

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 26.75 – MP 27.00

LDB Zone ID 6, Photo 003



LDB Zone ID 7, Photo 001



Field Photographs MP 26.75 – MP 27.00

LDB Zone ID 7, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 26.75 – MP 27.00

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 26.75 to MP 27.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge
SOTF	START		MDEQ	MD	Enbridge
PI	START		MDEQ	MD	Enbridge
FLS	START		MDEQ	MD	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/9/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/9/11 Date
Michelle DeLong	Printed Name	
Dave Barcham	Enbridge	6/9/2011 Date
Dave Barcham	Printed Name	

yuma 8 Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 26.75 to MP 27.00, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/19/11 Date
Kevin Johnson	Printed Name	
[signature]	MDEQ	4/19/11 Date
SCOTT SCHAEFER	Printed Name	
[signature]	Enbridge	4/19/11 Date
JOHN OSWALD	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

TG CK MAZ TG CK MAZ

Polygon ~~Segment~~ ID: From MP ~~25.59~~ 25.50 to MP ~~27.00~~ 27.00, Unique ID 5, Bank: LDB and/or Island _____.
Segment Length: ~~0.25~~ 1.5 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START — TG 5 6/5/11 Date

Thomas P. Graan Printed Name

[signature] MDEQ — 6/5/11 Date

Christopher Clampitt Printed Name

[signature] Enbridge — 6/5/11 Date

Michael A. Zambetis Printed Name

Transect run along rivers edge of polygon from 25.75 to power line at west end of polygon (+/- 26.80). Evidence of oil observed & logged on Yuma. No further evidence observed along the rest of transect downstream of 26.00. Obvious deposition areas closest to the river were observed, with no evidence of oil found. Observations were sufficient to conclude that oil occurences were limited to those observed & did not extend further overbank.

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.75 to MP 27.00, Unique ID LOB1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/5/11 Date

Jessica Childs Printed Name

_____ MDEQ 6/5/11 Date

Bruce Washburn Printed Name

_____ Enbridge 6-5-11 Date

MATTHEW STEBBINS Printed Name

TEAM 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.75 to MP 27.00, Unique ID 27.00 COB1, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/8/11 Date

ERIK HAUWIN Printed Name

[signature] MDEQ — 6/8/11 Date

MATT WESENER Printed Name

[signature] Enbridge — 6/8/11 Date

KEN KITTA Printed Name

G.N. New
Greg New

06-08-2011

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 26.75 to MP 27.0, Bank or Island: RI713, Segment Length: 0.25 mile

3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5/14/2011 Date
Shawna Marie Ross	Printed Name	
[signature]	MDEQ	5/14/11 Date
Ben A. Zimmer	Printed Name	
[signature]	Enbridge	5-14-11 Date
Michael Van Laan	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 26.75 to MP 27.00, Unique ID RDB 1, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Green — START — 5/18/11 Date

THOMAS P. GRAHN — Printed Name

Matt Goddard — MDEQ — 5/18/11 Date

Matt Goddard — Printed Name

Don DeWitt — Enbridge — 5/18/11 Date

Don DeWitt — Printed Name

Strikepoints collected by YUMA

Strike point #15 should be changed from "moderate" to "heavy"

Segment 27.00 – 27.25

MP 27.00 to MP 27.25

The LDB of segment 27.25 consists of forested wetland swamp along the shoreline and within the overbank, with back channels present in the overbank. The reassessment identified two points and three polygons. In general, traces of tar coated trunks and stems and/or debris were identified at all locations. One PI data point identified as an Unconfirmed Area of Interest was observed at the inundation line on the LDB.

Poling on the LDB was completed at two locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 27.25 is comprised of a narrow section of Shady Bend Campground and several residential properties. The habitat consists of maintained land along the shoreline of the campground, and forested wetland swamp along the shoreline of the residential properties. The reassessment identified two linear transects on the RDB. In general, traces of coated or stained trunks and stems were observed at these locations. Traces of oil film were identified on ponded water at the campground along Linear Transect 1 RDB.

One island, situated along the LDB, consists of a forested wetland swamp habitat. The reassessment identified Polygon 1 I, which was characterized as having trace occurrences of tar coated trunks and stems.

The FLS did not detect any oil signatures in the segment.

The attachments provide additional details on this segment.

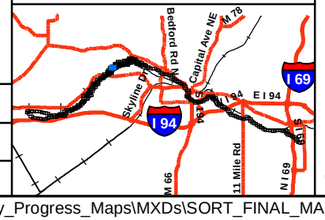
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP27.00-MP27.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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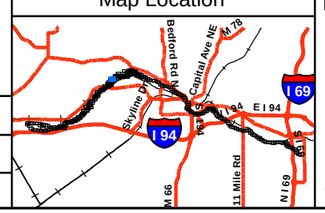
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP27.00-MP27.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 27.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	16:42																	42.34650	-85.32993		scott schaefer
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	16:52																	42.34644	-85.33044		scott schaefer
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	17:01																	42.34652	-85.33082		scott schaefer
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	17:12																	42.34744	-85.33180		scott schaefer
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			john oswald
																					jake pisarkiewicz
4/19/2011	18:28																	42.34658	-85.33120		scott schaefer

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 27.25																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
																					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Lawn (maintained land)			Ross, Shauna
																					Veldkamp, Chris
5/15/2011	10:02																	42.34810	-85.33171		VanLoan, Mike
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Veldkamp, Chris
5/15/2011	10:20																	42.34757	-85.33408		VanLoan, Mike

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 27.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Schaefer, Scott
4/20/2011	10:38																	42.34753	-85.33303		Oswald, John

Photo Logs

Field Photographs MP 27.00 – MP 27.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 27.00 – MP 27.25

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001



Field Photographs MP 27.00 – MP 27.25

LDB Zone ID 2, Photo 002



LDB Zone ID 3, Photo 001



Field Photographs MP 27.00 – MP 27.25

LDB Zone ID 3, Photo 002



LDB Zone ID 3, Photo 003



Field Photographs MP 27.00 – MP 27.25

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 27.00 – MP 27.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 27.00 – MP 27.25

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs MP 27.00 – MP 27.25

I Zone ID 1, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 27.0 to MP 27.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/7/2011 Date
ISAAC ABOULAFIA	Printed Name	
Michelle DeLong	MDEQ	6/7/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/7/2011 Date
Dave Bareham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 27.0 to MP 27.25, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 4/20/2011 — Date

Kevin Johnson — Printed Name

Scott Schaefer — MDEQ — 4/20/11 — Date

Scott Schaefer — Printed Name

John Oswald — Enbridge — 4/20/11 — Date

John Oswald — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 27.0 to MP 27.25 and, Bank or Island: RDB, Segment Length: 0.25 mile

4 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna M. Ross — START — 5/15/2011 — Date

Shawna Marie Ross — Printed Name

Chris Veldkamp — MDEQ — 5/15/11 — Date

Chris Veldkamp — Printed Name

Enbridge — 5-15-2011 — Date

Michael Van Loon — Printed Name

Segment 27.25 – 27.50

MP 27.25 to MP 27.50

The LDB of segment 27.50 consists of forested wetland swamp along the shoreline and within the overbank, with back channels present in the overbank. The reassessment identified one point and three polygons. In general, traces of tar coated debris, trunks and stems were identified at all locations.

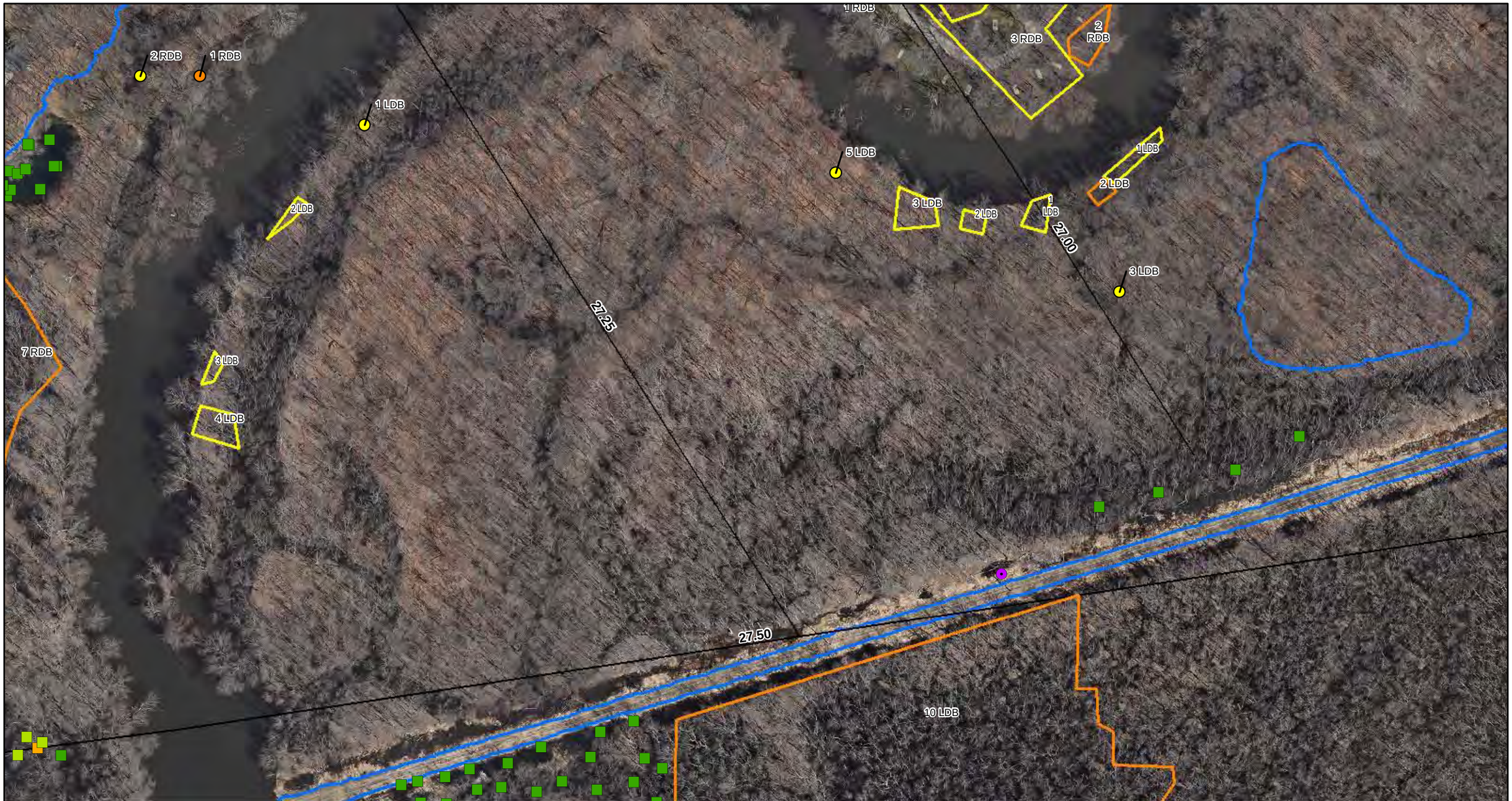
The RDB of segment 27.50 consists of forested wetland swamp in the overbank. Back channels and ponds are located in the overbank. The reassessment identified two points and one polygon. Traces of oil coated trunks and stems were identified at Point 2 RDB. Patchy occurrences of film on ponded water were identified at Point 1 RDB and Polygon 7 RDB.

Poling of the ponds and back channels on the RDB within this segment was completed at twenty-seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

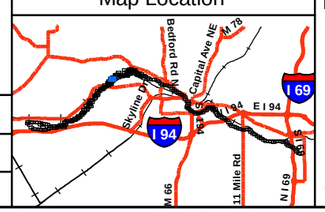
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

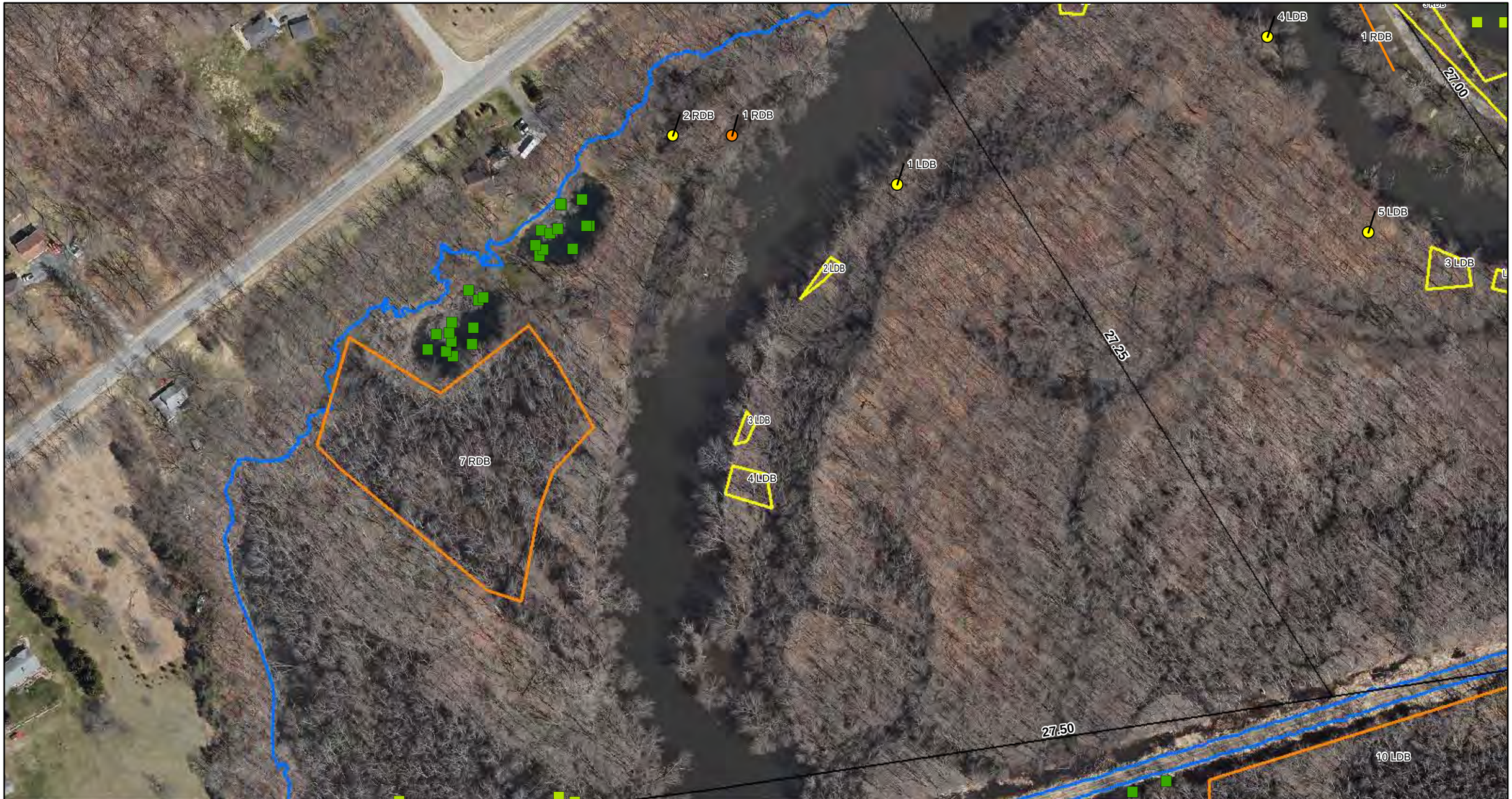
Scale in Feet

SORT ASSESSMENT
MP27.25-MP27.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

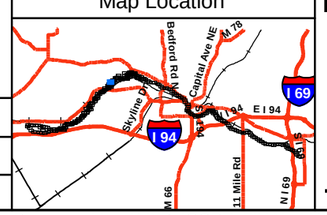
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP27.25-MP27.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 27.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Schaefer, Scott
4/20/2011	11:27																	42.34677	-85.33400		Oswald, John
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Schaefer, Scott
4/20/2011	13:54																	42.34627	-85.33456		Oswald, John
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Schaefer, Scott
4/20/2011	14:11																	42.34563	-85.33493		Oswald, John
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin / Schaefer, Scott
4/20/2011	14:20																	42.34537	-85.33476		Oswald, John

2011 Reassessment

Bank: RDB

Mile Marker: 27.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	5/18/2011	14:06	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)	42.34698	-85.33495		Ross, Shauna / Bucholtz, Paul / VanLoan, Mike
2	Overbank	5/18/2011	14:18	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.34698	-85.33530		Ross, Shauna / Bucholtz, Paul / VanLoan, Mike
7	Overbank	5/23/2011	15:55	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-swamp (forested)	42.34581	-85.33596	Mix of biological and petroleum sheen. Point represents data for entire pink polygon. Sheen observed with no aggitation. Area anticipated to to dry out. Reassess area when dry.	Graan, Tom / Fairchild, Katie / Neumeier, Laura

Photo Logs

Field Photographs – MP 27.25 – 27.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs – MP 27.25 – 27.50

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs – MP 27.25 – 27.50

RDB Zone ID 2, Photo 001



RDB Zone ID 7, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 27.25 to MP 27.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MD	Enbridge DB
SOTF	START	[signature]	MDEQ	MD	Enbridge DB
PI	START	[signature]	MDEQ	MD	Enbridge DB
FLS	START	[signature]	MDEQ	MD	Enbridge DB
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Bareham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 27.25 to MP 27.50, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 4/20/2011 — Date

Kevin Johnson — Printed Name

Scott Schaefer — MDEQ — 4/20/11 — Date

Scott Schaefer — Printed Name

John Oswald — Enbridge — 4/20/11 — Date

John Oswald — Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 27.25 to MP 27.5, Bank or Island: RDB, Segment Length: 0.25 mile

6 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/18/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ — 5/18/11 Date

Paul Bucholtz Printed Name

_____ Enbridge — 5-18-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.25 to MP 27.50, Unique ID RDB 5, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

THOMAS P. GRAHAM START — 5/23/11 Date

T Thomas P. Graham Printed Name

Kat Fairchild MDEQ — 5-23-11 Date

Kathleen Fairchild Printed Name

Lara Neumeier Enbridge — 5/23/2011 Date

Lara Neumeier Printed Name

1 sort point collected in YUMA. Data assigned to point is for entire "pink" polygon. Reassessment of area is prudent in dryer conditions.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.25 to MP 27.50, Unique ID RDB 4, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Gram — START — 5/24/11 — Date

Thomas P. Gram — Printed Name

Kathleen Fairchild — MDEQ — 5-24-11 — Date

Kathleen Fairchild — Printed Name

Don Dekett — Enbridge — 5/24/11 — Date

Don Dekett — Printed Name

Strike points collected in YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.25 to MP 27.50, Unique ID RDB 3, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START 5/24/11 Date

THOMAS P. GRAAN _____ Printed Name

Kathleen Fairchild _____ MDEQ 5-24-11 Date

Kathleen Fairchild _____ Printed Name

Don DeWitt _____ Enbridge 5/24/11 Date

Don DeWitt _____ Printed Name

Strike points collected in YUMA.

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.25 to MP 27.50, Unique ID RDB 6, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/5/11 Date

JESSICA Childs Printed Name

_____ MDEQ 6/5/11 Date

Bruce Washburn Printed Name

_____ Enbridge 6-5-11 Date

MATT STEBBINS Printed Name

Segment 27.50 – 27.75

MP 27.50 to MP 27.75

The LDB of segment 27.75 consists of forested wetland swamp along the shoreline and within the overbank, with back channels present in the overbank. The reassessment identified four points and three polygons. In general, traces of tar coated trunks and stems, and/or debris were identified at most locations. Sporadic occurrences of oil covered debris and tar balls were documented at Point 3 LDB. A broken coverage of a combination of a biological and petroleum film was documented at Polygon 10 LDB. The FLS data identified a suspected oil signature approximately 800 feet east of the river and 325 feet north of the MP 27.75. The SORT program did not identify surface oil at this location.

Poling of the back channels of the LDB within this segment was completed at twenty-one locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

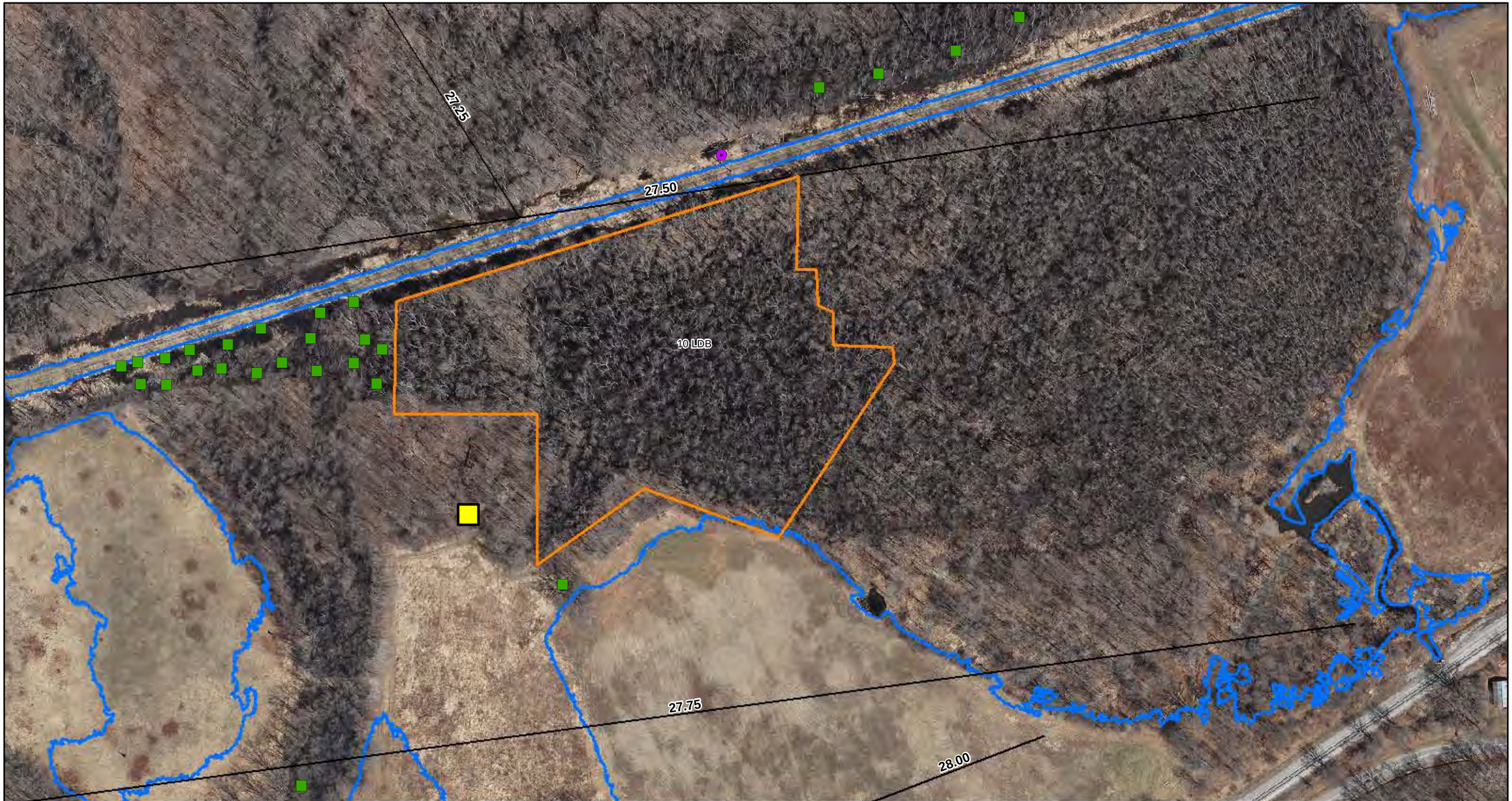
The RDB of segment 27.75 consists of forested wetland swamp and emergent/herbaceous wetlands along the shoreline and within the overbank. Back channels are present in the overbank. The reassessment identified one point, two polygons and one linear transect. A trace occurrence of tar coated trunks and stems was identified at Linear Transect 6 RDB. A trace occurrence of film on ponded water was identified in Point 2 RDB and Polygons 3 RDB and 4 RDB.

Poling of the back channels on the RDB within this segment was completed at fifty-three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted in the segment.

The attachments provide additional details on this segment.

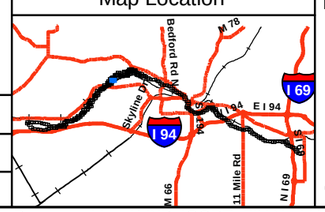
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP27.50-MP27.75 Left Bank East

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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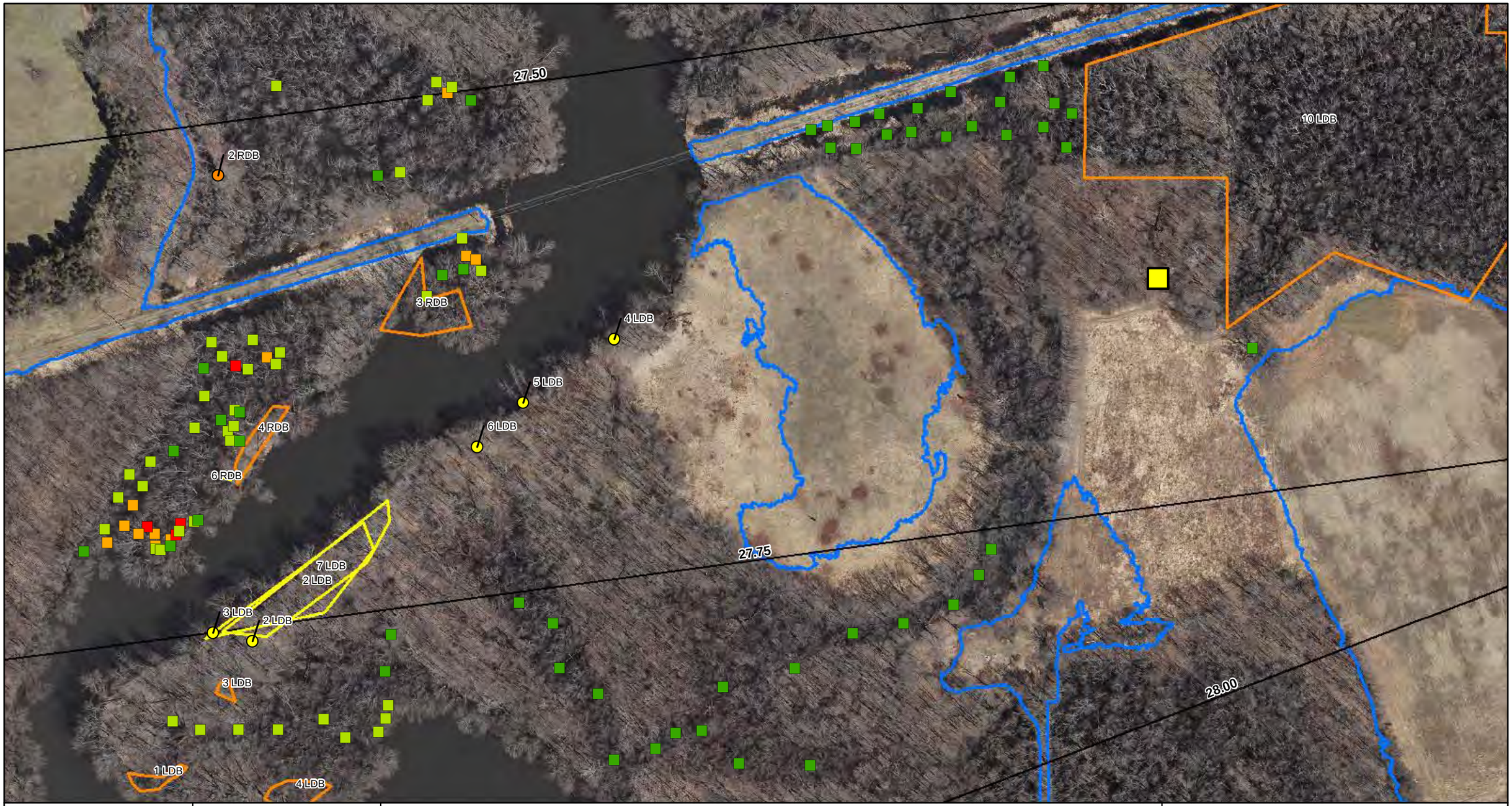
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP27.50-MP27.75 Left Bank West

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP27.50-MP27.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 27.75																				
Source: 2011 Reassessment																				
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date / **Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
10 / Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-swamp (forested)		Mixture of biological and petroleum sheen. Oil observed without aggitation. This point represents data for entire polygon. Reassess during dry conditions.	Graan, Tom Fairchild, Katie
5/24/2011 10:04																	42.34369	-85.33072		Neumeier, Laura
2 / Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)			Johnson, Kevin Schaefer, Scott
4/20/2011 18:10																	42.34214	-85.33635		Oswald, John
3 / Overbank	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	S	Wetland-swamp (forested)			Johnson, Kevin Schaefer, Scott
4/20/2011 18:16																	42.34164	-85.33722		Oswald, John
4 / Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	T	Wetland-swamp (forested)			Johnson, Kevin Schaefer, Scott
4/20/2011 18:26																	42.34296	-85.33487		Oswald, John
5 / Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin Schaefer, Scott
4/21/2011 08:27																	42.34267	-85.33540		Oswald, John

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 27.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
6	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	
4/21/2011	08:37																	42.34247 / -85.33567	
7	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Wetland-swamp (forested)	
4/21/2011	09:06																	42.34165 / -85.33715	

START
MDEQ
Enbridge Team Lead
Johnson, Kevin
Schaefer, Scott
Oswald, John
Johnson, Kevin
Schaefer, Scott
Oswald, John

2011 Reassessment

Bank: RDB

Mile Marker: 27.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
2	Overbank	6/5/2011	13:05	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.34364	-85.33722	sheen scattered throught polygon	Childs, Jessica Washburn, Bruce Standen, John
3	Shoreline and Overbank	6/5/2011	16:29	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)	42.34317	-85.33578	This flooded overbank polygon is for submerged oil that is being kicked up from crew walking and agitating sediment. moderate sheen was observed. 1-3 feet per second flow. approximately 2 feet in depth throughout. sediment is sandy	Childs, Jessica Washburn, Bruce Standen, John
4	Shoreline and Overbank	6/6/2011	11:09	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.34230	-85.33710		Childs, Jessica Washburn, Bruce Standen, John
6	Shoreline	6/6/2011	11:12	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.34233	-85.33718		Childs, Jessica Washburn, Bruce Standen, John

Photo Logs

Field Photographs MP 27.50 – MP 27.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 27.50 – MP 27.75

LDB Zone ID 2, Photo 003



LDB Zone ID 2, Photo 004



Field Photographs MP 27.50 – MP 27.75

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 27.50 – MP 27.75

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 27.50 – MP 27.75

LDB Zone ID 7, Photo 001



LDB Zone ID 7, Photo 002

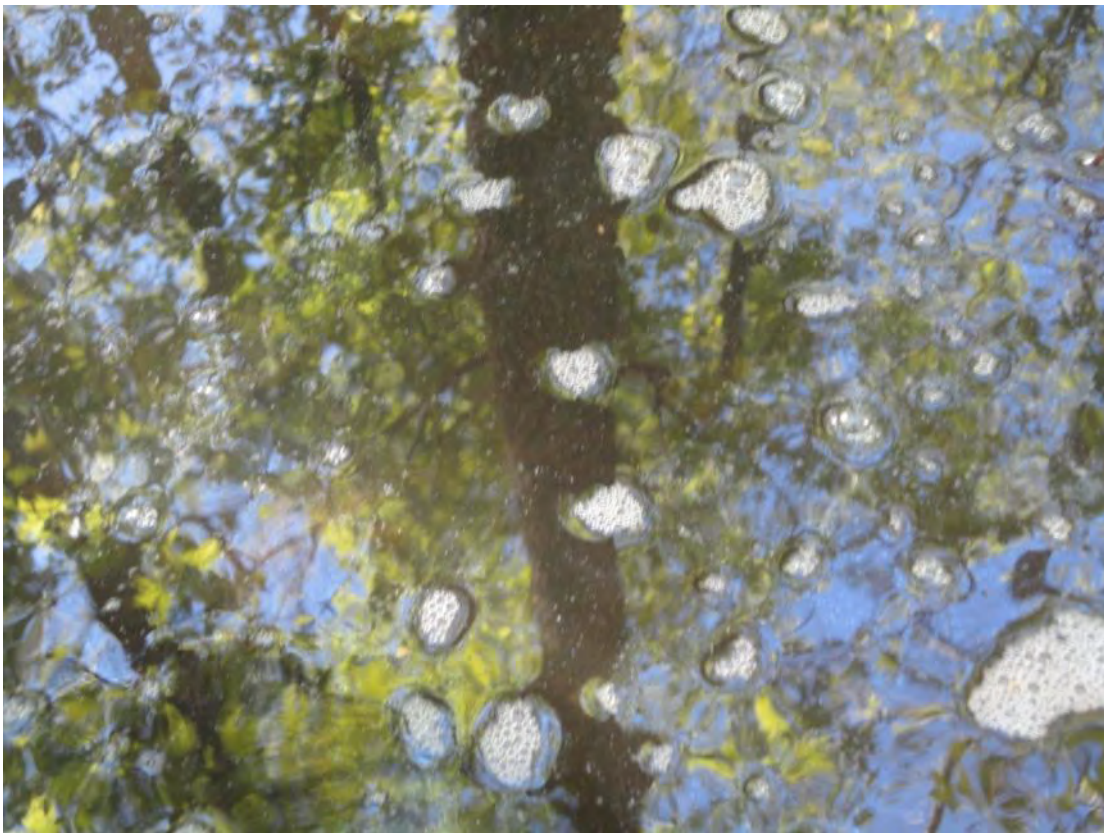


Field Photographs MP 27.50 – MP 27.75

LDB Zone ID 10, Photo 001



LDB Zone ID 10, Photo 002



Field Photographs MP 27.50 – MP 27.75

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 27.50 – MP 27.75

RDB Zone ID 4, Photo 001



RDB Zone ID 6, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 27.5 to MP 27.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge DB
SOTF	START		MDEQ	MD	Enbridge DB
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge DB
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Barchem	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 21.50 to MP 27.75, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Kevin Johnson — START — 4/21/11 Date

Kevin Johnson — Printed Name

Scott Schaefer — MDEQ — 4/21/11 Date

Printed Name

John Oswald — Enbridge — 4/21/11 Date

John Oswald — Printed Name

ONLY CHECKED AREAS WITH ACCESS AGREEMENTS. LARGE AREA OF INUNDATION WITHOUT ACCESS IN REAR OF SECTION.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.5 to MP 28.25, Unique ID 27.75 * LDB Access N, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Green _____ START 5/5/11 Date

Thomas P. Green _____ Printed Name

Kat Fairchild _____ MDEQ 5-5-11 Date

Kathleen Fairchild _____ Printed Name

_____ Enbridge 5.5.2011 Date

Laura Neumeier _____ Printed Name

* Reassessed polygon with exception of an area of water that will need to dry out before completing. A new polygon (27.75 LB2) was created around water area. No oil.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.5 to MP 27.75, Unique ID LDB 1, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/5/11 — Date

THOMAS P. GRAAN — Printed Name

Kat Fairchild — MDEQ — 5-5-11 — Date

Kathleen Fairchild — Printed Name

Laura Neumeier — Enbridge — 5/5/11 — Date

Laura Neumeier — Printed Name

Strike points and one SORT point (no oil) in YUMA

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 27.5 to MP 27.75, Bank or Island: ISB, Segment Length: 0.25 mile
1 feature

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/19/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/19/11 Date

Paul Bucholtz Printed Name

[signature] Enbridge — 5-19-2011 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.50 to MP 27.75, Unique ID LPB BB, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START 5/24/11 Date

THOMAS P. GRAAN Printed Name

Kathleen Fairchild _____ MDEQ 5-24-11 Date

Kathleen Fairchild Printed Name

Laura Neumeier _____ Enbridge 5/24/2011 Date

Laura Neumeier Printed Name

SORT point collected in YUMA. Point represents data for entire "pink" polygon. Area inundated, prudent to reassess during dryer conditions.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 27.50 to MP 27.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 05/24/11 Date

CHRIS BECKETT Printed Name

_____ MDEQ 5-24-11 Date

William Keiper Printed Name

_____ Enbridge 5/24/11 Date

JOSEPH STANDEN Printed Name

IDENTIFIED ~~ONE~~ TWO POLYGONS AND TWO POINTS. ALSO POLED AT FIVE POINTS AT ONE LOCATION. POLING IDENTIFIED SUBMERGED OIL.

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.50 to MP 27.75, Unique ID RDB 1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Jonathan E Sanders — START — 6/6/2011 — Date
Jonathan E Sanders — Printed Name

Bruce L Washburn — MDEQ — 6/6/11 — Date
Bruce Washburn — Printed Name

MATT STEBBINS — Enbridge — 6-6-11 — Date
Matt Stebbins — Printed Name

Portions of this polygon (Unique ID) would be better reassessed under dry conditions. The Southern West portion of the Polygon had moderate ~~poling data~~ submerged oil ms that should be confirmed with river poling data.

Segment 27.75 – 28.00

MP 27.75 to MP 28.00

The LDB of segment 28.00 consists of forested wetland swamp along the shoreline and within the overbank. A low vegetated bank is present along the shoreline at Point 5 LDB. Several back channels are present in the overbank. The reassessment identified two points and four polygons. Traces of oil stained and/or coated trunks and stems were present at Points 2 LDB and 5 LDB. A trace or sporadic distribution of oil film on ponded water and/or sediment was identified at Polygons 1 LDB, 3 LDB, 4 LDB, and 6 LDB.

Poling of the back channels on the LDB within this segment was completed at thirty-four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

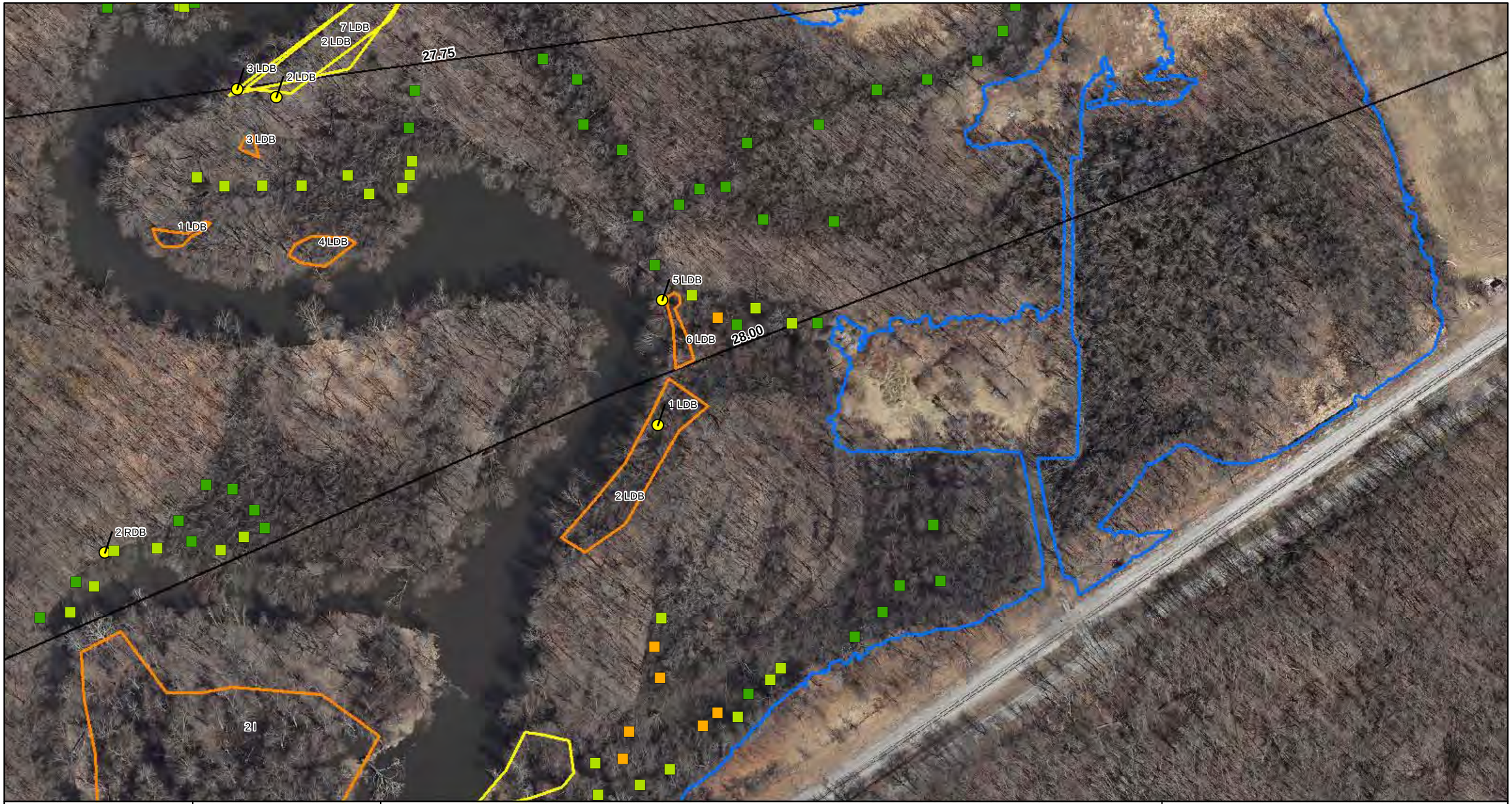
The RDB of segment 28.00 consists of a low vegetated bank along the shoreline. Back channels were present in the segment. The reassessment identified one point along a back channel that was characterized as having traces of oil coated and stained trunks and stems.

Poling of the back channels on the RDB within this segment was completed at seventeen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

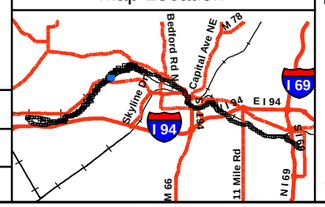
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

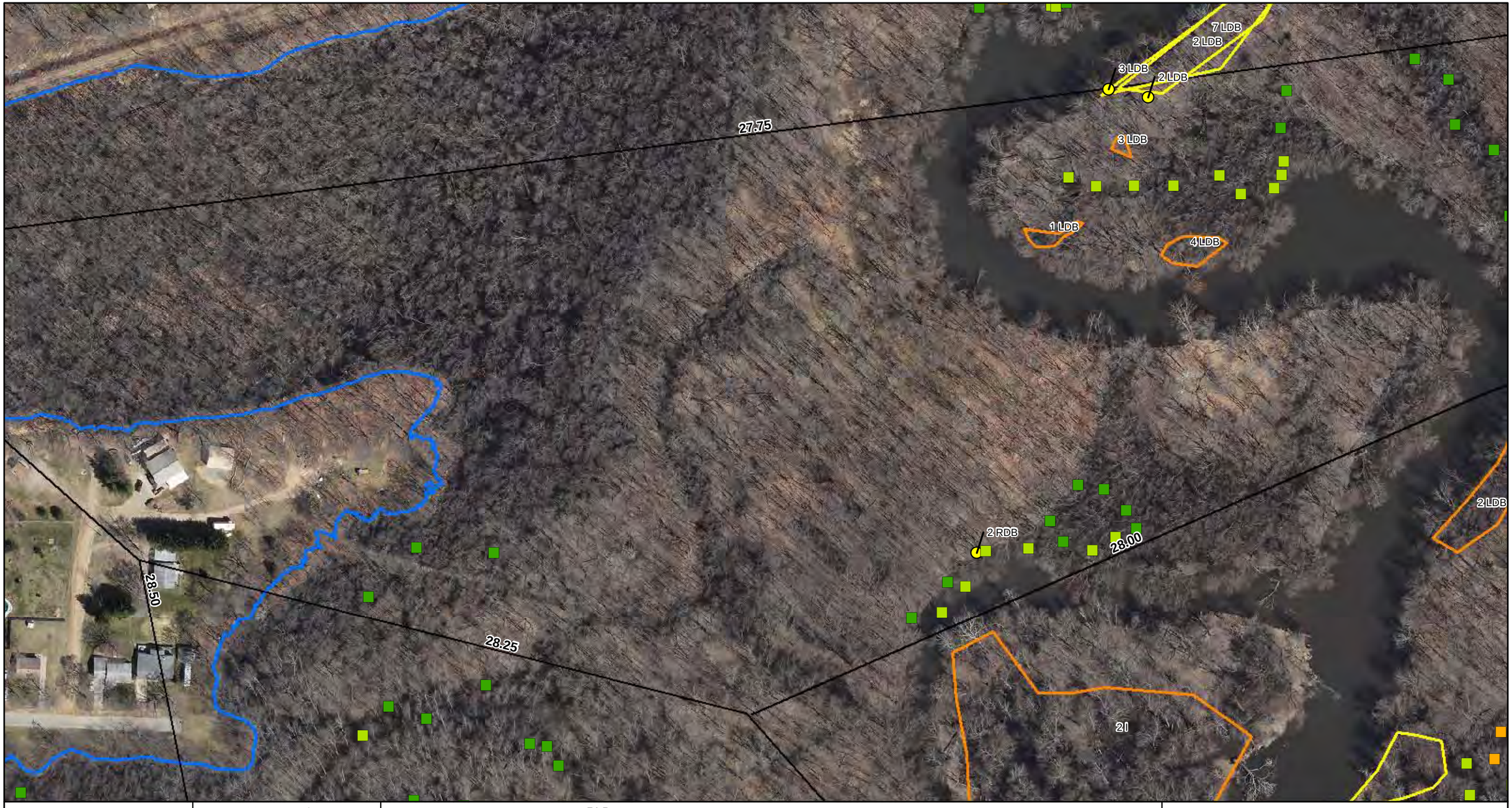
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP27.75-MP28.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

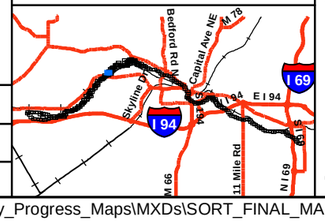
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP27.75-MP28.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 28

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		FILM/SHEEN ON POOLED WATER AND MUD	Gomez, Tori
																					Wesener, Matt
5/24/2011	12:55																	42.34104	-85.33749		Kytta, Ken
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		TAR COATING AT BASE OF TREE	Gomez, Tori
																					Wesener, Matt
5/24/2011	13:28																	42.34163	-85.33695		Kytta, Ken
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		FILM/SHEEN ON MUD	Gomez, Tori
																					Wesener, Matt
5/24/2011	13:41																	42.34140	-85.33720		Kytta, Ken
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		FILM/SHEEN ON MUD AND POOLED WATER	Gomez, Tori
																					Wesener, Matt
5/24/2011	13:52																	42.34101	-85.33658		Kytta, Ken
5	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		COATED AND STAINS ON TREE/STEM	Gomez, Tori
																					Wesener, Matt
5/24/2011	14:24																	42.34075	-85.33469		Kytta, Ken

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character													
Mile Marker: 28																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		FILM/SHEEN ON MUD	**Enbridge Team Lead**
																					Gomez, Tori
																					Wesener, Matt
5/24/2011	14:29																	0.00000	0.00000		Kytta, Ken

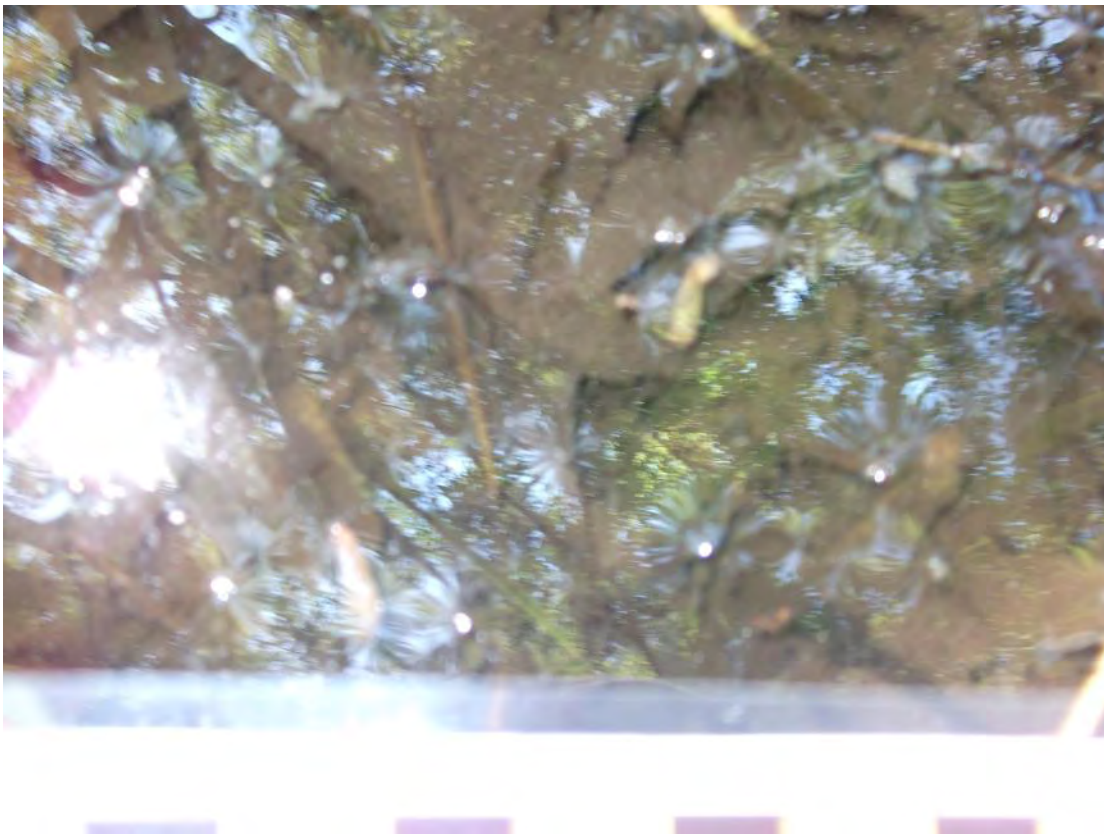
2011 Reassessment

Bank:	RDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	28																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank		COATED/STAINED TREE/STEM	Gomez, Tori
																					Wesener, Matt
5/26/2011	16:37																	42.33961	-85.33797		Kytta, Ken

Photo Logs

Field Photographs MP 27.75 – MP 28.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 27.75 – MP 28.00

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 27.75 – MP 28.00

LDB Zone ID 4, Photo 001



LDB Zone ID 5, Photo 001



Field Photographs MP 27.75 – MP 28.00

LDB Zone ID 6, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 27.75 – MP 28.00

RDB Zone ID 2, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 27.75 to MP 28.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/8/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barcham Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 27.75 to MP 28.0, Bank or Island: Bank, Segment Length: 0.25 mile

1 feature

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

Shawna Marie Poss Printed Name

_____ MDEQ 5/19/11 Date

Paul Buehler Printed Name

_____ Enbridge 5-19-11 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.75 to MP 28.00, Unique ID ROBL, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	05.26.11 Date
Tori Gramza	Printed Name	
_____	MDEQ	5/26/11 Date
MATT WESENER	Printed Name	
_____	Enbridge	5/26/11 Date
KEN KYTTA	Printed Name	
_____ Tetra Tech		5/26/11
Craig A Wiemer		

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 27.75 to MP 28.00, Unique ID _____, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 05.25.11 Date

Tori Gomez Printed Name

_____ MDEQ 5/25/11 Date

MATT WESENER Printed Name

_____ Enbridge 5/25/11 Date

MATTHEW STEBBINS Printed Name

_____ Tetra Tech 5/25/2011

Craig A Wieman

Segment 28.00 – 28.25

MP 28.00 to MP 28.25

The LDB of segment 28.25 consists of a forested wetland swamp along the shoreline and within the overbank. Back channels and a pond are present in the overbank. The reassessment identified one polygon (Polygon 2 LDB) that was characterized as having a sporadic distribution of surface oil residue on the ground surface and a film on sediment and shallow ponded water.

Poling of the back channels and pond on the LDB within this segment was completed at thirty-seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

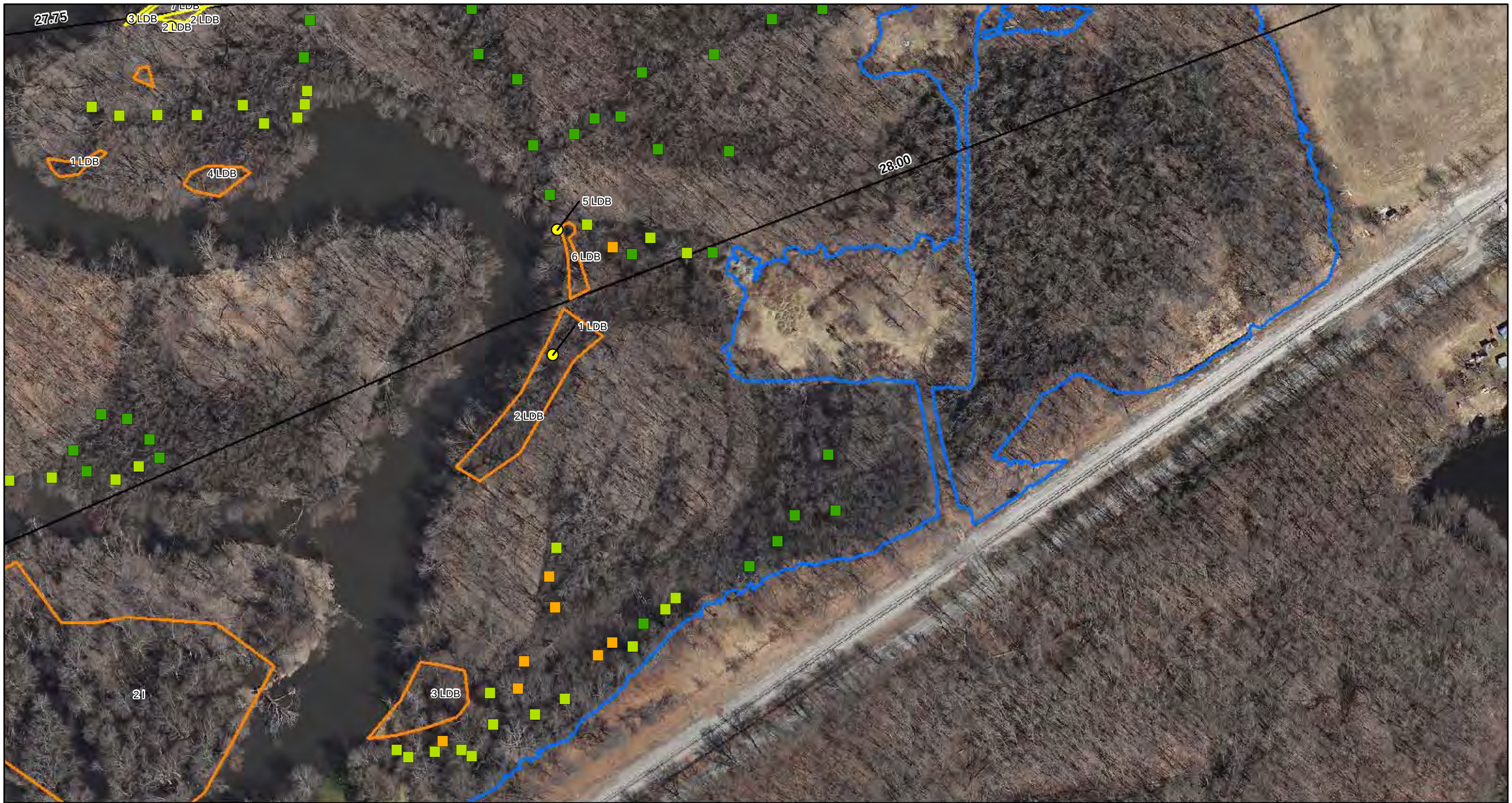
The RDB of segment 28.25 consists of a forested wetland swamp. The reassessment did not identify any evidence of surface oil on the RDB.

A large island is located in close proximity to the RDB and characterized as a forested wetland swamp within the overbank. A combination of biological and petroleum film was identified throughout Polygon 2 I. A film (sheen) and globules were present within the sediment with a heavier film present downstream of the island.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP28.00-MP28.25 Left Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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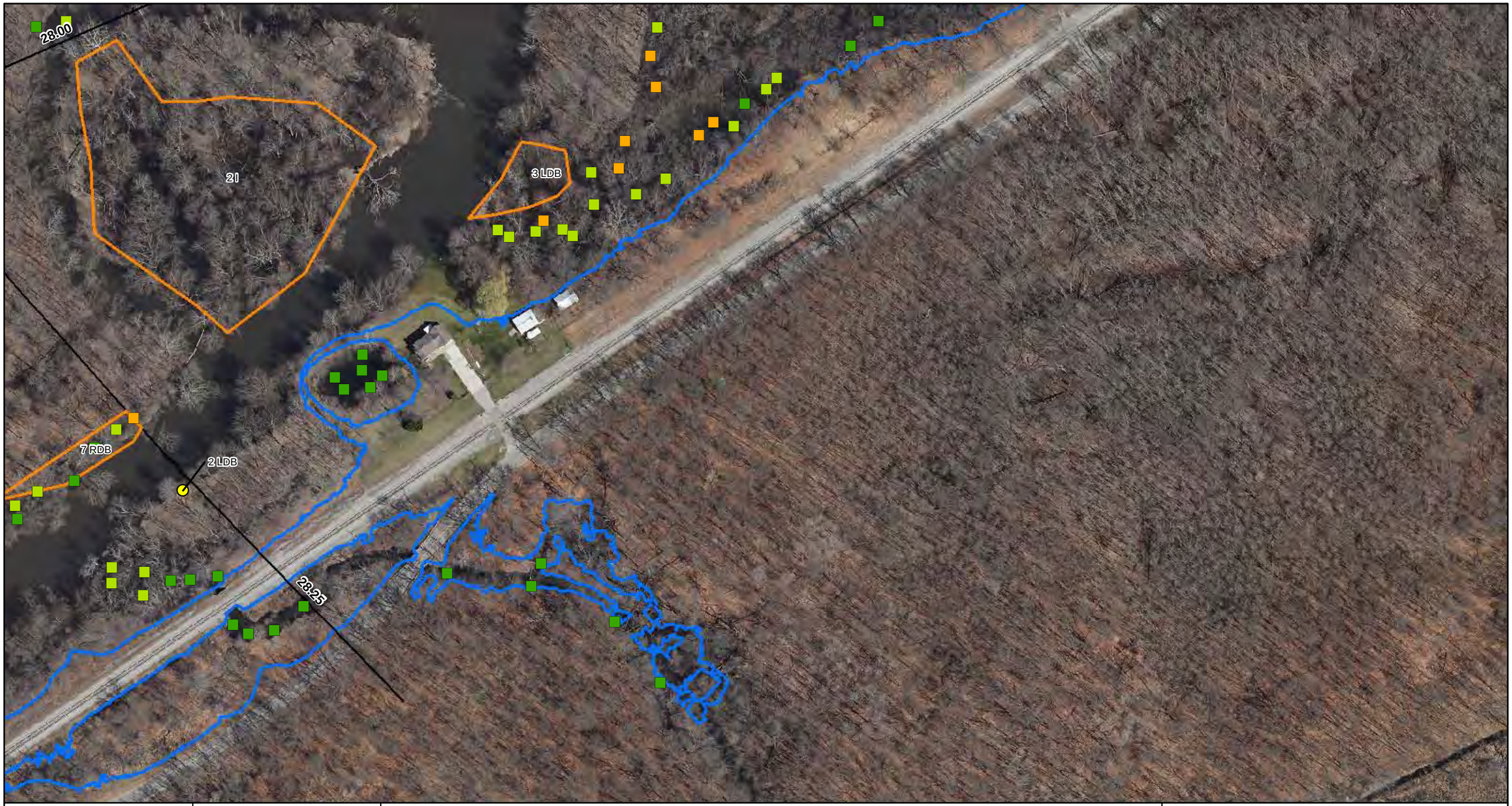
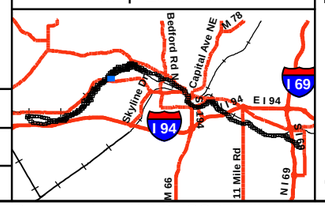
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP28.00-MP28.25 Left Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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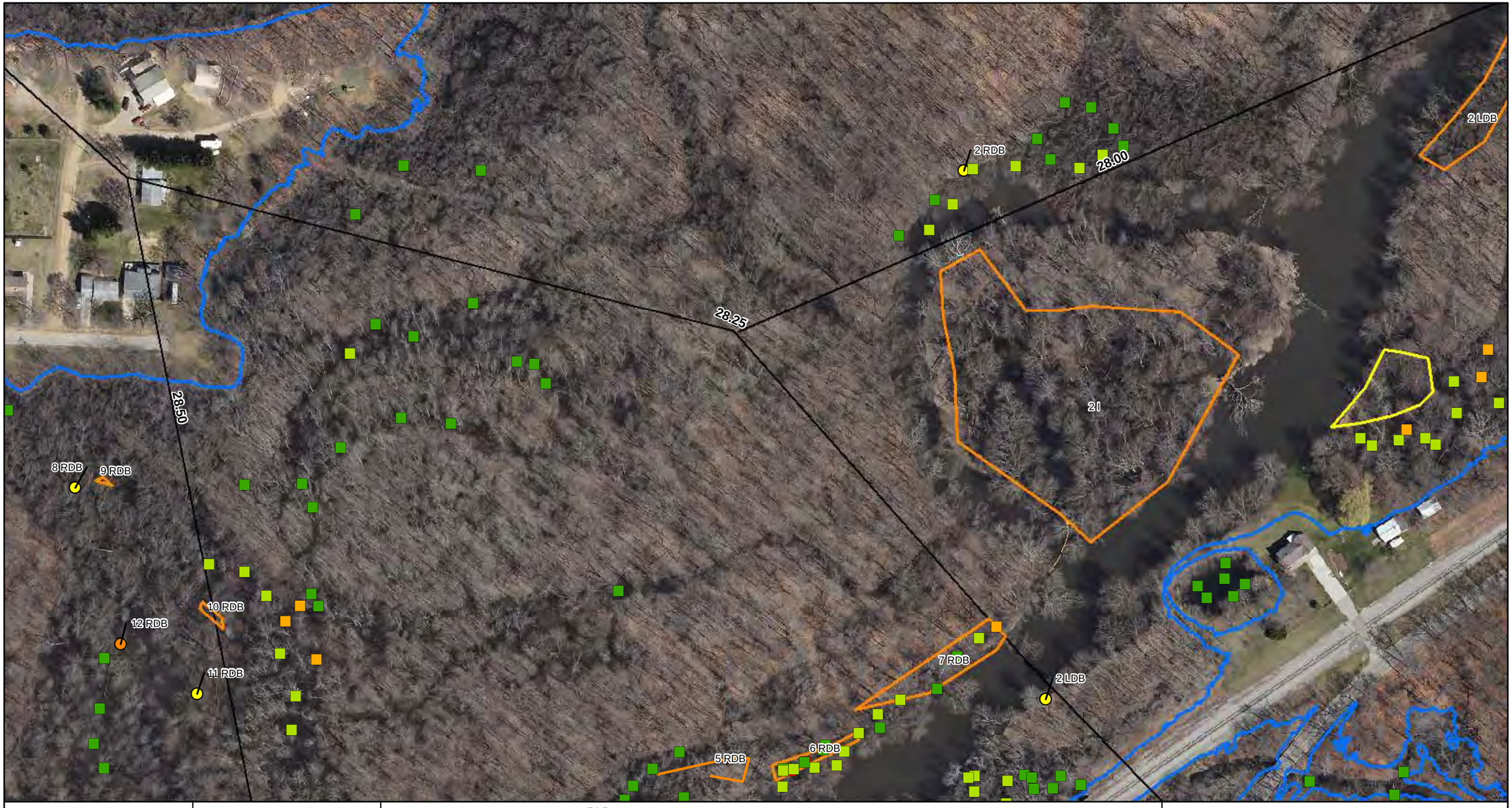
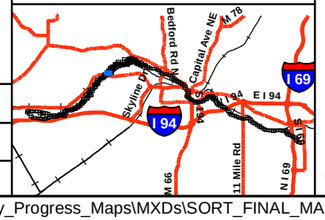
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP28.00-MP28.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 28.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		reassessment required, standing water. 55 gal steel drum at this location.	Hadwin, Erik
																					Oakly, W. Craig
5/14/2011	10:11																	42.34005	-85.33442		Juntilla, John
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		FILM/SHEEN ON MUD AND SHALLOW PONDED WATER	Hadwin, Erik
																					Wesener, Matt
6/9/2011	11:24																	42.34003	-85.33488		Kytta, Ken
3	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		FILM/SHEEN ON MUD AND SHALLOW PONDED WATER. Attributes did not log in field; attributes filled in in-office.	Hadwin, Erik
																					Wesener, Matt
6/8/2011																		0.00000	0.00000		Kytta, Ken

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 28.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		Point represents data for entire polygon. Pre-existing light sheen. Mixture of bio and petroleum sheen. Sheen and globules present in sediment. Heavier sheen noted downstream area of island.	Graan, Tom
																					Fairchild, Katie
5/24/2011	16:42																	42.33824	-85.33765		Neumeier, Laura

Photo Logs

Field Photographs – MP 28.00 – 28.25

LDB Zone ID 1, Photo 001

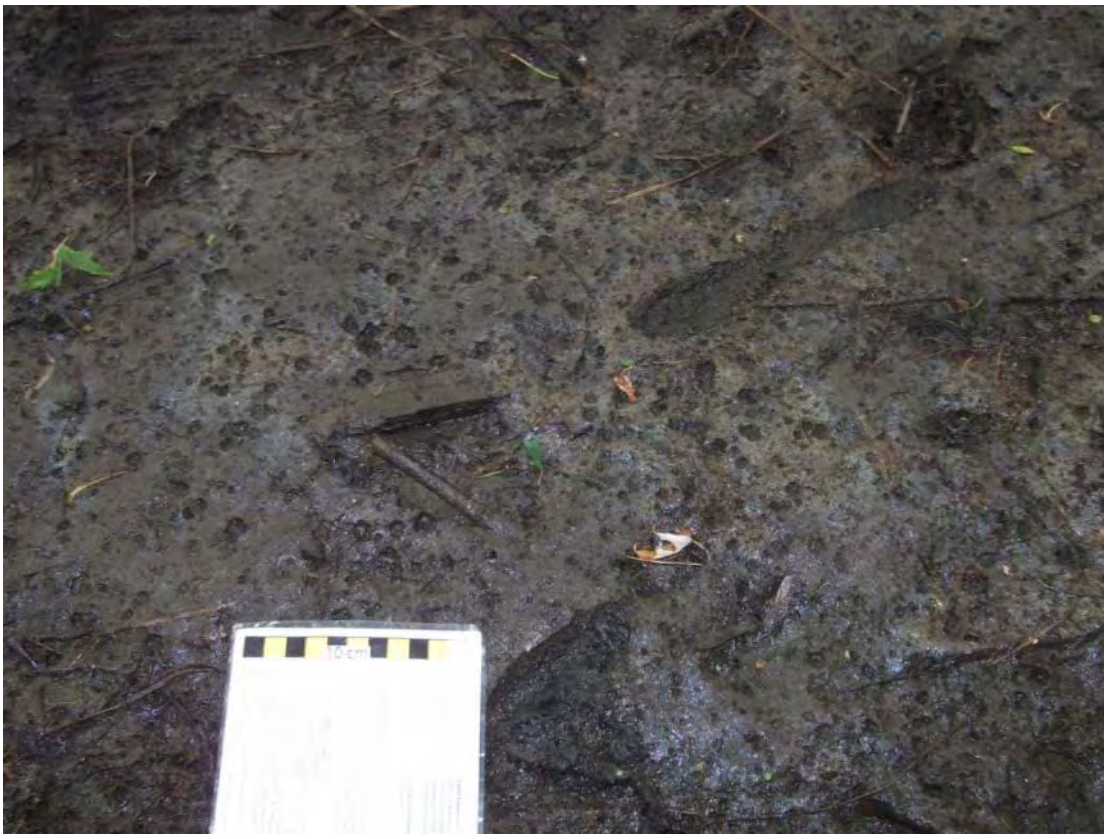


LDB Zone ID 1, Photo 002



Field Photographs – MP 28.00 – 28.25

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs – MP 28.00 – 28.25

I Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 28.0 to MP 28.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge DB
SOTF	START		MDEQ	MD	Enbridge DB
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge DB
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/10/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/10/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/10/2011 Date
Dave Barcham	Printed Name	

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.00 to MP 28.25, Unique ID _____, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 6/9/11 Date

Rick Hadwin Printed Name

_____ MDEQ — 6/9/11 Date

Matt Wessner Printed Name

_____ Enbridge — 6/9/11 Date

Greg New Printed Name

G. New

06-09-2011

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 28.0 to MP 28.25, Bank and Island: RB, Segment Length: 0.25 mile

1 feature

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/19/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/19/11 Date

Paul Bucholtz Printed Name

[signature] Enbridge — 5-19-11 Date

Michael Van Loan Printed Name

team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.00 to MP 28.25, Unique ID I 1, Bank - and/or Island I

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START — 5/24/11 Date

THOMAS P. GRAAN Printed Name

Kat Fairchild MDEQ — 5-24-11 Date

Kathleen Fairchild Printed Name

Laura Neumeier Enbridge — 5/24/2011 Date

Laura Neumeier Printed Name

Island flooded, prudent to reassess in dryer conditions.

SORT point collected by YUMA represents entire "pink" polygon.

Use of poling revealed sheen and globules from sediment/soil on island - heavier on downstream end of island.

Segment 28.25 – 28.50

MP 28.25 to MP 28.50

The LDB of segment 28.50 consists of forested wetland swamp along the shoreline and within the overbank. A back channel aligned parallel to the river, flows into the river at the end of the segment. A tributary also flows into the river at MP 28.25. The reassessment identified two points, three polygons and two linear transects. Traces of tar coated trunks and stems were identified at Points 2 LDB and 3 LDB. Trace to sporadic occurrences of film on ponded water and/or sediment were identified at all other locations.

Poling of the back channel and tributary on the LDB within this segment was completed at sixty-one locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 28.50 consists of forested wetland swamp within the overbank, with a back channel present in the overbank. The reassessment identified three polygons and three linear transects. A trace and sporadic occurrence of film on ponded water was identified at all locations, with surface oil residue also present at most locations.

Poling of the back channel on the RDB within this segment was completed at sixty-five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

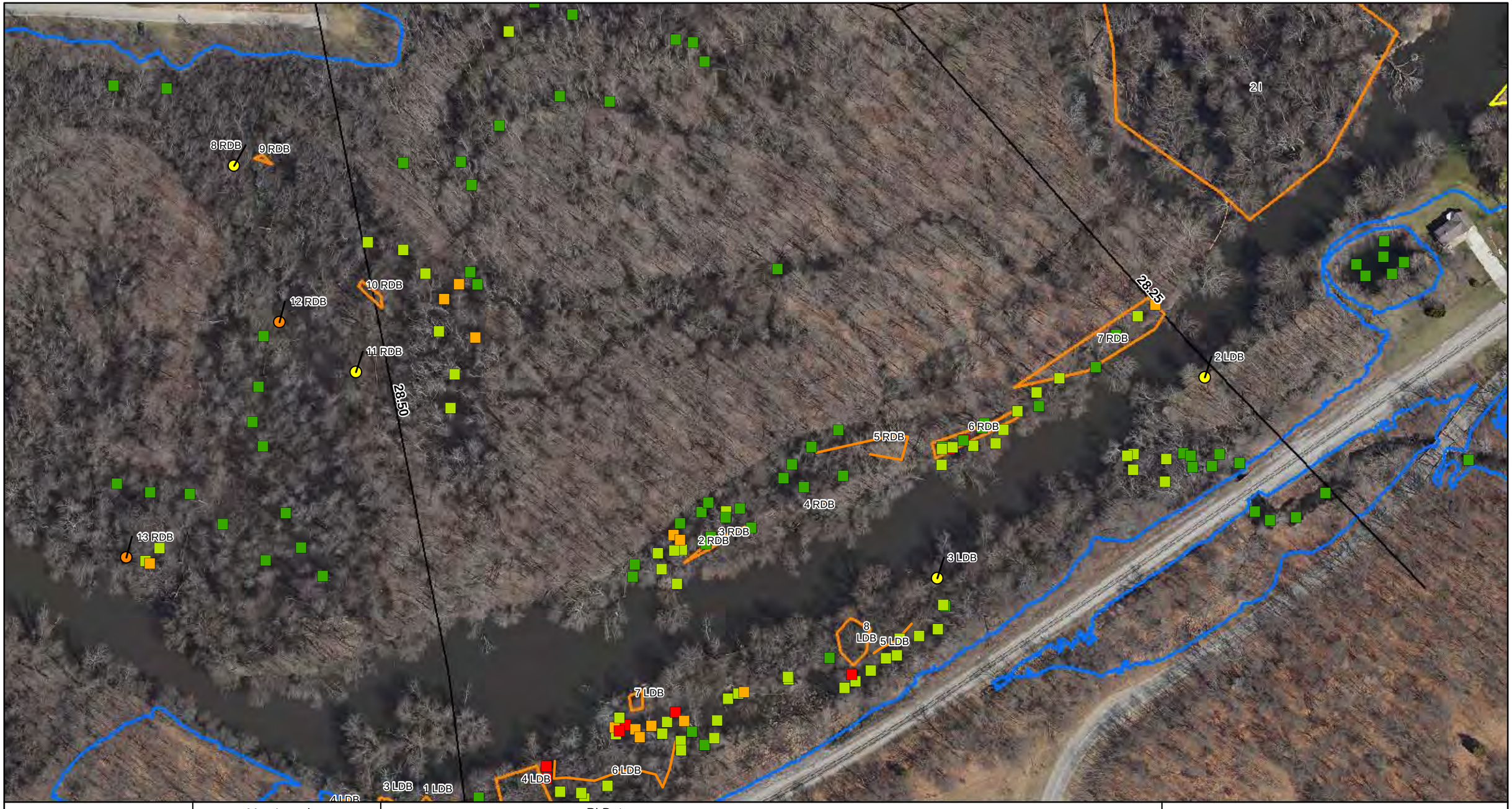
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP28.25-MP28.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP28.25-MP28.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 28.5

Source: 2011 Reassessment

Oil Zone ID / Date	Feature / Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat: Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
2	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Schaefer, Scott
4/21/2011	09:37																	42.33730	-85.33745		Oswald, John
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Johnson, Kevin
																					Schaefer, Scott
4/21/2011	10:40																	42.33640	-85.33901		Oswald, John
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		FILM AND SHEEN ON MOD AND PONDED WATER	Johnson, Rex
																					Washburn, Bruce
5/9/2011	18:39																	42.33551	-85.34148		Kytta, Ken
5	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		FILM/GLOBULES ON MUD AND IN POOLED WATER	Hadwin, Eric
																					Wesener, Matt
5/10/2011	11:32																	42.33608	-85.33938		Kytta, Ken
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		FILM AND GLOBULES ON POOLED WATER AND MUD	Hadwin, Eric
																					Wesener, Matt
5/10/2011	10:48																	42.33555	-85.34128		Kytta, Ken

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution				
Mile Marker: 28.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
7	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		FILM/GLOBULES ON MUD	Hadwin, Eric Wesener, Matt
5/10/2011	11:08																	42.33590	-85.34075		Kytta, Ken
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		FILM/GLOBULES ON MUD	Hadwin, Eric Wesener, Matt
5/10/2011	11:23																	42.33617	-85.33954		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 28.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		sheen on surface	Hadwin, Erik
																					Oakly, W. Craig
5/14/2011	14:33																	42.33650	-85.34025		Juntilla, John
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		south side of poly 1	Hadwin, Ron
																					Oakly, W. Craig
5/14/2011	14:42																	42.33667	-85.34009		Juntilla, John
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		sheen on surface	Hadwin, Ron
																					Oakly, W. Craig
5/14/2011	14:57																	42.33672	-85.33966		Juntilla, John
5	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		sheen on surface	Hadwin, Ron
																					Oakly, W. Craig
5/14/2011	15:22																	42.33701	-85.33949		Juntilla, John
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		flow channel or chute, sheen on ground and water surface	Hadwin, Erik
																					Oakly, W. Craig
5/14/2011	15:38																	42.33711	-85.33855		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 28.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
7	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		sheen on water and ground surface	Hadwin, Erik
																					Oakly, W. Craig
5/14/2011	16:08																	42.33765	-85.33780		Juntilla, John

Photo Logs

Field Photographs MP 28.25 – MP 28.50

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 28.25 – MP 28.50

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 28.25 – MP 28.50

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 28.25 – MP 28.50

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 28.25 – MP 28.50

LDB Zone ID 7, Photo 001



LDB Zone ID 7, Photo 002



Field Photographs MP 28.25 – MP 28.50

LDB Zone ID 8, Photo 001



LDB Zone ID 8, Photo 002



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 4, Photo 003



RDB Zone ID 4, Photo 004



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 5, Photo 001



RDB Zone ID 5, Photo 002



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 5, Photo 003



RDB Zone ID 6, Photo 001



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 6, Photo 002



RDB Zone ID 6, Photo 003



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 7, Photo 003



RDB Zone ID 7, Photo 004



Field Photographs MP 28.25 – MP 28.50

RDB Zone ID 7, Photo 005



RDB Zone ID 7, Photo 006



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 28.25 to MP 28.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	MD	Enbridge DB
SOTF	START	JDP	MDEQ	MD	Enbridge DB
PI	START	JDP	MDEQ	MD	Enbridge DB
FLS	START	JDP	MDEQ	MD	Enbridge DB
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Check with Yuma operator and team lead to confirm overall coverage was sufficient.	6/10/2011

Completeness Check Acknowledged

John Powell — START — 6/10/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/10/11 Date

Michelle DeLong — Printed Name

D Bar — Enbridge — 6/10/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50, Unique ID LD84, Bank OB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. ~~ONE~~ FIRST SEGMENT COMPLETED ON 5/9/11. POLING COMPLETED BY STRIKE TEAM 2.

[signature] START — 5/10/11 Date

Erik Howins Printed Name

[signature] MDEQ — 5/10/11 Date

MATT WESCHKE Printed Name

[signature] Enbridge — 5/10/11 Date

KEN KYTTA Printed Name

[signature] — 5/10/11

Rex Johnson

(for section inspected on 5/09)

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50, Unique ID LD01 28.50, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. RIVER SECTION COMPLETED ON 5/9/11, ROAD/RAIL SECTION COMPLETED ON 5/10/11.

[signature] START — 5/10/11 Date

Erik Hanson Printed Name

[signature] MDEQ — 5/10/11 Date

MATT WAGNER Printed Name

[signature] Enbridge/TT — 5/10/11 Date

Craig A Wieman Printed Name

Rex Johnson — 5/10/11

Rex Johnson

(for section inspected on 5/09)

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50 Unique ID LDB4, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/10/11 Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5-10-11 Date

William Keiper — Printed Name

Don DeWitt — Enbridge — 5/10/11 Date

Don DeWitt — Printed Name

Sign-off for poling points only.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50; Unique ID RDB 1, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P Graan _____ START 5/24/11 Date

THOMAS P. GRAAN _____ Printed Name

Kat Fairchild _____ MDEQ 5-24-11 Date

Kathleen Fairchild _____ Printed Name

Dan DeWitt _____ Enbridge 5/24/11 Date

Dan DeWitt _____ Printed Name

Flooded overbank and shoreline. Strike points collected in YUMA. Inundated area, prudent to reassess area in dryer conditions

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50, Unique ID RDB 9, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START — 5/24/11 Date

THOMAS P. GRAAN Printed Name

Kathleen Fairchild MDEQ — 5-24-11 Date

Kathleen Fairchild Printed Name

Don DeWitt Enbridge — 5/24/11 Date

Don DeWitt Printed Name

Strike points collected by YUMA. Flooded overbank area, prudent to reassess during dryer conditions.

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50, Unique ID ROB8, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Jonathan E Sanders — START — 6/6/2011 — Date

Jonathan E Sanders — Printed Name

Bruce L. Washburn — MDEQ — 6/6/11 — Date

Bruce Washburn — Printed Name

Matthew Stebbins — Enbridge — 6-6-11 — Date

MATTHEW STEBBINS — Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50 *, Unique ID 9, Bank: LDB and/or Island 9.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-09-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	6/9/11 Date
Ryan D. Blazic	Printed Name	
[signature]	Enbridge	6/9/11 Date
David Straud	Printed Name	

* The assessment was limited to poling near select locations previously done by others in the inundated areas between the river and RR tracks. The purpose was to confirm the previous poling results due to a missing sign off sheet. DVS SMK RMB

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.25 to MP 28.50, Unique ID 9, Bank: RDB and/or Island 9.
Segment Length: 0.25 mile

Assessed data gaps on the downstream 1/2 of milepost segment 28.50 RDB
Included SORT assessment coupled with STRIKE poling locations. DVS

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-09-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	6/8/11 Date
Ryan Blazic	Printed Name	
[signature]	Enbridge	6/9/11 Date
David Straud	Printed Name	

Segment 28.50 – 28.75

MP 28.50 to MP 28.75

The LDB of segment 28.75 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment identified two polygons and two linear transects. A sporadic occurrence of film on ponded water was identified at all locations. An oil film, which appeared to be a combination of biological and petroleum, was observed at Polygon 1 LDB.

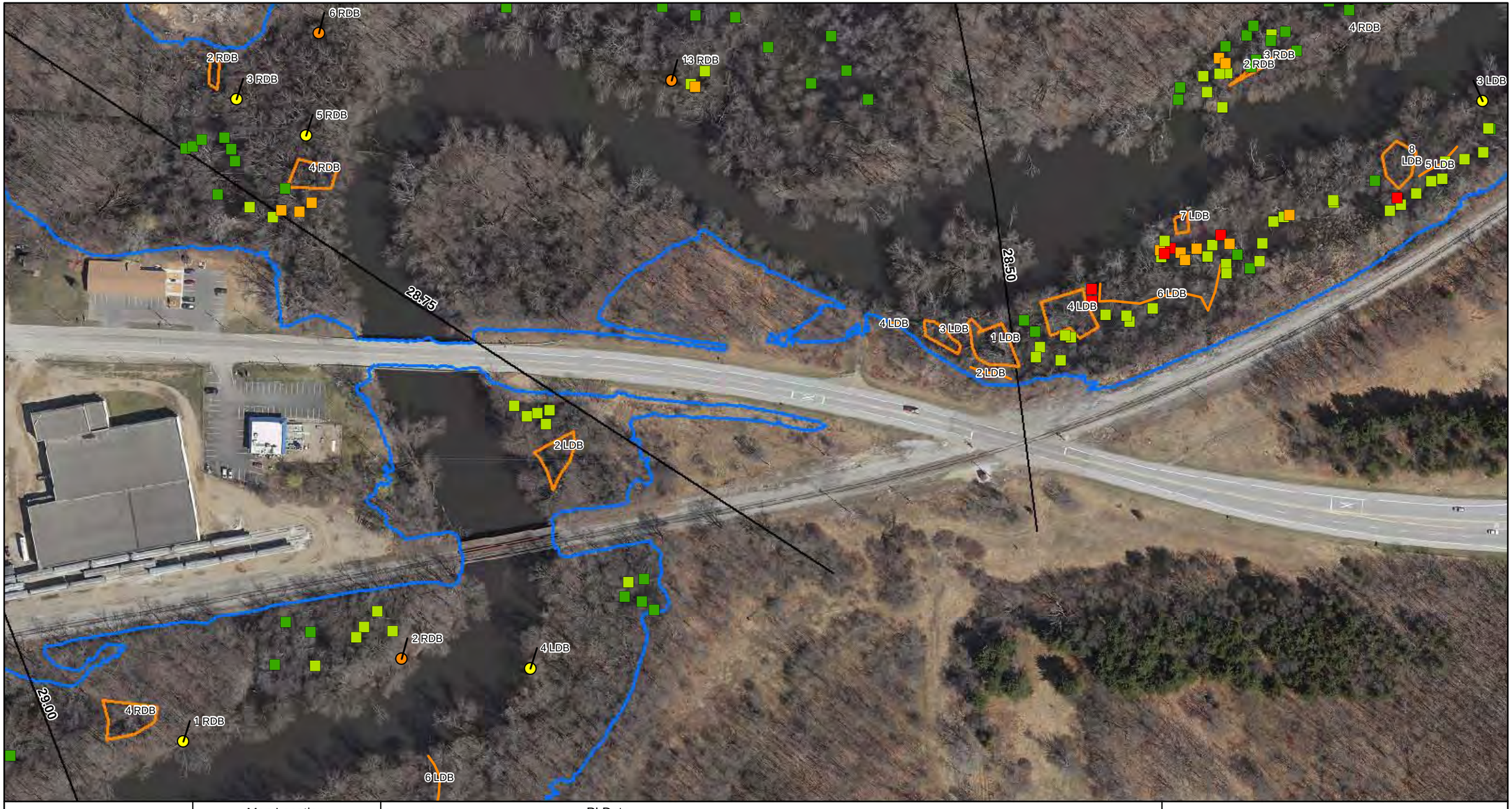
The RDB of segment 28.75 consists of forested wetland swamp along the shoreline and within the overbank. An oxbow lake and back channels are present in the overbank. The reassessment identified seven points and four polygons. Trace staining of trunks and stems were identified at Points 3 RDB, 5 RDB, 8 RDB, and 11 RDB. Trace to sporadic occurrences of film on ponded water were identified at the remaining locations. An oil film, which appeared to be a combination of biological and petroleum, was observed at Point 13 RDB.

Poling of the oxbow lake and back channels within this segment was completed at forty-two locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP28.50-MP28.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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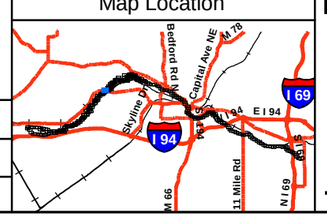
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP28.50-MP28.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 28.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		MIXYURE OF ORGANIC AND PETROLIUM.	Wagner, Greg / Oakly, W. Craig
4/19/2011	10:21																	42.33525	-85.34174		Standen, Joe
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		SHEEN RUNS ALONG LINE AT WATERS EDGE	Wagner, Greg / Oakly, W. Craig
4/19/2011	10:48																	42.33521	-85.34202		Wagner, Greg
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Wagner, Greg / Oakly, W. Craig
4/19/2011	10:57																	42.33534	-85.34229		Standen, Joe
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		SHEEN ON LINE AT WATERS EDGE	Wagner, Greg / Oakly, W. Craig
4/19/2011	11:02																	42.33542	-85.34249		Wagner, Greg

2011 Reassessment

Bank: RDB

Mile Marker: 28.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
10	Overbank	4/19/2011	14:48	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.33761	-85.34244	SHEEN ON WATER	Childs, Jessica Bucholtz, Paul Juntilla, John
11	Overbank	4/19/2011	14:58	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.33728	-85.34246	POSSABLE STAINING ON TREE DIFFICULT TO TELL DUE TO RAIN	Childs, Jessica Bucholtz, Paul Juntilla, John
12	Overbank	4/19/2011	15:51	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.33750	-85.34291	LITE SHEEN ON WATER	Childs, Jessica Bucholtz, Paul Juntilla, John
13	Overbank	4/19/2011	16:20	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.33632	-85.34375	SHEEN IN REGULAR PATERN SIGNS OF ORGANIC AND PIOABLE OIL SHEEN	Childs, Jessica Bucholtz, Paul Juntilla, John
2	Overbank	4/19/2011	11:24	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.33646	-85.34656	LITE SHEEN ON POOLED WATER LESS THAN 1 FOOT DEEP	Childs, Jessica Bucholtz, Paul Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 28.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		MDEQ / Enbridge Team Lead
3	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		STAIN ON ONE TREE	Childs, Jessica
																					Bucholtz, Paul
4/19/2011	11:30																	42.33635	-85.34637		Juntilla, John
4	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SMALL AMOUNT OF SHEEN	Childs, Jessica
																					Bucholtz, Paul
4/19/2011	11:43																	42.33609	-85.34599		Juntilla, John
5	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		STAINING ON TREE	Childs, Jessica
																					Bucholtz, Paul
4/19/2011	11:46																	42.33621	-85.34594		Juntilla, John
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON WATER	Childs, Jessica
																					Bucholtz, Paul
4/19/2011	12:34																	42.33663	-85.34588		Juntilla, John
8	Overbank	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		STIAN ON A TREE	Childs, Jessica
																					Bucholtz, Paul
4/19/2011	14:24																	42.33818	-85.34319		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 28.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
9	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		SHEEN ON WATER	**Enbridge Team Lead**
																					Childs, Jessica
																					Bucholtz, Paul
4/19/2011	14:33																	42.33820	-85.34306		Juntilla, John

Photo Logs

Field Photographs MP 28.50 – MP 28.75

LDB Zone ID 1, Photo 001

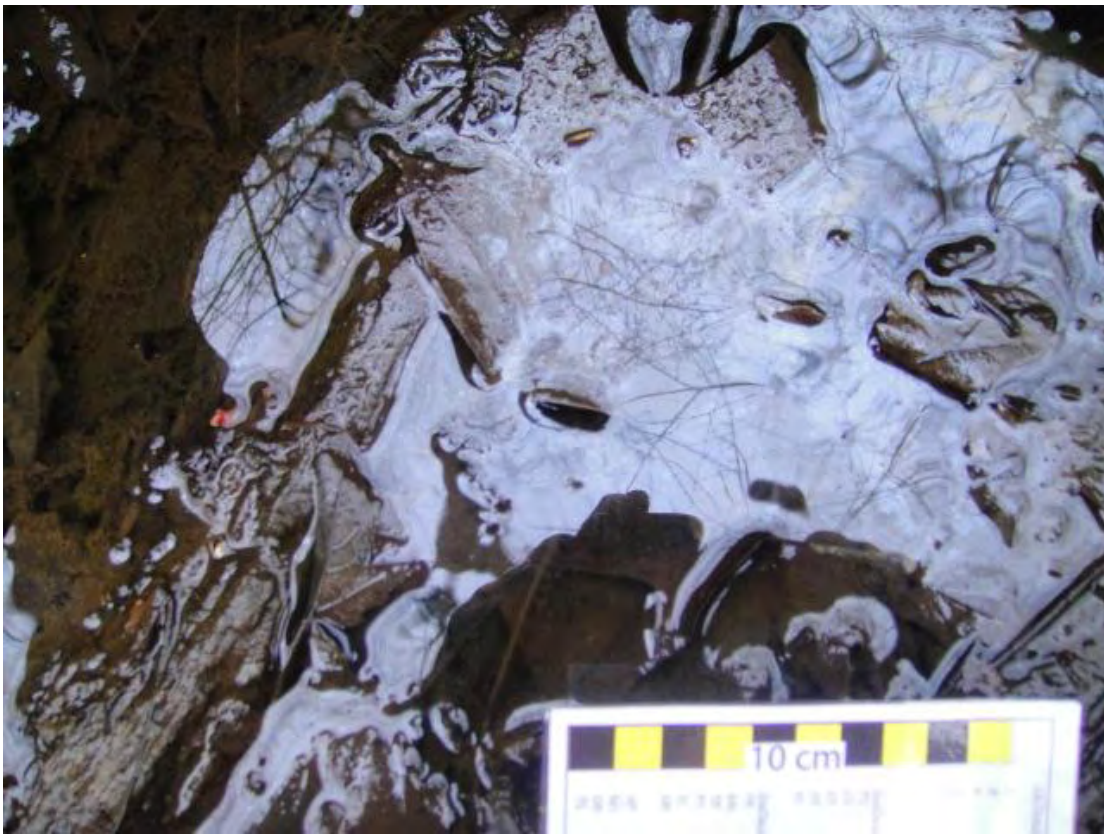


LDB Zone ID 1, Photo 002



Field Photographs MP 28.50 – MP 28.75

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 28.50 – MP 28.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 28.50 – MP 28.75

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002

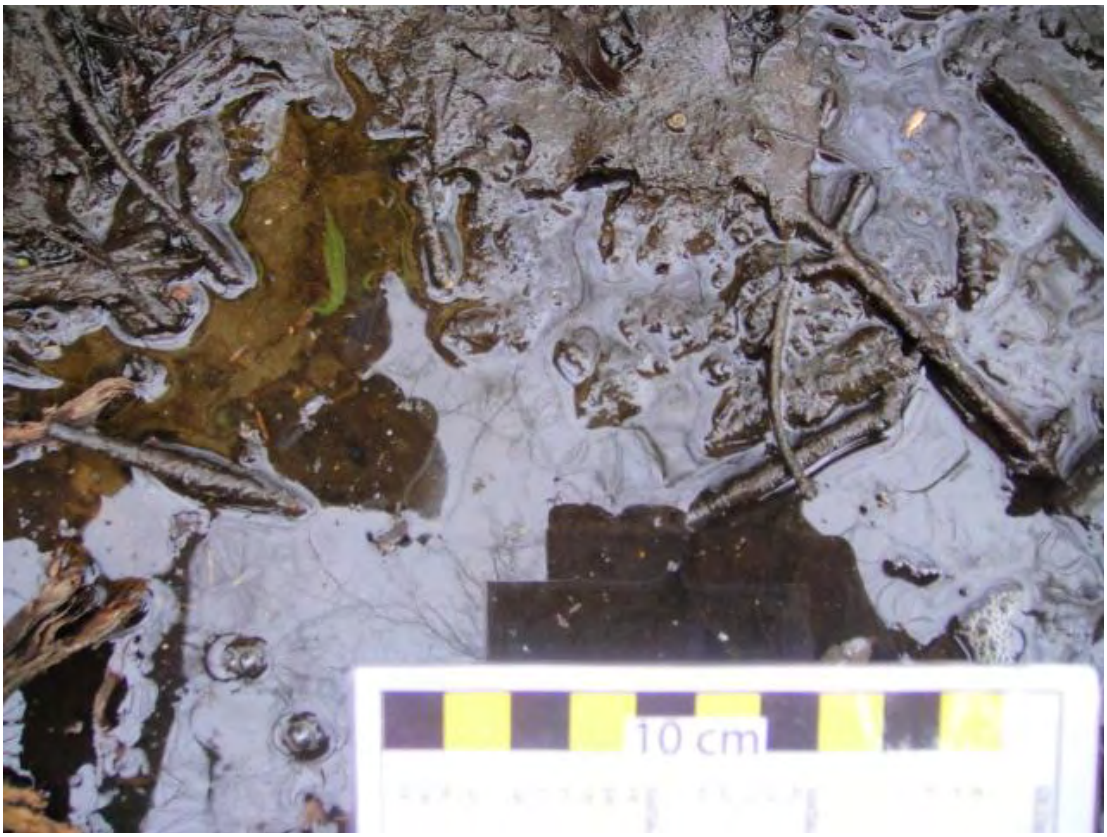


Field Photographs MP 28.50 – MP 28.75

LDB Zone ID 3, Photo 003



LDB Zone ID 4, Photo 001



Field Photographs MP 28.50 – MP 28.75

LDB Zone ID 4, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs MP 28.50 – MP 28.75

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 28.50 – MP 28.75

RDB Zone ID 5, Photo 001



RDB Zone ID 6, Photo 001



Field Photographs MP 28.50 – MP 28.75

RDB Zone ID 6, Photo 002



RDB Zone ID 8, Photo 001



Field Photographs MP 28.50 – MP 28.75

RDB Zone ID 9, Photo 001



RDB Zone ID 9, Photo 002



Field Photographs MP 28.50 – MP 28.75

RDB Zone ID 10, Photo 001



RDB Zone ID 10, Photo 002



Field Photographs MP 28.50 – MP 28.75

RDB Zone ID 11, Photo 001



RDB Zone ID 12, Photo 001



Field Photographs MP 28.50 – MP 28.75

RDB Zone ID 13, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 28.5 to MP 28.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ		Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 28.5 to MP 28.75; Bank or Island: LDB; Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/19/11 Date

Gregory D. Wagner Printed Name

_____ MDEQ — 4-19-11 Date

Craig Oakley Printed Name

_____ Enbridge — 4/19/11 Date

_____ Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 28.5 to MP 28.75 RDB Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/19/11 Date

Jessica Childs Printed Name

_____ MDEQ 4-19-11 Date

Paul Bucholtz Printed Name

_____ Enbridge 4-19-2011 Date

John W. Juntilla Printed Name

All of the "green" properties were assessed.

14 features collected

Rainy conditions in the afternoon made for difficult visual assessment.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.50 to MP 28.75, Unique ID RDB 7, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/04/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 5/4/11 — Date

Chris Conn — Printed Name

Craig A Wieman — Enbridge/TT — 5/14/11 — Date

Craig A Wieman — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.50 to MP 28.75, Unique ID 28.75.RDB.14, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/04/11 — Date

Rex Johnson — Printed Name

Chris Conn — MDEQ — 5/4/11 — Date

Chris Conn — Printed Name

Craig A Wieman — Enbridge/TT — 5/4/11 — Date

Craig A Wieman — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.50 to MP 28.75, Unique ID 28.75 RDB ACCESS, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson _____ START 5/8/11 Date

Rex Johnson Printed Name

_____ MDEQ 5/8/11 Date

MATTHEW J WESENER Printed Name

_____ Enbridge 5/8/11 Date

KEN KITTA Printed Name

Tetra Tech

Craig A. Wieman 5/8/2011

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.50 to MP 28.75, Unique ID RDB1 (28.75), Bank ROB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/8/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 5/8/11 — Date

MATTHEW D WESENER — Printed Name

[signature] — Enbridge / TT — 5/8/11 — Date

Craig A Wiseman — Printed Name

Segment 28.75 – 29.00

MP 28.75 to MP 29.00

The LDB of segment 29.00 consists of forested wetland swamp along the shoreline and within the overbank, with back channels present in the overbank. The reassessment identified two points, one polygon and one linear transect. In general, traces of tar or oil coated trunks and stems were identified at all point and linear transect locations. A sporadic occurrence of oil film on ponded water was identified at Polygon 2 LDB and Linear Transect 6 LDB.

Poling of the back channels on the LDB within this segment was completed at sixteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 29.00 consists of a low vegetation bank along the shoreline and forested wetland swamp within the overbank. Inundated areas and back channels are present in the overbank of the RDB. The reassessment identified two points and one polygon. Traces of tar coated trunks and stems were identified in Point 1 RDB. Trace occurrences of film on ponded water and surface residue were identified in Point 2 RDB and Polygon 4 RDB.

Poling of the back channel on the RDB within this segment was completed at eleven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP28.75-MP29.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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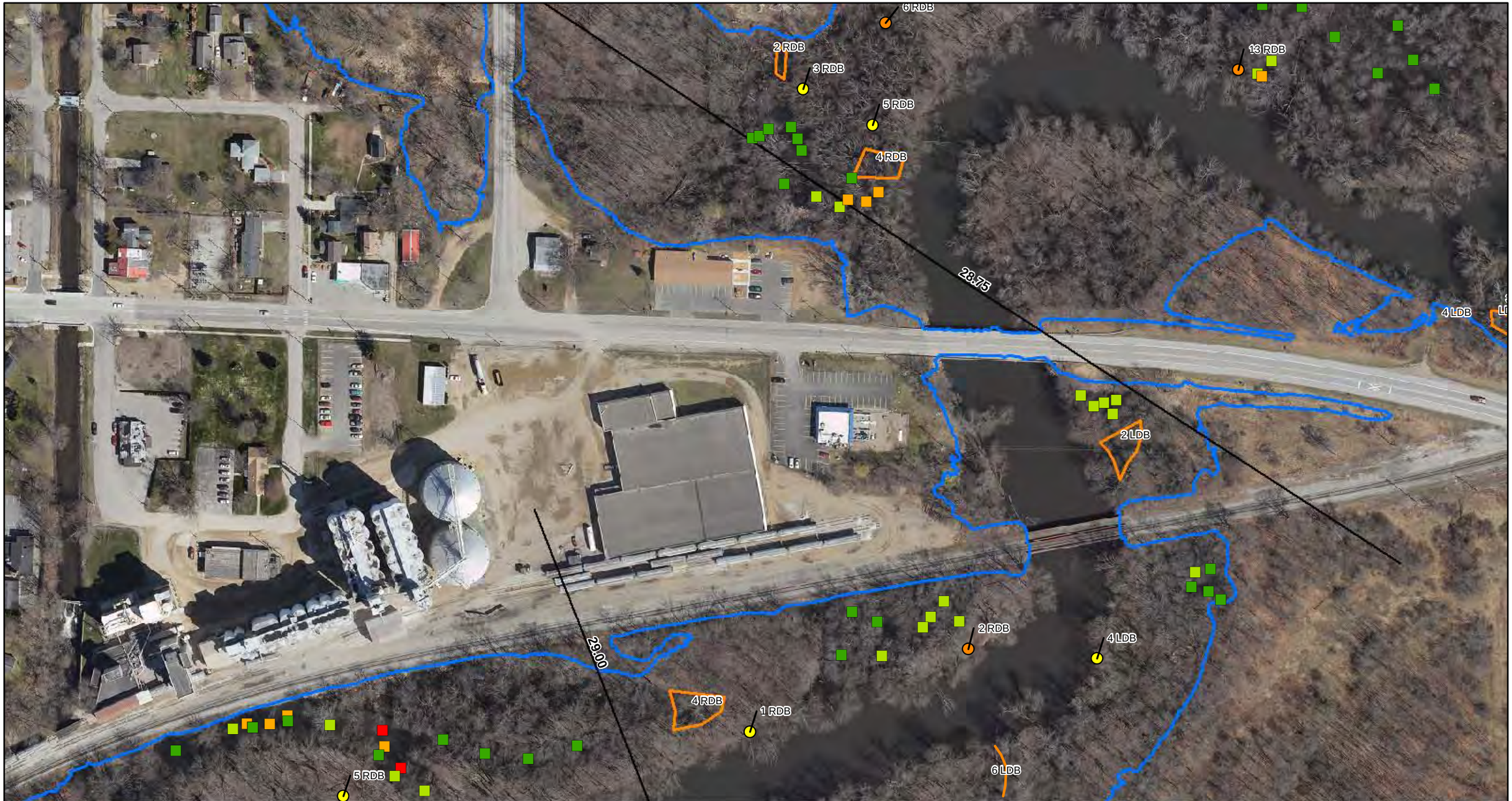
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP28.75-MP29.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 29

Source: 2011 Reassessment

Oil Zone ID / Date	Feature / Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat: Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Wagner, Greg
																					Oakly, W. Craig
4/19/2011	12:12																	42.33505	-85.34464		Standen, John
4	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Wagner, Joe
																					Oakly, W. Craig
4/19/2011	14:44																	42.33386	-85.34460		Standen, Joe
5	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Wagner, Joe
																					Oakly, W. Craig
4/19/2011	15:34																	42.33315	-85.34520		Standen, Joe
6	Overbank	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	S	Wetland-swamp (forested)		OIL ON FALLEN TREE	Wagner, Greg
																					Oakly, W. Craig
4/19/2011	15:48																	42.33349	-85.34519		Wagner, Greg

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 29																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Muccianti, Marcus Schaefer, Scott
5/19/2011	10:10																	42.33355	-85.34663		Wronka, Hans
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Muccianti, Marcus Schaefer, Scott
5/19/2011	11:13																	42.33394	-85.34536		Wronka, Hans
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Film was observed on portion of larger body of ponded water.	Muccianti, Marcus Schaefer, Scott
5/19/2011	09:52																	42.33371	-85.34706		Wronka, Hans

Photo Logs

Field Photographs MP 28.75 – MP 29.00

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 28.75 – MP 29.00

LDB Zone ID 2, Photo 003



LDB Zone ID 2, Photo 004



Field Photographs MP 28.75 – MP 29.00

LDB Zone ID 2, Photo 005



LDB Zone ID 2, Photo 006



Field Photographs MP 28.75 – MP 29.00

LDB Zone ID 4, Photo 001



LDB Zone ID 4, Photo 002



Field Photographs MP 28.75 – MP 29.00

LDB Zone ID 5, Photo 001



LDB Zone ID 6, Photo 001



Field Photographs MP 28.75 – MP 29.00

LDB Zone ID 6, Photo 002



RDB Zone ID 1, Photo 001



Field Photographs MP 28.75 – MP 29.00

RDB Zone ID 2, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 28.75 – MP 29.00

RDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 28.75 to MP 29.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge DB
SOTF	START		MDEQ	MD	Enbridge DB
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge DB
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Barcham	Printed Name	

Team 7 Yuma 9

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 28.75 to MP 29.00, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Gregory J. Wagner — START — 4/19/11 Date
Gregory J. Wagner Printed Name

Craig Oakley — MDEQ — 4-19-11 Date
Craig Oakley Printed Name

Joseph Stroker — Enbridge — 4/19/11 Date
Joseph Stroker Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.75 to MP 29.00, Unique ID L0607, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5/06/11 Date

Rex Johnson Printed Name

Bruce Washburn MDEQ 5/6/11 Date

Bruce Washburn Printed Name

Enbridge /TT 5/6/2011 Date

Craig A. Wieman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.75 to MP 29.0, Unique ID 29.00 DB 1, Bank DB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5/04/11 Date
Rex Johnson	Printed Name	
[signature]	MDEQ	5/4/11 Date
Chris Conn	Printed Name	
[signature]	Enbridge/TT	5/4/11 Date
Craig A. Wiemann	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 28.75 to MP 29.0, Unique ID 29.00 608 3 Bank 608 and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5/04/11 Date

Rex Johnson Printed Name

Chris Conn MDEQ 5/4/11 Date

Chris Conn Printed Name

Enbridge 5/4/11 Date

Craig A Wichman Printed Name

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

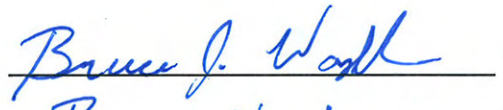
SIGN-OFF SHEET

Segment ID: From MP 28.75 to MP 29.00, Unique ID RDB3, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.


START — 6-6-11 Date

Jonathan E Sandve — Printed Name


MDEQ — 6/6/11 Date

Bruce Washburn — Printed Name


Enbridge — 6-6-11 Date

MATTHEW STEBBINS — Printed Name

Heavy sheen observed throughout polygon RDB3. Appeared to be petroleum, but broke like organic. Analysis of sheen may be appropriate.

Segment 29.00 – 29.25

MP 29.00 to MP 29.25

The LDB of segment 29.25 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment identified two points and a linear transect. Trace and sporadic tar coated trunks and stems were identified at Point 1 LDB and Linear Transect 3 LDB. Tar on overhanging limbs was also observed at Linear Transect 3 LDB. A trace occurrence of film on ponded water was identified in Point 2 LDB.

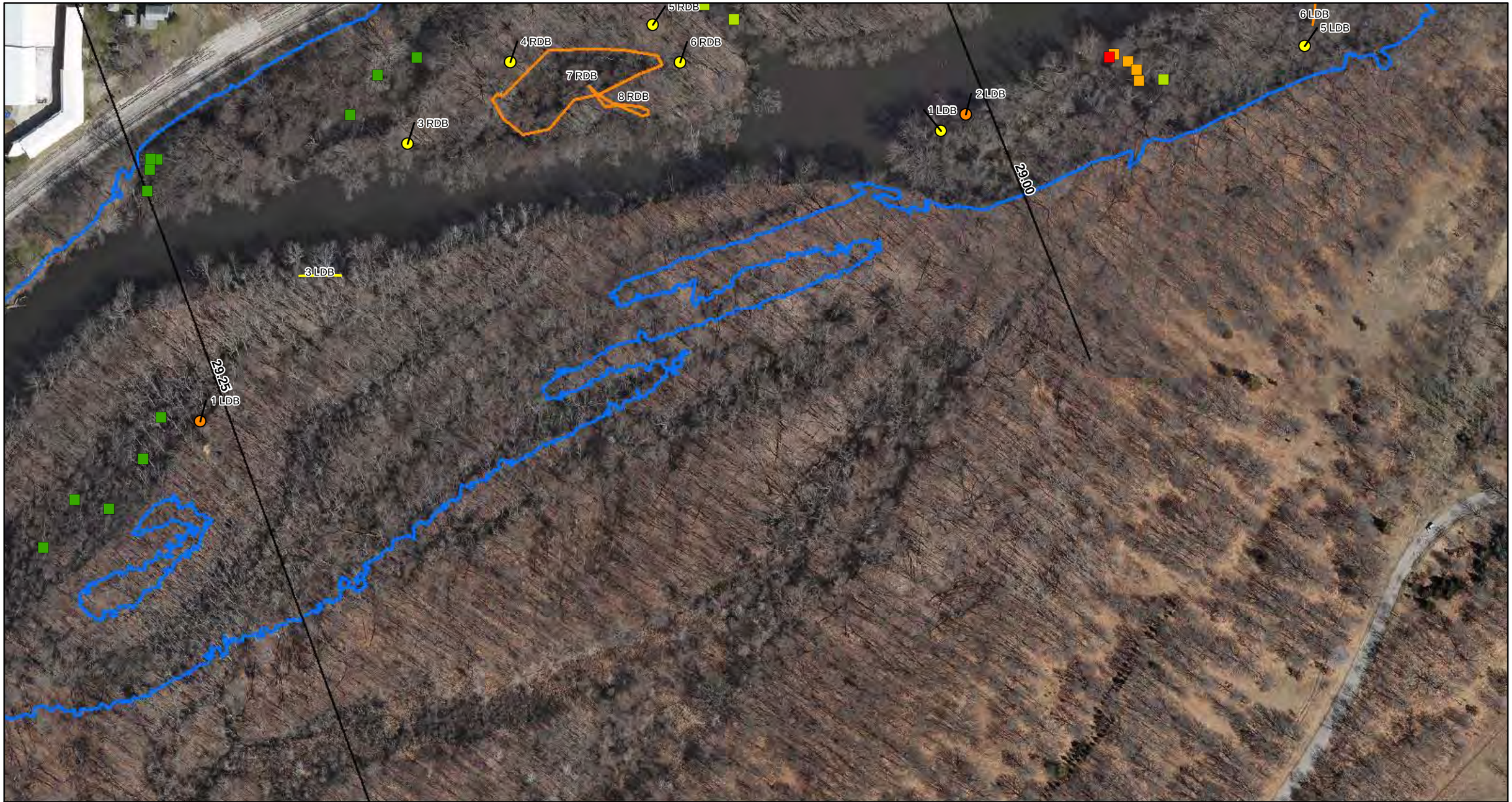
The RDB of segment 29.25 consists of forested wetland swamp along the shoreline and within the overbank with multiple ponded water areas. Several back channels are present in the overbank. The reassessment identified four points and two polygons. Traces of oil coated trunks and stems were identified at all point locations. Occurrences of oil film on ponded water and surface oil residue on the ground surface were identified in Polygons 7 RDB and 8 RDB.

Poling of the back channel on the RDB within this segment was completed at twenty-five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

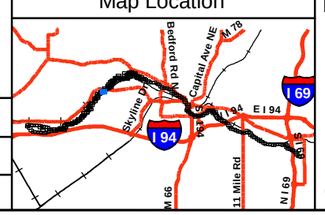
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

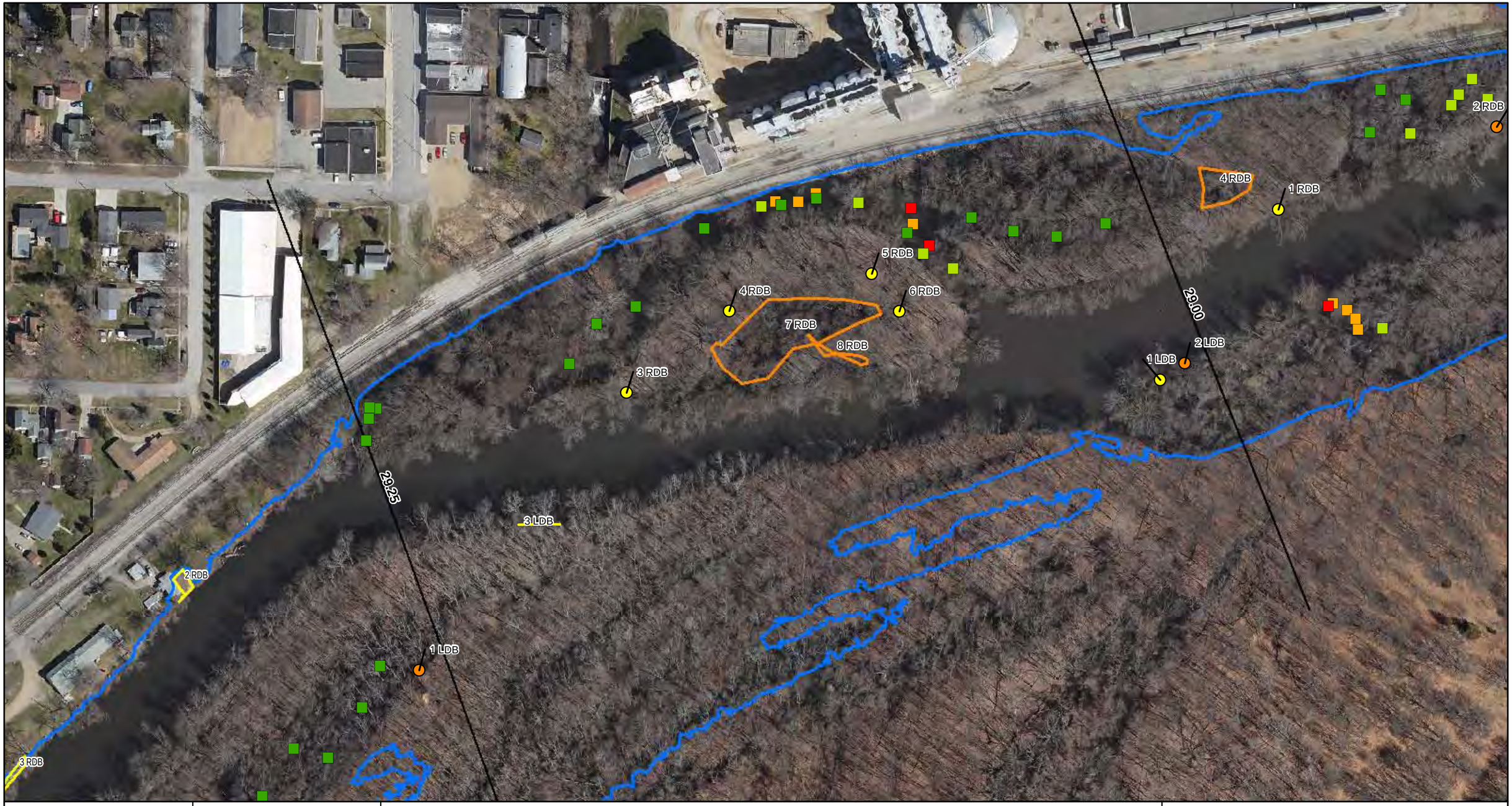
Scale in Feet

SORT ASSESSMENT
MP29.00-MP29.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP29.00-MP29.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 29.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)			Wagner, Joe
																					Oakly, W. Craig
4/19/2011	17:14																	42.33279	-85.34733		Standen, Joe
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Wagner, Joe
																					Oakly, W. Craig
4/19/2011	17:19																	0.00000	0.00000		Standen, Joe
3	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)		TAR MATERIAL AT SHORELINE ON HANGING LIMBS	Wagner, Greg
																					Oakly, W. Craig
4/20/2011	10:03																	42.33211	-85.35109		Standen, John

2011 Reassessment

Bank: RDB

Mile Marker: 29.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
3	Shoreline	5/19/2011	14:24	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.33269	-85.35047		Muccianti, Marcus Schaefer, Scott Wronka, Hans
4	Overbank	5/19/2011	14:52	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.33302	-85.34989		Muccianti, Marcus Schaefer, Scott Wronka, Hans
5	Overbank	5/19/2011	14:57	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.33326	-85.34906		Muccianti, Marcus Schaefer, Scott Wronka, Hans
6	Shoreline	5/19/2011	15:02	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		Wetland-swamp (forested)	42.33304	-85.34884		Muccianti, Marcus Schaefer, Scott Wronka, Hans
7	Overbank	5/19/2011	15:12	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.33304	-85.34902	Hydrocarbon & bio sheen on pooled water.	Muccianti, Marcus Schaefer, Scott Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 29.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐		Wetland-swamp (forested)		Chute from river into pooled overbank water.	Muccianti, Marcus
																					Schaefer, Scott
5/19/2011	15:20																	42.33288	-85.34928		Wronka, Hans

Photo Logs

Field Photographs MP 29.00 – MP 29.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs MP 29.00 – MP 29.25

LDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 29.00 – MP 29.25

RDB Zone ID 4, Photo 001



RDB Zone ID 5, Photo 001



Field Photographs MP 29.00 – MP 29.25

RDB Zone ID 6, Photo 001



RDB Zone ID 7, Photo 001



Field Photographs MP 29.00 – MP 29.25

RDB Zone ID 8, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 29.0 to MP 29.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[ ]	MDEQ	MD	Enbridge DB
SOTF	START	[ ]	MDEQ	MD	Enbridge DB
PI	START	[ ]	MDEQ	MD	Enbridge DB
FLS	START	[ ]	MDEQ	MD	Enbridge DB
Inundation Model	START	[ ]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START 6/6/2011 Date

ISAAC ABOVEAPIA Printed Name

Michelle DeLong MDEQ 6/9/11 Date

Michelle DeLong Printed Name

[signature] Enbridge 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.00 to MP 29.25, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/20/11 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 4-20-11 Date

Craig Oakley Printed Name

[signature] Enbridge — 4/20/11 Date

[signature] Printed Name



Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.00 to MP 29.25, Unique ID LDB4, Bank ____ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/05/11 — Date

Rex Johnson — Printed Name

Bruce R Washburn — MDEQ — 5/5/11 — Date

Bruce Washburn — Printed Name

[signature] — Enbridge — 5/5/11 — Date

KEN KYTTA — Printed Name

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP RD13 29.0 to MP 29.25, Unique ID _____, Bank X and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/19/11 Date

Marcus Mueggenborg Printed Name

_____ MDEQ 5/19/11 Date

SCOTT SCHAEFER Printed Name

_____ Enbridge 5-19-11 Date

Hans Wronka Printed Name

Note portions of the segment identified for reassessment will need to be accessed by Jon boat and waders. The present water elevation will need to drop by at least one foot before the Jon boat can safely pass ~~under~~ through the concrete culvert.

-8 zones identified

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

→ see note below

RDB

* Segment ID: From MP 29.0 to MP 29.25, Unique ID _____, Bank ✓ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 5/19/11 Date

MARCUS MULLIANE Printed Name

[signature] MDEQ 5/19/11 Date

SCOTT SCHAEFER Printed Name

[signature] Enbridge 5-19-11 Date

Hans Wronka Printed Name

- Segment was not entirely assessed due to nature of Tract and/or parcel arrangements, property issues, etc.
- Portion of RDB MP 29.0 segment that was assesed ~~KN~~ was all of Tract KN-E-369 and that portion of Tract KN-E-370 that is located within RDB MP 29.0 segment.
- the portion that was assessed included some isolated ponded water and some inaccessable areas, all of which were documented on the Yuma

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.00 to MP 29.25, Unique ID RDB2, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6/7/11 Date
Jessica Childs	Printed Name	
[signature]	MDEQ	6/7/11 Date
Bruce Washburn	Printed Name	
[signature]	Enbridge	6-7-11 Date
MATTHEW STEBBINS	Printed Name	

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.00 to MP 29.25, Unique ID RDB L, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	6/7/11 Date
Jessica Childs	Printed Name	
_____	MDEQ	6/7/11 Date
Bruce Washburn	Printed Name	
_____	Enbridge	6-7-11 Date
MATTHEW STEBBINS	Printed Name	

Segment 29.25 – 29.50

MP 29.25 to MP 29.50

The LDB of segment 29.50 consists of forested wetland swamp within the overbank. A back channel is present parallel to the shoreline in the overbank. The reassessment identified one point on the LDB. An occurrence of film on ponded water was identified in Point 1 LDB.

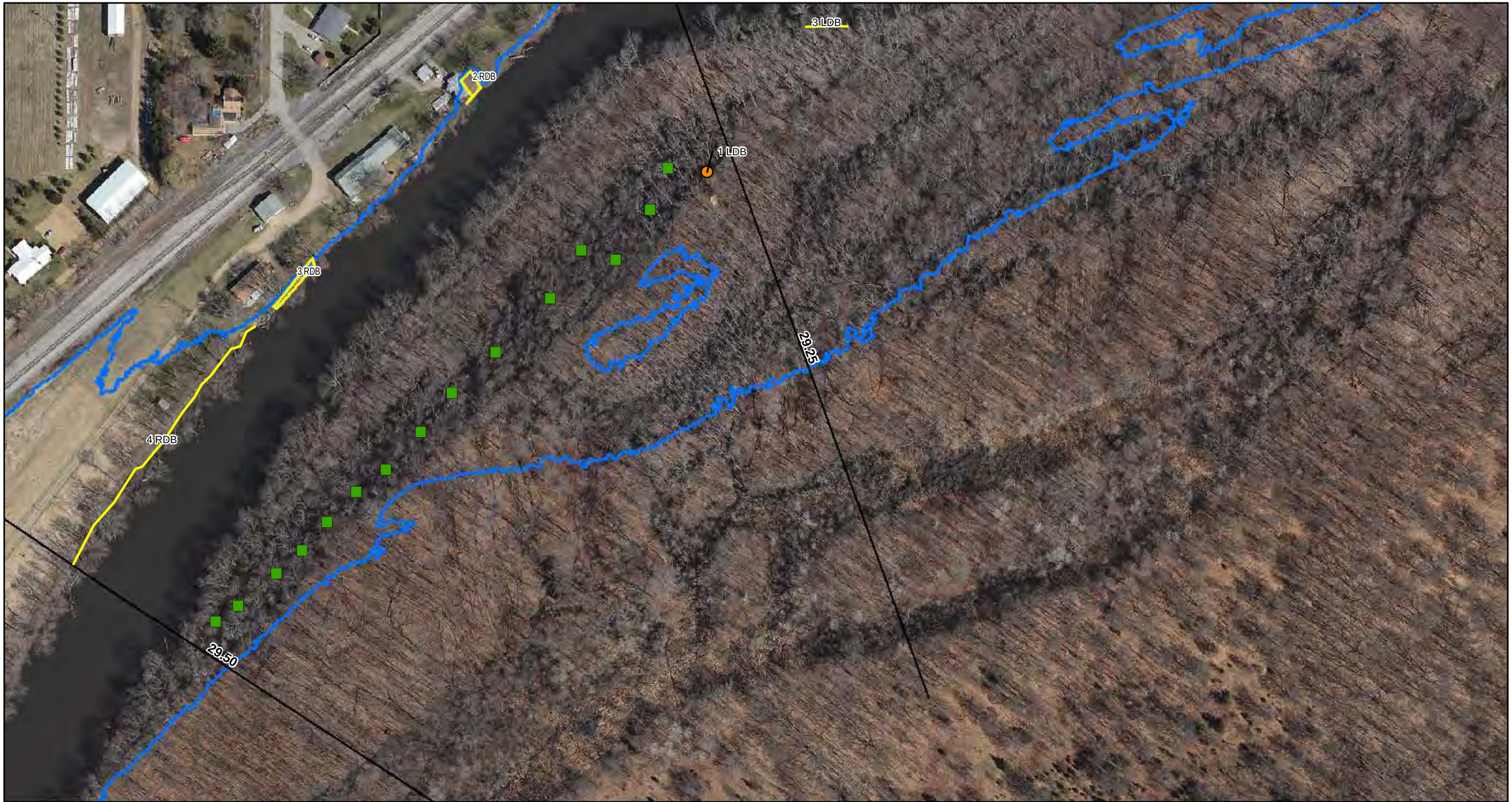
Poling of the back channel on the LDB within this segment was completed at fifteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 29.50 consists of a rip rap shoreline and maintained overbank. The reassessment identified oil occurrences at one polygon (Polygon 3 RDB) consisting of traces of tar balls observed on rip rap and debris covering the bank. Recent fill material was identified at Polygon 2 RDB and high water areas were present at Linear Transect 4 RDB; however, no surface oil was identified in these areas.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP29.25-MP29.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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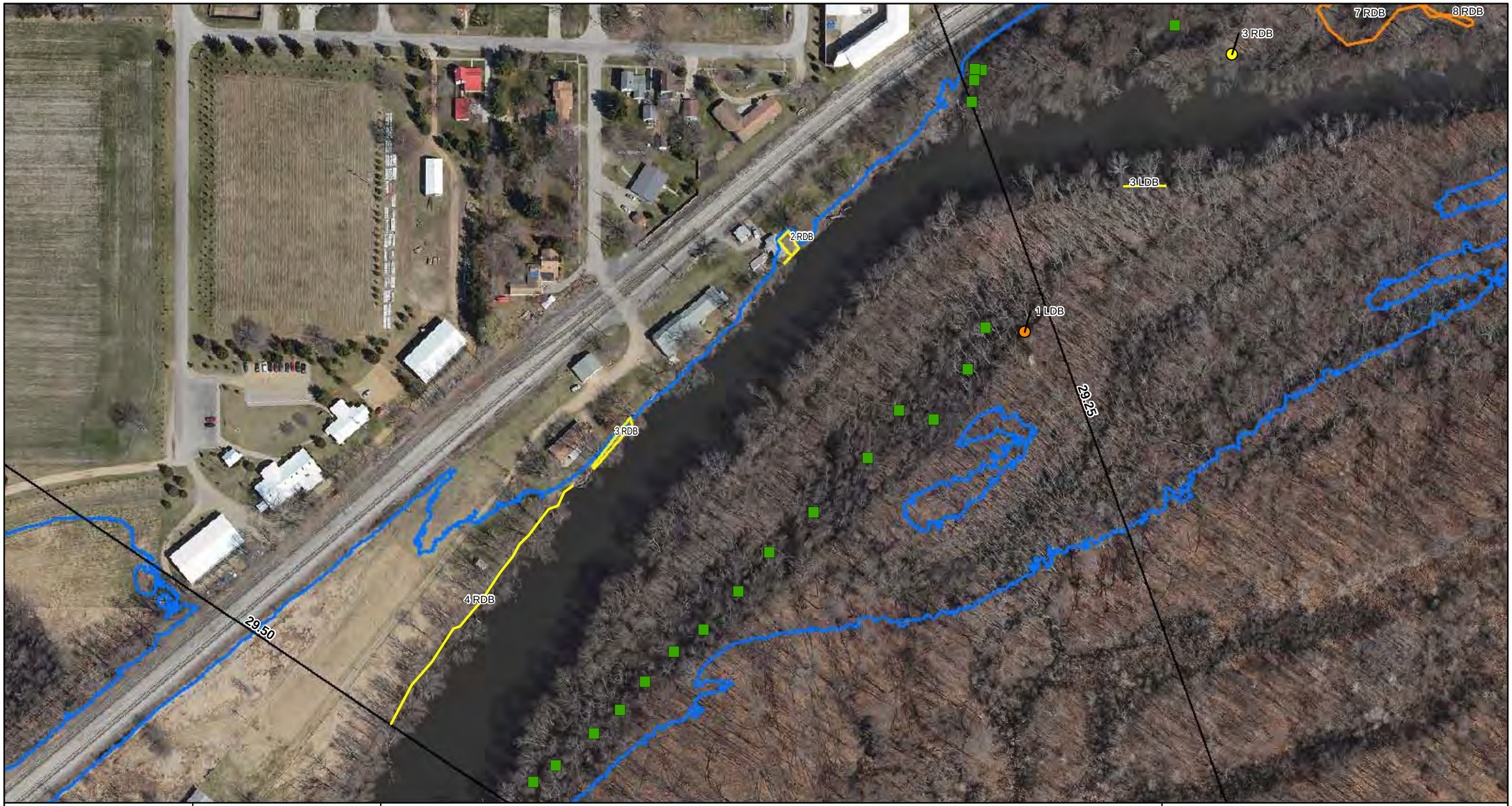
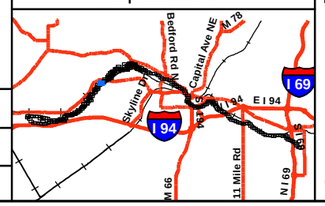
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP29.25-MP29.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	29.5																				MDEQ
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)			Wagner, Greg
																					Oakly, W. Craig
4/20/2011	13:25																	42.33149	-85.35165		Standen, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 29.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		FILL COVERING SOME OF AREA, APEARS RECENT	Childs, Jessica
																					Bucholtz, Paul
4/20/2011	10:55																	42.33176	-85.35311		Juntilla, John
3	Shoreline and Overbank	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	T	Rip Rap		SMALL TAR BALLS ON ROCK COVERING ON BANK	Childs, Jessica
																					Bucholtz, Paul
4/20/2011	11:33																	42.33098	-85.35415		Juntilla, John
4	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		HIGH WATER LINE, UNSTABLE FOOTING AND NO ASSESMENT POSSIBLE	Childs, Jessica
																					Bucholtz, Paul
4/20/2011	12:03																	42.32974	-85.35543		Juntilla, John

Photo Logs

Field Photographs MP 29.25 – MP 29.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 29.25 – MP 29.50

RDB Zone ID 2, Photo 001



RDB Zone ID 3, Photo 001



Field Photographs MP 29.25 – MP 29.50

RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 29.25 to MP 29.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge
SOTF	START		MDEQ	MD	Enbridge
PI	START		MDEQ	MD	Enbridge
FLS	START		MDEQ	MD	Enbridge
Inundation Model	START		MDEQ	MP	Enbridge OB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Barchen	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.25 to MP 29.50, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Gregory D Wagner START 4/20/2011 Date

Gregory D. Wagner Printed Name

Craig Oakley MDEQ 4-20-11 Date

Craig Oakley Printed Name

J. C. Standen Enbridge 4/20/11 Date

Joseph W. Standen Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.25 to MP 29.50 (2950), Unique ID 0062, Bank UB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/06/11 — Date

Rex Johnson — Printed Name

Bruce L Washburn — MDEQ — 5/6/11 — Date

Bruce Washburn — Printed Name

Craig A Wieman — Enbridge/TT — 5/6/2011 — Date

Craig A Wieman — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.25 to MP 29.50 RDB Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/20/11 Date

Jessica Childs Printed Name

_____ MDEQ 4-20-11 Date

Paul Buchholtz Printed Name

_____ Enbridge 4-20-11 Date

John W. Juntilla Printed Name

Observed and assessed the middle portion of the shoreline from the boat, ~~all of~~ A few portions of the shoreline were not accessible due to high river. (poly line water's edge)

4 total features recorded on Yuma.

all vegetation is wet due to recent rain, difficult to assess.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.25 to MP 29.50, Unique ID 29.5 RB1, Bank ROB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/04/11 — Date

Rex Johnson — Printed Name

Chris Corn — MDEQ — 5/4/11 — Date

Chris Corn — Printed Name

Craig A Wieman — Enbridge /TT — 5/4/11 — Date

Craig A Wieman — Printed Name

Segment 29.50 – 29.75

MP 29.50 to MP 29.75

The LDB of segment 29.75 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify any evidence of surface oil on the LDB in this segment. The FLS data identified a suspected oil signature approximately 400 feet southeast of the river and 75 feet from segment 29.75. The SORT program did not identify surface oil at this location.

The RDB of segment 29.75 consist of a forested wetland swamp with back channels, ponded water areas, and a tributary in the overbank. The reassessment did not identify any evidence of surface oil on the RDB in this segment.

Poling of the back channel, ponded water area, and tributary on the RDB within this segment was completed at thirty-four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted in this segment.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP29.50-MP29.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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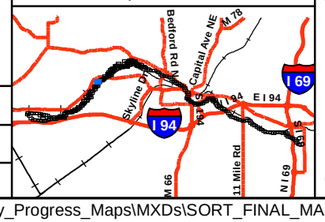
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP29.50-MP29.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 29.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)	
4/21/2011	09:27																	42.32662	-85.35753

Comments	**START**
	MDEQ
	Enbridge Team Lead
NO OIL IN SEGMENT 29.50L TO 29.75L	Wagner, Greg
	Oakly, W. Craig
	Standen, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 29.75																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		RIVER SIDE CULVERT	None Present
																					Oakly, W. Craig
6/10/2011	11:10																	42.32818	-85.35920		Senn, Derreck
6	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		DEAD DEAR ABOUT 30FT FROM THISH GPS POINT INTO RIVER	Childs, Jessica
																					Bucholtz, Paul
4/20/2011	15:39																	42.32785	-85.35707		Juntilla, John

Photo Logs

Field Photographs MP 29.50 – MP 29.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 29.50 – MP 29.75

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 29.50 – MP 29.75

RDB Zone ID 6, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 29.5 to MP 29.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDT	MDEQ	MD	Enbridge DB
SOTF	START	JDT	MDEQ	MD	Enbridge DB
PI	START	JDT	MDEQ	MD	Enbridge DB
FLS	START	JDT	MDEQ	MD	Enbridge DB
Inundation Model	START	JDT	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Acknowledge that START was not on the Crew 6/10/2011. JDT	

Completeness Check Acknowledged

John Powell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/13/11 Date

Michelle DeLong — Printed Name

Dave Barham — Enbridge — 6/13/2011 Date

Dave Barham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.50 to MP 29.75, Bank or Island: LOB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Gregory D Wagner — START — 4/20/2011 — Date

Gregory D. Wagner — Printed Name

Craig Oakley — MDEQ — 4-20-11 — Date

Craig Oakley — Printed Name

J L Starden — Enbridge — 4/20/11 — Date

Joseph Starden — Printed Name

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.50 to MP 29.75, Unique ID CDB2, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/7/11 Date

Jessica Childs Printed Name

_____ MDEQ 6/7/11 Date

Bruce Washburn Printed Name

_____ Enbridge 6-7-11 Date

MATTHEW A. STEBBINS Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.50 to MP 29.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____	START	4/20/11 Date
Jessica Childs	Printed Name	
_____	MDEQ	4/20/11 Date
Paul Bucholtz	Printed Name	
_____	Enbridge	4-20-11 Date
John W. Juntilla	Printed Name	

Dark/wet areas are hard to assess along the shore
- a few significant areas are polygoned/polylined to delineate inaccessible areas

Features in this segment

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.5 to MP 29.75, Unique ID IN-E-338, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5/4/11 Date
Rex Johnson	Printed Name	
[signature]	MDEQ	5/4/11 Date
Chris Conn	Printed Name	
[signature]	Enbridge/T1	5/4/11 Date
Craig A Wieman	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.50 to MP 29.75, Unique ID RDB 2, 3, 4, 5, and 7*, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Gramm — START — 5/11/11 Date

THOMAS P. GRAMM — Printed Name

~~MDEQ~~ with K — MDEQ — 5/11/11 Date

William Kelpo — Printed Name

Don DeWitt — Enbridge — 5/11/11 Date

Don DeWitt — Printed Name

Poled areas of channel and created Strike points in YUMA. Also created a new polygon for reassessment (SORT) when area dries out.

* Discrete unique ID's were not evident on YUMA.

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.50 to MP 29.75, Unique ID RDB 1, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	6/7/11 Date
Jessica Childs	Printed Name	
_____	MDEQ	6/7/11 Date
Bruce Washburn	Printed Name	
_____	Enbridge	6-7-11 Date
MATTHEW A. Stebbins	Printed Name	

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.50 to MP 29.75, Unique ID LDB1, Bank:____ and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/7/11 Date

Jessica Childs Printed Name

[signature] MDEQ — 6/7/11 Date

Bruce Washburn Printed Name

[signature] Enbridge — 6-7-11 Date

MATTHEW A. STEBBINS Printed Name

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.50 to MP 29.75, Bank or Island: ~~RDB1~~, Segment Length: 0.25 mile

MP 29.75 RDB1 Polygon

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

_____ Printed Name

Craig Oakley MDEQ 6-10-11 Date

Craig Oakley Printed Name

[signature] Enbridge 10 June 11 Date

Derek Senn Printed Name

No Oil Observed

4 Poling Locations

No EPA Rep. assigned to Team on this date

Segment 29.75 – 30.00

MP 29.75 to MP 30.00

The LDB of segment 30.00 consists of forested wetland swamp along the shoreline and within the overbank with an area consisting of a low vegetated bank along the shoreline of a back channel. Several back channels are present within the overbank. The reassessment identified one point, two polygons, and one linear transect. A trace occurrence of sheen (film) on ponded water was identified in all areas.

Poling of the back channel on the LDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 30.00 consist of a forested wetland swamp along the shoreline. A meander scar and back channels are present in the overbank. The reassessment identified a trace occurrence of film on ponded water at one point (Point 2 RDB) on the RDB in this segment.

Poling of the meander scar on the RDB within this segment was completed at nineteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

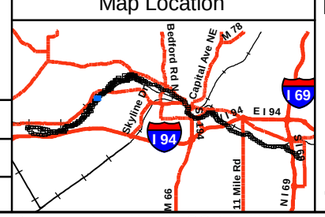
Segment Figures

1 RDB
1 LDB
29.75
4 LDB
3 LDB
5 LDB
30.00
2 LDB
2 RDB
30.25

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP29.75-MP30.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP29.75-MP30.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 30																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON WATER	Wagner, Greg / Oakly, W. Craig
4/21/2011	10:07																	42.32457	-85.35778		Standen, John
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		SHHEN/FILM ON POOLED WATER/MUD	Johnson, Rex / Washburn, Bruce
5/6/2011	10:50																	42.32545	-85.35859		Kytta, Ken
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON POOLED WATER	Johnson, Rex / Washburn, Bruce
5/6/2011	11:02																	42.32553	-85.35820		Kytta, Ken
5	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON POOLED WATER	Johnson, Rex / Washburn, Bruce
5/6/2011	11:26																	42.32539	-85.35801		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 30																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		CULVERT ON RIGHT BANK	None Present
																					Oakly, W. Craig
6/10/2011	11:33																	42.32667	-85.36168		Senn, Derreck
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON WATERAT BANK SHOWED OIL TYPE CHARACTERISTICS	Childs, Jessica
																					Bucholtz, Paul
4/21/2011	11:54																	42.32405	-85.35914		Juntilla, John

Photo Logs

Field Photographs MP 29.75 – MP 30.00

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs MP 29.75 – MP 30.00

LDB Zone ID 3, Photo 002



LDB Zone ID 4, Photo 001



Field Photographs MP 29.75 – MP 30.00

LDB Zone ID 5, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 29.75 – MP 30.00

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 29.75 to MP 30.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	JMD	Enbridge DB
SOTF	START	JDP	MDEQ	MD	Enbridge DB
PI	START	JDP	MDEQ	MD	Enbridge DB
FLS	START	JDP	MDEQ	MD	Enbridge DB
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Acknowledge that START was not on this team 6/18/2011. JDP	

Completeness Check Acknowledged

John Powell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/13/11 Date

Michelle DeLong — Printed Name

Dave Bach — Enbridge — 6/13/2011 Date

Dave Bach — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.75 to MP 30.00, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

Gregory D. Wagner Printed Name

_____ MDEQ 4-21-11 Date

Craig Oakley Printed Name

_____ Enbridge 4/21/11 Date

JOSEPH STANDEN Printed Name

MAPPED LARGE PONDED WATER POLYGON

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.75 to MP 30.00, Unique ID 30.00 LB18, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rep Johnson — START — 5/06/11 — Date

Rep Johnson — Printed Name

Bruce A. Washburn — MDEQ — 5/6/11 — Date

Bruce Washburn — Printed Name

Enbridge — 5/6/11 — Date

KEN KOTTA — Printed Name

Craig A Wieman — 5/6/2011

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.75 to MP 30.0 RDB, Bank or Island:_____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/21/11 Date

Jessica Childs Printed Name

_____ MDEQ — 4/21/11 Date

Paul Bouholtz Printed Name

_____ Enbridge — 4-21-11 Date

John W. Juntilla Printed Name

Portion in middle of segment unaccessible due to high water (sheen noted around parimeter of polygon.

2 features collected

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 29.75 to MP 30.0, Unique ID 30.00 ROB1, Bank ROB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/03/11 — Date

Rex Johnson — Printed Name

[signature] — MDEQ — 5/3/11 — Date

Chris Conn — Printed Name

[signature] — Enbridge/TT — 5/3/2011 — Date

Corey A Wieman — Printed Name

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 29.75 to MP 32.00 (Bank) or Island: R, Segment Length: 0.25 mile

MP 32.00R031 Polygon

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

_____ Printed Name

Craig Oakley MDEQ 6-10-11 Date

Craig Oakley Printed Name

Derek Senn Enbridge 14 June 11 Date

_____ Printed Name

No EPA rep. assigned to team 8 on this date.

No Oil observed

3 Poling locations.

Segment 30.00 – 30.25

MP 30.00 to MP 30.25

The LDB of segment 30.25 consists of a low vegetated bank shoreline with forested wetland swamp within the overbank. A back channel and meander scars are present in the overbank. The reassessment identified one point and one linear transect. Trace tar coated trunks and stems were identified at Point 1 LDB. A sporadic occurrence of film on ponded water was identified at Linear Transect 2 LDB. The FLS data identified a suspected oil signature in close proximity to Point 1 LDB.

Poling of meander scars on the LDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

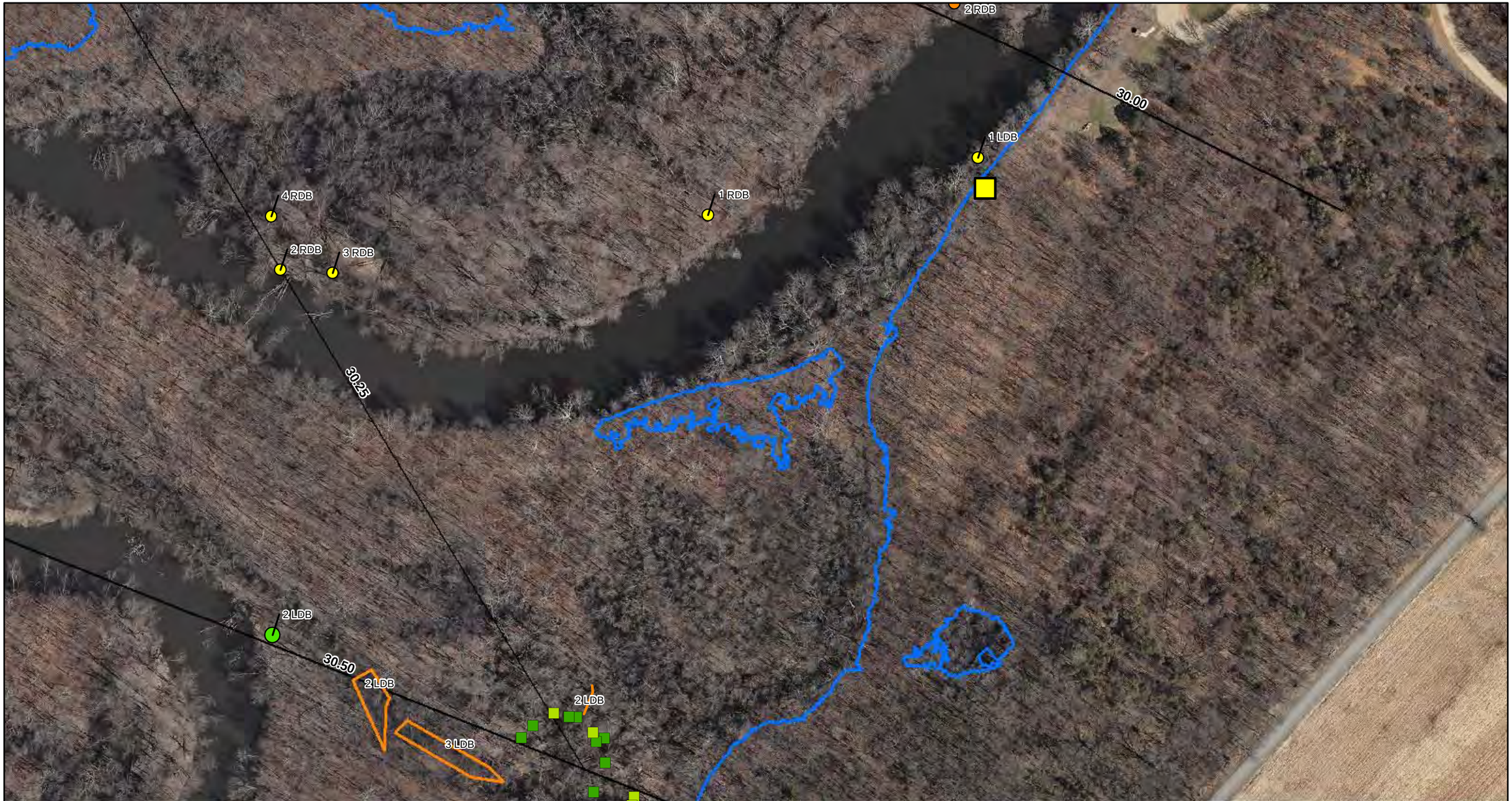
The RDB of segment 30.25 consists of forested wetland swamp along the shoreline and within the overbank, with meander scars present in the overbank. The reassessment identified oil occurrences at four points on the RDB. A trace of oil coated trunks and stems were identified at all four locations.

Poling of a meander scar on the RDB within this segment was completed at one location to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

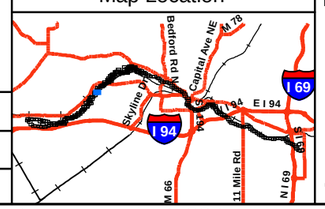
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP30.00-MP30.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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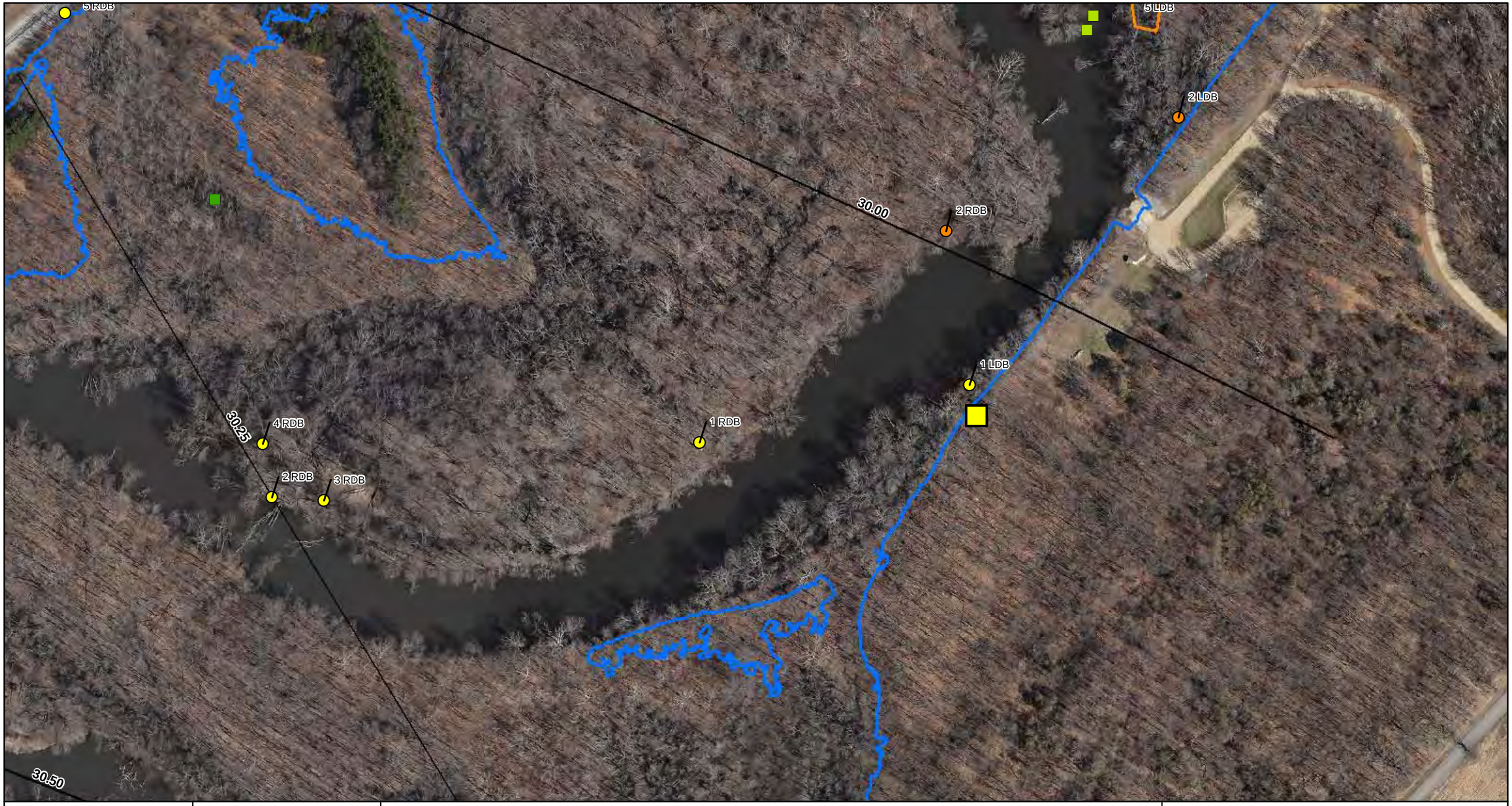
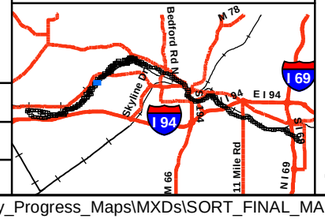
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP30.00-MP30.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 30.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	T	Low Vegetated Bank		Wagner, Greg / Oakly, W. Craig
4/21/2011	10:33																	42.32338 / -85.35899		Standen, John
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		Wagner, Greg / Oakly, W. Craig
4/21/2011	11:55																	42.32096 / -85.36129		Standen, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 30.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Zimont, Ben
5/12/2011	13:07																	42.32311	-85.36060		VanLoan, Mike
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Zimont, Ben
5/12/2011	13:40																	42.32286	-85.36311		VanLoan, Mike
3	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Zimont, Ben
5/12/2011	13:44																	42.32283	-85.36279		VanLoan, Mike
4	Overbank	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)			Ross, Shauna
																					Zimont, Ben
5/12/2011	14:03																	42.32309	-85.36317		VanLoan, Mike
5	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		CULVERT ALOWING FLOW UNDER TRACKS	None Present
																					Oakly, W. Craig
6/10/2011	15:11																	42.32497	-85.36436		Senn, Derreck

Photo Logs

Field Photographs – MP 30.00 – MP 30.25

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs – MP 30.00 – MP 30.25

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs – MP 30.00 – MP 30.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs – MP 30.00 – MP 30.25

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs – MP 30.00 – MP 30.25

RDB Zone ID 5 Photo 001



RDB Zone ID 5 Photo 002



Field Photographs – MP 30.00 – MP 30.25

RDB Zone ID 5 Photo 003



RDB Zone ID 5 Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 30.0 to MP 30.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge
SOTF	START		MDEQ		Enbridge
PI	START		MDEQ		Enbridge
FLS	START		MDEQ		Enbridge
Inundation Model	START		MDEQ		Enbridge QB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/9/2011 Date

ISAAC ABOU-AFIA Printed Name

MDEQ — 6/9/11 Date

Michelle DeLong Printed Name

Enbridge — 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.00 to MP 30.25, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/21/11 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 4-21-11 Date

Craig Oakley Printed Name

[signature] Enbridge — 4/21/11 Date

Joseph W. Standish Printed Name

MAPPED LARGE AREA OF PONDED WATER AND SOFT SEDIMENT

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.0 to MP 30.25, Bank or Island: RDB, Segment Length: 0.25 mile

3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

Shawna Marie Ross Printed Name

_____ MDEQ 5/12/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 5-12-2011 Date

Michael Van Loan Printed Name

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 30.00 to MP 30.25, Unique ID RDB1, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6/8/11 Date

Jessica Childs Printed Name

_____ MDEQ 6-8-11 Date

Bruce Washburn Printed Name

_____ Enbridge 6-8-11 Date

MATTHEW STEBBINS Printed Name

Segment 30.25 – 30.50

MP 30.25 to MP 30.50

The LDB of segment 30.50 is a point bar that consists of forested wetland swamp and a back channel present in the overbank. The reassessment did not identify any evidence of surface oil on the LDB within this segment.

Poling of the back channel on the LDB within this segment was completed at two locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 30.50 is a cut bank that consists of a low vegetated bank shoreline. The reassessment identified traces of oil coated trunks and stems at one point (Point 1 RDB).

Poling was conducted at three locations in an area of ponded water northwest of the railroad tracks on the RDB within this segment to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

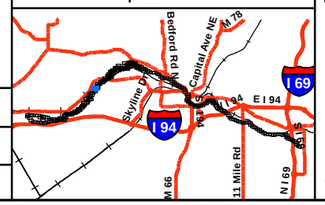
Segment Figures

2 RDB
1 RDB
4 RDB
2 RDB
3 RDB
1 RDB
1 LDB
30.25
1 RDB
30.50
2 LDB
2 LDB
2 LDB
3 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP30.25-MP30.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

5 RDB
30.00
2 RDB
30.25
4 RDB
2 RDB
3 RDB
1 RDB
30.50

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP30.25-MP30.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	30.5																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)			Wagner, Greg
																					Oakly, W. Craig
4/21/2011	16:41																	42.32126	-85.36313		Standen, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 30.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	**START** / **MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	Ross, Shauna / Zimont, Ben / VanLoan, Mike
5/12/2011	15:00																	42.32240 / -85.36592	
2	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)	CULVERT ALLOWING WATER FLOW TO RIVER; None Present / Oakly, W. Craig
6/10/2011	16:01																	42.32366 / -85.36635	Senn, Derreck

Photo Logs

Field Photographs – MP 30.25 – MP 30.50

LDB Zone ID 2, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs – MP 30.25 – MP 30.50

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 30.25 to MP 30.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	MD	Enbridge
SOTF	START	JDP	MDEQ	MD	Enbridge
PI	START	JDP	MDEQ	MD	Enbridge
FLS	START	JDP	MDEQ	MD	Enbridge
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Acknowledge START was not on this team 6/10/2011. JDP	

Completeness Check Acknowledged

John Powell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/13/11 Date

Michelle DeLong — Printed Name

Dave Bacham — Enbridge — 6/13/2011 Date

Dave Bacham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.25 to MP 30.50, Bank or Island: OB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Gregory D. Wagner — START — 4/21/11 Date

Gregory D. Wagner — Printed Name

Craig Oakley — MDEQ — 4-21-11 Date

Craig Oakley — Printed Name

J. C. Standen — Enbridge — 4/21/11 Date

Joseph W. Standen — Printed Name

REASSESED LARGE AREA OF POINT BAR NOT IN INNUNDATION AREA BECAUSE OF LOW RELIEF AND WATER FROM RIVER FLOWING INTO IT.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 30.0 to MP 30.5, Unique ID KS-E-421, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/3/2011 Date

Rex Johnson Printed Name

_____ MDEQ 5/3/2011 Date

Chris Conn Printed Name

_____ Enbridge / TT 5/3/2011 Date

Craig A Wieman Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.25 to MP 30.5, (Bank) or Island: 12DB, Segment Length: 0.25 mile

1 feature

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

Shawna Marie Ross Printed Name

_____ MDEQ 5/12/11 Date

Ben A. Zimont Printed Name

_____ Enbridge 3-12-2011 Date

Michael Van Loan Printed Name

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.25 to MP 30.50, Bank or Island: IR, Segment Length: 0.25 mile

MP 30.50 RDB1 Polygon

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ Date

_____ Printed Name

Craig Oakley MDEQ 6-10-11 Date

Craig Oakley Printed Name

[signature] Enbridge 10 June 11 Date

Derek Senn Printed Name

No EPA reassigned to team 8 on this date.

No oil observed

3 Poling locations

Two transects covering approx. 500 feet were completed.

Approx. 10 % of the total polygon was covered.

This signoff covers the portion of the segment documented by the track log dated 10 June 11

Segment 30.50 – 30.75

MP 30.50 to MP 30.75

The LDB of segment 30.75 consists of a low vegetated bank shoreline with forested wetland swamp within the overbank. Back channels and a meander scar are present in the overbank. The reassessment identified one point and two polygons. A trace occurrence of film (sheen) on ponded water was identified at Point 1 LDB and sporadic or trace occurrences of an oil film, most likely a combination of biological and petroleum, were observed at Polygons 2 LDB and 3 LDB.

Poling of the back channels and meander scar on the LDB within this segment was completed at thirteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 30.75 consists of a low vegetated bank shoreline. The reassessment identified one point with traces of oil coated trunks and stems (Point 1 RDB).

Poling was conducted at nine locations in an area of ponded water on the RDB overbank within this segment to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

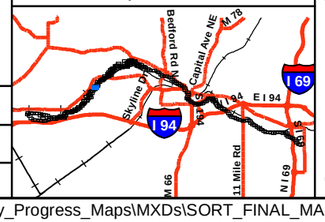
Segment Figures

1 RDB
2 LDB
30.50
30.25
2 LDB
2 LDB
3 LDB
1 LDB
30.75

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP30.50-MP30.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

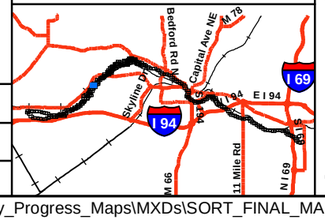
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP30.50-MP30.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 30.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		SHEEN ON INLAND POOLED WATER	Kane, Sean
																					ROBIN OEMING
5/13/2011	14:09																	42.32024	-85.36338		Juntilla, John
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		OIL SHEEN IN AN ABUNDANCE OF ORGANIC SHEEN	Kane, Sean
																					ROBIN OEMING
5/13/2011	14:28																	42.32103	-85.36262		Juntilla, John
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		OIL SHEEN WITH BIOLOGICAL SHEEN IN POOLED WATER	Kane, Sean
																					ROBIN OEMING
5/13/2011	14:50																	42.32088	-85.36227		Juntilla, John

2011 Reassessment

Bank:	RDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	30.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank			Ross, Shauna
																					Zimont, Ben
5/12/2011	15:38																	42.32149	-85.36492		VanLoan, Mike

Photo Logs

Field Photographs – MP 30.50 – 30.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – MP 30.50 – 30.75

LDB Zone ID 2, Photo 001

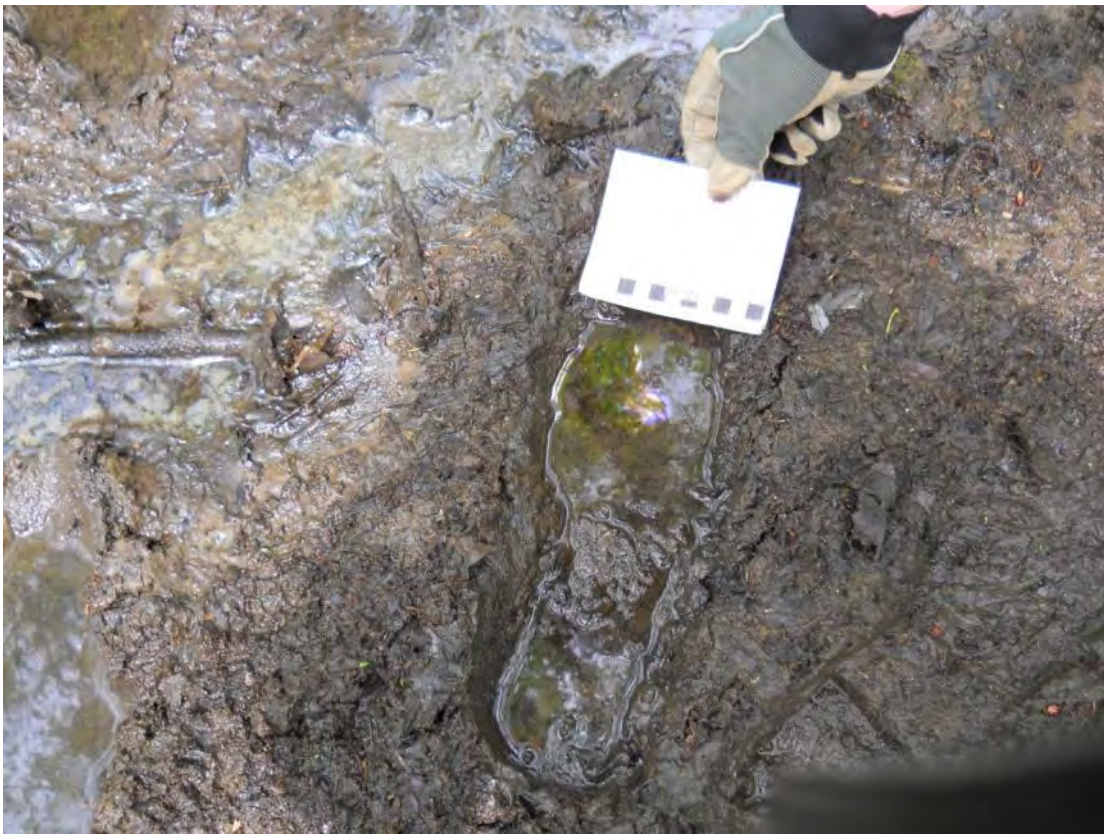


LDB Zone ID 2, Photo 002



Field Photographs – MP 30.50 – 30.75

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs – MP 30.50 – 30.75

LDB Zone ID 3, Photo 003



RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 30.5 to MP 30.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Walk North boundary (along RR track) with track log on to verify SORT coverage	6/13/2011

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

TEAM B

Segment ID: From MP 30.50 to MP 30.75, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Gregory D Wagner — START — 5/24/2011 Date

Gregory D. Wagner — Printed Name

[signature] — MDEQ — 5-24-2011 Date

Rachel Matthews — Printed Name

Nate Hehir — Enbridge — 5/24/11 Date

Nate Hehir — Printed Name

- Completed poling & SORT assessment of previous areas not assessed by SORT & Poling Teams.

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 30.50 to MP 30.75, Unique ID LDB1, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6-06-11 Date

Jean Kane Printed Name

_____ MDEQ 6/6/11 Date

Ryan Blazic Printed Name

_____ Enbridge 6/6/11 Date

David Strand Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.5 to MP 30.75, Bank or Island: RDB, Segment Length: 0.25 mile

1 feature

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START _____ 5/13/2011 Date

Shawna Marie Ross Printed Name

_____ MDEQ _____ 5/13/11 Date

Ben A. Zimmer Printed Name

_____ Enbridge _____ 5-13-2011 Date

Michael Van Loan Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 30.50 to MP 30.75, Unique ID RDB1, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-06-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	6/6/11 Date
Ryan Blazic	Printed Name	
[signature]	Enbridge	6/6/11 Date
David Strand	Printed Name	

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 30.5 to MP ~~30.75~~ 30.75, Unique ID _____, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/10/2011 Date

Howard Sulaiman Printed Name

Ray Spaulding MDEQ — 6/10/11 Date

Ray Spaulding Printed Name

[signature] Enbridge — 6-10-11 Date

Hans Wronka Printed Name

This sign off is for the agreement that the railroad ROW was surveyed for culverts underneath the rail. No culverts within the segment were observed. There was however one culvert observed between MP 30.25 - 30.50 RDB. It was marked by GPS point.

Segment 30.75 – 31.00

MP 30.75 to MP 31.00

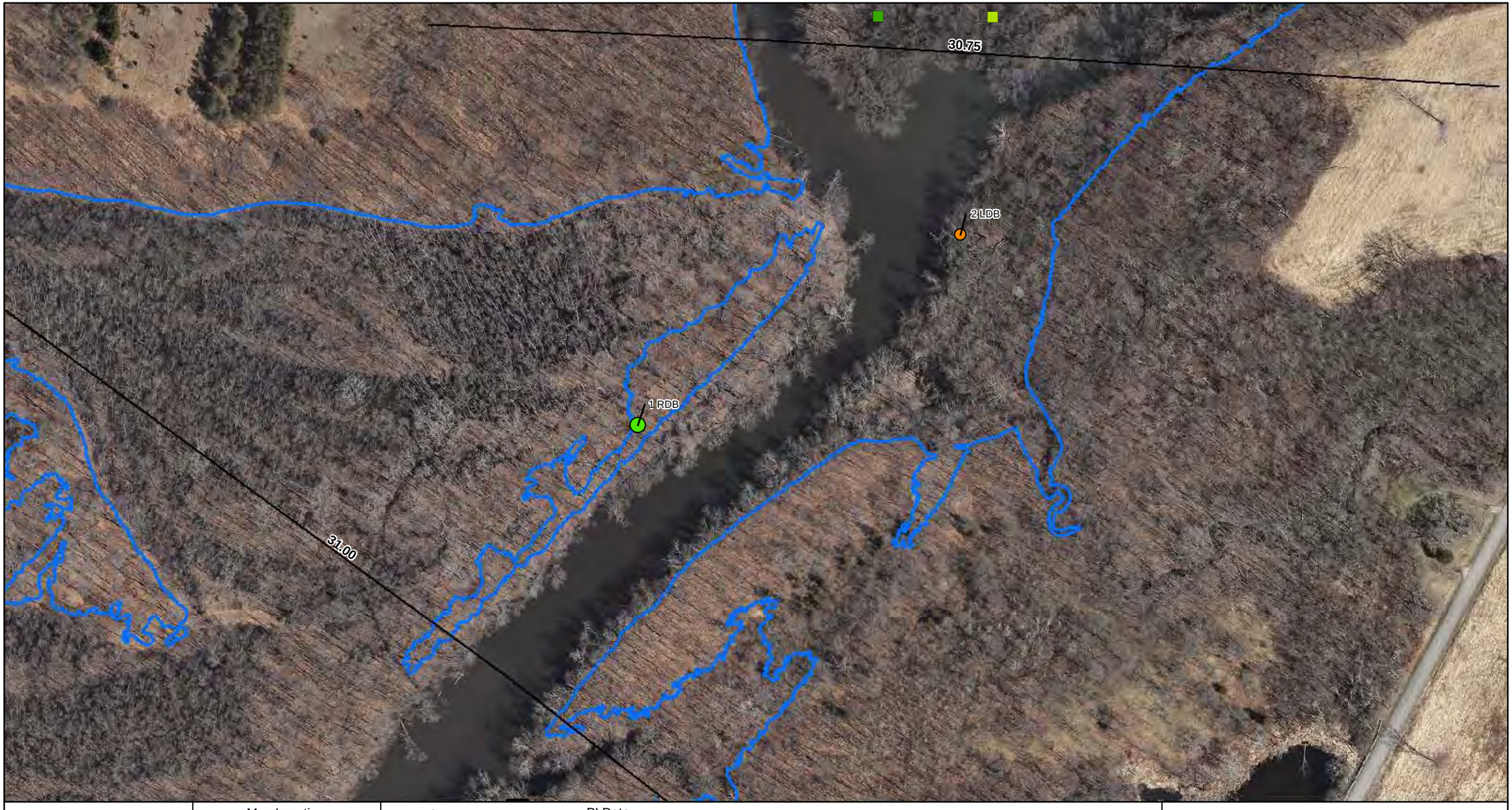
The LDB of segment 31.00 consists of a low vegetated bank shoreline. The reassessment identified one point on the LDB containing a trace occurrence of film (sheen) on ponded water (Point 2 LDB).

The RDB of segment 31.00 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify any evidence of surface oil on the RDB within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

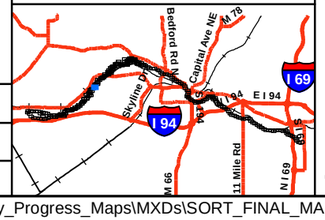
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP30.75-MP31.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

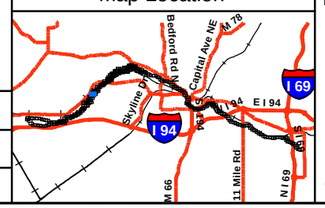
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP30.75-MP31.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 31																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		OIL SHEEN ON POOLED WATER	**Enbridge Team Lead**
																					Kane, Sean
																					ROBIN OEMING
5/13/2011	11:29																	42.31857	-85.36346		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 31																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)			Ross, Shauna
																					Veldkamp, Chris
5/15/2011	15:17																	42.31772	-85.36535		VanLoan, Mike
																					Enbridge Team Lead

Photo Logs

Field Photographs – MP 30.75 – 31.00

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs – MP 30.75 – 31.00

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 30.75 to MP 31.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	AB	Enbridge	
SOTF	START		MDEQ	AB	Enbridge	
PI	START		MDEQ	AB	Enbridge	
FLS	START		MDEQ	AB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/8/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.75 to MP 31.00 LDB, Bank or Island: _____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-13-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	5/13/11 Date
ROBIN OEMICH	Printed Name	
[signature]	Enbridge	5-13-11 Date
John W. Juntilla	Printed Name	

2 features collected on this segment on May 13th 2011

(one of the features is a note describing the sheen observed along the border of the segment. (includes back waters))

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 30.75 to MP 31.00, Unique ID LBD 1, Bank: LBD and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6-06-11 Date

_____ Printed Name

_____ MDEQ 6/6/11 Date

Ryan Blazic Printed Name

_____ Enbridge 6/6/11 Date

David Strand Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 30.15 to MP 31.0, Bank or Island: Bank, Segment Length: 0.25 mile

2 features (two oil points)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5/15/2011 Date
Shawna Marie Ross	Printed Name	
[signature]	MDEQ	5/15/11 Date
Chas Veldkamp	Printed Name	
[signature]	Enbridge	5-15-11 Date
Michael [illegible]	Printed Name	

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 30.75 to MP 31.00, Unique ID RDB1, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-06-11 Date
Sean Kane	Printed Name	
[signature]	MDEQ	6/6/11 Date
Ryan Blazic	Printed Name	
[signature]	Enbridge	6/6/11 Date
David Strand	Printed Name	

Segment 31.00 – 31.25

MP 31.00 to MP 31.25

The LDB of segment 31.25 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify any evidence of surface oil on the LDB. The FLS data identified a suspected oil signature on the LDB approximately 50 feet from a back channel and 150 feet downstream of MP 31.00. The SORT program did not identify surface oil at this location.

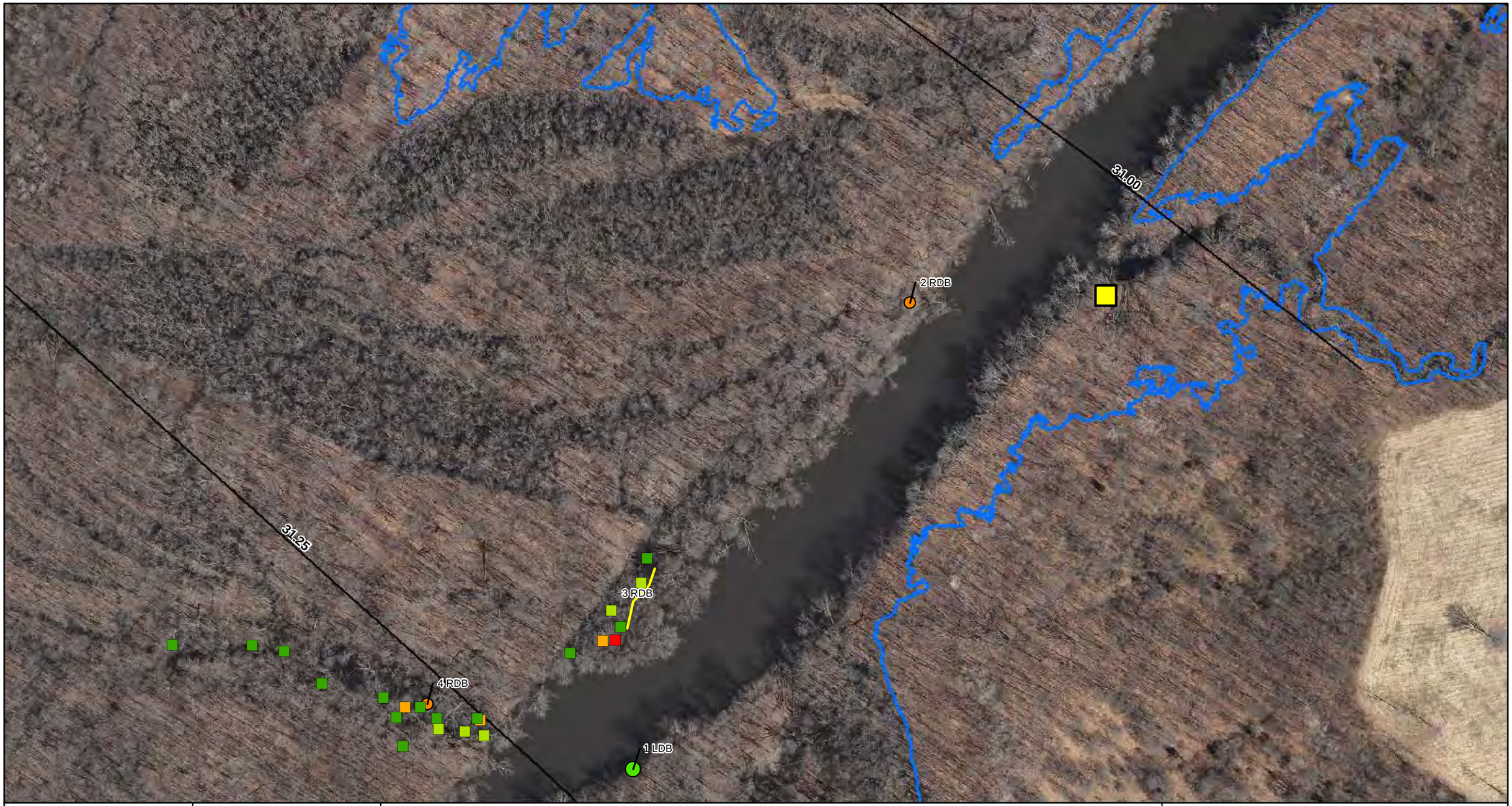
The RDB of segment 31.25 consists of forested wetland swamp along the shoreline and within the overbank. Several meander scars and back channels are present in the overbank. The reassessment identified one point and one linear transect. An occurrence of film on ponded water was identified at Point 2 RDB and a trace of surface oil residue was observed on the ground surface at Linear Transect 3 RDB. The FLS data also identified a suspected oil signature on the RDB approximately 1,650 feet northwest of the river and along the 31.25 segment boundary. The SORT program did not identify surface oil at this location.

Poling of back channels on the RDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted in this segment.

The attachments provide additional details on this segment.

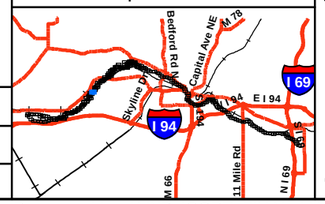
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

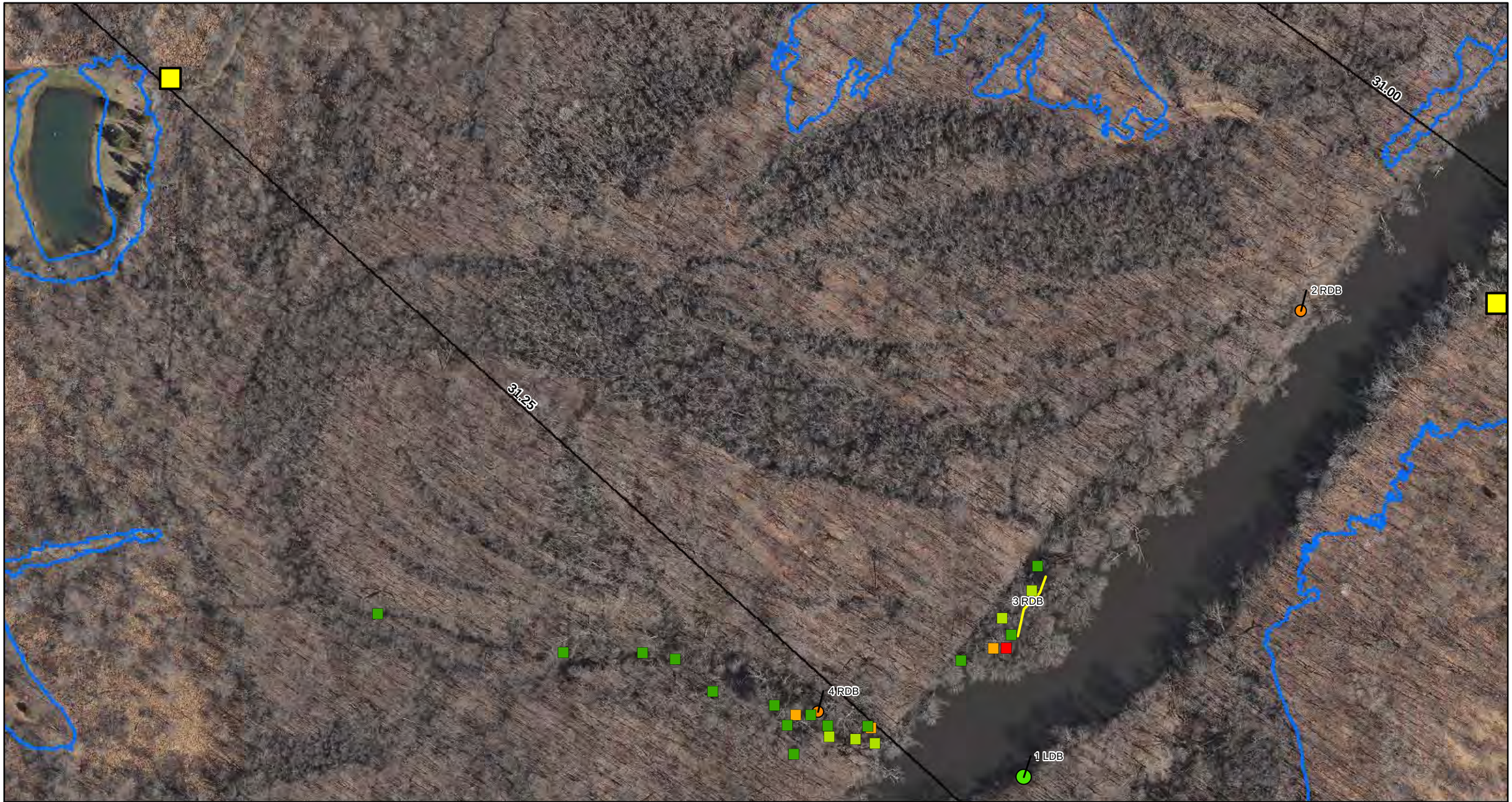
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP31.00-MP31.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP31.00-MP31.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 31.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)	
4/20/2011	15:16																	42.31393 / -85.36879	

START
MDEQ
Enbridge Team Lead
Muccianti, Marcus
Fairchild, Katie
Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 31.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		section 31.25RDB had several areas of shallow inundation areas accessible by foot. majority of pools had presence of a sheen of unknown origin.	Ross, Shauna Bucholtz, Paul
5/16/2011	16:08																	42.31599	-85.36719		Standen, John
3	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)			Kane, Sean Blazic, Ryan
6/8/2011	16:10																	42.31450	-85.36882		DaveStrand

Photo Logs

Field Photographs MP 31.00 – MP 31.25

LDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 31.00 – MP 31.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 31.0 to MP 31.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MD	Enbridge	DB
SOTF	START	[signature]	MDEQ	MD	Enbridge	DB
PI	START	[signature]	MDEQ	MD	Enbridge	DB
FLS	START	[signature]	MDEQ	MD	Enbridge	DB
Inundation Model	START	[signature]	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START 6/9/2011 Date

ISAAC ABOULAFIA Printed Name

Michelle DeLong MDEQ 6/9/11 Date

Michelle DeLong Printed Name

[signature] Enbridge 6/9/2011 Date

Dave Barham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.00 to MP 31.25, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/20/11 Date

_____ Printed Name

_____ MDEQ 4-20-11 Date

Kathleen Fairchild Printed Name

_____ Enbridge 4-20-11 Date

_____ Printed Name

- No Oil

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.0 to MP 31.25, (Bank) or Island: EDB, Segment Length: 0.25 mile

2 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 5/16/2011 — Date

Shawna Marie Ross — Printed Name

MDEQ — 5/19/11 — Date

Paul Buchholtz — Printed Name

Enbridge — 5-16-2011 — Date

Michael Van Laan — Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 3100 to MP 31.25, Unique ID RDB1, Bank: RDR and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 6-08-11 Date

Sean Kane Printed Name

[signature] MDEQ 6/8/11 Date

Ryan Blazic Printed Name

[signature] Enbridge 6/8/11 Date

David Straud Printed Name

Segment 31.25 – 31.50

MP 31.25 to MP 31.50

The LDB of segment 31.50 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify any evidence of surface oil on the LDB in this segment.

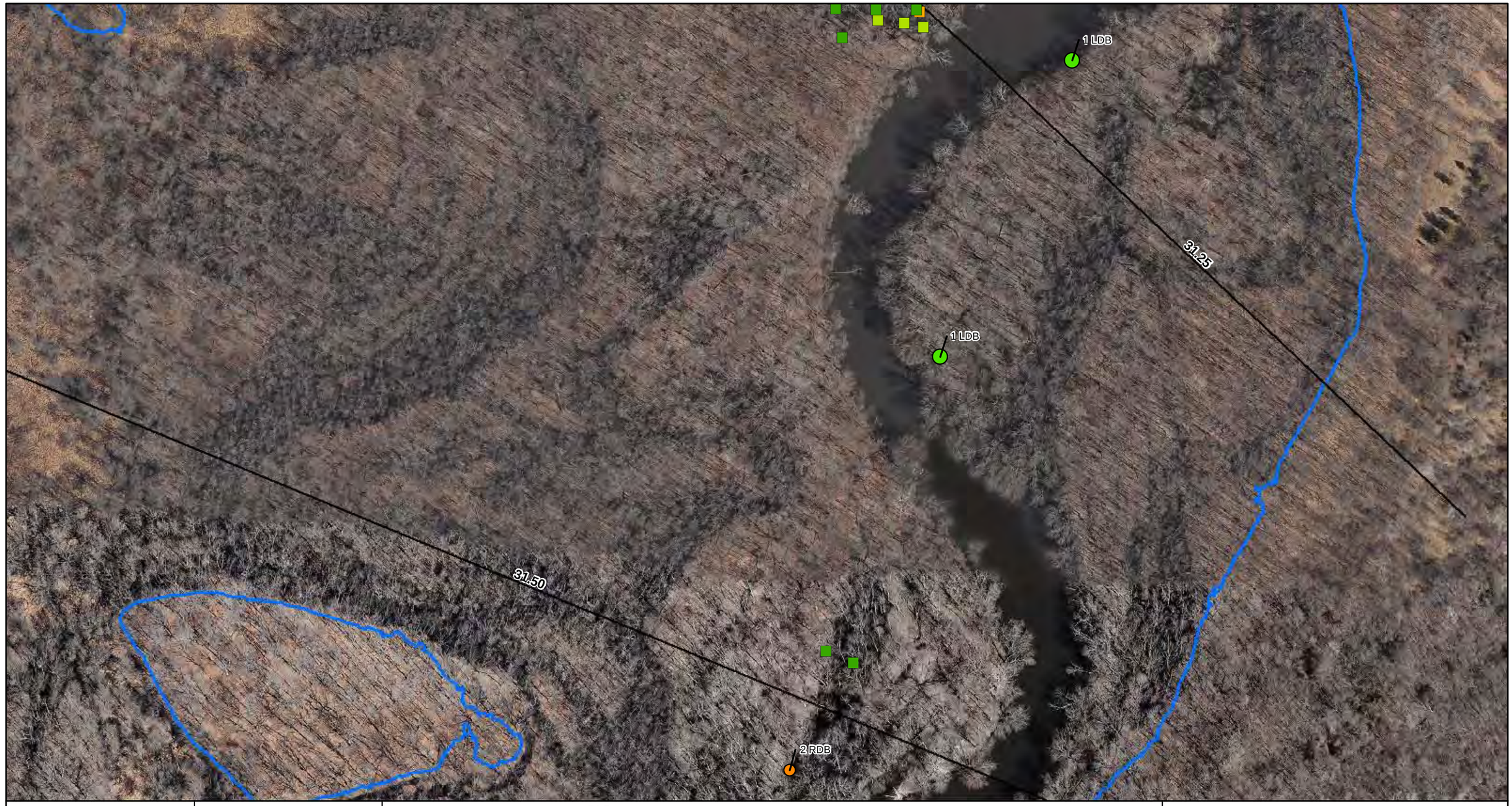
The RDB of segment 31.50 consists of forested wetland swamp and scrub-shrub areas within the overbank. Back channels are also present in the overbank. The reassessment identified Point 4 RDB located within a back channel containing a trace of film (sheen). Several inundated areas with traces of unknown sheen were observed throughout the segment.

Poling of the back channels on the RDB within this segment was completed at eighteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

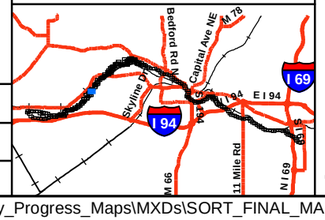
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP31.25-MP31.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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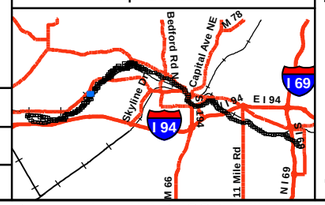
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP31.25-MP31.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 31.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)	
4/20/2011	15:40																	42.31262 / -85.36955	

START
MDEQ
Enbridge Team Lead
Muccianti, Marcus
Fairchild, Katie
Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution				
Mile Marker: 31.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		section is inundated in several areas accessible by foot. these inundations have a sheen of unknown origin.	**Enbridge Team Lead**
																					Ross, Shauna
																					Bucholtz, Paul
5/18/2011	12:14																	42.31420	-85.36999		VanLoan, Mike

Photo Logs

Field Photographs MP 31.25 – MP 31.50

LDB Zone ID 1, Photo 001



RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 31.25 to MP 31.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.25 to MP 31.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/20/11 Date

Mark Mueller Printed Name

_____ MDEQ 4-20-11 Date

Kathleen Fairchild Printed Name

_____ Enbridge 4-20-11 Date

Hans Wronka Printed Name

No O,H

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.25 to MP 31.5 (Bank) or Island: RDB, Segment Length: 0.25 mile

4 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5/18/2011 Date
Shawna Marie Ross	Printed Name	
[signature]	MDEQ	5/18/11 Date
Paul Bucholtz	Printed Name	
[signature]	Enbridge	5-18-11 Date
Michael Van Loon	Printed Name	

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 31.25 to MP 31.50, Unique ID GG, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

Section outside inundation line

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5-23-11 Date
Seana Kane	Printed Name	
[signature]	MDEQ	5/23/11 Date
Ryan D. Blazi	Printed Name	
[signature]	Enbridge	5/23/11 Date
David Straub	Printed Name	

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 31.25 to MP 31.50, Unique ID 3RDB, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 5-23-11 Date

Sean Kane Printed Name

[signature] MDEQ 5-23-11 Date

Ryan D. Blazic Printed Name

[signature] Enbridge 5/23/11 Date

David J. Hand Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 31.25 to MP 31.50, Unique ID 1RDB and 2RDB, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5-24-11 Date
Jean Lowe	Printed Name	
[signature]	MDEQ	5/24/11 Date
Ryan D. Blaze	Printed Name	
[signature]	Enbridge	5/24/11 Date
David Strand	Printed Name	

Segment 31.50 – 31.75

MP 31.50 to MP 31.75

The LDB of segment 31.75 consists of forested wetland swamp along the shoreline. A back channel, flowing parallel to the river, is located approximately 100 feet into the overbank. The reassessment identified one point that was characterized as exhibiting a trace occurrence of an oil film on ponded water at Point 1 LDB.

The RDB of segment 31.75 consists of forested wetland swamp along the shoreline and within the overbank. Meander scars and back channels are present throughout the overbank. The reassessment identified one point that was characterized as exhibiting an occurrence of film (sheen) on ponded water (Point 2 RDB).

One island is located along the LDB in this segment and characterized as having a low vegetated bank along the shoreline. The reassessment identified one linear transect on the island. Sporadic occurrences of tar balls covering the ground surface were documented along Linear Transect 1 I.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures

2 RDB
31.50
1 LDB
1 I
31.75
32.00
1 RDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP31.50-MP31.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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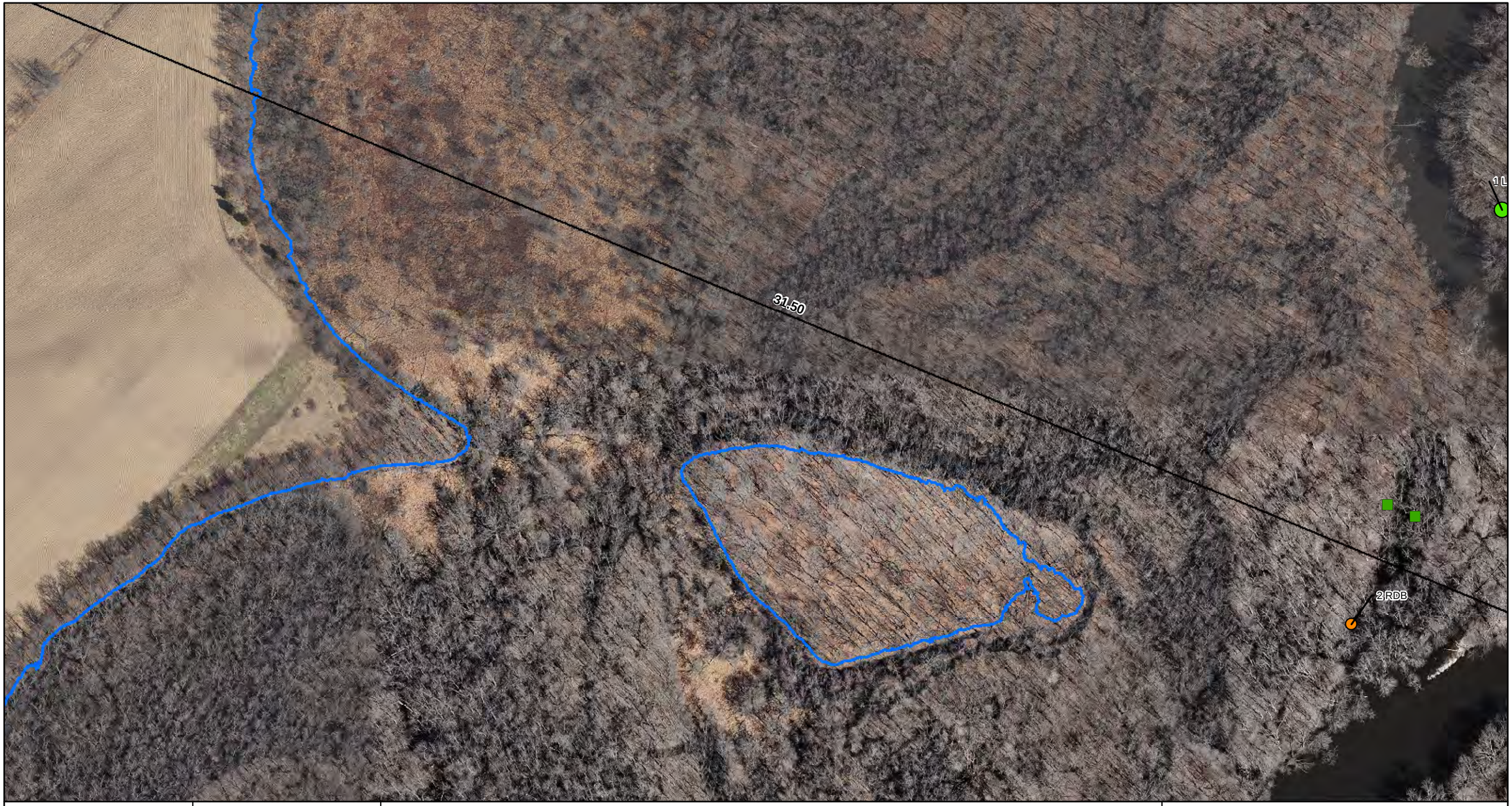
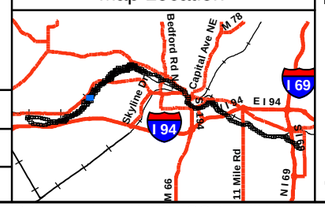
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP31.50-MP31.75 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP31.50-MP31.75 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 31.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		film observed while crossing through standing water	Muccianti, Marcus
																					Fairchild, Katie
4/20/2011	16:20																	42.30908	-85.37043		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 31.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		Section 31.75RDB has areas of inundaton accessible by foot. These areas have a sheen of unknown origin.	**Enbridge Team Lead**
																					Ross, Shauna
																					Bucholtz, Paul
5/17/2011	12:57																	42.31079	-85.37041		VanLoan, Mike

2011 Reassessment

Bank: I		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 31.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	S	Low Vegetated Bank			Ross, Shauna
																					Zimont, Ben
5/13/2011	13:16																	42.30865	-85.37108		VanLoan, Mike

Photo Logs

Field Photographs MP 31.50 – MP 31.75

LDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 31.50 – MP 31.75

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 31.5 to MP 31.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	[initials]	Enbridge DB
SOTF	START	[initials]	MDEQ	[initials]	Enbridge DB
PI	START	[initials]	MDEQ	[initials]	Enbridge DB
FLS	START	[initials]	MDEQ	[initials]	Enbridge DB
Inundation Model	START	[initials]	MDEQ	[initials]	Enbridge DB

Action Items

Action Item Description	Date Resolved
Section was accessed except for 2 (one) area along the back edge of the inundation model. Area does not appear to have any impact and can't be accessed at this time due to safety concerns. Note was added in GIS.	N/A

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.50 to MP 31.75, Bank or Island: LBI, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/20/11 Date

Thomas Maccarone Printed Name

_____ MDEQ — 4-2011 Date

Kathleen Fairchild Printed Name

_____ Enbridge — 4-20-11 Date

Hans Wronken Printed Name

1 zone Identified

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.5 to MP 31.75, Bank or Island: RDB, Segment Length: 0.25 mile

2 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 5/17/2011 — Date

Shawna Marie Ross — Printed Name

MDEQ — 5/17/11 — Date

Paul Bucholtz — Printed Name

Enbridge — 5-17-11 — Date

Michael Van Loan — Printed Name

Segment 31.75 – 32.00

MP 31.75 to MP 32.00

The LDB of segment 32.00 consists of forested wetland swamp with back channels present in the overbank. The reassessment did not identify any evidence of surface oil on the LDB in this segment.

The RDB of segment 32.00 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify any evidence of surface oil on the RDB in this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

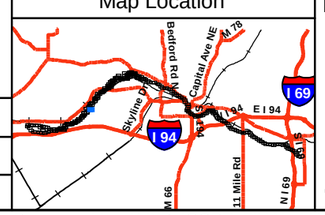
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP31.75-MP32.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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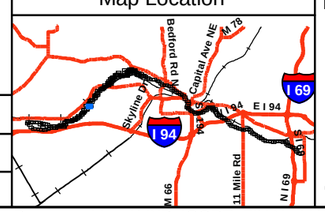
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP31.75-MP32.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 32																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)	
4/20/2011	16:57																	42.30498 / -85.37371	

START
MDEQ
Enbridge Team Lead
Muccianti, Marcus
Fairchild, Katie
Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 32																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)			Ross, Shauna Zimont, Ben
5/13/2011	12:52																	42.30757	-85.37148		VanLoan, Mike

Photo Logs

Field Photographs MP 31.75 – MP 32.00

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 81.75 to MP 32.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge
SOTF	START		MDEQ	MD	Enbridge
PI	START		MDEQ	MD	Enbridge
FLS	START		MDEQ	MD	Enbridge
Inundation Model	START		MDEQ	MD	Enbridge

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

START — 6/9/2011 Date

ISAAC ABOULAFIA Printed Name

MDEQ — 6/9/11 Date

Michelle DeLong Printed Name

Enbridge — 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.75 to MP 32.00, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/20/11 Date

MARCUS MICCIANTI Printed Name

[signature] MDEQ — 4-20-11 Date

Kathleen Fairchild Printed Name

[signature] Enbridge — 4-20-11 Date

Hans Wronka Printed Name

No Oil
No Zones

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 31.75 to MP 32.0, Bank or Island: RDB, Segment Length: 0.25 mile

0 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/13/2011 Date

Shawna Marie Ross Printed Name

[signature] MDEQ — 5/13/11 Date

Ben A. Zimdahl Printed Name

[signature] Enbridge — 5-13-2011 Date

Michael Van Laan Printed Name

Segment 32.00 – 32.25

MP 32.00 to MP 32.25

The LDB of segment 32.25 consists of forested wetland swamp along the shoreline and within the overbank. Several back channels and a tributary are present in the overbank. The reassessment identified one polygon with a sporadic distribution of oil film on ponded water (Polygon 1 LDB) at the end of the segment.

Poling of the back channels and tributary on the LDB within this segment was completed at fifteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

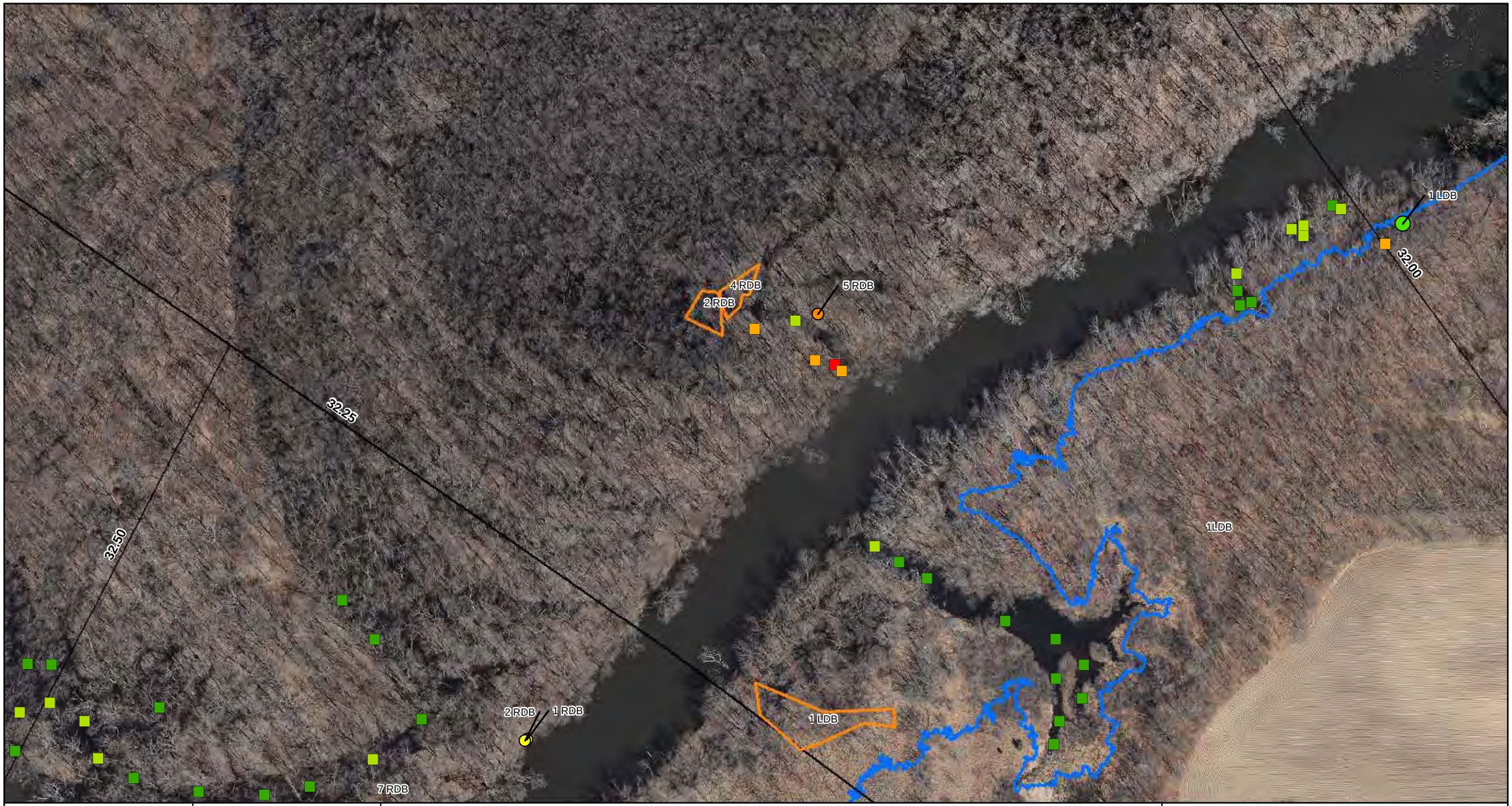
The RDB of segment 32.25 consists of forested wetland swamp. The reassessment identified one point and two polygons along a back channel that were identified as having trace or sporadic occurrences of film on ponded water and sediment.

Poling of the back channels on the RDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

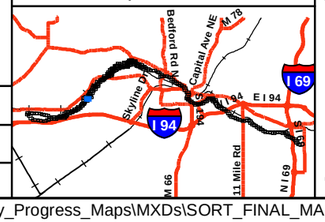
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP32.00-MP32.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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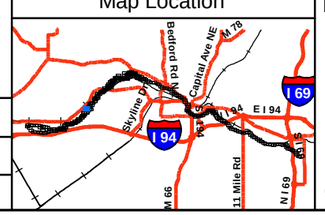
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP32.00-MP32.25 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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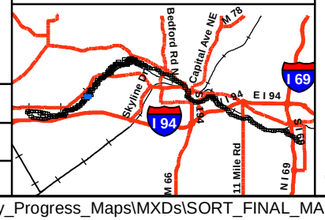
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP32.00-MP32.25 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker:	32.25																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		true innundation observed in field extends beyond what is shown on innundation model. observed sheen beyond polygon boundary. heavier sheen closer to the river.	Johnson, Rex Strouse, Dana
5/24/2011	10:00																	42.30285	-85.37709		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 32.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		distubing sediment causes sheen to rise.	Wagner, Greg / Wesener, Matt
5/19/2011	15:05																	42.30450	-85.37776		Senn, Derreck
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		sheen on sediment	Wagner, Greg / Wesener, Matt
5/20/2011	11:09																	42.30458	-85.37762		Senn, Derreck
5	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)			Kane, Sean / Blazic, Ryan
6/10/2011	15:59																	42.30456	-85.37715		DaveStrand

Photo Logs

Field Photographs MP 32.00 – MP 32.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 32.00 – MP 32.25

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs MP 32.00 – MP 32.25

LDB Zone ID 1, Photo 005



LDB Zone ID 1, Photo 006



Field Photographs MP 32.00 – MP 32.25

LDB Zone ID 1, Photo 007



RDB Zone ID 2, Photo 001



Field Photographs MP 32.00 – MP 32.25

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 32.00 – MP 32.25

RDB Zone ID 2, Photo 004



RDB Zone ID 2, Photo 005



Field Photographs MP 32.00 – MP 32.25

RDB Zone ID 4, Photo 001



RDB Zone ID 4, Photo 002



Field Photographs MP 32.00 – MP 32.25

RDB Zone ID 4, Photo 003



RDB Zone ID 4, Photo 004



Field Photographs MP 32.00 – MP 32.25

RDB Zone ID 4, Photo 005



RDB Zone ID 5, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 32.0 to MP 32.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/15/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/15/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/15/2011 Date

Dave Barham Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.00 to MP 32.25 (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/20/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 5/20/11 Date

MATT WESENER Printed Name

[signature] Enbridge — 20 May 11 Date

Desh Sen Printed Name

This signoff only covers the portion of segment 32.25 RDB as documented by the YUMA tracklogs for 19 May 11 and 20 May 11. Note that any Trackly info from 20 May 11 after 1345 is not included due to a safety standdown order to evacuate the river.

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.00 to MP 32.25, (Bank) or Island: L, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/24/11 Date

Rex Johnson Printed Name

[signature] MDEQ — 5/24/11 Date

Dana Strouse Printed Name

[signature] Enbridge — 24 May 11 Date

Derek Senn Printed Name

This sign off covers the portion of the segment assessed on 24 May, 11, as documented by the YUMA track log. This completes the assessment of this segment.

Note: The inundated area extended beyond the model boundary. This area was not assessed due to unclear inundation boundary.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.00 to MP 32.25, Unique ID 1RDB, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	5-24-11	Date
Sean Kane	Printed Name		
[signature]	MDEQ	5-24-11	Date
Ryan D. Blazic	Printed Name		
[signature]	Enbridge	5/24/11	Date
David Strand	Printed Name		

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.00 to MP 32.25, Unique ID 2RDB, 3RDB and 4RDB, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START _____ Date

_____ Printed Name

_____ MDEQ 5/24/11 Date

Ryan D. Dlugic Printed Name

_____ Enbridge 5/24/11 Date

David Strand Printed Name

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.00 to MP 32.25, Unique ID LB, Bank: ROB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-10-11 Date
Sean Hawse	Printed Name	
[signature]	MDEQ	RN 6/10/11 Date
Ryan Blazic	Printed Name	6/10/11
[signature]	Enbridge	6/10/11 Date
David Strand	Printed Name	

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 320 to MP 325 Unique ID _____, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 6-10-11 Date

Jessica Childs Printed Name

_____ MDEQ 6/10/11 Date

Bruce Washburn Printed Name

_____ Enbridge 6-10-11 Date

MATTHEW STEBBINS Printed Name

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP ~~32.25~~ 32.00 MP ~~32.50~~ 32.25 Unique ID RDB1A Bank:____ and/or Island ____.
Segment Length: 0.25 mile MAS MAS

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 6/10/11 Date

Jessica Childs Printed Name

_____ MDEQ _____ Date

_____ Printed Name

[signature] Enbridge 6/10/11 Date

MATT STEBBINS Printed Name

This Polygon was assessed without MDEQ per Mike Alexander's request.

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.00 to MP 32.25, Unique ID LDB1, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START _____ 6-13-11 Date

Sean Kane Printed Name

_____ MDEQ _____ 6/13/11 Date

Ray Spaulding Printed Name

_____ Enbridge _____ 6/13/11 Date

David Strand Printed Name

Segment 32.25 – 32.50

MP 32.25 to MP 32.50

The LDB of segment 32.50 consists of emergent/herbaceous wetlands. A tributary flows to the river and meander scars are present in the overbank. The reassessment identified three points and one polygon. A trace distribution of oil sheen (film) on ponded water was identified at all locations.

Poling of the tributary and meander scars on the LDB within this segment was completed at thirteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 32.50 consists of forested wetland swamp along the shoreline and overbank, with a meander scar present in the overbank. The reassessment identified three points and one polygon. Tar and/or oil coated trunks and stems were identified at Points 1 RDB, 2 RDB and 4 RDB. An oil film on ponded water was identified at Polygon 7 RDB.

Poling of the meander scar on the RDB within this segment was completed at eleven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

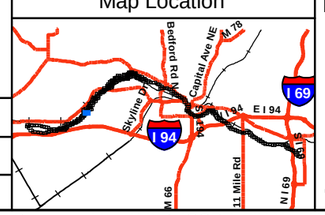
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP32.25-MP32.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP32.25-MP32.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 32.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN WITH OIL PROPERTIES INPOOLED WATER	Kane, Sean
																					Oakly, W. Craig
5/18/2011	10:27																	42.30110	-85.37888		Juntilla, John
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN ON POOLED WATER	Kane, Sean
																					Oakly, W. Craig
5/18/2011	12:05																	42.30091	-85.37876		Juntilla, John
5	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SOME SHEEN WITH SLIGT OIL PROPERTIES ON POOLED WATER	Kane, Sean
																					Oakly, W. Craig
5/18/2011	12:16																	42.30083	-85.37907		Juntilla, John
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN WITH SOME OIL TYPE PROPERTIES	Kane, Sean
																					Oakly, W. Craig
5/18/2011	12:29																	42.30094	-85.37926		Juntilla, John

2011 Reassessment

Bank: RDB

Mile Marker: 32.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	5/18/2011	12:36	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		Wetland-swamp (forested)	42.30270	-85.37881	0nly last photo applies.	Wagner, Greg Wesener, Matt Senn, Derreck
2	Shoreline	5/18/2011	12:40	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Wetland-swamp (forested)	42.30268	-85.37886	only first photo applies	Wagner, Greg Wesener, Matt Senn, Derreck
4	Shoreline and Overbank	5/18/2011	14:06	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑		Wetland-swamp (forested)	42.30207	-85.38083	see photo comments from previous feature.	Wagner, Greg Wesener, Matt Senn, Derreck
7	Shoreline and Overbank	5/18/2011	13:59	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)	42.30206	-85.38047	shape of polygon extends to the rivers edge.two photos associated with feature. camera was not working. took photos with camera and areuploading photos from another feature as a placeholder.	Wagner, Greg Wesener, Matt Senn, Derreck

Photo Logs

Field Photographs MP 32.25 – MP 32.50

LDB Zone ID 2, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 32.25 – MP 32.50

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs MP 32.25 – MP 32.50

LDB Zone ID 5, Photo 002



LDB Zone ID 6, Photo 001



Field Photographs MP 32.25 – MP 32.50

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 32.25 – MP 32.50

RDB Zone ID 4, Photo 001



RDB Zone ID 7, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 32.25 to MP 32.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[ ]	MDEQ	[ ]	Enbridge	[ ]
SOTF	START	[ ]	MDEQ	[ ]	Enbridge	[ ]
PI	START	[ ]	MDEQ	[ ]	Enbridge	[ ]
FLS	START	[ ]	MDEQ	[ ]	Enbridge	[ ]
Inundation Model	START	[ ]	MDEQ	[ ]	Enbridge	[ ]

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[ ] START — 6/8/2011 Date

John Powell Printed Name

[ ] MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[ ] Enbridge — 6/8/2011 Date

Dave Barkhem Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.25 to MP ~~35.58~~ 32.58 (GDW MDW OTS), Bank or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5/19/2011 Date
Gregory D. Wagner	Printed Name	
[signature]	MDEQ	5/19/11 Date
MATT WESGNER	Printed Name	
[signature]	Enbridge	19 May 11 Date
Derek Senn	Printed Name	

Inassessable areas inundated with waterware mapped.

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.25 to MP 32.50 Unique ID Polygon 32.5RB Bank: ROB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 5/26/11 Date

CHRIS BECKETT Printed Name

[signature] MDEQ 5-26-11 Date

William Keiper Printed Name

[signature] Enbridge 5/26/11 Date

JOSEPH STANDER Printed Name

REASSESSED AREA BY BOAT. COMPLETELY UNDERWATER.

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.25 to MP 32.50, Unique ID 32.5R6 POLYGON, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/26/11 Date

CHRIS BERKEY Printed Name

[signature] MDEQ — 5-26-11 Date

William Keiper Printed Name

[signature] Enbridge — 5/26/11 Date

JOSEPH STANDEN Printed Name

SORTED AREA. COMPLETED FIVE POLING LOCATIONS. THREE INDICATED LIGHT SHEEN, TWO HAD FEW GLOBULES.

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.25 to MP 32.50, Unique ID 32.5 RB, Bank: ROB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/26/11 Date

CHRIS BELCHER Printed Name

[signature] MDEQ — 5-26-11 Date

William Kinjer Printed Name

[signature] Enbridge — 5/26/11 Date

JOSEPH STANDER Printed Name

SORTED ALONG LINE. COMPLETED SEVEN POLING LOCATIONS. IN GENERAL, POLING INDICATED NON-DETECT TO LIGHT SHEEN.

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.25 to MP 32.50 Unique ID 32.5 LDE Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START _____ Date 5/26/11

CHRIS BEELER Printed Name

_____ MDEQ _____ Date 5-26-11

William Keiper Printed Name

_____ Enbridge _____ Date 5/26/11

JOSEPH STRODER Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.25 to MP 32.50, Unique ID 1, 2, 3, 4, 7, Bank: LDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 05/26/11 Date

CHRIS BECICH Printed Name

[signature] MDEQ — 5-26-11 Date

William Keipes Printed Name

[signature] Enbridge — 5/26/11 Date

Joseph Stainbeck Printed Name

REASSESSED ONE POLYGON AND THREE LINES IN SEGMENT. ALL FOUR AREAS WERE POLED.

SORT TEAM 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.25 to MP 32.50, Bank ~~or Island~~: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-20-11 Date
Sean Kane	Printed Name	
Craig Oakley	MDEQ	5-20-11 Date
Craig Oakley	Printed Name	
[signature]	Enbridge	5/20/11 Date
Nate Hehir	Printed Name	

* John Juntilla (BARR) Team Leader May 17 - 19th (noon)
* Nate Hehir (Superior) Team Leader May 19th noon - May 20

Segment 32.50 – 32.75

MP 32.50 to MP 32.75

The LDB of segment 32.75 consists of a low vegetated bank along the shoreline and forested wetland swamp within the overbank. Back channels and meander scars are present in the overbank. The reassessment identified one point, one polygon and one linear transect. A trace distribution of oil film on ponded water was observed in all three areas.

Poling of the back channels and meander scars on the LDB within this segment was completed at twenty-three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

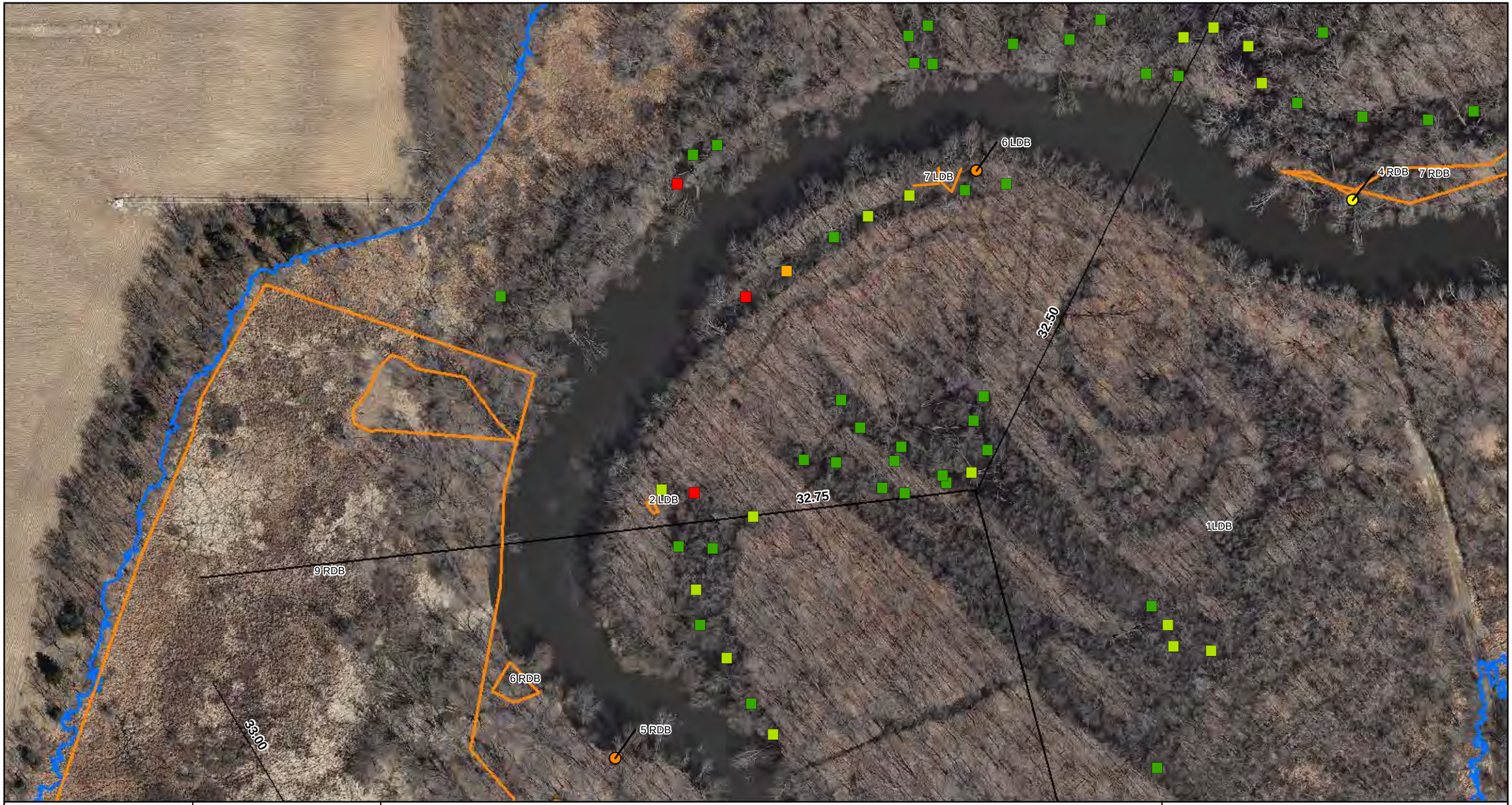
The RDB of segment 32.75 consists of forested wetland swamp along the shoreline and within the overbank. A meander scar and back channels are present in the overbank. The reassessment did not identify any evidence of surface oil on the RDB in this segment.

Poling of the meander scar and back channels on the RDB within this segment was completed at twenty-seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

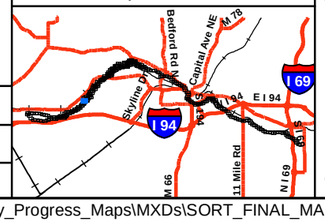
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP32.50-MP32.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

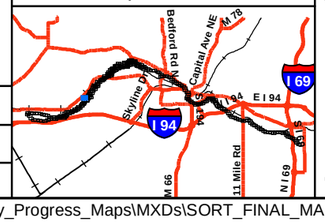
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP32.50-MP32.75 Right Bank North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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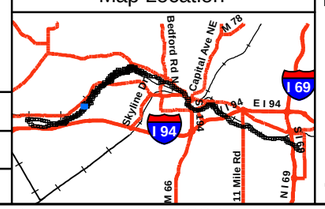
Aerial Photography Date: April 2011

1 RDB
32.50
6 LDB
7 LDB
4 RDB
7 RDB
9 RDB
2 LDB
32.75

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP32.50-MP32.75 Right Bank South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 32.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN OBSERVED	Kane, Sean / Oakly, W. Craig
5/16/2011	14:57																	0.00000	0.00000		Juntilla, John
6	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		OIL SHEEN OBSERVED INN POOLED WATER	Kane, Sean / Oakly, W. Craig
5/17/2011	10:42																	42.30217	-85.38305		Juntilla, John
7	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		OIL SHEEN OBSERVED IN STANDING WATER	Kane, Sean / Oakly, W. Craig
5/17/2011	11:30																	42.30215	-85.38316		Juntilla, John
8	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Ponded Water - Reassess		WADERABLE WATER FROM RIVER FLOW	Kane, Sean / Oakly, W. Craig
5/17/2011	13:18																	42.30177	-85.38288		Juntilla, John

2011 Reassessment

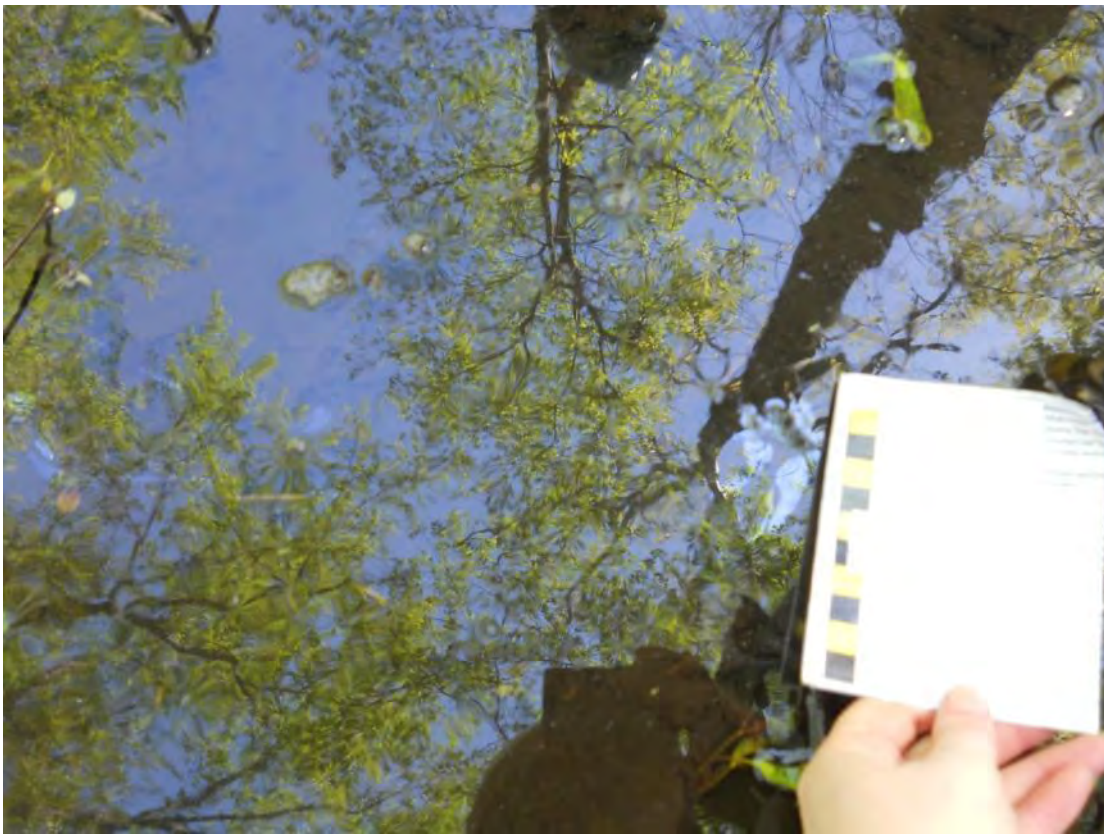
Bank: RDB		Oil Thickness					Oil Character									Oil Distribution			
Mile Marker: 32.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)	
6/7/2011	13:17																	42.30224	-85.38446

Comments	START
	MDEQ
	Enbridge Team Lead
	Kane, Sean
	Blazic, Ryan
	Dave Strand

Photo Logs

Field Photographs MP 32.50 – MP 32.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 32.50 – MP 32.75

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 32.50 – MP 32.75

LDB Zone ID 6, Photo 003



LDB Zone ID 7, Photo 001



Field Photographs MP 32.50 – MP 32.75

LDB Zone ID 7, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 32.5 to MP 32.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	MD	Enbridge DB
SOTF	START	JDP	MDEQ	MD	Enbridge DB
PI	START	JDP	MDEQ	MD	Enbridge DB
FLS	START	JDP	MDEQ	MD	Enbridge DB
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JDP

John Powell _____ START 6/13/2011 Date

John Powell Printed Name

Michelle DeLong _____ MDEQ 6/15/11 Date

Michelle DeLong Printed Name

Dave Ball _____ Enbridge 6/15/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.75 LDB to MP 32.50, Bank ~~or Island:~~ ____, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-17-11 Date
Sean Hawe	Printed Name	
Craig Oakley	MDEQ	5-17-11 Date
Craig Oakley	Printed Name	
John W. Juntilla	Enbridge	5-17-11 Date
John W. Juntilla	Printed Name	

3 features collected on May 16th, 2011
3 polygons collected
(2 for reassessment)
(~~strike~~)

5 features collected on May 17th, 2011
2 poly lines (one with oil sheen)
2 polygons
1 point of oil sheen

TEAM 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.50 to MP 32.75, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 5/23/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ 5/23/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge 5/23/11 Date

Nate Hehir Printed Name

- Conducted poling reassessment of polygons 3, 4, 5 and Polygon 1 which extendend into MP-33.00

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.50 to MP 32.75 (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/19/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 5/19/11 Date

MATT WESENER Printed Name

[signature] Enbridge — 19 May 11 Date

Derek Senn Printed Name

Inassessable areas ~~not~~ ons of ponded water were mapped.

TEAM 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.50 to MP 32.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5/23/2011 Date
Gregory D. Wagner	Printed Name	
[signature]	MDEQ	5/23/11 Date
Ben A. Zimont	Printed Name	
[signature]	Enbridge	5/23/11 Date
Nate Hehir	Printed Name	

- Conducted poling reassessment of Polygons 1, 2, 3, 4 & 5

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.50 to MP 32.75, Unique ID RDBL, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-07-11 Date
Sean Hawe	Printed Name	
[signature]	MDEQ	6/7/11 Date
Ryan Blazic	Printed Name	
[signature]	Enbridge	6/7/11 Date
David Strand	Printed Name	

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.50 to MP 32.75, Unique ID LDB8, Bank: LDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

S-K- START 6-13-11 Date

Sean Kane Printed Name

Ray Spaulding MDEQ 6/13/11 Date

Ray Spaulding Printed Name

David Strand Enbridge 6/13/11 Date

David Strand Printed Name

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.50 to MP 32.75, Unique ID LDB1, Bank: LDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-13-11 Date
Jean Kane	Printed Name	
[signature]	MDEQ	6/13/11 Date
Ray Spaulding	Printed Name	
[signature]	Enbridge	6/13/11 Date
David Strand	Printed Name	

Segment 32.75 – 33.00

MP 32.75 to MP 33.00

The LDB of segment 33.00 consists of forested wetland swamp. Meander scars and a tributary that flows to the river are present in the overbank. The reassessment identified two polygons. A trace or sporadic distribution of oil film on ponded water was observed within both polygons.

Poling of the tributary on the LDB within this segment was completed at fifteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 33.00 is a point bar that consists of forested wetland swamp along the shoreline and overbank, with emergent/herbaceous wetlands in the overbank. Several back channels are present in the overbank. The reassessment identified one point and four polygons. Polygon 9 RDB extends north into segment 32.75 and south into segment 33.25. Traces of an oil film (sheen) on ponded water and/or sediment were present at all locations. An isolated tar ball was identified at Polygon 7 RDB, and trace surface oil residue was observed in Polygon 9 RDB.

Poling of the back channels on the RDB within this segment was completed at three locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

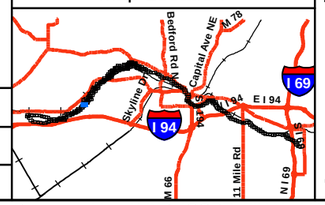
Segment Figures

32.75
32.75
33.00
6 RDB
9 RDB
5 RDB
7 RDB
4 RDB
1 LDB
2 LDB
6 RDB
1 RDB
1 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP32.75-MP33.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 33																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)		SHEEN ON POOLED WATER; SOME SHEEN ON MUD	Johnson, Rex / Washburn, Bruce / Kytta, Ken
5/5/2011	18:05																	42.29924	-85.38385		
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON POOLED WATER; TRACE	Johnson, Rex / Washburn, Bruce / Kytta, Ken
5/5/2011	18:16																	42.29894	-85.38348		

2011 Reassessment

Bank: RDB

Mile Marker: 33

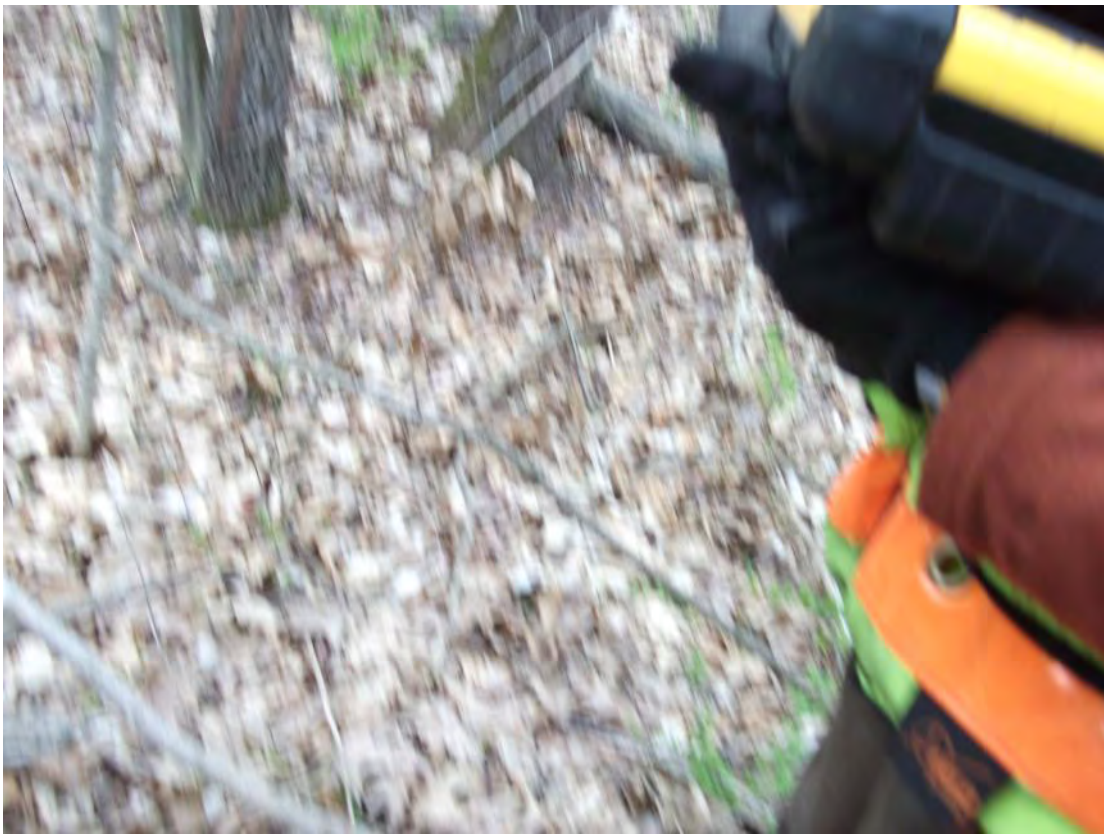
Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
4	Overbank	5/24/2011	15:48	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.29904	-85.38580	light sheen produced from walking in innundated area. area may dry out at a later date.	Johnson, Rex Strouse, Dana Senn, Derreck
5	Overbank	5/24/2011	16:39	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.29961	-85.38515		Johnson, Rex Strouse, Dana Senn, Derreck
6	Shoreline and Overbank	5/24/2011	16:52	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.30004	-85.38576	sheen on sediment	Johnson, Rex Strouse, Dana Senn, Derreck
7	Overbank	5/24/2011	17:08	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)	42.29910	-85.38588	isolated tar ball in polgon. sheen on water and sediment throughout polygon.	Johnson, Rex Strouse, Dana Senn, Derreck
9	Shoreline and Overbank	6/7/2011		☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	42.29977	85.38641	Polygon digitized in from drawing on field map- area was difficult to walk in and collecte polygon in field. Team veiwed polygon on map before completing sign-off sheet.	Muccianti, Marcus Spaulding, Ray Wronka, Hans

Photo Logs

Field Photographs MP 32.75 – MP 33.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 32.75 – MP 33.00

LDB Zone ID 2, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 32.75 – MP 33.00

RDB Zone ID 4, Photo 002



RDB Zone ID 5, Photo 001



Field Photographs MP 32.75 – MP 33.00

RDB Zone ID 6, Photo 001



RDB Zone ID 6, Photo 002



Field Photographs MP 32.75 – MP 33.00

RDB Zone ID 7, Photo 001



RDB Zone ID 7, Photo 002



Field Photographs MP 32.75 – MP 33.00

RDB Zone ID 7, Photo 003



RDB Zone ID 7, Photo 004



Field Photographs MP 32.75 – MP 33.00

RDB Zone ID 7, Photo 005



RDB Zone ID 9, Photo 001



Field Photographs MP 32.75 – MP 33.00

RDB Zone ID 9, Photo 002



RDB Zone ID 9, Photo 003



Field Photographs MP 32.75 – MP 33.00

RDB Zone ID 9, Photo 004



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 32.75 to MP 33.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MD	Enbridge	DB
SOTF	START	[signature]	MDEQ	MD	Enbridge	DB
PI	START	[signature]	MDEQ	MD	Enbridge	DB
FLS	START	[signature]	MDEQ	MD	Enbridge	DB
Inundation Model	START	[signature]	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START 6/9/2011 Date

ISAAC ABOULAFIA Printed Name

[signature] MDEQ 6/9/11 Date

Michelle DeLong Printed Name

[signature] Enbridge 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 32.75 to MP 33.00, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 4/21/11 Date

Marcus Mecum Printed Name

_____ MDEQ — 4-21-11 Date

Kathleen Fairchild Printed Name

_____ Enbridge — 4-21-11 Date

Hans Wraitz Printed Name

1 Reassessment Zone Identified

No Oil observed

Recomend Waders or Flat Bottom Boat for Reassessment

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.75 to MP 33.00, Unique ID LDB4, Bank ____ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

POLING PERFORMED IN CHANNEL OF INLET.
SORT PERFORMED IN OVERBANK.

Rex Johnson START 5/05/11 Date

Rex Johnson Printed Name

Bruce J. Washburn MDEQ 5/5/11 Date

Bruce Washburn Printed Name

Enbridge 5/5/11 Date

KEN KYITA Printed Name

Craig A Wieman Tetra Tech 5/5/11

Craig A Wieman

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.75 to MP 33.00, Unique ID LDB2, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/7/11 Date

Rex Johnson Printed Name

_____ MDEQ — 5/7/11 Date

MATTHEW D WOSENER Printed Name

_____ Enbridge/TT — 5/7/11 Date

Craig A Wiemann Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.75 to MP 33.00, Unique ID 33.00 OB3, Bank OB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/7/11 Date

Rex Johnson — Printed Name

[signature] — MDEQ — 5/7/11 Date

MATTHEW D WOESSNER — Printed Name

[signature] — Enbridge/TT — 5/7/11 Date

Craig A Wieman — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.75 to MP 33.00, Unique ID LDB 4, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5/07/11 Date

Rex Johnson Printed Name

MDEQ 5/7/11 Date

MATTHEW D WOSENER Printed Name

Enbridge 5/7/11 Date

KEN KYITA Printed Name

Tetra Tech 5/7/11

Craig A Wieman

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.75 to MP 33.00, Unique ID —, Bank R and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Ray Johnson — START — 5/25/11 Date

Ray Johnson — Printed Name

Dana Strouse — MDEQ — 5/25/11 Date

Dana Strouse — Printed Name

Enbridge — 25 May 11 Date

Josh Sean — Printed Name

This sign off covers the portion of the segment documented by the YUMA track log dated 24 May 11. In conjunction with previously completed SORT assessment and poling assessment, this sign off completes this segment.

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 32.75 to MP 33.0, Unique ID RDB1, Bank ____ and/or Island ____

Segment Length: 0.25 mile Additional Survey to reflect new inundation Model

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/8/2011 Date

Printed Name

[signature] MDEQ — 6/8/11 Date

Ray Spaulding Printed Name

[signature] Enbridge — 6-8-11 Date

Hans Wronka Printed Name

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Addendum to the Shoreline and Overbank Reassessment
MP 0.00 through MP 40.00
and
Submerged Oil Reassessment
MP 0.00 through MP 37.8
Report

(Binder 7 of 7)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: August 12, 2011

Segment 33.00 – 33.25

MP 33.00 to MP 33.25

The LDB of segment 33.25 consists of forested wetland swamp along the shoreline and within the overbank. Back channels and meander scars are present in the overbank. The reassessment identified one polygon. A trace distribution of oil sheen (film) on pooled water and sediment was identified within Polygon 1 LDB.

Poling of the back channel on the LDB within this segment was completed at eight locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 33.25 consists of a low vegetated bank and emergent/herbaceous wetland at the beginning of the segment and transitions to forested wetland swamp at the shoreline and within the overbank further downstream. Back channels are present in the overbanks at the beginning and towards the end of the segment. The reassessment identified one point and four polygons. A polygon identified and discussed in segment 33.00 (Polygon 9 RDB) also extends onto the north end of this segment. Traces of tar stained trunks and stems were identified at Point 1 RDB. Traces to sporadic occurrences of oil sheen (film) on ponded water were present within all polygons. Small discrete tar balls were documented on sediment within Polygon 4 RDB.

Poling of back channels on the RDB within this segment was completed at nineteen locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

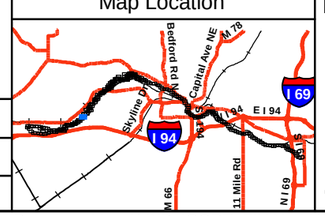
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP33.00-MP33.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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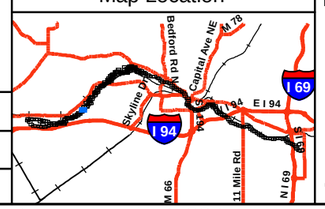
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP33.00-MP33.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	33.25																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		SHEEN ON POOLED WATER; FILM ON MUD; TRACE	Johnson, Rex
																					Washburn, Bruce
5/6/2011	10:02																	42.29724	-85.38682		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 33.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	T	Low Vegetated Bank	
5/22/2011	11:23																	42.29780 / -85.38738	
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	possible oil sheen
5/24/2011	10:57																	42.29668 / -85.38779	
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	forms sheen when disturbed.
5/24/2011	11:16																	42.29607 / -85.38807	
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	small discrete tar balls on sediment.
5/24/2011	11:32																	42.29575 / -85.38837	
6	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	sheen noted on sediment
5/24/2011	14:32																	42.29819 / -85.38736	

START	
MDEQ	
Enbridge Team Lead	
Johnson, Rex	
Gamble, James (Matt)	
Senn, Derreck	
Johnson, Rex	
Strouse, Dana	
Senn, Derreck	
Johnson, Rex	
Strouse, Dana	
Senn, Derreck	
Johnson, Rex	
Strouse, Dana	
Senn, Derreck	
Johnson, Rex	
Strouse, Dana	
Senn, Derreck	

Photo Logs

Field Photographs MP 33.00 – MP 33.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002

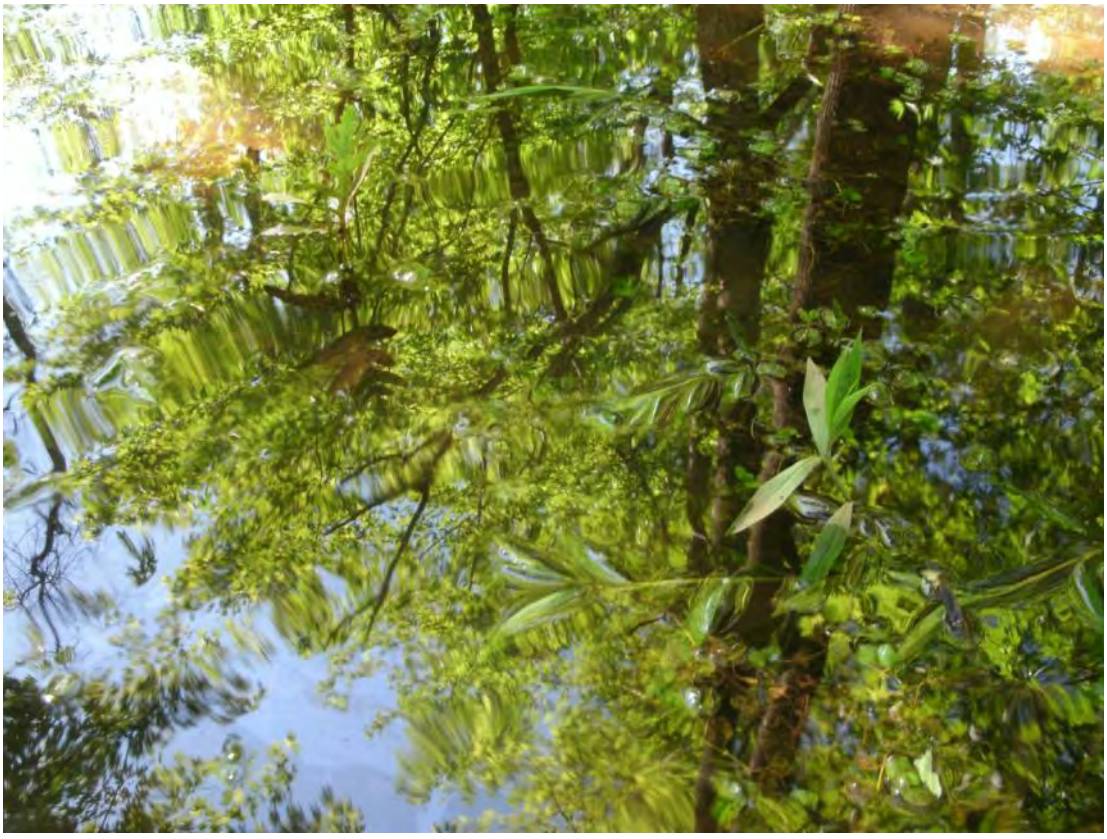


Field Photographs MP 33.00 – MP 33.25

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs MP 33.00 – MP 33.25

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs MP 33.00 – MP 33.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



Field Photographs MP 33.00 – MP 33.25

RDB Zone ID 3, Photo 003



RDB Zone ID 4, Photo 001



Field Photographs MP 33.00 – MP 33.25

RDB Zone ID 4, Photo 002

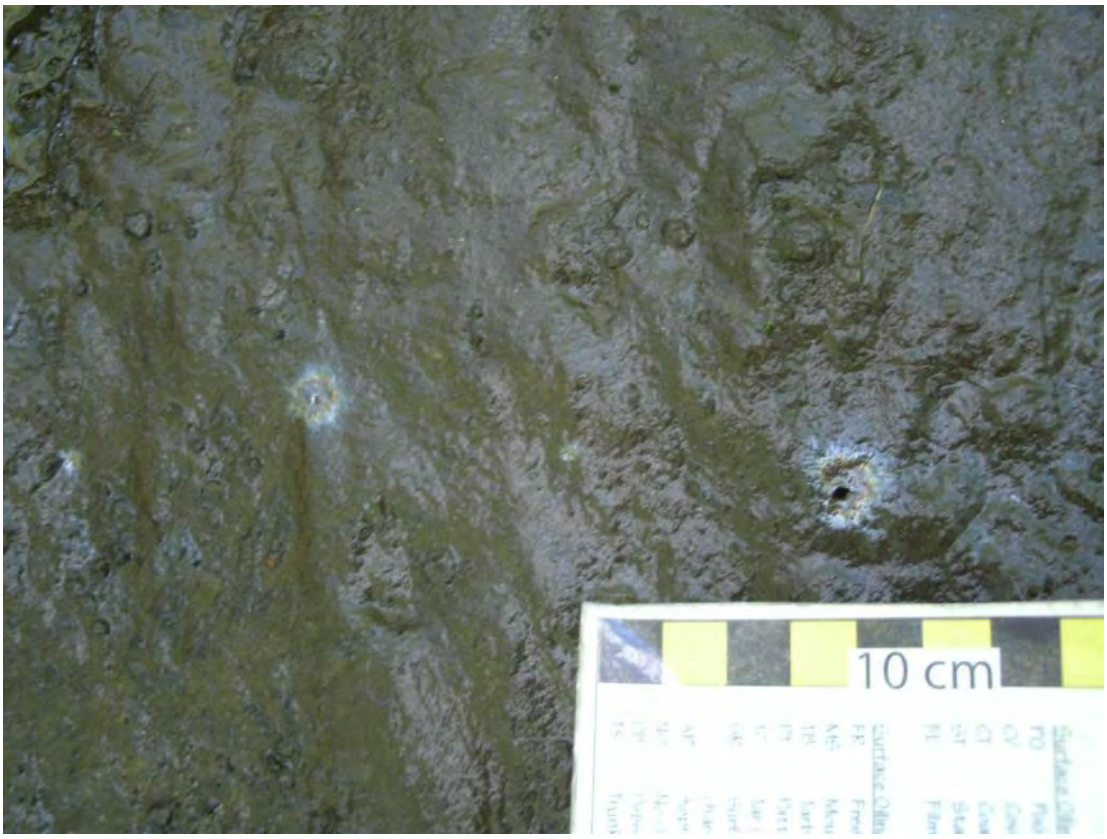


RDB Zone ID 4, Photo 003



Field Photographs MP 33.00 – MP 33.25

RDB Zone ID 4, Photo 004



RDB Zone ID 6, Photo 001



Field Photographs MP 33.00 – MP 33.25

RDB Zone ID 6, Photo 002



RDB Zone ID 6, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 33.0 to MP 33.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.00 to MP 33.25, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 4/21/11 Date

Marcus Mullins Printed Name

[signature] MDEQ 4.21.11 Date

Kathleen Fairchild Printed Name

[signature] Enbridge 4-21-11 Date

Hans Wronka Printed Name

1 Reassessment Zone Identified
Waders Recomended

No O.1 Observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 33.00 to MP 33.25, Unique ID LD31 (33.25), Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5/06/11 Date

Rex Johnson — Printed Name

Bruce L. Washburn — MDEQ — 5/6/11 Date

Bruce Washburn — Printed Name

Enbridge /LB6 — 5/6/11 Date

KEN KITTA — Printed Name

Craig A Wiemon — Tetra Tech — 5/6/2011

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 33.00 to MP 33.25, Unique ID —, Bank R and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START — 5/22/11 Date

Rex Johnson Printed Name

James M. Gamble MDEQ — 5/22/11 Date

James M. Gamble Printed Name

Enbridge — 22 May 11 Date

Derek Senn Printed Name

Inundated areas attached to the channel were mapped + will require assessment once the river restrictions are lifted.

A portion of the inundation model extended into a planted corn field. This portion was not transected but was observed to be at a higher elevation unlikely to have been affected by the release.

This sign off covers the portion of the segment documented by the YUMA tracks dated 22 May 11.

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.00 to MP 33.25, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 5/24/11 Date

Rex Johnson — Printed Name

Dana Stause — MDEQ — 5/24/11 Date

Dana Stause — Printed Name

[signature] — Enbridge — 24 May 11 Date

Brad Sorr — Printed Name

This sign off covers the portion of the segment completed on 24 May 11, as documented by the YUMA tracking. This signoff completes the segment.

Segment 33.25 – 33.50

MP 33.25 to MP 33.50

The LDB of segment 33.50 consists of forested wetland swamp. Four ponds are present in the overbank. The reassessment did not identify any evidence of surface oil on the LDB in the segment.

Poling of the ponds on the LDB within this segment was completed at thirty-two locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 33.50 consists of forested wetland swamp. The reassessment did not identify any evidence of surface oil on the RDB in the segment. The FLS data identified a suspected oil signature near the inundation line approximately 200 feet from the end of the segment. The SORT program did not identify surface oil at this location.

One island is located along the RDB in this segment and was characterized as forested wetland swamp. The reassessment did not identify any evidence of surface oil on the island.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

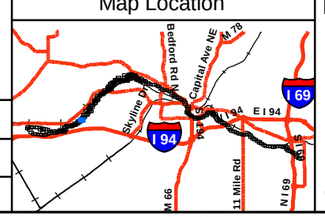
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP33.25-MP33.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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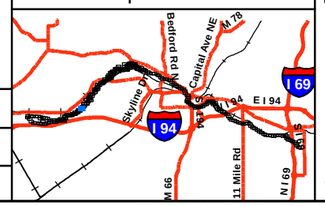
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP33.25-MP33.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 33.5																				MDEQ
Source: 2011 Reassessment																				
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Latitude**	**Longitude**		Enbridge Team Lead
1 Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐				Digitized No Oil Point. Team that assessed segment collected three reassess-ponded water polygons. These polygons were assessed using STRIKE poling.	
Date 6/6/2011 **Time** 18:23																				

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character									Oil Distribution			
Mile Marker: 33.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		Ross, Shauna Matthews, Rachel
5/20/2011	11:34																	42.29333 / -85.39217		VanLoan, Mike

Enbridge Team Lead

Photo Logs

Field Photographs MP 33.25 – MP 33.50

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 33.25 to MP 33.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.25 to MP 33.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/21/11 Date

Marcus Muccioli Printed Name

[signature] MDEQ — 4-21-11 Date

Kathleen Fairchild Printed Name

[signature] Enbridge — 4-21-11 Date

Hans Wronker Printed Name

4 Private Ponds to be Reassessed
No Oil observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP ~~33.25~~ 33.25 to MP 33.50, Unique ID UB1, Bank UB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/6/11 Date

Rex Johnson Printed Name

[signature] MDEQ — 5/7/11 Date

MATTHEW D WESENER Printed Name

[signature] Enbridge/TT — 5/7/11 Date

Craig A Wieman Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.25 to MP 33.5, Bank or Island: RDB, Segment Length: 0.25 mile

1 feature (no oil/paint)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 5/20/2011 — Date

Shawna Marie Ross — Printed Name

MDEQ — 5-20-2011 — Date

Rachel Matthews — Printed Name

Enbridge — 5-20-11 — Date

Michael Van Loan — Printed Name

Segment 33.50 – 33.75

MP 33.50 to MP 33.75

The LDB of segment 33.75 consists of forested wetland swamp. Four ponds and a back channel are present in the overbank. The reassessment did not identify any evidence of surface oil on the LDB in the segment.

Poling on the LDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 33.75 consists of forested wetland swamp, and a back channel is present in the overbank. The reassessment did not identify any evidence of surface oil on the RDB in the segment. The FLS data identified a suspected oil signature near the inundation line in the middle of the segment. The SORT program did not identify surface oil at this location.

Poling on the RDB within this segment was completed at one location to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No PI observations were noted within the segment.

The attachments provide additional details on this segment.

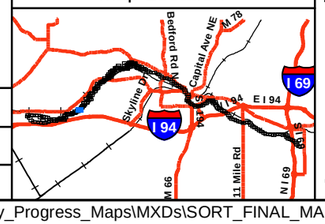
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP33.50-MP33.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

33.75

33.50

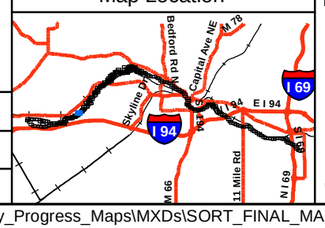
1 RDB

2 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP33.50-MP33.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 33.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		no oil point	Gomez, Tori
																					Clampitt, Chris
5/22/2011	14:25																	42.29146	-85.39345		Kytta, Ken

Photo Logs

Field Photographs MP 33.50 – MP 33.75

No Photograph for MP 33.50 – MP 33.75

SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 33.5 to MP 33.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	[signature]	Enbridge DB
SOTF	START	[signature]	MDEQ	[signature]	Enbridge DB
PI	START	[signature]	MDEQ	[signature]	Enbridge DB
FLS	START	[signature]	MDEQ	[signature]	Enbridge DB
Inundation Model	START	[signature]	MDEQ	[signature]	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/8/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/8/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/8/2011 Date

Dave Barham Printed Name

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.50 to MP 33.75, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

W/ EXCEPTION OF CHANNEL LABELED LDB1 WHICH WILL REQUIRE PULING GOOD

[signature] START — 5.22.11 Date

Tori Gomez Printed Name

[signature] MDEQ — 5/24/11 Date

Christopher Chmielewski Printed Name

[signature] Enbridge — 5/22/11 Date

Kevin Kotta Printed Name

team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.5 to MP 33.75, Bank or Island:_____, Segment Length: 0.25 mile

2 features: ① inaccessable polygon (from Friday 20th SORT) ② Point associated w polling

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 5/24/11 Date

MARCUS MUELLER Printed Name

_____ MDEQ 5/24/11 Date

Ernest Sarkipato Printed Name

_____ Enbridge 5-24-11 Date

Michael Van Loan Printed Name

team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.5 to MP 33.75, Bank or Island: LDB, Segment Length: 0.25 mile

4 features (polling locations)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/24/11 Date

Marcus Miccio Printed Name

_____ MDEQ — 5/24/11 Date

Ernest Sarkipatta Printed Name

_____ Enbridge — 5/24/11 Date

Michael Van Loan Printed Name

Segment 33.75 – 34.00

MP 33.75 to MP 34.00

The LDB of segment 34.00 generally consists of forested wetland swamp, with a back channel present in the overbank. The reassessment identified one linear transect with surface oil residue (Linear Transect 2 LDB).

Poling of the back channel on the LDB within this segment was completed at two locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 34.00 generally consists of forested wetland swamp along the shoreline and within the overbank, with a back channel present in the overbank. The reassessment identified two polygons with sporadic occurrences of surface oil residue observed (Polygons 3 RDB and 5 RDB).

Poling of the back channel on the RDB within this segment was completed at twenty-nine locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

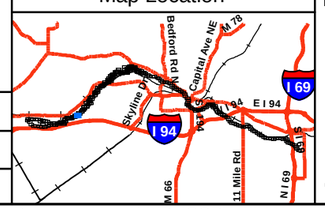
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP33.75-MP34.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP33.75-MP34.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution				
Mile Marker: 34																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
																					MDEQ
Date	**Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
2	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐		Wetland-swamp (forested)		SE of line to be assessed	Hadwin, Erik
																					Spaulding, Ray
5/15/2011	16:57																	42.28827	-85.39903		Juntilla, John

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 34																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
3	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)			Kane, Sean / Blazic, Ryan
6/8/2011	14:16																	42.29004	-85.39863		DaveStrand
5	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		flooded area which is now muddy	Kane, Sean / Blazic, Ryan
6/8/2011	14:26																	42.29002	-85.39859		DaveStrand

Photo Logs

Field Photographs MP 33.75 – MP 34.00

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 33.75 – MP 34.00

LDB Zone ID 2, Photo 003



RDB Zone ID 3, Photo 001



Field Photographs MP 33.75 – MP 34.00

RDB Zone ID 5, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 33.75 to MP 34.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge DB
SOTF	START		MDEQ	MD	Enbridge DB
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge DB
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

_____ START — 6/9/2011 Date

ISAAC ABOULAFIA Printed Name

_____ MDEQ — 6/9/11 Date

Michelle DeLong Printed Name

_____ Enbridge — 6/9/2011 Date

Dave Bareham Printed Name

TEAM 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.75 to MP 34.00, Bank or Island: LDB, Segment Length: 0.25 mile

Polygon 1

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/23/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 5/23/11 Date

Ben A. Zimont Printed Name

[signature] Enbridge — 5/23/11 Date

Nate Hehir Printed Name

- Completed visual and poling reassessment of Polygon 1

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 33.75 to MP 34.00, Unique ID LOB1, Bank: LOB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature]	START	6-6-11 Date
Jeanne Hawes	Printed Name	
[signature]	MDEQ	6/6/11 Date
Ryan Blazic	Printed Name	
[signature]	Enbridge	6/6/11 Date
David Straud	Printed Name	

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 33.75 to MP 34.00, Bank or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/22/11 Date

CHRIS BECKETT Printed Name

[signature] MDEQ — 5/24/11 Date

William Keiper Printed Name

[signature] Enbridge — 5/22/11 Date

JOSEPH STANDEN Printed Name

LARGE AREA COULD NOT BE REASSESSED BECAUSE OF INUNDATION BY RIVER.

Team 6

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 33.75 to MP 34.00, Unique ID RDB1, Bank: RDB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 6-08-11 Date

Sean Howe Printed Name

[signature] MDEQ 6/8/11 Date

Ryan Blazic Printed Name

[signature] Enbridge 6/8/11 Date

David Strand Printed Name

Segment 34.00 – 34.25

MP 34.00 to MP 34.25

The LDB of segment 34.25 consists of forested wetland swamp within the shoreline and overbank. The reassessment did not identify any evidence of surface oil on the LDB within the segment.

The RDB of segment 34.25 generally consists of low vegetative banks along the shoreline and forested wetland swamp and maintained land (farmland) within the overbank. The reassessment identified oil occurrences at one point and one polygon. Traces of oil coated trunks and stems were identified at Point 1 RDB. Trace sheen (film) was observed on pooled water in a horse pasture in Polygon 3 RDB. Pooled water was observed in Polygon 2 RDB and a pond is located at Polygon 4 RDB.

Poling on the RDB within this segment was completed at twelve locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

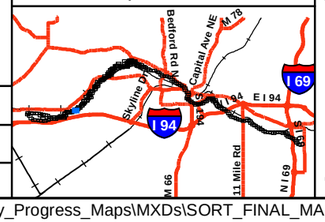
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP34.00-MP34.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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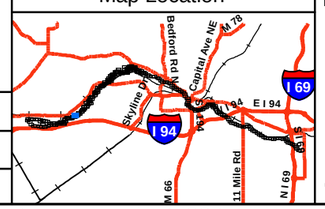
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP34.00-MP34.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 34.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		no oil odserved	Graan, Tom
																					Clampitt, Chris
6/5/2011	16:46																	42.28730	-85.40092		mike zambetis

2011 Reassessment

Bank: RDB

Mile Marker: 34.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Shoreline	5/18/2011	15:34	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	T	Low Vegetated Bank	42.28802	-85.40209		Muccianti, Marcus Schaefer, Scott Wronka, Hans
2	Overbank	5/22/2011	12:16	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)	42.29022	-85.40089	temporary pooled water. light sheen prior to polling. possibly run-off from farm. polygon area is ~250 by 25	Childs, Jessica Keiper, Bill Standen, John
3	Overbank	5/22/2011	13:45	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Other (comments)	42.28956	-85.40252	temporary pooled water with in horse pasture. light sheen on water prior to polling possibly from farm activity	Childs, Jessica Keiper, Bill Standen, John
4	Overbank	5/22/2011	14:15	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)	42.28920	-85.40316	year round pond within horse pasture	Childs, Jessica Keiper, Bill Standen, John

Photo Logs

Field Photographs MP 34.00 – MP 34.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 34.00 – MP 34.25

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 34.00 – MP 34.25

RDB Zone ID 1, Photo 003



RDB Zone ID2, Photo 001



Field Photographs MP 34.00 – MP 34.25

RDB Zone ID 2, Photo 002

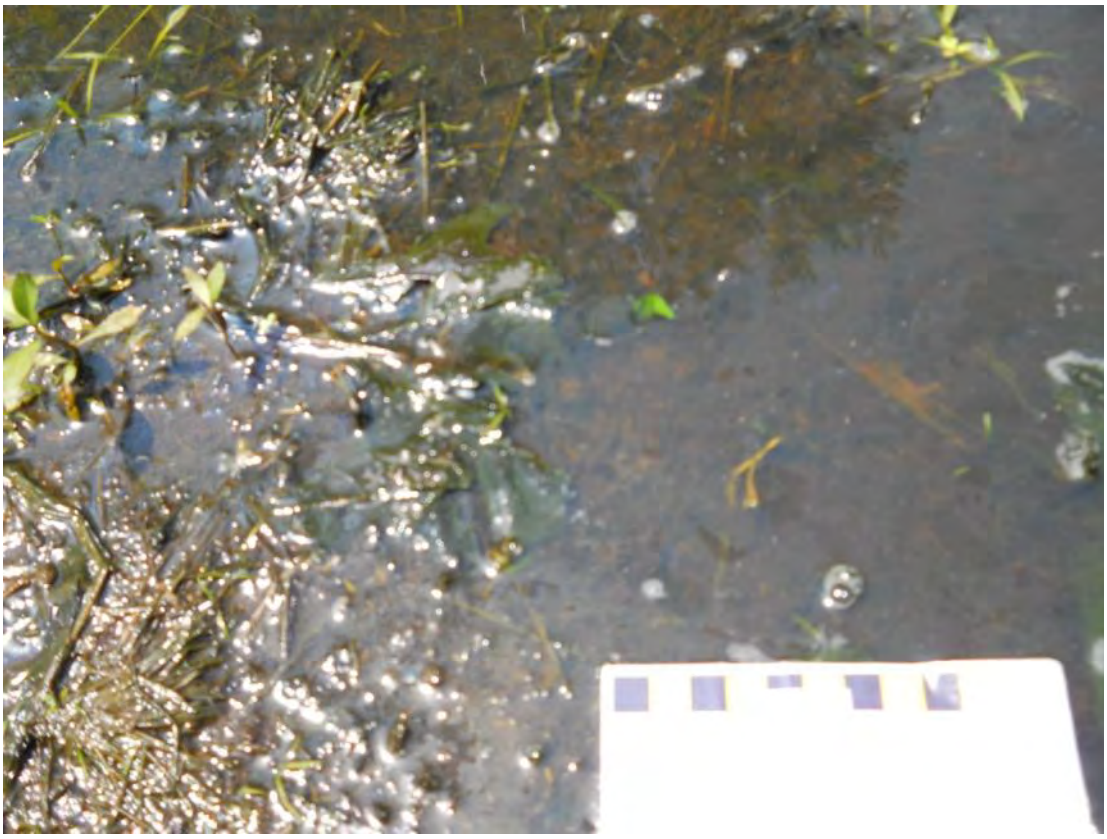


RDB Zone ID 3, Photo 001



Field Photographs MP 34.00 – MP 34.25

RDB Zone ID 3, Photo 002



RDB Zone ID 4, Photo 001



Field Photographs MP 34.00 – MP 34.25

RDB Zone ID 4, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 34.0 to MP 34.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge DB
SOTF	START		MDEQ	MD	Enbridge DB
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge DB
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/8/2011 Date
John Powell	Printed Name	
Michelle Delong	MDEQ	6/8/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/8/2011 Date
Dave Barham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.0 to MP 34.25, Unique ID _____, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 6/5/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 6/5/11 — Date

Christopher Claggett — Printed Name

[signature] — Enbridge — 6/5/11 — Date

MICHAEL A. LAMBETIS — Printed Name

— No Oil Observed

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34 to MP 34.25, Unique ID _____, Bank: ROB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/22/11 Date

CHRIS BECKETT Printed Name

_____ MDEQ 5/22/11 Date

William Heiser Printed Name

_____ Enbridge 5/22/11 Date

JOSEPH STANDEN Printed Name

COMPLETE THIRTEEN POLING LOCATIONS. DID NOT IDENTIFY ANY SUBMERGED OIL. DID IDENTIFY SLIGHT FILM ON ALL BUT PERENNIAL POND

Segment 34.25 – 34.50

MP 34.25 to MP 34.50

The LDB of segment 34.50 is a cut bank that generally consists of low vegetative bank habitat along the shoreline. The reassessment did not identify any evidence of surface oil on the LDB within this segment.

Poling was conducted at thirteen locations on the LDB within the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

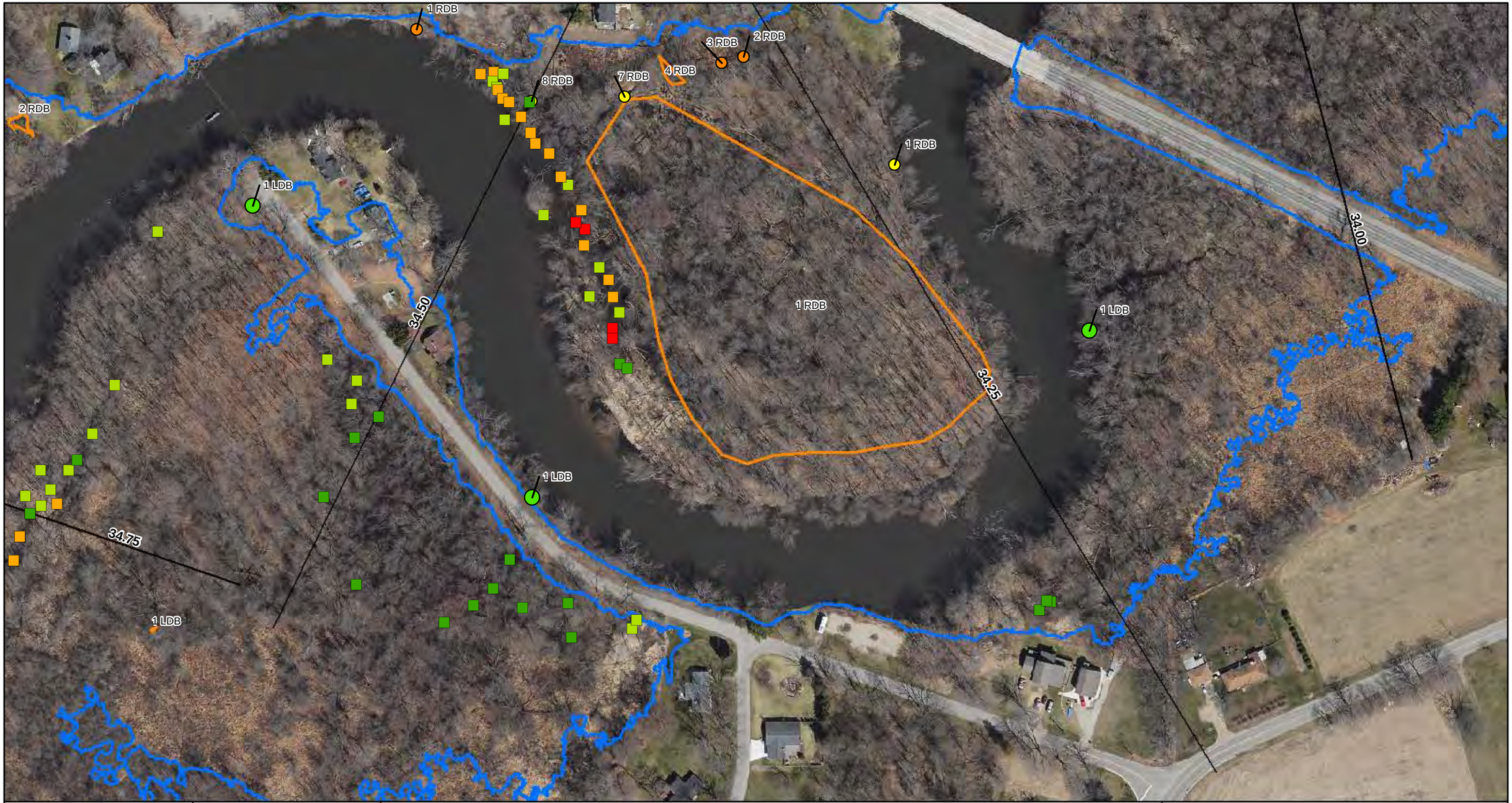
The RDB of segment 34.50 is a point bar that consists of forested wetland swamp within the overbank. Back channels are present on the western portion of the point bar. The reassessment identified oil occurrences at two points and two polygons. Traces of surface oil residue on the ground surface were identified at Points 2 RDB and 3 RDB, and Polygon 1 RDB, which encompasses most of the point bar. An oil film on ponded water, possibly a combination of biological and petroleum, was identified at all four locations.

Poling was conducted at nineteen locations on the RDB within the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

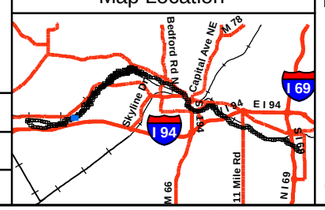
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP34.25-MP34.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 34.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Low Vegetated Bank		NO OIL IN SEGMENT; SEE POLING DATA	**Enbridge Team Lead**
																					Gomez, Tori
																					Clampitt, Chris
5/23/2011	13:17																	42.28654	-85.40421		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 34.5																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Mixture of bio and hydrocarbon.	Muccianti, Marcus
																					Schaefer, Scott
5/18/2011	15:26																	42.28782	-85.40206		Wronka, Hans
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Mixture of bio & hydrocarbon.	Muccianti, Marcus
																					Schaefer, Scott
5/18/2011	13:57																	42.28849	-85.40299		Wronka, Hans
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Mixture of bio and hydrocarbon.	Muccianti, Marcus
																					Schaefer, Scott
5/18/2011	14:01																	42.28845	-85.40312		Wronka, Hans
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		Mixture of bio and hydrocarbon.	Muccianti, Marcus
																					Schaefer, Scott
5/18/2011	14:08																	42.28837	-85.40332		Wronka, Hans
7	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		Sample taken by home owners lawyers consultant.	Muccianti, Marcus
																					Schaefer, Scott
5/18/2011	16:55																	42.28830	-85.40369		Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 34.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
8	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		Sample taken by homeowners lawyer consultant.	**Enbridge Team Lead**
																					Muccianti, Marcus
																					Schaefer, Scott
5/18/2011	17:01																	42.28828	-85.40424		Wronka, Hans

Photo Logs

Field Photographs MP 34.25 – MP 34.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 34.25 – MP 34.50

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs MP 34.25 – MP 34.50

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs MP 34.25 – MP 34.50

RDB Zone ID 3, Photo 001



RDB Zone ID 4, Photo 001



Field Photographs MP 34.25 – MP 34.50

RDB Zone ID 4, Photo 002



RDB Zone ID 4, Photo 003



Field Photographs MP 34.25 – MP 34.50

RDB Zone ID 7, Photo 001



RDB Zone ID 8, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 34.25 to MP 34.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge DB
SOTF	START		MDEQ	MD	Enbridge DB
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge DB
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Update strike poling delineation line	6/9/2011

Completeness Check Acknowledged

_____ START — 6/9/2011 Date

ISAAC ABOULAFIA Printed Name

_____ MDEQ — 6/9/11 Date

Michelle DeLong Printed Name

_____ Enbridge — 6/9/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.25 to MP 34.50, Unique ID _____, Bank: LDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 05.23.11 Date

Tori Gramza Printed Name

_____ MDEQ 5/24/11 Date

Christopher Clampit Printed Name

_____ Enbridge 5/23/11 Date

KEN KYTTA Printed Name

Tetra Tech 5/23/2011

Craig A Wieman

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Ortega Parcels

Segment ID: From MP 34.25 to MP 34.50, Unique ID RDB, Bank R and/~~or Island~~

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/18/2011 Date

Marcus Mierzwa Printed Name

[signature] MDEQ — 5/18/11 Date

SCOTT SCHAEFER Printed Name

[signature] Enbridge — 5-18-11 Date

Hans Wronka Printed Name

Notes: GPS'd the location of two stakes that Ortega's consultant said represented sediment sample locations
- 8 zones identified (two of which are the sediment sample locations).
- Note the assessment also fully included the portion of RDB MP Segment 34.25 on the downstream side of the East Michigan Avenue Bridge.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.25 to MP 34.50, Unique ID 34.50 RDB 5, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START _____ 6/6/11 Date

THOMAS P. GRAAN _____ Printed Name

_____ MDEQ _____ 6/6/11 Date

Christopher Clampitt _____ Printed Name

_____ Enbridge _____ 6/6/2011 Date

Laura Neumeier _____ Printed Name

Strike points collected by YUMA

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.25 to MP 34.50, Unique ID RDB6 (34.50), Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 6/6/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 6/6/11 — Date

Christopher Clampitt — Printed Name

[signature] — Enbridge — 6/6/2011 — Date

Laura Neumeier — Printed Name

Strike Points collected by YUMA

Segment 34.50 – 34.75

MP 34.50 to MP 34.75

The LDB of segment 34.75 consists of maintained land (lawn) at the beginning of the segment which transitions to forested wetland swamp. The reassessment did not identify any evidence of surface oil within this segment.

Poling was conducted at seventeen locations on the LDB within the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

The RDB of segment 34.75 generally consists of emergent/herbaceous wetland habitat along the shoreline and within the overbank. The reassessment identified one point and one polygon within this segment. Traces of sheen (film) and globules were identified along the shoreline at Point 1 RDB. A combination of biological and petroleum sheen was identified in Polygon 2 RDB.

Poling of the shoreline of the RDB within this segment was completed at eleven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

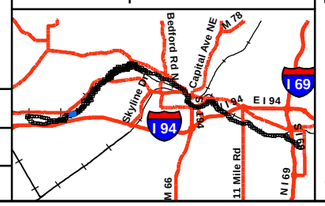
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP34.50-MP34.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 34.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)	no surface oiling observed this segment	Graan, Tom; Goddard, Matt
5/22/2011	16:18																	42.28783 / -85.40588		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 34.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		observe sheen and globules in river along right bank.	Graan, Tom Fairchild, Katie
5/23/2011	09:51																	42.28859	-85.40494		Neumeier, Laura
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		mix of biological and petroleum sheen	Graan, Tom Fairchild, Katie
5/23/2011	12:08																	42.28813	-85.40716		Neumeier, Laura

Photo Logs

Field Photographs MP 34.50 – MP 34.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 34.50 – MP 34.75

RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 34.5 to MP 34.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	MD	Enbridge DB
SOTF	START	JDP	MDEQ	MD	Enbridge DB
PI	START	JDP	MDEQ	MD	Enbridge DB
FLS	START	JDP	MDEQ	MD	Enbridge DB
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

John Powell — START — 6/8/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/8/11 Date

Michelle DeLong — Printed Name

Dave Bakham — Enbridge — 6/8/2011 Date

Dave Bakham — Printed Name

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.50 to MP 34.75, Unique ID —, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rebecca Bryan START — 5/22/11 Date

Rebecca Bryan Printed Name

MDEQ — 5/22/11 Date

Matt Goddard Printed Name

Enbridge — 5/22/2011 Date

Laura Neumeier Printed Name

Strike points collected by YUMA

"No oil" SORT point collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.50 to MP 34.75, Unique ID –, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START — 5/23/11 Date

THOMAS P. GRAAN Printed Name

Kathleen Fairchild MDEQ — 5-23-11 Date

Kathleen Fairchild Printed Name

Laura Neumeier Enbridge — 5/23/2011 Date

Laura Neumeier Printed Name

- 2 SORT features collected by YUMA
- A small area at the upstream end of the segment requires poling adjacent to the river, but could not be accomplished due to fish spawning. Track log shows end of area walked and sort point created to designate area (34.75 R3). This decision was made upon recommendation of MDEQ personnel.

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.50 to MP 34.75, Unique ID RDB 3, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 6/6/11 — Date

Thomas P. Graan — Printed Name

[signature] — MDEQ — 6/6/11 — Date

Christopher Clempit — Printed Name

[signature] — Enbridge — 6-6-11 — Date

Bethany Hard — Printed Name

Strike points collected by YUMA.

Segment 34.75 – 35.00

MP 34.75 to MP 35.00

The LDB of segment 35.00 consists of forested wetland swamp along the shoreline and within the overbank, with back channels present in the overbank. The reassessment identified five polygons. A patchy occurrence of a mix of biological and oil film was identified in Polygon 4 LDB. A trace occurrence of film on ponded water was identified at all other locations.

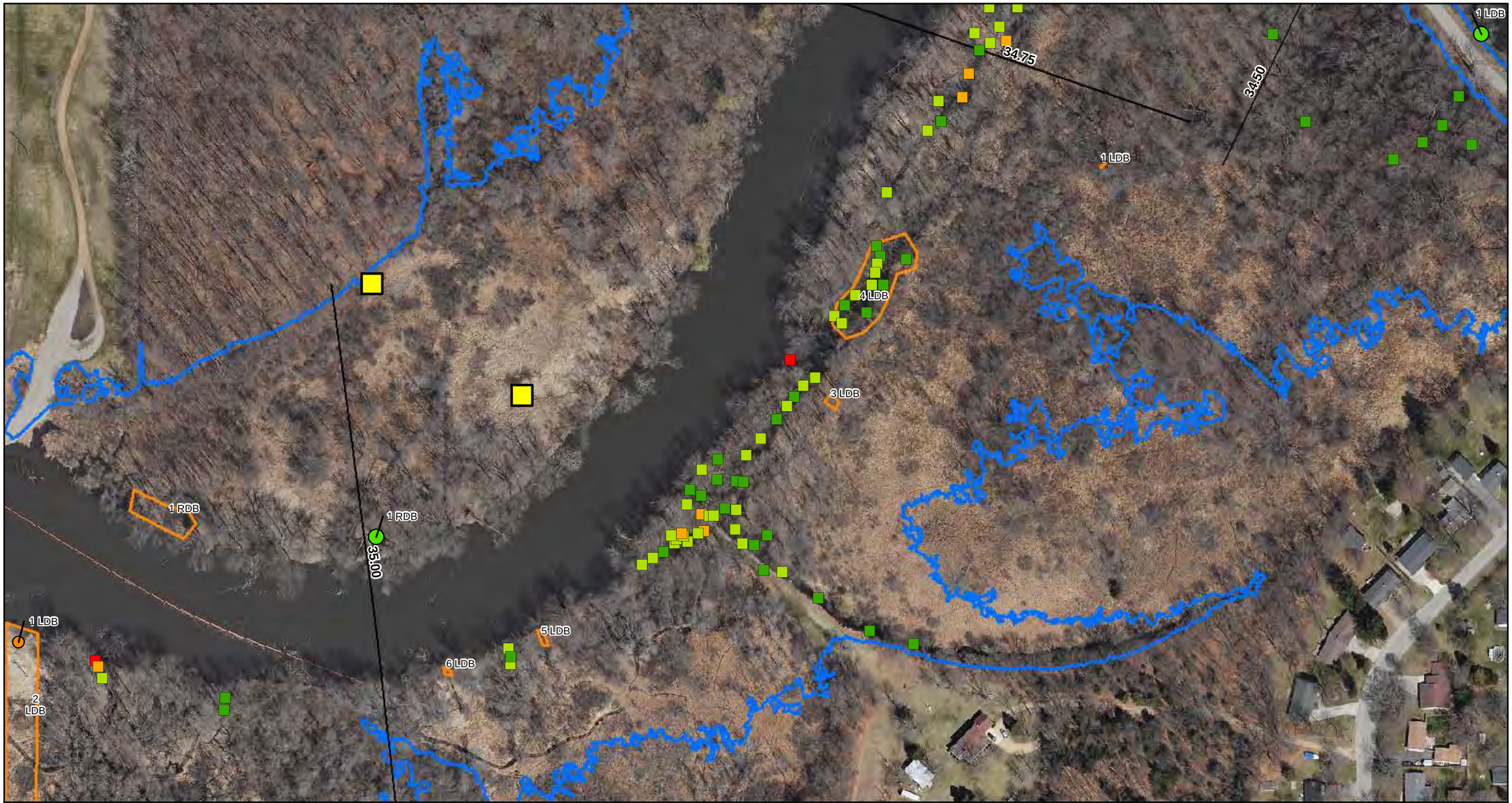
Poling of the back channel on the LDB within this segment was completed at sixty-two locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 35.00 generally consists of scrub-shrub wetlands. The reassessment did not identify any surface oil on the RDB in this segment. The FLS data identified two suspected oil signatures located in the southern portion of the segment. The SORT program did not identify surface oil at these locations.

No PI observations were identified within the segment.

The attachments provide additional details on this segment.

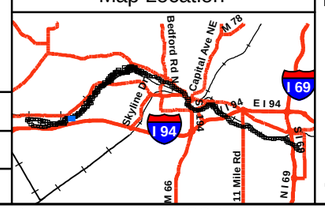
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP34.75-MP35.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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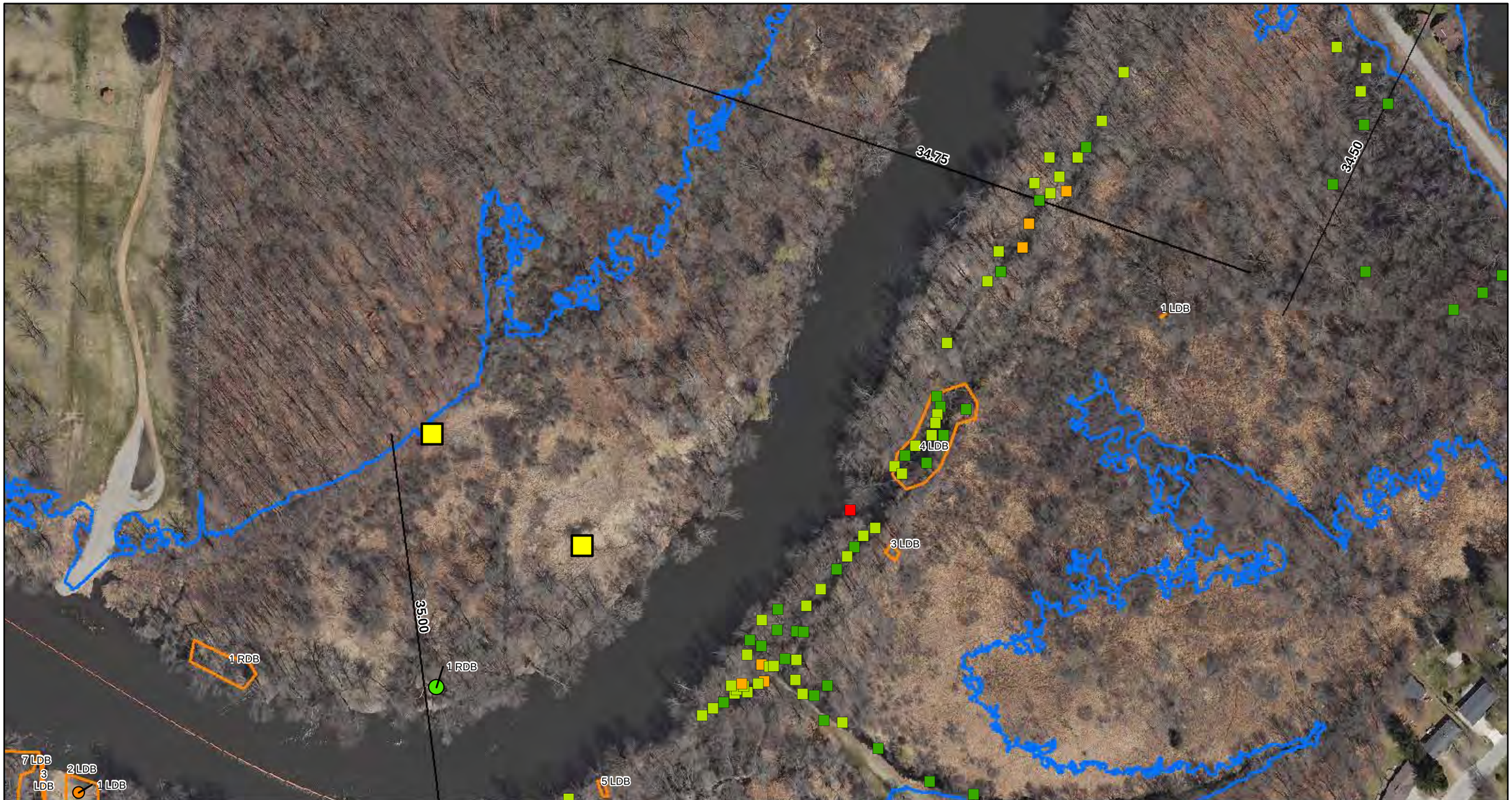
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP34.75-MP35.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB
Mile Marker: 35
Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	5/23/2011	16:02	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.28593	-85.40641	Pooled water.	Childs, Jessica / Bauer, Chris / None Present
3	Overbank	5/24/2011	11:10	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.28491	-85.40801	Pooled water. Mixture of bio and hydrocarbon.	Childs, Jessica / Bauer, Chris / None Present
4	Overbank	5/24/2011	14:03	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	P	Wetland-swamp (forested)	42.28506	-85.40805	Refer to polling points inside polygon. Sheen observed throughout polygon. Mixture of bio and hydrocarbons. Upstream portion of polygon had sporadic sheen downsteam portion of polygon had broken sheen.	Childs, Jessica / Bauer, Chris / None Present
5	Shoreline and Overbank	5/26/2011	14:32	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐		Wetland-swamp (forested)	42.28388	-85.40964		Childs, Jessica / VanDelfzijl, Sarah / None Present
6	Shoreline and Overbank	5/26/2011	15:23	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.28369	-85.41029	Trace amount of hydrocarbon observed on pooled water.	Childs, Jessica / VanDelfzijl, Sarah / None Present

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 35																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-scrub/shrub		No oil observed.	Muccianti, Marcus
																					Bauer, Chris
5/10/2011	14:28																	42.28428	-85.41069		Haux, Christopher

Photo Logs

Field Photographs MP 34.75 – MP 35.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs MP 34.75 – MP 35.00

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 34.75 – MP 35.00

LDB Zone ID 4, Photo 002



LDB Zone ID 4, Photo 003



Field Photographs MP 34.75 – MP 35.00

LDB Zone ID 5, Photo 001



LDB Zone ID 5, Photo 002



Field Photographs MP 34.75 – MP 35.00

LDB Zone ID 6, Photo 001



LDB Zone ID 6, Photo 002



Field Photographs MP 34.75 – MP 35.00

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 34.75 to MP 35.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MD	Enbridge	DB
SOTF	START	[signature]	MDEQ	MD	Enbridge	DB
PI	START	[signature]	MDEQ	MD	Enbridge	DB
FLS	START	[signature]	MDEQ	MD	Enbridge	DB
Inundation Model	START	[signature]	MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/10/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/10/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/10/2011 Date

Dave Barcham Printed Name

TEAM 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 34.75 to MP 35.0, (Bank) or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	05/26/11 Date
Jessica Childs	Printed Name	
SARAH VANDELFZIJL for Chris Bauer	MDEQ	5/26/11 Date
[signature]	Printed Name	
Daniel DeJoode	Enbridge	5/26/11 Date
[signature]	Printed Name	

5/23/11 Segment STRIKE work began with Chris Bauer (DEQ); Jessica Childs (START); and Daniel DeJoode (Enbridge/Barr)

5/24/11 Segment STRIKE work continued with same personell from 5/23/11.

5/25/11 Segment STRIKE work continued with same personell from 5/23/11.

5/26/11 Segment STRIKE work continued with Sarah VanDelfzijl (DEQ); Jessica Childs (START); and Daniel DeJoode (Enbridge/Barr)

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.75 to MP 35.00, Unique ID LDB1 (35.00), Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 6/7/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 6/7/11 — Date

Christopher Clampitt — Printed Name

[signature] — Enbridge — 6/7/2011 — Date

Laura Neumeier — Printed Name

Strike points collected by YU MA.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 34.75 to MP 35.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/10/2011 Date

Marcus McLean Printed Name

Chris Bauer MDEQ — 5/10/2011 Date

Chris Bauer Printed Name

[signature] Enbridge — 5-10-11 Date

Hans Wronker Printed Name

No Zones Identified

No Oil Observed

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 34.75 to MP 35.00, Unique ID RDB 1 35.00, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START 6/6/11 Date

THOMAS P. GRAAN _____ Printed Name

_____ MDEQ 6/6/11 Date

Christopher Clampit _____ Printed Name

_____ Enbridge 6/6/2011 Date

Laura Neumeier _____ Printed Name

'No oil' SORT pointed collected by YUMA

Assessed area of polygon closest to river and no oil observed. Per instructions, remainder of polygon not assessed.

Segment 35.00 – 35.25

MP 35.00 to MP 35.25

The LDB of segment 35.25 generally consists of forested wetland swamp on the shoreline and overbank with scrub-shrub and emergent/herbaceous wetlands in the overbank. Maintained lawn was identified at Polygon 6 LDB. Back channels are present in the segment. The reassessment identified oil occurrences at one point and three polygons. A trace occurrence of film on ponded water characterized as a mix of organics and petroleum was identified at Point 1 LDB and Polygons 2 LDB, 3 LDB, and 7 LDB.

Poling was conducted at six locations on the LDB within the segment to fully assess oil within the overbank. The detailed results of the poling activities will be completed under a separate cover.

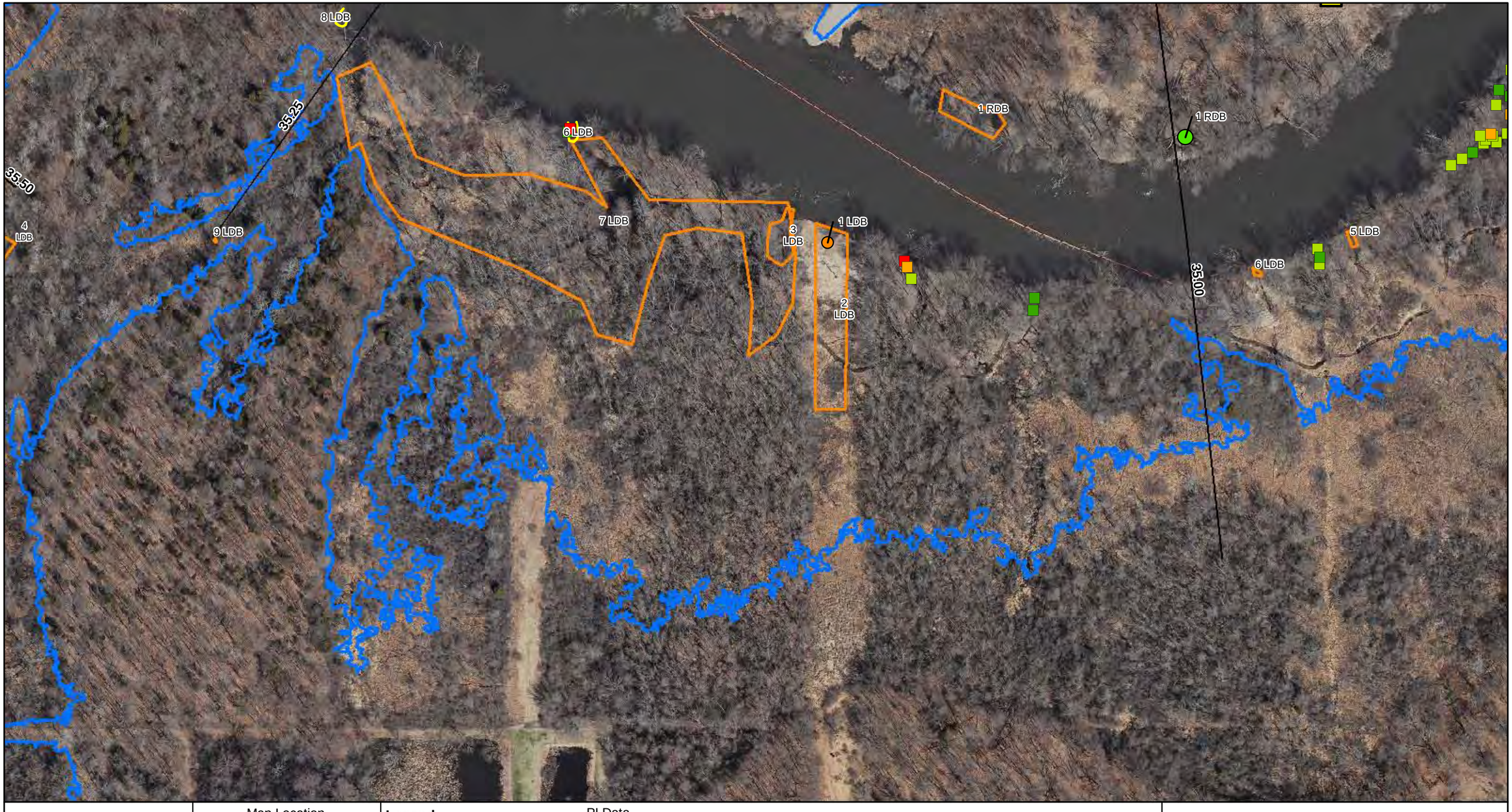
The RDB of segment 35.25 generally consists of forested wetland swamp along the shoreline and within the overbank. A tributary is present near the 35.25 segment line. One polygon was identified within this segment consisting of a trace film and surface oil residue.

Poling was conducted at two locations on the RDB within the segment to fully assess oil within the overbank. The detailed results of the poling activities will be completed under a separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP35.00-MP35.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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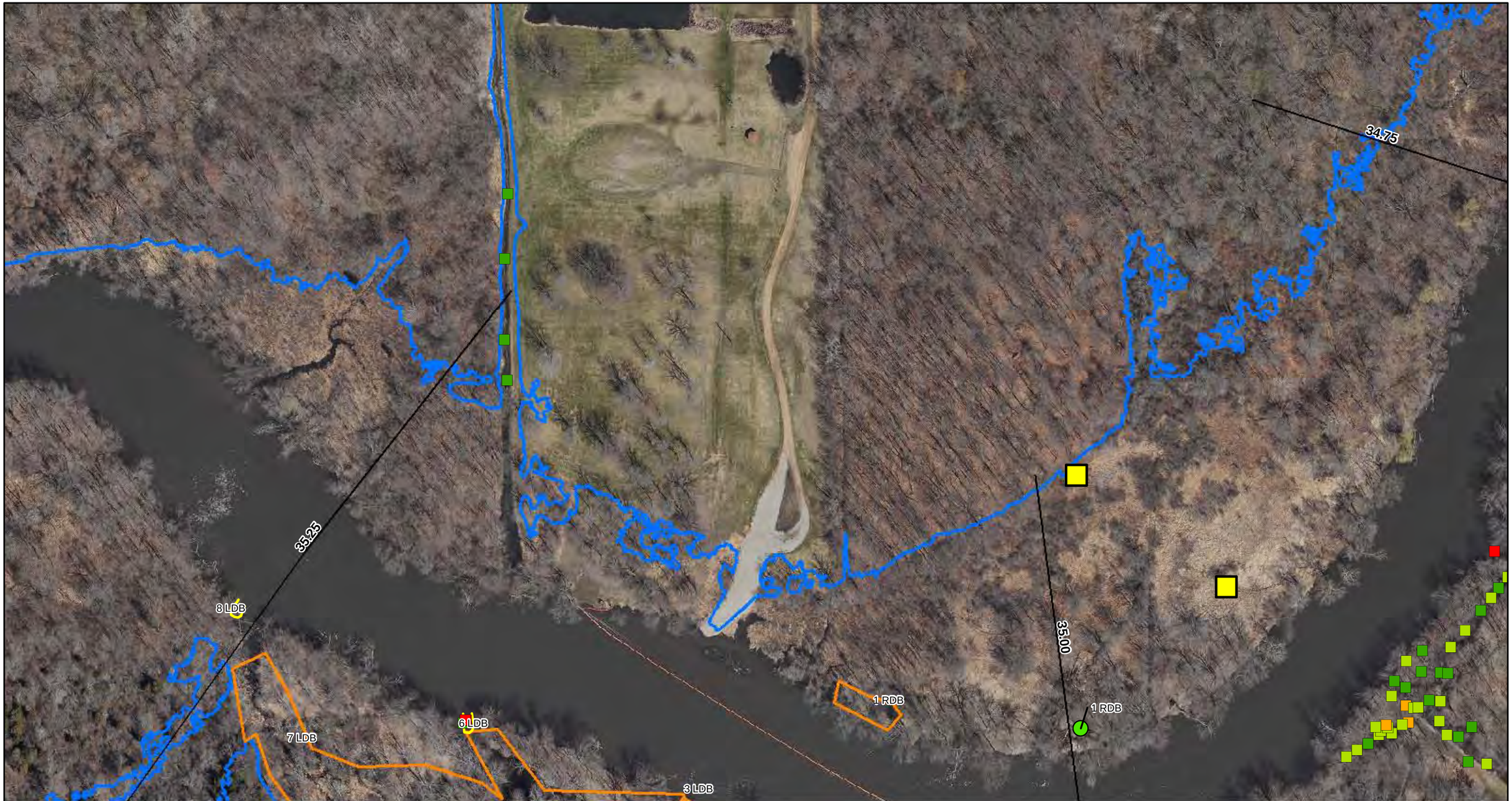
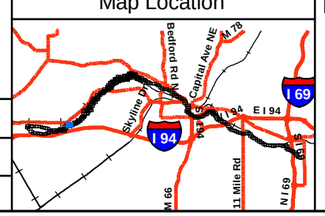
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP35.00-MP35.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 35.25																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous			Muccianti, Marcus / Spaulding, Ray
6/8/2011	10:43																	42.28380	-85.41279		Wronka, Hans
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-scrub/shrub		Area located along powerline r.o.w. mixture of bio & hydrocarbons.	Muccianti, Marcus / Spaulding, Ray
6/8/2011	11:28																	42.28294	-85.41302		Wronka, Hans
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Mixture of bio & hydrocarbon.	Muccianti, Marcus / Spaulding, Ray
6/8/2011	11:48																	42.28375	-85.41309		Wronka, Hans
6	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Lawn (maintained land)		Inlet off of river. No photo taken.	Muccianti, Marcus / Spaulding, Ray
6/8/2011	16:00																	42.28425	-85.41431		Wronka, Hans
7	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Film appears to be a mixture of bio and hydrocarbon.	Muccianti, Marcus / Spaulding, Ray
6/8/2011	17:37																	0.00000	0.00000		Wronka, Hans

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 35.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
8	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			Inlet off of river. No photo taken.
6/8/2011	16:06																	42.28478 / -85.41563	
9	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)	
6/9/2011	14:07																	42.28379 / -85.41642	

START	
MDEQ	
Enbridge Team Lead	
Muccianti, Marcus	
Spaulding, Ray	
Wronka, Hans	
None Present	
Spaulding, Ray	
Wronka, Hans	

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 35.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Inconclusive determination.	Muccianti, Marcus
																					Bauer, Chris
5/10/2011	15:22																	0.00000	0.00000		Wronka, Hans

Photo Logs

Field Photographs – 35.00 – 35.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – 35.00 – 35.25

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs – 35.00 – 35.25

LDB Zone ID 1, Photo 005



LDB Zone ID 1, Photo 006



Field Photographs – 35.00 – 35.25

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs – 35.00 – 35.25

LDB Zone ID 3, Photo 001



LDB Zone ID 7, Photo 001



Field Photographs – 35.00 – 35.25

LDB Zone ID 7, Photo 002



RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 35.0 to MP 35.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge DB
SOTF	START		MDEQ		Enbridge DB
PI	START		MDEQ		Enbridge DB
FLS	START		MDEQ		Enbridge DB
Inundation Model	START		MDEQ		Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/10/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/10/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/10/2011 Date
Dave Barham	Printed Name	

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP ~~32.0~~ 35.0 to MP ~~32.25~~ 35.25, Bank or Island: LDB (1)-(2) Location, Segment Length: 0.25 mile

*Additional Survey following new innundation Model

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 6/6/11 Date

Marcus Mulliant Printed Name

[signature] MDEQ — 6/6/11 Date

Ray Spaulding Printed Name

[signature] Enbridge — 6-6-11 Date

Hans Wronka Printed Name

- No oil, lot's of thick vegetation

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 35.0 to MP 35.25, Unique ID _____, Bank LDB and/or Island ____

Segment Length: 0.25 mile ~~*SORT Activities~~ [illegible]

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

SORT [signature] START 6/8/2011 Date

Marcus Mullins Idwood Salaiman 6/9/11 Printed Name

Ray Spaulding MDEQ Ray Spaulding 6/8/2011 Date 6/9/11

Ray Spaulding Printed Name Ray Spaulding

[signature] Enbridge [signature] 6-8-11 Date 6-9-11

Hans Wronker Printed Name Hans Wronker

- Previous portions of site were completed by different personell: Chris Bauer (DEQ), Jessica Childs (START), and Daniel DeJoube (Enbridge/Barr). These people were contacted by phone on 6/8/11 and agreed with sign-off.

One poling location with 3 points done on 6-9-11

~~*Note: This sign off is for SORT related activities. There are still 2 areas within the segment that need to be poled. Each of the two areas is roughly the size of a large airboat and are connected to the river. Need to check poling data; these areas may have already been poled.~~

HW 6-9-11

X:\2011_Reassessment\Sign-Off Sheets

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 35.00 to MP 35.25, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/10/2011 Date

Mikeas Mueller Printed Name

Chris Bauer MDEQ — 5/10/2011 Date

Chris Bauer Printed Name

_____ Enbridge — 5-10-11 Date

Hans Wronko Printed Name

ONE Zones Identified (Undetermined f:/m)

No Oil Observed

Team 3

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 35.00 to MP 35.25, Unique ID RDB1 (35.25), Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 6/6/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 6/6/11 — Date

Christopher Champitt — Printed Name

[signature] — Enbridge — 6/6/2011 — Date

Laura Neumeier — Printed Name

Strike points collected by YUMA.

Team poled portion of polygon closest to river. No evidence of oil and therefore remainder of polygon was not assessed per instructions.

Segment 35.25 – 35.50

MP 35.25 to MP 35.50

The LDB of segment 35.50 consists of forested wetland swamp along the shoreline. A back channel is present in this segment. The reassessment identified one point within the back channel with a trace occurrence of film observed (Point 1 LDB).

The RDB of segment 35.50 consists of scrub-shrub wetland along the shoreline and within the overbank, with back channels present in the segment. The reassessment did not identify any evidence of surface oil on the RDB in this segment.

Poling of back channels on the RDB within this segment was completed at five locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures

1 RDB
1 LDB
35.50
35.25
3 LDB
2 LDB
4 LDB
8 LDB
9 LDB
6 LDB
7 LDB
3 LDB
1 LDB
2 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP35.25-MP35.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character												
Mile Marker:	35.5																		
Source:	2011 Reassessment																		
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Comments	START
Date	Time																	Latitude / Longitude		MDEQ / Enbridge Team Lead
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	sheen in channel inlet	Muccianti, Marcus Veldkamp, Chris
5/23/2011	14:55																	42.28538 / -85.41772		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 35.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-scrub/shrub		No oil observered.	Muccianti, Marcus
																					Bauer, Chris
5/11/2011	11:40																	0.00000	0.00000		Wronka, Hans

Photo Logs

Field Photographs – MP 35.25 – MP 35.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – MP 35.25 – MP 35.50

RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 35.25 to MP 35.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ		Enbridge DB
SOTF	START		MDEQ		Enbridge DB
PI	START		MDEQ		Enbridge DB
FLS	START		MDEQ		Enbridge DB
Inundation Model	START		MDEQ		Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/10/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/10/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/10/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 35.25 to MP 35.50, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/11/11 Date

Marcus Mulligan Printed Name

Chris Bauer MDEQ — 5/11/11 Date

Chris Bauer Printed Name

[signature] Enbridge — 5-11-11 Date

Hans Wronka Printed Name

No Zones Identified
No Oil Observed

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 35.25 to MP 35.5, Bank or Island: RDB1 Segment Length: 0.25 mile

Additional Surveying Following New Inundation Model

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 6/6/11 Date

Marcus Maccini Printed Name

Ray Spaulding MDEQ 6/6/11 Date

Ray Spaulding Printed Name

Hans Wronski Enbridge 6-6-11 Date

_____ Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 35.25 to MP 35.5, Bank or Island: LDB, Segment Length: 0.25 mile

1 feature

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/23/11 Date

Marcus Mierzia Printed Name

[signature] MDEQ — 5/23/11 Date

Chris Veldkamp Printed Name

[signature] Enbridge — 5-23-11 Date

Michael Van Loan Printed Name

Segment 35.50 – 35.75

MP 35.50 to MP 35.75

The LDB of segment 35.75 generally consists of forested wetland swamp and scrub-shrub wetland along the shoreline and within the overbank. The reassessment identified one point and three polygons. A trace occurrence of film (sheen) on was identified at all four locations, and surface oil residue was observed at Polygon 4 LDB.

The RDB of segment 35.75 generally consists of scrub-shrub wetland along the shoreline and within the overbank. The reassessment did not identify any evidence of surface oil on the RDB in this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

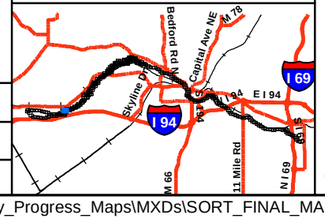
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP35.50-MP35.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 35.75																					
Source: 2011 Reassessment																					MDEQ
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Latitude	Longitude		Enbridge Team Lead
Date	Time																				
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)		oil sheen in channel.	Muccianti, Marcus
																					Veldkamp, Chris
5/23/2011	12:16																	42.28234	-85.41988		VanLoan, Mike
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub			Muccianti, Marcus
																					Veldkamp, Chris
5/23/2011	13:30																	42.28434	-85.41911		VanLoan, Mike
3	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-scrub/shrub		sheen in river inlet	Muccianti, Marcus
																					Veldkamp, Chris
5/23/2011	14:02																	42.28455	-85.41896		VanLoan, Mike
4	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐		Wetland-swamp (forested)		Mixture of bio and hydrocarbons.	None Present
																					Spaulding, Ray
6/9/2011	16:06																	42.28269	-85.41795		Wronka, Hans

2011 Reassessment

Bank:	RDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	35.75																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-scrub/shrub			Muccianti, Marcus
																					Bauer, Chris
5/11/2011	12:21																	42.28158	-85.42112		Wronka, Hans

Photo Logs

Field Photographs MP 35.50 – MP 35.75

LDB Zone ID 1, Photo 001

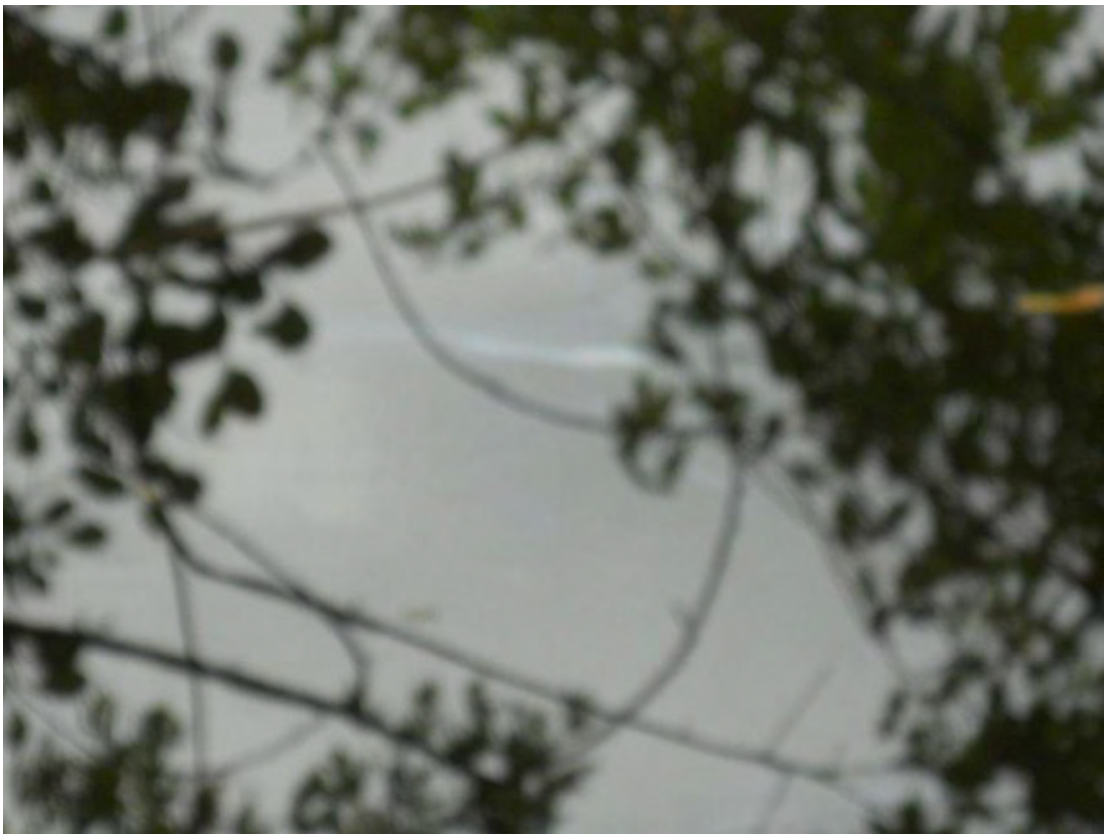


LDB Zone ID 1, Photo 002



Field Photographs MP 35.50 – MP 35.75

LDB Zone ID 1, Photo 003



LDB Zone ID 2, Photo 001



Field Photographs MP 35.50 – MP 35.75

LDB Zone ID 3, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs MP 35.50 – MP 35.75

LDB Zone ID 4, Photo 002



RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 35.5 to MP 35.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	MD	Enbridge DB
SOTF	START		MDEQ	MD	Enbridge DB
PI	START		MDEQ	MD	Enbridge DB
FLS	START		MDEQ	MD	Enbridge DB
Inundation Model	START		MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

	START	6/10/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/10/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/10/2011 Date
Dave Barcham	Printed Name	

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 35.5 to MP 35.75, Bank or Island: ODB, Segment Length: 0.25 mile

3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/23/11 Date

_____ Printed Name

_____ MDEQ — 5/23/11 Date

_____ Printed Name

_____ Enbridge — 5-23-11 Date

Michael Van Loon Printed Name

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 35.5 to MP 35.75, Unique ID LDB1, Bank ~~LDB1~~ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/9/2011 Date

Tikvail Salaimas Printed Name

[signature] MDEQ — 6/9/11 Date

Ray Spaulding Printed Name

[signature] Enbridge — 6-9-11 Date

Hans Wronka Printed Name

- very thick thorns and brush in some areas
- One zone identified
- Yuma battery died on our way out, track log that stops in middle of nowhere should extend north to river and then to the west where we put in after lunch

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 35.50 to MP 35.75, Bank ~~or~~ Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/11/2011 Date

Marcus Muckman Printed Name

Chris Bauer MDEQ — 5/11/11 Date

Chris Bauer Printed Name

[signature] Enbridge — 5-11-11 Date

Hans Wronka Printed Name

No Oil Observed

Very Small Island Investigated

No Zones Identified

Team 4

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 35.5 to MP 35.75, Unique ID _____, Bank RDB1 and/or Island _____

Segment Length: 0.25 mile Additional Surveying ~~to reflect New Innundation Model~~ of ponded water reassessment

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 6/6/11 Date

Marcus Mueller Printed Name

[signature] MDEQ — 6/6/11 Date

Ray Spaulding Printed Name

[signature] Enbridge — 6-6-11 Date

Hans Wronka Printed Name

Segment 35.75 – 36.00

MP 35.75 to MP 36.00

The LDB of segment 36.00 generally consists of scrub-shrub wetland habitat along the shoreline and within the overbank. Several back channels are present in the overbank. The reassessment identified three linear transects. A patchy distribution of oil film on ponded water was documented at all three locations. The FLS data identified a suspected oil signature on the LDB along the 35.75 segment line approximately 300 feet off of the river. The SORT program did not identify surface oil at this location.

The RDB of segment 36.00 consists of forested wetland swamp along the shoreline and within the overbank. Meander scars and back channels are present in the overbank. The reassessment identified one point and one polygon within this segment. A sporadic and trace distribution of oil film on ponded water and surface oil residue on the ground surface were identified at Point RDB 3 and Polygon 2 RDB, respectively. The film identified at Polygon 2 RDB was believed to be a mixture of biological and petroleum.

Poling of a back channel on the RDB within this segment was completed at three locations to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

No PI observations were identified within this segment.

The attachments provide additional details on this segment.

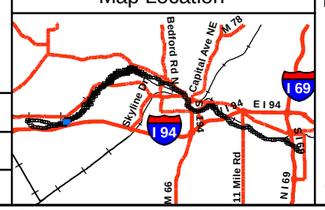
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

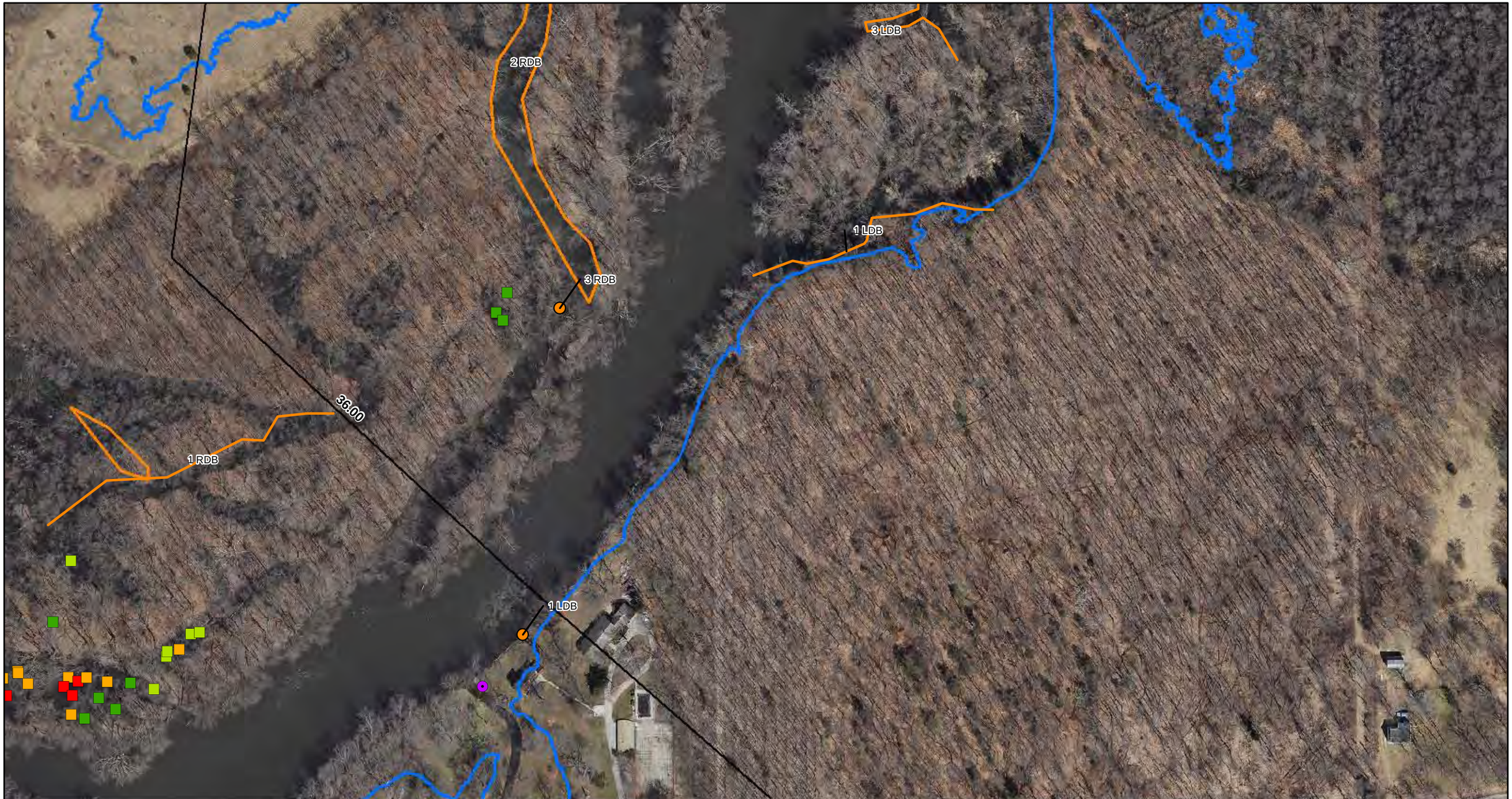
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP35.75-MP36.00 North

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

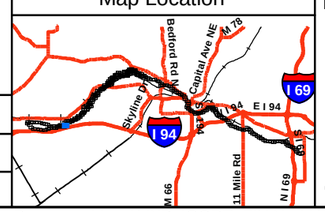
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP35.75-MP36.00 South

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP35.75-MP36.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character											Oil Distribution	Habitat		Comments	START
Mile Marker: 36																						
Source: 2011 Reassessment																						
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems						
Date	**Time**																		**Latitude**	**Longitude**		**MDEQ**
																						Enbridge Team Lead
1		☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑					36.00 ldb segment (includes defined 36.00 ldb polygon) - this polyline defines points of film in open water channel - considered moderate film - 11-50% cover - film both from disturbed sedment and pre-existing at surface - channel widrth 20-60ft.	
6/9/2011																			0.00000	0.00000		
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-scrub/shrub			sheen when sediments disturbed. applies to oxbow channel 10-20 ft wide.	john verlac
																						Zimont, Ben
6/10/2011	10:52																		42.28138	-85.41958		VanLoan, Mike
3	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-scrub/shrub			applies to sheen in flooded oxbow. apprx 20 avg width oxbow.	john verlac
																						Zimont, Ben
6/10/2011	11:34																		42.27983	-85.42008		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 36																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Wetland-swamp (forested)		Hydrocarbon mix bio.	Muccianti, Marcus Bauer, Chris
5/11/2011	16:48																	42.27930	-85.42238		Wronka, Hans
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Inlet to river.	Muccianti, Marcus Bauer, Chris
5/11/2011	17:01																	42.27949	-85.42127		Wronka, Hans

Photo Logs

Field Photographs – MP 35.75 – MP 36.00

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs – MP 35.75 – MP 36.00

LDB Zone ID 2, Photo 002



LDB Zone ID 2, Photo 003



Field Photographs – MP 35.75 – MP 36.00

LDB Zone ID 2, Photo 004



LDB Zone ID 2, Photo 005



Field Photographs – MP 35.75 – MP 36.00

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



Field Photographs – MP 35.75 – MP 36.00

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 35.75 to MP 36.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 35.75 to MP 36.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/11/11 Date

Marcus Morrison Printed Name

_____ MDEQ — 5/11/11 Date

Chris Bauer Printed Name

_____ Enbridge — 5-11-11 Date

Hans Wronka Printed Name

Segment included one island

Points

1 - standing/pooled water needing access with a small boat

3 - Pooled water areas with petroleum/bio film on surface

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 35.75 to MP 36.00, Unique ID 36R1, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/26/11 Date

CHRIS BECKER Printed Name

[signature] MDEQ — 5-26-11 Date

William Keiper Printed Name

[signature] Enbridge — 5/26/11 Date

JOSEPH STANDEN Printed Name

THREE POLING LOCATIONS. NO OIL

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlace _____ START 6/8/11 Date

John Verlace Printed Name

_____ MDEQ 6/8/11 Date

Beth A. Simon Printed Name

_____ Enbridge 6/8/11 Date

Michael Van Loon Printed Name

Completed polygons:

36.25 RDB 1 - no oil

36.25 RDB 2 - no oil

36.25 RDB 3 - no oil

36.00 RDB 1 - no oil

36.25 LDB 1 - no oil

36.25 CC South - no oil

36.50 1 RDB - no oil

36.50 1 LDB - no oil

36.50 3 LDB - no oil

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlac _____ START 06/08/11 Date

John Verlac Printed Name

_____ MDEQ 6/9/11 Date

Ben A. Zimant Printed Name

_____ Enbridge 6-9-11 Date

Michael Van Loan Printed Name

Completed polygons/points:

36.75 RDB 4 (4RDB) - sheen polygon - 1 feature

38.00 RDB LL - no oil

36.00 LDB 1 - no oil

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island: _____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 06/10/2011 Date

John Verlee Printed Name

_____ MDEQ — 6/10/11 Date

Ben A. Zimmt Printed Name

_____ Enbridge — 6-10-11 Date

Michael Van Loan Printed Name

Completed:

Segment 36.00 LDB - 2 features today, 3 total

Polygons 36.50 RDB PP - 2 features

25.00 RDB OO - completed in conjunction w/ Ken Kittle team. Team 5 found no oil.

Segment 36.00 – 36.25

MP 36.00 to MP 36.25

The LDB of segment 36.25 generally consists of forested wetland swamp habitat and areas of maintained lawn and man-made structures in the overbank. The reassessment identified one point within this segment containing an oil film (Point 1 LDB) at the beginning of the segment. One PI data point identified as an Unconfirmed Area of Interest was observed at the entrance of a side channel.

The RDB of segment 36.25 consists of forested wetland swamp along the shoreline and within the overbank. Back channels and meander scars are present in this segment. The reassessment identified one point, one polygon, and one linear transect. Trace surface oil residue and a mix of organic and petroleum film was identified in Linear Transect 1 RDB and Polygon 2 RDB. A trace occurrence of film was also identified at Point 3 RDB.

Poling of the back channels and meander scars on the RDB within this segment was completed at thirty-nine locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

No FLS observations were identified within this segment.

The attachments provide additional details on this segment.

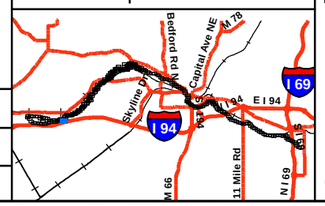
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP36.00-MP36.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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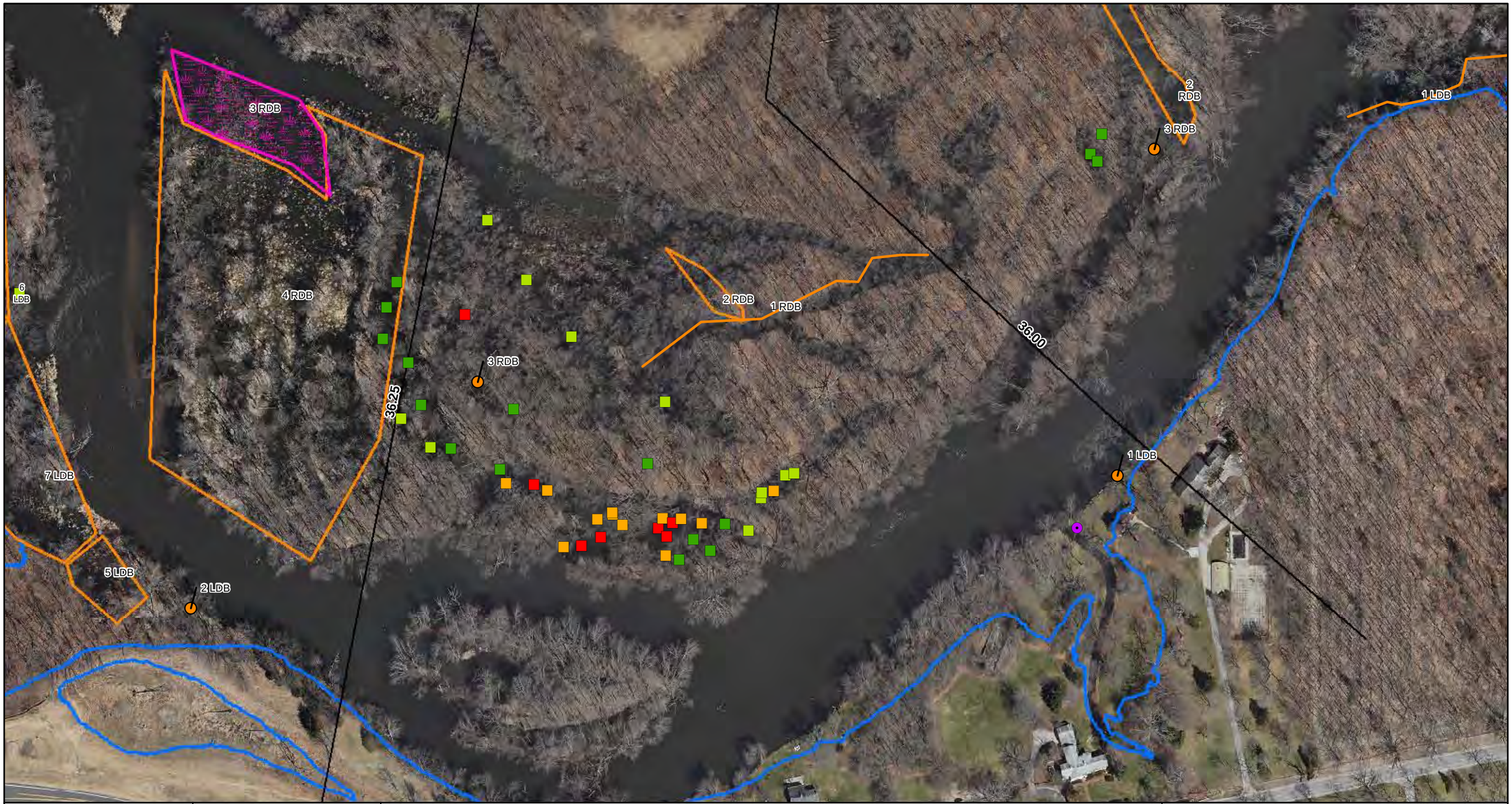
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP36.00-MP36.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank:	LDB	Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker:	36.25																				
Source:	2011 Reassessment																				
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Man-Made Structure			Johnson, Rex
																					Gamble, James (Matt)
5/21/2011	10:17																	42.27805	-85.42147		Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 36.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Pooled water, mixture of hydrocarbin & bio film.	Muccianti, Marcus / Matthews, Rachel
5/12/2011	10:06																	0.00000	0.00000		Wronka, Hans
2	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	T	Wetland-swamp (forested)		Mixture of biological & hydrocarbons.	Muccianti, Marcus / Matthews, Rachel
5/12/2011	12:11																	42.27868	-85.42209		Wronka, Hans
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Wetland-swamp (forested)		sheen rising to top of water after sediment was agitated	Childs, Jessica / Keiper, Bill
5/26/2011	14:11																	42.27842	-85.42524		Standen, John

Photo Logs

Field Photographs – MP 36.00 – 36.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – MP 36.00 – 36.25

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs – MP 36.00 – 36.25

LDB Zone ID 1, Photo 005



RDB Zone ID 1, Photo 001



Field Photographs – MP 36.00 – 36.25

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs – MP 36.00 – 36.25

RDB Zone ID 1, Photo 004



RDB Zone ID 2, Photo 001



Field Photographs – MP 36.00 – 36.25

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs – MP 36.00 – 36.25

RDB Zone ID 3, Photo 001



RDB Zone ID 3, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 36.0 to MP 36.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Bareham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 36.00 to MP 36.25, Unique ID —, Bank L and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson — START — 5-21-11 Date

Rex Johnson — Printed Name

James M. Gamble — MDEQ — 5-21-11 Date

James M. Gamble — Printed Name

Derek Senn — Enbridge — 21May11 Date

Derek Senn — Printed Name

This signoff only covers the portion of the segment documented by the YUMA track log dated 21May11. Additional assessment will be completed once river safety restrictions are lifted.

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 36.00 to MP 36.25, Unique ID ~, Bank L and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5/25/11 Date

Rex Johnson Printed Name

Dana Straube MDEQ 5/25/11 Date

Dana Straube Printed Name

Enbridge 25 May 11 Date

Derek Senn Printed Name

This sign off covers the portion of the segment documented by the YUMA Truck dated 25 May 11. This assessment was performed via airboat due to very steep shorelines. In conjunction with previously completed assessment, this sign off completes this segment

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 36.00 to MP 36.25, Unique ID 36.25 RDB CC, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan _____ START — 5/17/11 Date

THOMAS P. GRAAN Printed Name

Kathleen Fairchild _____ MDEQ — 5-17-11 Date

Kathleen Fair-child Printed Name

Don DeWitt _____ Enbridge — 5/17/11 Date

Don DeWitt Printed Name

Strike points collected by YUMA

Channel poled, but remaining area to be sorted in dryer conditions.

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

CC (J.S.)

Large Pompon

Segment ID: From MP 36.00 to MP 36.25 Unique ID N. Pop. Bank: EOB and/or Island ____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 5/26/11 Date

CHRIS BECKET Printed Name

[signature] MDEQ 5-26-11 Date

William Keiper Printed Name

[signature] Enbridge 5/26/11 Date

JOSEPH STRADER Printed Name

12 POOLING LOCATIONS ALONG ONE POINT.

IN GENERAL OIL CONTENT RANGED FROM

NO OIL TO HEAVY OIL

TEAM 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 36.0 to MP 36.25, Unique ID Summer Polygon, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START 5/26/11 Date

CHRIS BECKER Printed Name

[signature] MDEQ 5-26-11 Date

William Keiper Printed Name

[signature] Enbridge 5/26/11 Date

JOSEPH STANDEN Printed Name

THREE POLING LOCATIONS. NO OIL.

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlace _____ START 6/8/11 Date

John Verlace Printed Name

_____ MDEQ 6/8/11 Date

Beth A. Simon Printed Name

_____ Enbridge 6/8/11 Date

Michael Van Loon Printed Name

Completed polygons:

36.25 RDB 1 - no oil

36.25 RDB 2 - no oil

36.25 RDB 3 - no oil

36.00 RDB 1 - no oil

36.25 LDB 1 - no oil

36.25 CC South - no oil

36.50 1 RDB - no oil

36.50 1 LDB - no oil

36.50 3 LDB - no oil

Segment 36.25 – 36.50

MP 36.25 to MP 36.50

The LDB of segment 36.50 consists of forested wetland swamp along the shoreline and within the overbank. A back channel is present in this segment. The reassessment identified two points and three polygons. Trace of film (sheen) was observed at Points 2 LDB and 4 LDB and Polygon 5 LDB. Sporadic occurrences of film were observed in larger Polygons 6 LDB and 7 LDB, with heavy sheen and globules indentified at Polygon 7 LDB.

Poling of the back channel on the LDB within this segment was completed at six locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

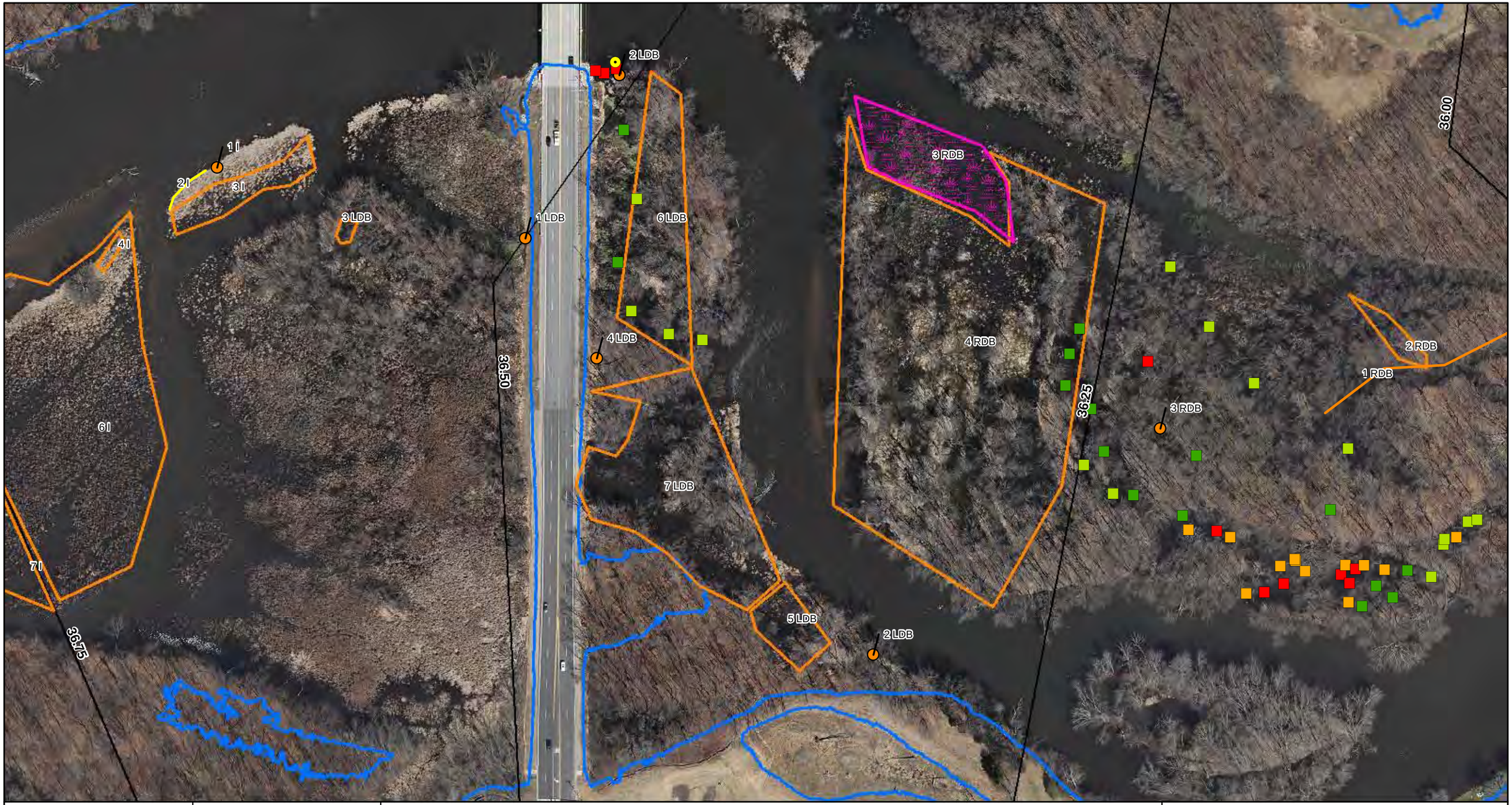
The RDB of segment 36.50 generally consists of emergent/herbaceous wetlands. A back channel is present in this segment. The reassessment identified a large area of patchy film observed on the RDB at Polygon 4 RDB.

Poling of the back channel on the RDB within this segment was completed at four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

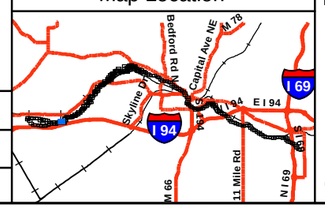
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP36.25-MP36.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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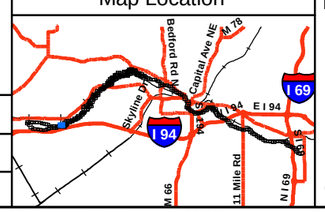
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP36.25-MP36.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB

Mile Marker: 36.5

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
2	Shoreline and Overbank	5/21/2011	11:55	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.27742	-85.42694	small sheen on wet sediment	Johnson, Rex Gamble, James (Matt) Senn, Derreck
4	Overbank	5/27/2011	10:50	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.27871	-85.42858	first 5 photos are associated with another feature we started delineating. only last two photos are associated with this feature.	Johnson, Rex Strouse, Dana Senn, Derreck
5	Overbank	5/27/2011	12:25	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.28661	-85.41253	isolated sheen.	Johnson, Rex Strouse, Dana Senn, Derreck
6	Overbank	5/27/2011	12:29	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.28661	-85.41253		Johnson, Rex Strouse, Dana Senn, Derreck
7	Overbank	5/27/2011	12:31	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-swamp (forested)	42.28661	-85.41253	observed areas of heavy sheen and many globules when sediment was disturbed. did not walk the entire polygon due to water depth and to prevent further production of sheen.	Johnson, Rex Strouse, Dana Senn, Derreck

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 36.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
2	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		no oil in segment	Childs, Jessica
																					Keiper, Bill
5/21/2011	11:54																	42.28092	-85.42732		Standen, John
4	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-emergent/herbaceous		applies to porion of exiting 36.50 rdb pp polygon. all inundateed areas exhibit sheen categorized as light with moderate interspersed.	valdec, john
																					Zimont, Ben
6/10/2011	13:46																	42.28556	-85.41222		VanLoan, Mike

Photo Logs

Field Photographs – MP 36.25 – 36.50

LDB Zone ID 2, Photo 001



LDB Zone ID 4, Photo 001



Field Photographs – MP 36.25 – 36.50

LDB Zone ID 4, Photo 002



LDB Zone ID 5, Photo 001



Field Photographs – MP 36.25 – 36.50

LDB Zone ID 5, Photo 002



LDB Zone ID 5, Photo 003



Field Photographs – MP 36.25 – 36.50

LDB Zone ID 5, Photo 004



LDB Zone ID 5, Photo 005



Field Photographs – MP 36.25 – 36.50

LDB Zone ID 6, Photo 001



LDB Zone ID 7, Photo 001



Field Photographs – MP 36.25 – 36.50

RDB Zone ID 4, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 36.25 to MP 36.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/13/2014 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2014 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 36.25 to MP 36.50, Unique ID 1, Bank L and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5-21-11 Date

Rex Johnson Printed Name

James M. Gamble MDEQ 5-21-11 Date

James M. Gamble Printed Name

Enbridge 21 May 11 Date

Derek Serr Printed Name

This sign off covers the portion of the segment documented by the YUMA track by date 21 May 11. Additional assessment will be considered once river safety restrictions are lifted.

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 36.25 to MP 36.58, Unique ID —, Bank L and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Rex Johnson START 5/27/11 Date

Rex Johnson Printed Name

Dana Strouse MDEQ 5/27/11 Date

Dana Strouse Printed Name

Enbridge 27 May 11 Date

Derek Senn Printed Name

This sign off covers the portion of the segment assessed on 26 May 11 and 27 May 11, as documented by the RUNA tracklogs. This sign off completes the segment. Portions of this segment could not be walked due to deep water and very soft sediment. These areas were assessed as best as could be done from the perimeter. Portions of this segment may dry out enough to be further assessed at a later date.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 36.25 to MP 36.50, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

CHRIS BECKETT START 5/21/11 Date

Printed Name

William Keipen MDEQ 5/21/11 Date

Printed Name

JOE STAUDER Enbridge 5/21/11 Date

Printed Name

WAS NOT ABLE TO REASSESS SEGMENT UPSTREAM OF PINK POLYGON BECAUSE OF INUNDATION FROM RIVER.

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlace _____ START 6/8/11 Date

John Verlace Printed Name

_____ MDEQ 6/8/11 Date

Beth A. Simon Printed Name

_____ Enbridge 6/8/11 Date

Michael Van Loon Printed Name

Completed polygons:

36.25 RDB 1 - no oil

36.25 RDB 2 - no oil

36.25 RDB 3 - no oil

36.00 RDB 1 - no oil

36.25 LDB 1 - no oil

36.25 CC South - no oil

36.50 1 RDB - no oil

36.50 1 LDB - no oil

36.50 3 LDB - no oil

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island: _____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 06/10/2011 Date

John Verlee Printed Name

_____ MDEQ — 6/10/11 Date

Ben A. Zimmt Printed Name

_____ Enbridge — 6-10-11 Date

Michael Van Loan Printed Name

Completed:

Segment 36.00 LDB - 2 features today, 3 total

Polygons 36.50 RDB PP - 2 features

25.00 RDB OO - completed in conjunction w/ Ken Kittle team. Team 5 found no oil.

Segment 36.50 – 36.75

MP 36.50 to MP 36.75

The LDB of segment 36.75 is bisected by South 35th Street and consists of emergent/herbaceous wetland habitat along the shoreline and overbank. The reassessment identified two points and one polygon within this segment containing trace and sporadic areas of film. This film was noted to possibly be coming from the adjacent road drainage culvert at Point 1 LDB. A PI observation noted as Inconclusive was identified at Point 2 LDB.

Poling was conducted at three locations on the LDB within the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

The RDB of segment 36.75 generally consists of emergent/herbaceous wetlands along the shoreline and forested wetland swamp and low vegetated banks on the overbank. The reassessment identified oil occurrences at two points and one polygon. Trace and sporadic areas of film were observed at all three locations, and surface oil residue was observed at Point 2 RDB.

Poling was conducted at three locations near the road bank at Point 1 RDB within the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

Two islands were identified within this segment consisting of emergent/herbaceous wetlands and low vegetative bank habitat. One point, one polygon, and one linear transect were identified on the smaller island. Areas of film were observed at Point 1 I and Polygon 3 I, and trace areas of coated debris at noted in Linear Transect 2 I. A second, larger island straddles the 36.75 segment line. Polygon 6 I encompasses half of the island with trace areas of film (sheen) observed around the island, and film noted on water at the north end (Polygon 4 I).

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP36.50-MP36.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP36.50-MP36.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character														
Mile Marker: 36.75																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		potentially from adjacent road. dranage culvert also near by.	Muccianti, Marcus Sarkipato, Ernie
5/26/2011	10:32																	42.27922	-85.42900		VanLoan, Mike
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		at edge of river channel. light sheen and few globuals on surface of water when sediment disturbed by foot traffic.	Muccianti, Marcus Sarkipato, Ernie
5/26/2011	14:46																	42.27995	-85.42846		VanLoan, Mike
3	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		sheen at surface of standing water when sediment disturbed.	Muccianti, Marcus Sarkipato, Ernie
5/26/2011	15:39																	42.27930	-85.43009		VanLoan, Mike

2011 Reassessment

Bank: RDB

Mile Marker: 36.75

Source: 2011 Reassessment

Oil Zone ID	Feature	Date	Time	Oil Thickness: Pooled Oil	Cover	Coat	Stain	Film	Oil Character: Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat	Latitude	Longitude	Comments	START / MDEQ / Enbridge Team Lead
1	Overbank	5/21/2011	12:59	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-swamp (forested)	42.28085	-85.42830	pooled water in overbank close to roadbank	Childs, Jessica / Keiper, Bill / Standen, John
2	Overbank	5/21/2011	13:36	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S	Low Vegetated Bank	42.28049	-85.42932		Childs, Jessica / Keiper, Bill / Standen, John
3	Shoreline	5/21/2011	14:17	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Other (comments)	42.27965	-85.43296	identified small back channel or cove off main river that was walked around but not added to gps data because it is part of the main river	Childs, Jessica / Keiper, Bill / Standen, John
6	Shoreline	6/9/2011	10:12	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	P	Wetland-emergent/herbaceous	42.28042	-85.42991	applies to 36.75 rdb4 polygon. open water film observed after disturbing sediment. moderate sheen obseeved near river.	john valdec / Zimont, Ben / VanLoan, Mike

2011 Reassessment

Bank: I		Oil Thickness					Oil Character																
Mile Marker: 36.75																							
Source: 2011 Reassessment																							
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
																					Enbridge Team Lead
1	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN ON POOLED WATER	None Present
																					Zimont, Ben
5/25/2011	10:23																	42.27952	-85.43083		Juntilla, John
2	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Low Vegetated Bank		TAR ON DEAD REEDS	Wagner, Greg
																					Matthews, Rachel
5/26/2011	09:25																	42.27934	-85.43111		Juntilla, John
3	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		LITE SHEEN ON WATER FLOWING OVER LOWER AREAS OF ISLAND	Wagner, Greg
																					Matthews, Rachel
5/26/2011	09:42																	42.27966	-85.43047		Juntilla, John
4	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN ON WATER OVER ISLAND	Wagner, Greg
																					Matthews, Rachel
5/26/2011	10:12																	42.27912	-85.43144		Juntilla, John
6	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/27/2011	11:25																	42.27766	-85.43269		Juntilla, John

Photo Logs

Field Photographs – MP 36.50 – 36.75

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – MP 36.50 – 36.75

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs – MP 36.50 – 36.75

LDB Zone ID 3, Photo 001



LDB Zone ID 3, Photo 002



Field Photographs – MP 36.50 – 36.75

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs – MP 36.50 – 36.75

RDB Zone ID 1, Photo 003



RDB Zone ID 2, Photo 001



Field Photographs – MP 36.50 – 36.75

RDB Zone ID 2, Photo 002



RDB Zone ID 2, Photo 003



Field Photographs – MP 36.50 – 36.75

I Zone ID 1, Photo 001



I Zone ID 1, Photo 002



Field Photographs – MP 36.50 – 36.75

I Zone ID 2, Photo 001



I Zone ID 2, Photo 002



Field Photographs – MP 36.50 – 36.75

I Zone ID 3, Photo 001



I Zone ID 3, Photo 002



Field Photographs – MP 36.50 – 36.75

I Zone ID 3, Photo 003



I Zone ID 4, Photo 001



Field Photographs – MP 36.50 – 36.75

I Zone ID 4, Photo 002



I Zone ID 4, Photo 003



Field Photographs – MP 36.50 – 36.75

I Zone ID 6, Photo 001



I Zone ID 6, Photo 002



Field Photographs – MP 36.50 – 36.75

I Zone ID 6, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 36.5 to MP 36.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	[signature]	Enbridge DB
SOTF	START	[signature]	MDEQ	[signature]	Enbridge DB
PI	START	[signature]	MDEQ	[signature]	Enbridge DB
FLS	START	[signature]	MDEQ	[signature]	Enbridge DB
Inundation Model	START	[signature]	MDEQ	[signature]	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/10/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/10/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/10/2011 Date

Dave Barker Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 36.5 to MP 36.75, Bank or Island: LDB, Segment Length: 0.25 mile

3 features

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/26/11 Date

Marcus Mulcahy Printed Name

[signature] MDEQ — 5/26/11 Date

ERNIE SARKIPATO Printed Name

[signature] Enbridge — 5-26-11 Date

Michael Van Loan Printed Name

Unable to access area of deep marsh too deep to access by foot and to vegetated to access by boat.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 36.5 to MP 36.75, Bank or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 05/21/11 Date

CHRIS BECKETT Printed Name

[signature] MDEQ 5/21/11 Date

William Keiper Printed Name

[signature] Enbridge 5/21/11 Date

JOSEPH STANDREW Printed Name

IDENTIFIED ONE POLY AND ONE POINT. ALSO IDENTIFIED SHORT BACK CHANNEL OR COVE THAT WE WALKED AROUND BUT DID NOT MARK ON GPS. BECAUSE IT WAS PART OF RIVER.

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlac _____ START 06/08/11 Date

John Verlac Printed Name

_____ MDEQ 6/9/11 Date

Ben A. Zimant Printed Name

_____ Enbridge 6-9-11 Date

Michael Van Loan Printed Name

Completed polygons/points:

36.75 RDB 4 (4RDB) - sheen polygon - 1 feature

38.00 RDB LL - no oil

36.00 LDB 1 - no oil

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 36.50 to MP 36.75, Bank or Island: 2 islands, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 5/27/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ 5-27-2011 Date

Rachel Matthews Printed Name

[signature] Enbridge 5-27-11 Date

John W. Jurtilla Printed Name

3 features collected on May 25th / May 26th

1 feature collected on May 27th

previous poling appears to be accurate. The middle of the big island (#4) is more impacted than poling indicated.

all islands are inundated, may need to be reassessed in dryer conditions

Segment 36.75 – 37.00

MP 36.75 to MP 37.00

The LDB of segment 37.00 consists of forested wetland swamp habitat and maintained land. A pond is present in the overbank. The reassessment did not identify any evidence of surface oil within the LDB of this segment.

Poling of the pond on the LDB within this segment was completed at seven locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 37.00 consists of forested wetland swamp habitat with an area of pooled water. The reassessment did not identify any evidence of surface oil within the RDB of this segment.

Poling of the pooled water on the RDB within this segment was completed at six locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

Seven islands were described within this segment consisting of emergent/herbaceous wetlands habitat. All islands were characterized by polygons described within the segment containing trace distributions of film (sheen) over the islands.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

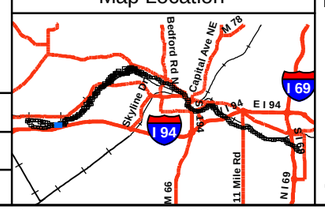
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP36.75-MP37.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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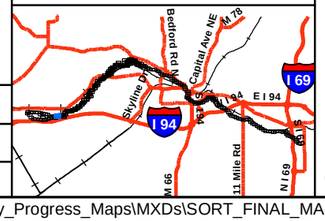
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP36.75-MP37.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 37																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Other (comments)		pooled water adjacent to river no oil present in pooled water	**Enbridge Team Lead** Childs, Jessica Keiper, Bill
5/21/2011	15:39																	42.27851	-85.43655		Standen, John

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 37																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVERAND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg Matthews, Rachel
5/27/2011	09:31																	42.27644	-85.43796		Juntilla, John
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg Matthews, Rachel
5/27/2011	10:06																	42.27609	-85.43604		Juntilla, John
3	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg Matthews, Rachel
5/27/2011	10:22																	42.27672	-85.43625		Juntilla, John
4	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg Matthews, Rachel
5/27/2011	10:29																	42.27689	-85.43631		Juntilla, John
5	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg Matthews, Rachel
5/27/2011	10:59																	42.27791	-85.43529		Juntilla, John

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 37																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
6	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/27/2011	11:12																	42.27768	-85.43501		Juntilla, John
7	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/27/2011	11:22																	42.27858	-85.43115		Juntilla, John

Photo Logs

Field Photographs – MP 36.75 – 37.00

RDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 002



Field Photographs – MP 36.75 – 37.00

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs – MP 36.75 – 37.00

I Zone ID 2, Photo 002



I Zone ID 2, Photo 003



Field Photographs – MP 36.75 – 37.00

I Zone ID 3, Photo 001



I Zone ID 3, Photo 002



Field Photographs – MP 36.75 – 37.00

I Zone ID 4, Photo 001



I Zone ID 4, Photo 002



Field Photographs – MP 36.75 – 37.00

I Zone ID 5, Photo 001



I Zone ID 5, Photo 002



Field Photographs – MP 36.75 – 37.00

I Zone ID 5, Photo 003



I Zone ID 5, Photo 004



Field Photographs – MP 36.75 – 37.00

I Zone ID 6, Photo 001



I Zone ID 6, Photo 002



Field Photographs – MP 36.75 – 37.00

I Zone ID 6, Photo 003



I Zone ID 6, Photo 004



Field Photographs – MP 36.75 – 37.00

I Zone ID 7, Photo 001



I Zone ID 7, Photo 002



Field Photographs – MP 36.75 – 37.00

I Zone ID 7, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 36.75 to MP 37.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MD	Enbridge DB
SOTF	START	[initials]	MDEQ	MD	Enbridge DB
PI	START	[initials]	MDEQ	MD	Enbridge DB
FLS	START	[initials]	MDEQ	MD	Enbridge DB
Inundation Model	START	[initials]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/10/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/10/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/10/2011 Date

Dave Barham Printed Name

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 36.75 to MP 37.0, Bank or Island: LDB, Segment Length: 0.25 mile

7 features (polling locations)

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 5/27/11 Date

Thomas McCann Printed Name

_____ MDEQ 5/27/11 Date

Chris Verdkamp Printed Name

_____ Enbridge 5-27-11 Date

Michael Van Loan Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 36.75 to MP 37.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 05/21/11 Date

CHRIS BECKETT Printed Name

_____ MDEQ 5/21/11 Date

William Keiper Printed Name

_____ Enbridge 5/21/11 Date

JOSEPH STANDER Printed Name

NO OIL. ONE INACCESSIBLE AREA THAT WAS OUTLINED

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 36.75 to MP 37.00, Unique ID RDB, Bank: RDB and/or Island _____.
Segment Length: 0.25 mile

One polygon reassessed.

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START _____ Date

Jean Kane Printed Name

_____ MDEQ 5/24/11 Date

Ryan D. Blazic Printed Name

David Strand Enbridge 5/24/11 Date

_____ Printed Name

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 36.75 to MP 37.00, Bank or Island: 7 islands, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/27/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 5-27-2011 Date

Rachel Matthews Printed Name

[signature] Enbridge — 5-27-11 Date

John W. Juntilla Printed Name

7 features collected all islands assessed from the boat.

all islands are ~~flat~~ inundated, and may need to be reassessed in dryer conditions

Segment 37.00 – 37.25

MP 37.00 to MP 37.25

The LDB of segment 37.25 generally consists of forested wetland swamp. One linear transect, encompassing the entire LDB shoreline, was described within this segment as containing sporadic areas of coated debris and surface oil residue.

The RDB of segment 37.25 generally consists of forested wetland swamp habitat with a back channel present in this segment. The reassessment did not identify any evidence of surface oil on the RDB in the segment.

Poling of the back channel on the RDB within this segment was completed at four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

Twenty islands were identified within this segment consisting of emergent/herbaceous wetland habitat with areas of low vegetative banks. The reassessment identified twenty polygons, one covering each island, with trace distributions of film (sheen) identified on all islands with the exception of Polygon 14, which indicated sporadic occurrences of film.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP37.00-MP37.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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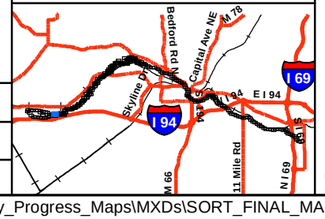
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP37.00-MP37.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 37.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐	S	Wetland-swamp (forested)		Surface water sheen and globules observed	Kane, Sean Blazic, Ryan
5/24/2011	15:30																	42.27371	-85.44154		Strand, Dave

2011 Reassessment

Bank: I		Oil Thickness					Oil Character														
Mile Marker: 37.25																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN ON WATER OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg / Matthews, Rachel
5/26/2011	13:27																	42.27569	-85.44169		Juntilla, John
10	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		SHEEN OBSERVED AROUND AND OVER ISLAND, OBSERVATION BY BOAT	Wagner, Greg / Matthews, Rachel
5/26/2011	14:42																	42.27560	-85.43799		Juntilla, John
11	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN AROUND AND OVER ISLAND, OBSERVATION BY BOAT	Wagner, Greg / Matthews, Rachel
5/26/2011	15:42																	42.27502	-85.43833		Juntilla, John
12	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg / Matthews, Rachel
5/26/2011	15:47																	42.27403	-85.43828		Juntilla, John
13	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN AROUND AND OVER ISLAND, OBSERVATION BY BOAT	Wagner, Greg / Matthews, Rachel
5/26/2011	16:00																	42.27402	-85.43823		Juntilla, John

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 37.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
14	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous		SHEEN ON WATER WHERE ISLAND LOCATED, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	16:01																	42.27402	-85.43828		Juntilla, John
15	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	16:16																	42.27506	-85.43769		Juntilla, John
16	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	16:27																	42.27647	-85.43899		Juntilla, John
17	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	16:35																	42.27697	-85.43769		Juntilla, John
18	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	16:50																	42.27703	-85.43826		Juntilla, John

2011 Reassessment

Bank: I	Oil Thickness					Oil Character												Habitat		Comments	START
Mile Marker: 37.25																					MDEQ
Source: 2011 Reassessment																					
Oil Zone ID / **Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution					
Date / **Time**																	**Latitude**	**Longitude**		**Enbridge Team Lead**
19 / Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																				Matthews, Rachel
5/27/2011 / 09:28																	42.27644	-85.43795		Juntilla, John
2 / Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																				Matthews, Rachel
5/26/2011 / 13:31																	42.27616	-85.44142		Juntilla, John
20 / Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																				Matthews, Rachel
5/27/2011 / 10:03																	42.27608	-85.43604		Juntilla, John
3 / Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																				Matthews, Rachel
5/26/2011 / 13:36																	42.27639	-85.44083		Juntilla, John
4 / Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																				Matthews, Rachel
5/26/2011 / 13:45																	42.27605	-85.44020		Juntilla, John

2011 Reassessment

Bank: I		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 37.25																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
5	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		ISLANDS MOSTLY SUBMERGED, MINIMAL SHEEN OBSERVED IN AREA, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	13:57																	42.27738	-85.44093		Juntilla, John
6	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		SHEEN OVER AND AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	14:06																	42.27702	-85.43980		Juntilla, John
7	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous		TRACE SHEEN NOTED AROUND ISLAND, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	14:14																	42.27557	-85.43992		Juntilla, John
8	Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		TRACE SHEEN, ISLANDS MOSTLY SUBMERGED, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	14:20																	42.27556	-85.44044		Juntilla, John
9	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Low Vegetated Bank		SHEEN OBSERVED IN WATER AROUND AND OVER ISLANDS, OVER HALF SUBMERGED, OBSERVATION BY BOAT	Wagner, Greg
																					Matthews, Rachel
5/26/2011	14:34																	42.27563	-85.43851		Juntilla, John

Photo Logs

Field Photographs – MP 37.00 – 37.25

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – MP 37.00 – 37.25

LDB Zone ID 1, Photo 003



LDB Zone ID 1, Photo 004



Field Photographs – MP 37.00 – 37.25

LDB Zone ID 1, Photo 005



I Zone ID 1, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 1, Photo 002



I Zone ID 2, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 2, Photo 002



I Zone ID 2, Photo 003



Field Photographs – MP 37.00 – 37.25

I Zone ID 3, Photo 001



I Zone ID 3, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 4, Photo 001



I Zone ID 4, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 4, Photo 003



I Zone ID 5, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 5, Photo 002



I Zone ID 5, Photo 003



Field Photographs – MP 37.00 – 37.25

I Zone ID 5, Photo 004



I Zone ID 5, Photo 005



Field Photographs – MP 37.00 – 37.25

I Zone ID 6, Photo 001



I Zone ID 6, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 6, Photo 003



I Zone ID 7, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 7, Photo 002



I Zone ID 8, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 8, Photo 002



I Zone ID 8, Photo 003



Field Photographs – MP 37.00 – 37.25

I Zone ID 9, Photo 001



I Zone ID 9, Photo 002

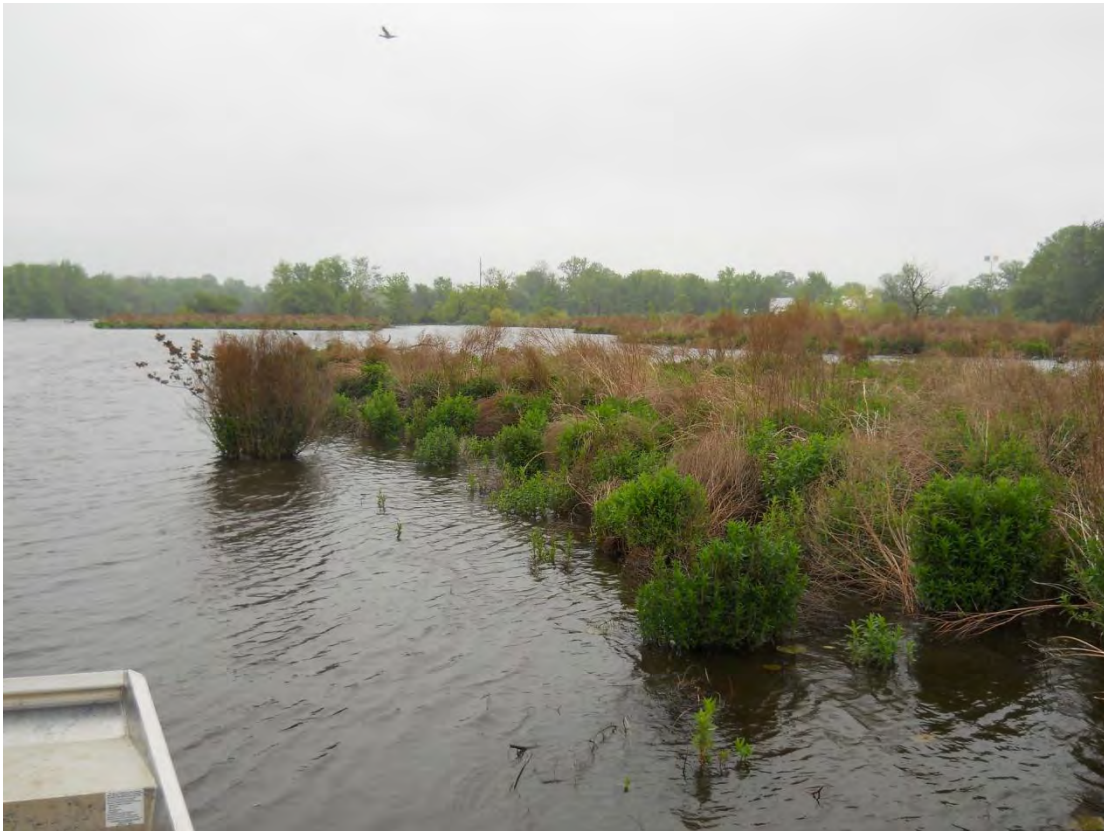


Field Photographs – MP 37.00 – 37.25

I Zone ID 9, Photo 003



I Zone ID 9, Photo 004



Field Photographs – MP 37.00 – 37.25

I Zone ID 9, Photo 005



I Zone ID 9, Photo 006



Field Photographs – MP 37.00 – 37.25

I Zone ID 10, Photo 001



I Zone ID 10, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 10, Photo 003



I Zone ID 10, Photo 004



Field Photographs – MP 37.00 – 37.25

I Zone ID 10, Photo 005



I Zone ID 10, Photo 006



Field Photographs – MP 37.00 – 37.25

I Zone ID 10, Photo 007



I Zone ID 11, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 11, Photo 002



I Zone ID 11, Photo 003



Field Photographs – MP 37.00 – 37.25

I Zone ID 12, Photo 001



I Zone ID 12, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 12, Photo 003



I Zone ID 12, Photo 004



Field Photographs – MP 37.00 – 37.25

I Zone ID 13, Photo 001



I Zone ID 13, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 13, Photo 003



I Zone ID 14, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 15, Photo 001



I Zone ID 15, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 15, Photo 003



I Zone ID 15, Photo 004



Field Photographs – MP 37.00 – 37.25

I Zone ID 15, Photo 005



I Zone ID 15, Photo 006



Field Photographs – MP 37.00 – 37.25

I Zone ID 16, Photo 001



I Zone ID 16, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 16, Photo 003



I Zone ID 17, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 17, Photo 002



I Zone ID 17, Photo 003



Field Photographs – MP 37.00 – 37.25

I Zone ID 17, Photo 004



I Zone ID 18, Photo 001



Field Photographs – MP 37.00 – 37.25

I Zone ID 18, Photo 002



I Zone ID 18, Photo 003



Field Photographs – MP 37.00 – 37.25

I Zone ID 18, Photo 004



I Zone ID 18, Photo 005



Field Photographs – MP 37.00 – 37.25

I Zone ID 19, Photo 001



I Zone ID 19, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 20, Photo 001



I Zone ID 20, Photo 002



Field Photographs – MP 37.00 – 37.25

I Zone ID 20, Photo 003



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 37.0 to MP 37.25, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JP	MDEQ	MD	Enbridge DB
SOTF	START	JP	MDEQ	MD	Enbridge DB
PI	START	JP	MDEQ	MD	Enbridge DB
FLS	START	JP	MDEQ	MD	Enbridge DB
Inundation Model	START	JP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JP Powell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/13/11 Date

Michelle DeLong — Printed Name

Dave Bach — Enbridge — 6/13/2011 Date

Dave Bacheny — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.00 to MP 37.25, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team. w/ EXCEPTION OF POLYGONS RDB 1, 2, 3 FOR FOLLOW UP.

[signature] START 5/21/11 Date

ERIK HIDWIN Printed Name

[signature] MDEQ 5/21/11 Date

Christopher Clampitt Printed Name

[signature] Enbridge 5/21/11 Date

KEN KUTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.00 to MP 37.25, Unique ID _____, Bank: ROB and/or Island _____.
Segment Length: 0.25 mile

Assessed 3 polygons

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5-24-11 Date

Sean Kane Printed Name

_____ MDEQ 5/24/11 Date

Ryan P. Blazic Printed Name

David Strand Enbridge 5/24/11 Date

David Strand Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.00 to MP 37.25, Bank or Island: LDB, Segment Length: 0.25 mile

Performed assessment from the airboat

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-24-11	Date
Deana Kane	Printed Name		
[signature]	MDEQ	5/24/11	Date
Ryan P. Blazic	Printed Name		
David Straud	Enbridge	5/24/11	Date
David Straud	Printed Name		

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.00 to MP 37.25, Bank or Island: 20 islands, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/27/2011 Date

Gregory D. Wagner Printed Name

Rachel Matthews MDEQ — 5-27-2011 Date

[signature] Printed Name

[signature] Enbridge — 5-27-11 Date

John W. Juntilla Printed Name

All islands were assessed from the boat.
Islands were inundated with water.
Islands should be accessed during dryer conditions.

5-26-11 (18 polygons) and 5-27-11 (2 Polygons)

Segment 37.25 – 37.50

MP 37.25 to MP 37.50

The LDB of segment 37.50 generally consists of low vegetative bank habitat with rip rap at the beginning of the segment. The reassessment identified one point and two linear transects. Trace areas of tar coated and stained debris and/or trunks and stems were identified at all locations with tar observed on rocks at Linear Transects 2 LDB and 3 LDB.

The RDB of segment 37.50 consists of low vegetated bank. A back channel is present in this segment. The reassessment did not identify any surface oil on the RDB of the segment. The FLS data identified a suspected oil signature approximately 75 feet east of the MP 37.50 segment line on the RDB. The SORT program did not identify surface oil at this location.

Poling of the back channel on the RDB within this segment was completed at four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

Five islands were identified within this segment consisting of emergent/herbaceous wetlands along the shoreline and within the overbank. The reassessment identified five polygons, one on each island, identified as containing trace areas of film. Trace areas of stained debris were also observed at Polygon 1 I.

No PI observations were identified within this segment.

The attachments provide additional details on this segment.

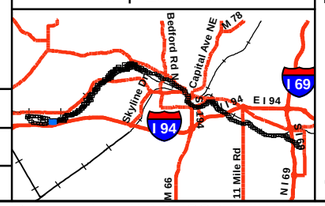
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

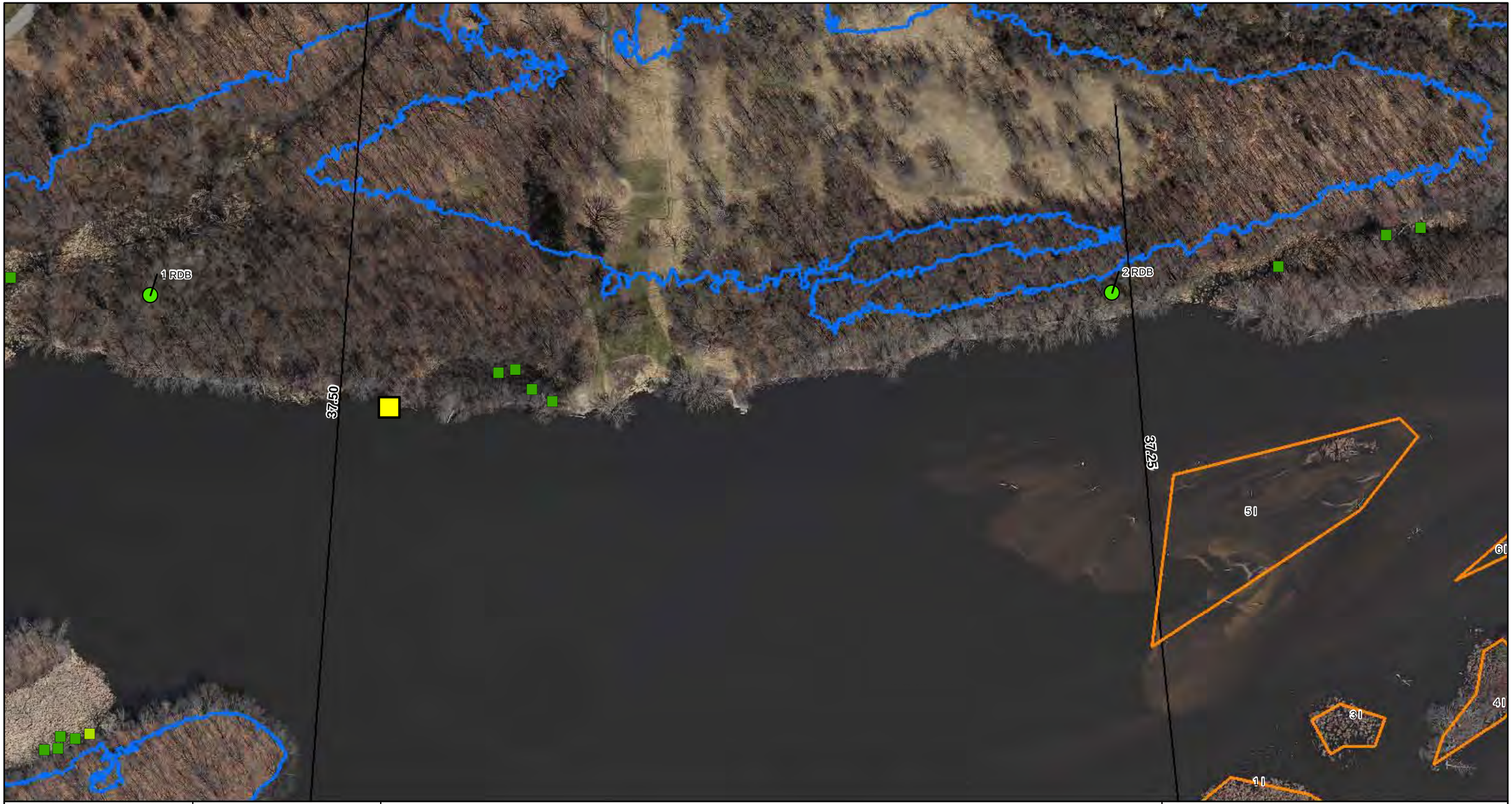
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP37.25-MP37.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE		
Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP37.25-MP37.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 37.5																					MDEQ
Source: 2011 Reassessment		Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
Oil Zone ID	**Feature**																				
Date	**Time**																				
1	Shoreline	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR ON STEMMS AND DEBRI	Wagner, Greg
																					Matthews, Rachel
5/24/2011	14:54																	42.27361	-85.44147		Hehir, Nate
2	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	T	Low Vegetated Bank		TAR AND STAINING ON ROCKS STEMMS AND DEBRI	Wagner, Greg
																					Matthews, Rachel
5/24/2011	15:01																	42.27362	-85.44158		Hehir, Nate
3	Shoreline	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Rip Rap		TAR ON ROCKS	Wagner, Greg
																					Matthews, Rachel
5/24/2011	15:09																	42.27379	-85.44195		Hehir, Nate

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 37.5																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Low Vegetated Bank		no oil point	Hadwin, Eric
																					Clampitt, Chris
5/21/2011	14:50																	42.27815	-85.44215		Kytta, Ken

Enbridge Team Lead

2011 Reassessment

Bank: I		Oil Thickness					Oil Character												
Mile Marker: 37.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	T	Wetland-emergent/herbaceous	OBSERVED BBY BOAT, SHEEN ON WATER AND STAINED DEBRI	Wagner, Greg Matthews, Rachel
5/26/2011	11:45																	42.27427 / -85.44266		Juntilla, John
2	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	SHEEN AROUND AND OVER ISLAND, OBSERVED BY BOAT	Wagner, Greg Matthews, Rachel
5/26/2011	11:59																	42.27464 / -85.44242		Juntilla, John
3	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	SHEEN AROUND AND OVER ISLAND, OBSERVED BY BOAT	Wagner, Greg Matthews, Rachel
5/26/2011	12:02																	42.27464 / -85.44242		Juntilla, John
4	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	SHEEN OVER ISLAND, OBSERVATION MADE BY BOAT	Wagner, Greg Matthews, Rachel
5/26/2011	12:13																	42.27552 / -85.44197		Juntilla, John
5	Shoreline and Overbank	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	T	Wetland-emergent/herbaceous	SHEEN OVER ISLAND, OBSERVATION BY BOAT	Wagner, Greg Matthews, Rachel
5/26/2011	12:20																	42.27552 / -85.44198		Juntilla, John

Photo Logs

Field Photographs – MP 37.25 – 37.50

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – MP 37.25 – 37.50

LDB Zone ID 2, Photo 001



LDB Zone ID 3, Photo 001



Field Photographs – MP 37.25 – 37.50

I Zone ID 1, Photo 001



I Zone ID 2, Photo 001



Field Photographs – MP 37.25 – 37.50

I Zone ID 2, Photo 002



I Zone ID 3, Photo 001



Field Photographs – MP 37.25 – 37.50

I Zone ID 3, Photo 002



I Zone ID 4, Photo 001



Field Photographs – MP 37.25 – 37.50

I Zone ID 4, Photo 002



I Zone ID 5, Photo 001



Field Photographs – MP 37.25 – 37.50

I Zone ID 5, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 37.25 to MP 37.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MD	Enbridge DB
SOTF	START	[signature]	MDEQ	MD	Enbridge DB
PI	START	[signature]	MDEQ	MD	Enbridge DB
FLS	START	[signature]	MDEQ	MD	Enbridge DB
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/15/2011 Date

John Powell Printed Name

[signature] MDEQ — 6/15/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/15/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Team E

Segment ID: From MP 37.25 to MP 37.50, Bank or Island: LDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 5/24/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ 5-24-2011 Date

Rachel Matthews Printed Name

[signature] Enbridge 5/24/11 Date

Nate Hehir Printed Name

- Completed partial assessment of shoreline from boat.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.25 to MP 37.50, Bank or Island: 37.50 RoB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

W/ EXCEPTION OF ROB1 WHICH WAS POLYGONED AND POLED W/ SEPARATE SIGN OFF.

[signature] START — 5/21/11 Date

ERIC HADWIN Printed Name

[signature] MDEQ — 5/21/11 Date

Christopher Clampitt Printed Name

[signature] Enbridge — 5/21/11 Date

KEN KYTTA Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.25 to MP 37.50, Unique ID 37.50 ROW, Bank:_____ and/or Island _____.
Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/21/11 Date

Erik Thomson Printed Name

_____ MDEQ 5/21/11 Date

Christopher Clampitt Printed Name

_____ Enbridge 5/21/11 Date

KEN KYTTA Printed Name

_____ TETRA TECH 5/21/11

CORY GRAVES

Team 8

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.25 to MP 37.50, Bank or (Island) 5 islands, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/26/2011 Date

Gregory D. Wagner Printed Name

[signature] MDEQ — 5-26-11 Date

Rachel Matthews Printed Name

[signature] Enbridge — 5-26-11 Date

John W. Juntilla Printed Name

All 5 islands observed from the boat.
previous poling performed appears to be adequate
Islands should also be reassessed in dryer conditions

Segment 37.50 – 37.75

MP 37.50 to MP 37.75

The LDB of segment 37.75 generally consists of forested wetland swamp habitat. Two islands are located along the LDB and area of ponded water is located in the overbank of the LDB. The reassessment identified one point on the LDB with broken areas of an oil film, possibly a mixture of biological and petroleum, observed at the upstream end at Point 1 LDB. One PI observation identified as an Unconfirmed Area of Interest was noted on the LDB adjacent to one of the islands. The SORT program did not identify surface oil at this location.

Poling was conducted at twelve locations within the area of pooled water and between an island and the LDB in the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

The RDB of segment 37.75 generally consists of low vegetated bank. A tributary that flows to the river is present on the RDB. The reassessment did not identify any evidence of surface oil on the RDB in this segment.

Poling was conducted at twelve locations in the tributary on the RDB within the segment to fully assess the overbank. The detailed results of the poling activities will be completed under a separate cover.

The FLS did not detect any oil signatures in this segment.

The attachments provide additional details on this segment.

Segment Figures

37.75

37.50

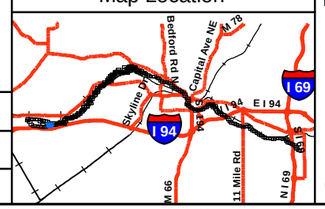
2 LDB

1 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP37.50-MP37.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

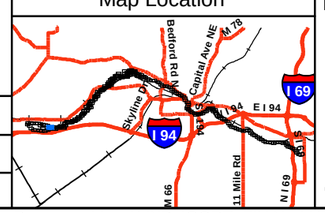
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP37.50-MP37.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
Mile Marker: 37.75																					MDEQ
Source: 2011 Reassessment																		**Latitude**	**Longitude**		Enbridge Team Lead
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems					
Date	**Time**																				
1	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	B	Wetland-swamp (forested)		organic/oil film mix	Graan, Tom
																					Keiper, Bill
5/10/2011	14:49																	42.27437	-85.44744		Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character													
Mile Marker: 37.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Low Vegetated Bank		No Oil	Johnson, Rex
																					Washburn, Bruce
5/5/2011																		42.27808	-88.47830		Kytta, Ken

Photo Logs

Field Photographs – MP 37.50 – 37.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 37.5 to MP 37.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JP	MDEQ	MD	Enbridge DB
SOTF	START	JP	MDEQ	MD	Enbridge DB
PI	START	JP	MDEQ	MD	Enbridge DB
FLS	START	JP	MDEQ	MD	Enbridge DB
Inundation Model	START	JP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JP Powell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/13/11 Date

Michelle DeLong — Printed Name

Dave Bal — Enbridge — 6/13/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.50 to MP 37.75, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/26/11 Date

Thomas Macchia Printed Name

Chris Bauer MDEQ 4-26-11 Date

Chris Bauer Printed Name

_____ Enbridge 4/26/11 Date

Nate Hehir Printed Name

2 Reassessment Zones Identified
& Waders Recomended

No Visable Oil

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.50 to MP 37.75, Unique ID LDB Access D, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan START — 5/10/11 Date

THOMAS P. GRAAN Printed Name

MDEQ — 5-10-11 Date

William Keiper Printed Name

Enbridge — 5/10/2011 Date

Lava Neumeier Printed Name

1 point collected by YUMA

poling points collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.50 to MP 37.75, Unique ID $\frac{37.75\ LDB}{1}$, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thomas P. Graan — START — 5/10/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 5/10/11 — Date

William Keiper — Printed Name

[signature] — Enbridge — 5/10/11 — Date

Laura Neumeier — Printed Name

Poling points collected on this segment by YUMA

No oil

Don DeWitt

Don DeWitt

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.50 to MP 37.75, Unique ID MP 37.75RDBL, Bank ____ and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Lex Johnson — START — 5/05/11 — Date

Lex Johnson — Printed Name

Bruce L Washburn — MDEQ — 5/5/11 — Date

Bruce Washburn — Printed Name

Craig A Wieman — Enbridge/RT — 5/5/11 — Date

Craig A Wieman — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.50 to MP 37.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

W/ EXCEPTION OF POLYGON ~~RDB~~ MP 37.75 RDB 1 WHICH WAS POLED AND SIGNED OF SEPARATELY. CONTINUATION OF WORK STARTED ON APRIL APRIL 26TH.

Rex Johnson — START — 5/05/11 — Date

Rex Johnson — Printed Name

Bruce L. Washburn — MDEQ — 5/5/11 — Date

Bruce Washburn — Printed Name

Enbridge — 5/5/11 — Date

KEN KYTTA — Printed Name

Segment 37.75 – 38.00

MP 37.75 to MP 38.00

The LDB of segment 38.00 consists of forested wetland swamp along the shoreline and within the overbank. Back channels are present in this segment. The reassessment did not identify surface oil on the LDB within this segment.

Poling of the back channels on the LDB within this segment was completed at twenty-four locations to fully assess the submerged oil within the sediment. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 38.00 generally consists of a low vegetated bank with emergent/herbaceous wetlands at the end of the segment. The reassessment identified oil occurrences at one point. Sporadic film was identified at Point 2 RDB.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

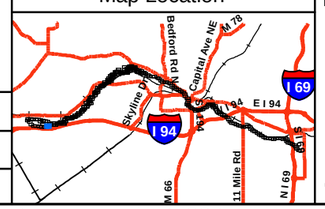
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP37.75-MP38.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP37.75-MP38.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character												
Mile Marker: 38																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)	
4/26/2011	14:08																	42.27220 / -85.45620	
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)	film in lake (<1%)
5/8/2011	17:49																	42.27418 / -85.45201	

START
MDEQ
Enbridge Team Lead
Muccianti, Marcus
Bauer, Chris
Wronka, Hans
EricHadwin
Clampitt, Chris
Neumeier, Laura

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 38																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
2	Shoreline	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S	Wetland-emergent/herbaceous	only point in 1/4 mile observation from boat vegetation looks OK Poling concerns	EricHadwin; Clampitt, Chris; Neumeier, Laura
5/8/2011	10:28																	42.28158 / -85.45473		

Photo Logs

Field Photographs MP 37.75 – MP 38.00

LDB Zone ID 2, Photo 001



LDB Zone ID 2, Photo 002



Field Photographs MP 37.75 – MP 38.00

LDB Zone ID 2, Photo 003



RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 37.75 to MP 38.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	MD	Enbridge DB
SOTF	START	[signature]	MDEQ	GAB	Enbridge [signature]
PI	START	[signature]	MDEQ	GAB	Enbridge [signature]
FLS	START	[signature]	MDEQ	GAB	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Strike to assess wetland on lake edge.	6/10/2011
Re-assess poling completion once Morrow Lake is complete	6/13/2011

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/13/11 Date

Michelle Delong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Bareham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.75 to MP 38.00, Bank or Island: ~~38.00~~ LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/26/11 Date

Marcus Mucciana Printed Name

Chris Bauer MDEQ — 4-26-11 Date

Chris Bauer Printed Name

[signature] Enbridge — 4/26/11 Date

Nate Hehir Printed Name

No O.I Observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.75 to MP 38.0, Unique ID LDB Access Q, Bank ~~RDB~~ LDB In CAC EH and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/8/11 Date

Eric Hadwin Printed Name

_____ MDEQ 5/8/11 Date

Christopher Clampitt Printed Name

_____ Enbridge 5/8/2011 Date

Laura Neumeier Printed Name

Strike points collected by YUMA

"No oil" SORT point collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.75 to MP 38.00, Unique ID 38.00 LDB 2, Bank ~~RDB~~ LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____	START	5/8/11 Date
Eric Hansen	Printed Name	
_____	MDEQ	5/8/11 Date
Christopher Clangit	Printed Name	
_____	Enbridge	5/8/11 Date
Don DeWitt	Printed Name	

Strike points collected by YUMA

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP _____ to MP _____, Bank or Island:_____, Segment Length: 0.25 mile

See below

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

John Verlac _____ START 06/08/11 Date

John Verlac Printed Name

_____ MDEQ 6/9/11 Date

Ben A. Zimant Printed Name

_____ Enbridge 6-9-11 Date

Michael Van Loan Printed Name

Completed polygons/points:

36.75 RDB 4 (4RDB) - sheen polygon - 1 feature

38.00 RDB LL - no oil

36.00 LDB 1 - no oil

Team 1

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 37.75 to MP 38.00, Bank ~~or~~ AND Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/26/11 Date

Rex Johnson — Printed Name

James M. Gamble — MDEQ — 4/26/11 Date

James M. Gamble — Printed Name

[signature] — Enbridge — 4/26/11 Date

KEN KUITA — Printed Name

EASTERN SECTION ACCESSIBLE BY LAND. REMAINDER OBSERVED FROM BOATS. WINDY AND WAVY CONDITIONS PREVENTED SOME AREAS FROM CLOSE OBSERVATION (APPROX. 30' AWAY AT TIMES). AGENCIES RECOMMEND REVISITING ON A CALMER DAY.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 37.75 to MP 38.0, Unique ID RDB Access R *, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/8/11 Date

FRIK HADWIN Printed Name

[signature] MDEQ — 5/8/11 Date

Christopher Clempitt Printed Name

[signature] Enbridge — 5/8/2011 Date

Laura Neumeier Printed Name

1 point captured by YUMA

* Survey for ~1/2 segment was conducted from boat.

Segment 38.00 – 38.25

MP 38.00 to MP 38.25

The LDB of segment 38.25 generally consists of forested wetland swamp. The reassessment did not identify surface oil on the LDB within this segment.

The RDB of segment 38.25 generally consists of a low vegetated bank at the beginning of the segment and forested wetland swamp at the end of the segment. The reassessment did not identify surface oil on the RDB within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

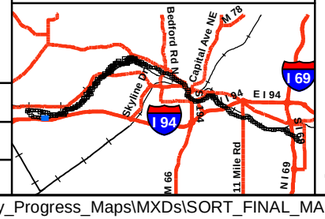
Segment Figures

38.25
38.00
1 LDB
1 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP38.00-MP38.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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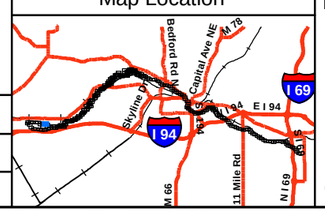
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP38.00-MP38.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 38.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		observations from boat	Muccianti, Marcus
																					Bauer, Chris
4/26/2011	14:23																	42.27088	-85.46136		Wronka, Hans

2011 Reassessment

Bank: RDB

Mile Marker: 38.25

Source: 2011 Reassessment

Oil Zone ID	Feature	Oil Thickness					Oil Character										Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Low Vegetated Bank		NO OIL IN SECTION; SEGMENT SHOULD BE 38.25	Johnson, Rex
																					Gamble, James (Matt)
4/26/2011	12:10																	42.28126	-85.46284		Kytta, Ken
2	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		observation from boat	EricHadwin
																					Clampitt, Chris
5/8/2011	10:54																	42.28111	-85.46145		Neumeier, Laura
3	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Low Vegetated Bank			Muccianti, Marcus
																					Fairchild, Katie
5/9/2011																		42.28115	-85.45733		Wronka, Hans

Photo Logs

Field Photographs – MP 38.00–38.25

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs – MP 38.00–38.25

RDB Zone ID 1, Photo 002



RDB Zone ID 2, Photo 001



Field Photographs – MP 38.00–38.25

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 38.0 to MP 38.25 Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[signature]	MDEQ	GAB	Enbridge [signature]
SOTF	START	[signature]	MDEQ	GAB	Enbridge [signature]
PI	START	[signature]	MDEQ	GAB	Enbridge [signature]
FLS	START	[signature]	MDEQ	GAB	Enbridge [signature]
Inundation Model	START	[signature]	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Reassess poling completion once Marrow Lake is complete.	6/13/2011

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barchem Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.00 to MP 38.25, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/26/11 Date

Marcus Murphy Printed Name

Chris Bauer MDEQ — Date

Chris Bauer Printed Name

[signature] Enbridge — 4/26/11 Date

Nate Hehir Printed Name

No oil observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.00 to MP 38.25, Bank or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson START — 4/26/11 Date

Rex Johnson Printed Name

James M. Gamble MDEQ — 4/26/11 Date

James M. Gamble Printed Name

[signature] Enbridge — 4/26/11 Date

KEN KUTTA Printed Name

WINDY AND WAVY CONDITIONS PREVENTED SOME AREAS FROM CLOSE OBSERVATION (APPROX 30' AWAY AT TIMES). AGENCIES RECOMMEND RESURVEYING ON A CALMER DAY.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 38.00 to MP 38.25, Unique ID RDB-Aquis 38.25 S, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

[signature] START — 5/8/11 Date

Erik Hanson Printed Name

[signature] MDEQ — 5/8/11 Date

Christopher Clampitt Printed Name

[signature] Enbridge — 5/8/2011 Date

Laura Neumeier Printed Name

1 "no oil" point captured by YUMA

Polygon created for wet area that will dry out (polygon extends into MP 38.50)

Reassessment completed from boat.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.00 to MP 38.25, Bank or Island: RBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 5/9/2011 Date

Marcus Mueller Printed Name

_____ MDEQ May 9, 2011 Date

Rachel Matthews Printed Name

_____ Enbridge _____ Date

Hans Wonkey Printed Name

No Points

No Oil Observed

Some portions were observed from the Boat due to Steep Banks

Segment 38.25 – 38.50

MP 38.25 to MP 38.50

The LDB of segment 38.50 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify surface oil on the LDB within this segment.

The RDB of segment 38.50 generally consists of forested wetland swamp habitat and a low vegetated bank on the shoreline with forested wetland swamp in the overbank. The reassessment did not identify surface oil on the RDB within this segment.

One island was described within segment 38.50 generally consisting of low vegetated bank. The reassessment did not identify surface oil on the island within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures

38.50

38.25

1 LDB

1 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

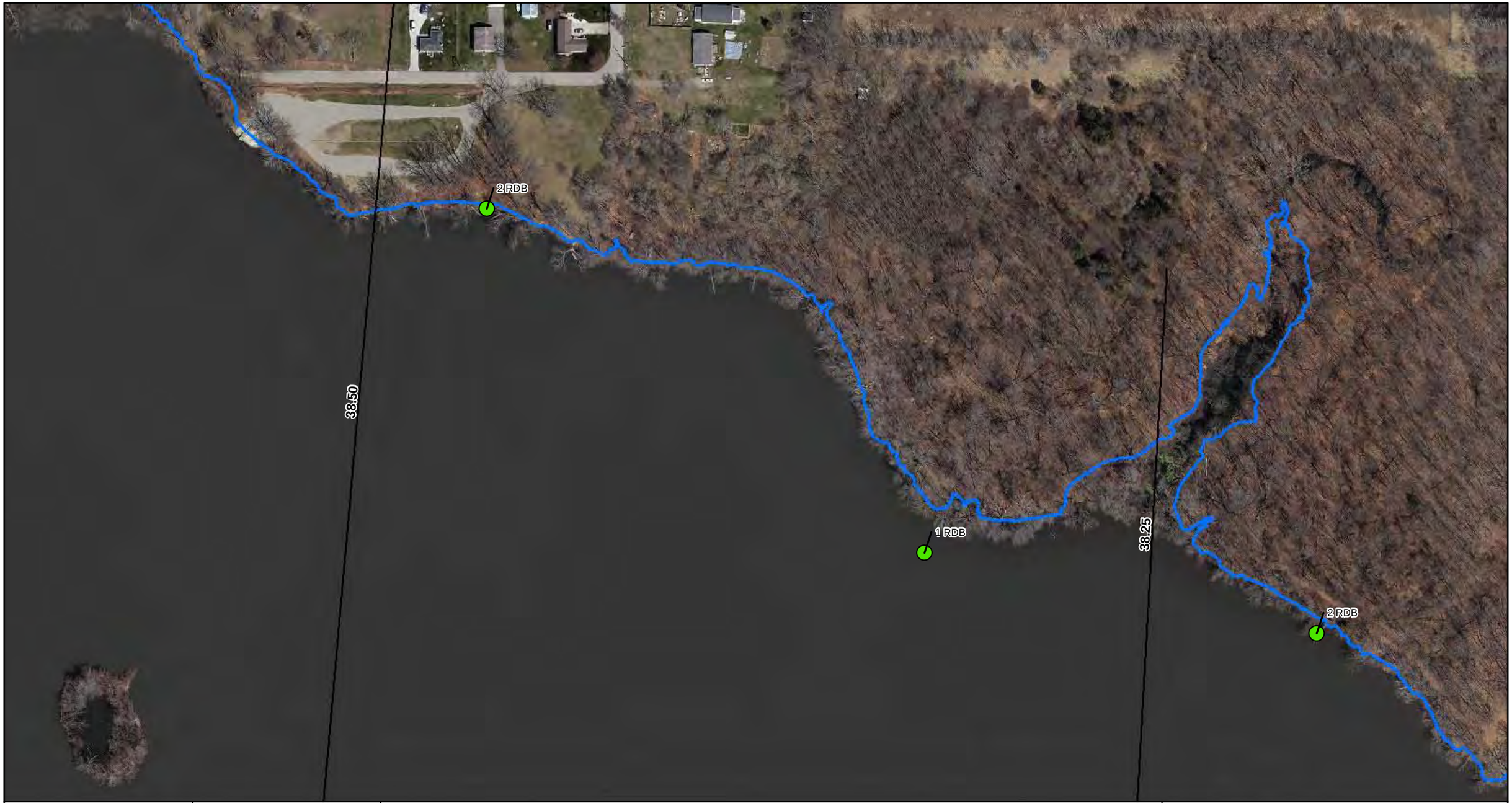
Scale in Feet

SORT ASSESSMENT
MP38.25-MP38.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

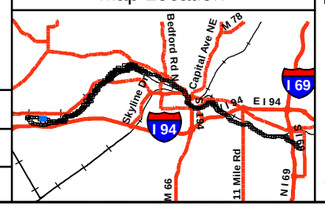
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP38.25-MP38.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character									Oil Distribution			
Mile Marker: 38.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**	
Date	**Time**																	**Latitude**	**Longitude**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)	
4/26/2011	14:43																	42.27188	-85.46675

Comments	START
	MDEQ
	Enbridge Team Lead
	Muccianti, Marcus
	Bauer, Chris
	Wronka, Hans

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 38.5																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Low Vegetated Bank		NO OIL IN SECTION	Johnson, Rex
																					Gamble, James (Matt)
4/26/2011	12:49																	42.28089	-85.46245		Kytta, Ken
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)			EricHadwin
																					Clampitt, Chris
5/8/2011	11:28																	42.28228	-85.46455		Neumeier, Laura

Photo Logs

Field Photographs MP 38.25 – MP 38.50

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 38.25 – MP 38.50

RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 38.25 to MP 38.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ		Enbridge	DB

Action Items

Action Item Description	Date Resolved
Reassess poling completion once Morrow Lake is complete.	6/13/2011

Completeness Check Acknowledged

	START	6/13/2011 Date
John Powell	Printed Name	
Michelle Delong	MDEQ	6/13/11 Date
Michelle Delong	Printed Name	
	Enbridge	6/13/2011 Date
Dave Barcham	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.25 to MP 38.50, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 4/26/11 Date

Marcus Merrin Printed Name

_____ MDEQ _____ Date

Chris Bauer Printed Name

_____ Enbridge 4/26/11 Date

Nate Hehir Printed Name

No Oil Observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.25 to MP 38.50, Bank or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson — START — 4/26/11 Date

Rex Johnson — Printed Name

James M. Gamble — MDEQ — 4/26/11 Date

James M. Gamble — Printed Name

KK — Enbridge — 4/26/11 Date

KEN KYTTA — Printed Name

WINDY AND WAVY CONDITIONS PREVENTED SOME AREAS FROM CLOSE OBSERVATION (APPROX. 50' AWAY AT TIMES). AGENCIES RECOMMEND RESURVEYING ON A CALMER DAY.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 38.25 to MP 38.50, Unique ID RDB Access T, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/8/11 Date

Eric Hadwin Printed Name

_____ MDEQ — 5/8/11 Date

Christopher Claypit Printed Name

_____ Enbridge — 5/8/2011 Date

Laura Naumeier Printed Name

1 "no oil" point collected by YUMA

~3/4 of segment assessed by boat.

Segment 38.50 – 38.75

MP 38.50 to MP 38.75

The LDB of segment 38.75 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify surface oil on the LDB within this segment.

The RDB of segment 38.75 generally consists of forested wetland swamp habitat and a low vegetated bank. The reassessment did not identify surface oil on the RDB within this segment.

One island was described within segment 38.75 generally consisting of low vegetated bank. The reassessment did not identify surface oil on the island within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

Segment Figures

38.75

38.50

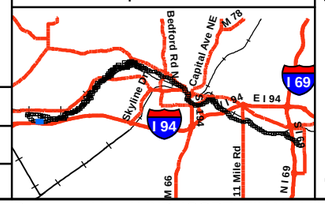
1 LDB

1 LDB

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP38.50-MP38.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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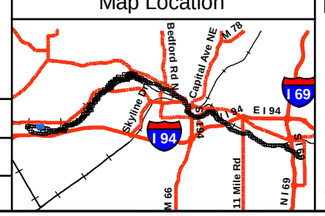
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP38.50-MP38.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 38.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)			Muccianti, Marcus
																					Bauer, Chris
4/26/2011	15:02																	42.27240	-85.47161		Wronka, Hans
																					Enbridge Team Lead

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character														
Mile Marker: 38.75																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	Habitat		Comments	START
																					MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Low Vegetated Bank		NO OIL IN SECTION	Johnson, Rex
																					Gamble, James (Matt)
4/26/2011	12:30																	42.28293	-85.47027		Kytta, Ken
2	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		includes park (walked) most observation from boat	EricHadwin
																					Clampitt, Chris
5/8/2011	11:58																	42.28296	-85.47082		Neumeier, Laura

Photo Logs

Field Photographs MP 38.50 – MP 38.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 38.50 – MP 38.75

RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 38.5 to MP 38.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	MCD	Enbridge [initials]
SOTF	START	[initials]	MDEQ	MCD	Enbridge [initials]
PI	START	[initials]	MDEQ	MCD	Enbridge [initials]
FLS	START	[initials]	MDEQ	MCD	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	MCD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Re-assess poling once Morrow Lake poling is complete.	6/13/2011

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle Delong MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.50 to MP 38.75, Bank or Island: LBD, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 4/26/11 Date

Marcus Moss Printed Name

Chris Bauer MDEQ — Date

Chris Bauer Printed Name

[signature] Enbridge — 4/26/11 Date

Nate Hehir Printed Name

No Oil Observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.50 to MP 38.75, Bank or Island: ROB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Rex Johnson START 4/26/11 Date

Rex Johnson Printed Name

James M. Gamble MDEQ 4/26/11 Date

James M. Gamble Printed Name

Enbridge 4/26/11 Date

KEN KYTTA Printed Name

WINDY AND WAVY CONDITIONS PREVENTED SOME AREAS FROM CLOSE OBSERVATION (APPROX. 50' AWAY AT TIMES). AGENCIES RECOMMEND RESURVEYING ON CALMER DAY.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 38.50 to MP 38.75, Unique ID RDB Access U, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START — 5/8/11 Date

Erik Hadwin Printed Name

_____ MDEQ — 5/8/11 Date

Christopher Clampitt Printed Name

_____ Enbridge — 5/8/2011 Date

Laura Neumeier Printed Name

1 "no oil" point collected by YUMA

~3/4 of segment assessed by boat

Segment 38.75 – 39.00

MP 38.75 to MP 39.00

The LDB of segment 39.00 generally consists of forested wetland swamp habitat. The reassessment did not identify any evidence of surface oil on the LDB within this segment.

The RDB of segment 39.00 generally consists of forested wetland swamp habitat with a tributary that flows into Morrow Lake. The reassessment did not identify any evidence of surface oil on the RDB within this segment.

Poling of the tributary on the RDB within this segment was completed at four locations to fully assess the sediment within the tributary. The detailed results of the poling activities will be presented under separate cover.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

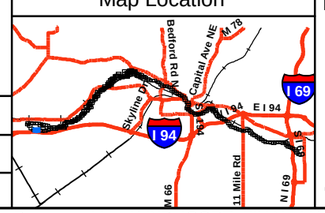
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP38.75-MP39.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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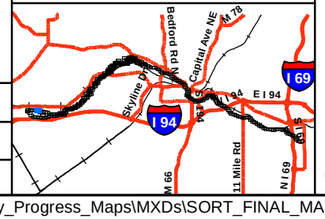
Aerial Photography Date: April 2011

2 RDB
1 RDB
3 RDB
2 RDB
1 RDB
1 RDB
2 RDB
39.00
38.75

ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP38.75-MP39.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 39																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		no product observed in section 39.00	Ross, Shauna
																					Veldkamp, Chris
4/26/2011	12:44																	42.27369	-85.47772		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 39																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution	**Habitat**	**Comments**	**START**
Date	**Time**																	**Latitude** / **Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)		Graan, Tom Wesener, Matt
4/26/2011	14:45																	42.28312 / -85.47068		Senn, Derreck
2	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)	observation from boat	EricHadwin Clampitt, Chris
5/8/2011	12:16																	42.28246 / -85.47342		Neumeier, Laura
3	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		Muccianti, Marcus Fairchild, Katie
5/9/2011																		42.28279 / -85.47333		Wronka, Hans

Photo Logs

Field Photographs – MP 38.75 – 39.00

LDB Zone ID 1, Photo 001



LDB Zone ID 1, Photo 002



Field Photographs – MP 38.75 – 39.00

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



Field Photographs – MP 38.75 – 39.00

RDB Zone ID 3, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 36.75 to MP 39.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge	
SOTF	START		MDEQ	GAB	Enbridge	
PI	START		MDEQ	GAB	Enbridge	
FLS	START		MDEQ	GAB	Enbridge	
Inundation Model	START		MDEQ	MD	Enbridge	DB

Action Items

Action Item Description	Date Resolved
Reassess poling completion once Morrow Lake poling is complete	6/13/2011

Completeness Check Acknowledged

	START	6/13/2011 Date
John Powell	Printed Name	
Michelle DeLong	MDEQ	6/13/11 Date
Michelle DeLong	Printed Name	
	Enbridge	6/13/2011 Date
Dave Barchem	Printed Name	

Team 5

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.75 to MP 39.0, Bank or Island: LDB, Segment Length: 0.25 mile

No oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawn M Ross — START — 4/26/2011 — Date

Shawna Marie Ross — Printed Name

Chris Veldkamp — MDEQ — 4/26/11 — Date

Chris Veldkamp — Printed Name

Michael Van Loan — Enbridge — 4-26-11 — Date

M V L — Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.75 to MP 39.00 (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/26/11 — Date

THOMAS P. GRAAN — Printed Name

MDEQ — 4/26/11 — Date

MATTHEW D WESENER — Printed Name

Enbridge — 4/26/11 — Date

Derek Sean — Printed Name

Note: Assessed Area included the overbank area and no oil was observed. Shoreline area could not be fully assessed due to high water level. This area could be reassessed later by boat if the current water level is above the elevation that oil impacts would be expected.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 38.75 to MP 39.00, Unique ID RDB Access, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/8/11 Date

Erik Hansen Printed Name

_____ MDEQ 5/8/11 Date

Christopher Clampitt Printed Name

_____ Enbridge 5/8/2011 Date

Laura Neumeier Printed Name

1 new polygon captured by YUMA for wetarea to dry mt.

Remainder of segment assessed by boat.

1 "no oil" point collected by YUMA

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.75 to MP 39.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START — 5/9/2011 Date

Mark Miller Printed Name

_____ MDEQ — 5-9-2011 Date

Rachel Matthews Printed Name

_____ Enbridge — 5/9/11 Date

Hans Wronen Printed Name

1 Polygon for Reassessment → Waders

No O.I Observed

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 38.75 to MP 39.00, Unique ID RDB AA, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

Thom P. Graan _____ START 5/11/11 Date

THOMAS P. GRAAN _____ Printed Name

_____ MDEQ 5/11/11 Date

William Keiper _____ Printed Name

Don DeWitt _____ Enbridge 5/11/11 Date

Don DeWitt _____ Printed Name

Poling points collected by YUMA.

Segment 39.00 – 39.25

MP 39.00 to MP 39.25

The LDB of segment 39.25 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify surface oil on the LDB within this segment.

The RDB of segment 39.25 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify surface oil on the RDB within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

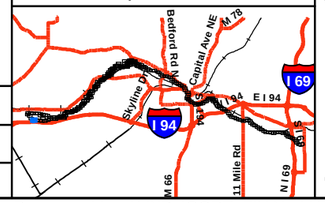
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP39.00-MP39.25 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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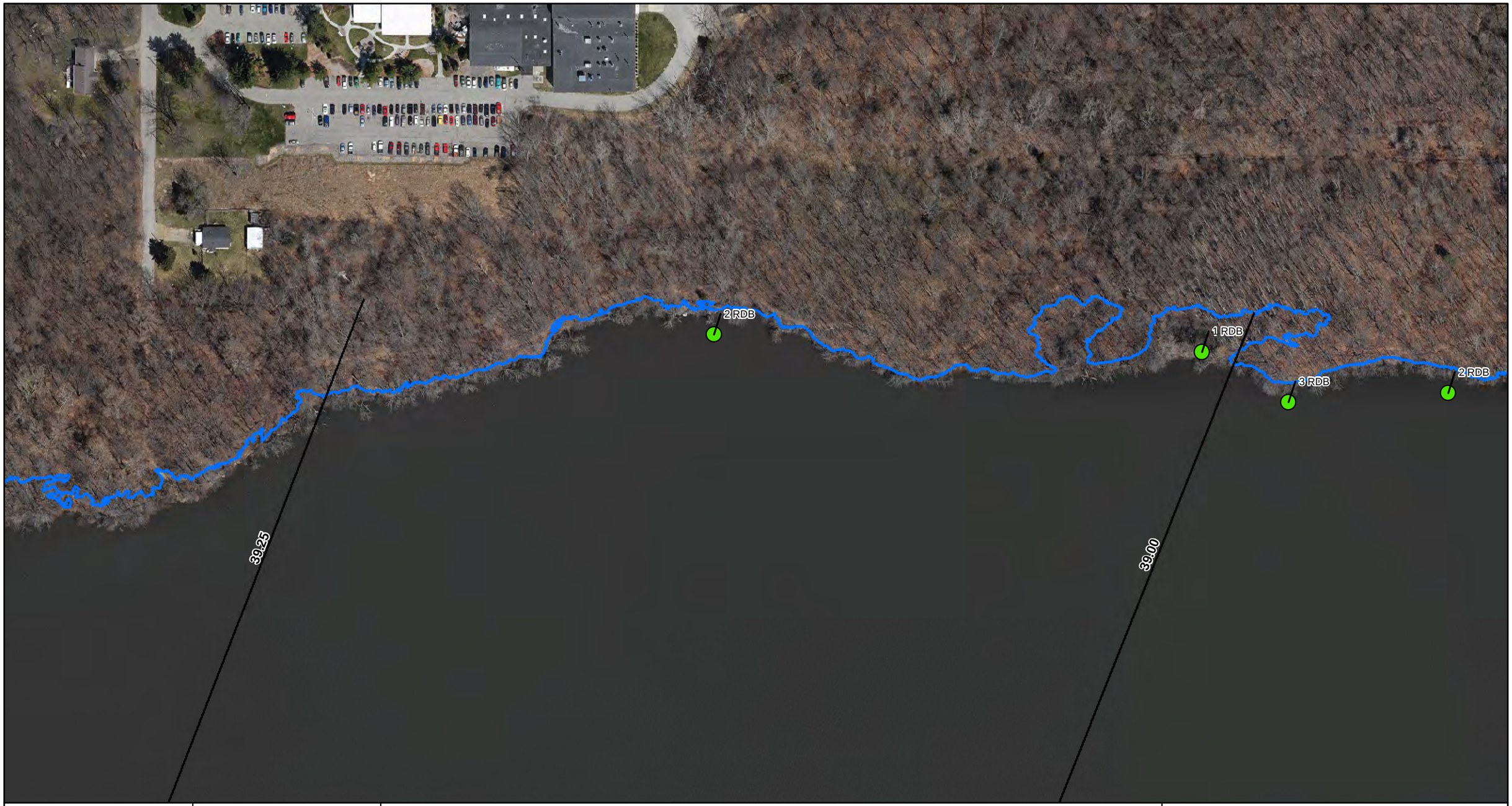
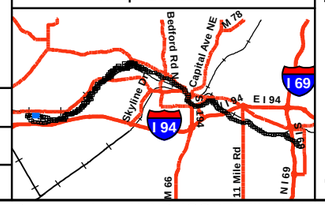
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP39.00-MP39.25 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character									Oil Distribution				
Mile Marker: 39.25																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)		no product found in segment 39.25	Ross, Shauna
																					Veldkamp, Chris
4/26/2011	13:46																	42.27402	-85.48284		VanLoan, Mike

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 39.25																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)	
4/26/2011	14:28																	42.28301 / -85.47384	
2	Shoreline	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-swamp (forested)	observation from boat
5/8/2011	12:32																	42.28191 / -85.47825	

START	
MDEQ	
Enbridge Team Lead	
Graan, Tom	
Wesener, Matt	
Senn, Derreck	
EricHadwin	
Clampitt, Chris	
Neumeier, Laura	

Photo Logs

Field Photographs MP 39.00 – MP 39.25

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 39.00 – MP 39.25

RDB Zone ID 2, Photo 001



RDB Zone ID 2, Photo 002



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 39 to MP 39.25 Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	MCD	Enbridge DB
SOTF	START	JDP	MDEQ	MCD	Enbridge DB
PI	START	JDP	MDEQ	MCD	Enbridge DB
FLS	START	JDP	MDEQ	MCD	Enbridge DB
Inundation Model	START	JDP	MDEQ	MCD	Enbridge DB

Action Items

Action Item Description	Date Resolved
Re-assess poling completion once Morrow Lake poling is complete	6/13/2014

Completeness Check Acknowledged

JDPowell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/13/11 Date

Michelle DeLong — Printed Name

D Bal — Enbridge — 6/13/2014 Date

Dave Barham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.0 to MP 39.25, Bank or Island: LDB, Segment Length: 0.25 mile

No oil

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shawna Marie Ross — START — 4/26/2011 — Date

Shawna Marie Ross — Printed Name

Chas VerBeek — MDEQ — 4/26/11 — Date

Chas VerBeek — Printed Name

Michael Van Loan — Enbridge — 4-26-11 — Date

Michael V. Loan — Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.00 to MP 39.25, ~~Bank~~ or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/20/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 4/20/11 — Date

MATTHEW D WESENER — Printed Name

[signature] — Enbridge — 4/20/11 — Date

Beech Sean — Printed Name

Note: Assessed Area included the overbank area and no oil was observed. Shoreline area could not be fully assessed due to high water level. This area could be reassessed later by boat if the current water elevation is above the elevation that oil impacts would be expected.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 39.00 to MP 39.25, Unique ID RDB Access W, Bank RDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.

_____ START 5/8/11 Date

Erik Hagwin Printed Name

_____ MDEQ 5/8/11 Date

Christopher Clempitt Printed Name

_____ Enbridge 5/8/2011 Date

Laura Neumeier Printed Name

1 polygon created for area of high water today out

1 "no oil" point captured by YUMA

Segment assessed by boat.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 38.00 to MP 38.25, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START 5/9/2011 Date

Marcus Merrin Printed Name

[signature] MDEQ 5-9-2011 Date

Rachel Matthews Printed Name

[signature] Enbridge 5-9-11 Date

Hans Wronkey Printed Name

No Visible Oil
No Zones Identified
Portions observed from Boat Due to Steep Bank

Segment 39.25 – 39.50

MP 39.25 to MP 39.50

The LDB of segment 39.50 generally consists of emergent/herbaceous wetland and an impounded area with a high berm. A back channel is present in this segment. The reassessment did not identify any evidence of surface oil on the LDB within this segment.

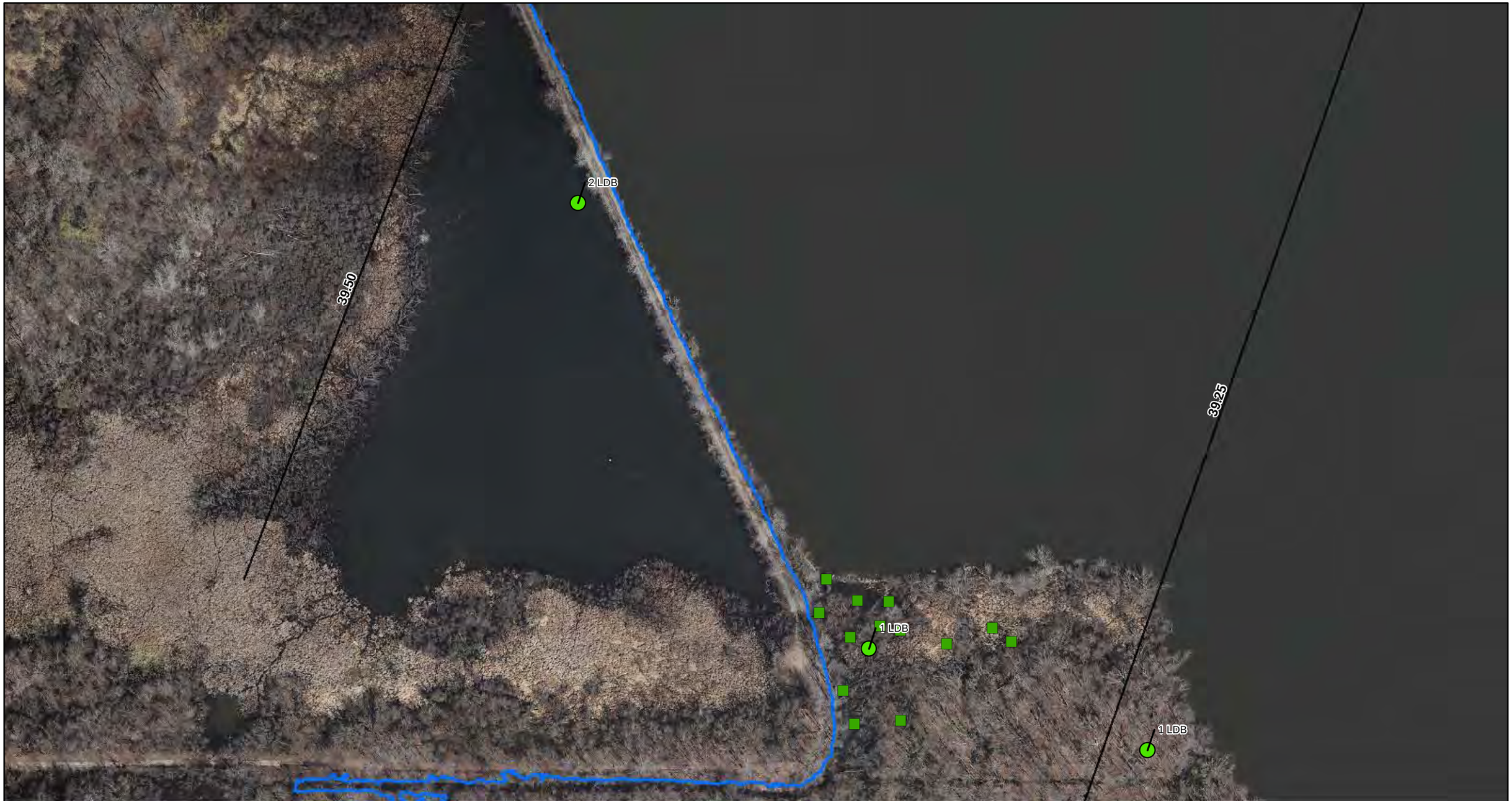
Poling of back channel areas on the LDB within this segment was completed at twelve locations to fully assess the sediment in these areas. The detailed results of the poling activities will be presented under separate cover.

The RDB of segment 39.50 consists of forested wetland swamp along the shoreline and within the overbank. The reassessment did not identify any evidence of surface oil on the RDB within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

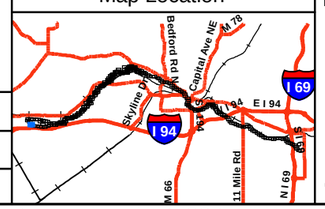
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP39.25-MP39.50 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011



Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP39.25-MP39.50 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution				
Mile Marker: 39.5																					
Source: 2011 Reassessment																					
Oil Zone ID	**Feature**	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ** / **Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-emergent/herbaceous		NO OIL IN POLYGON; FLOODED AREAS POLED	Hadwin, Eric; Wesener, Matt
5/10/2011	15:15																	42.27464	-85.48478		Kytta, Ken
2	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Other (comments)		IMPOUNDED AREA ON OTHER SIDE OF HIGH BERM; NO OIL IMPACTS EXPECRED; NO ASSESSMENT COMPLETED	Hadwin, Eric; Wesener, Matt
5/10/2011	15:25																	42.27642	-85.48607		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 39.5																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**	**START**
																			MDEQ
Date	**Time**																**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)		Graan, Tom
																				Wesener, Matt
4/26/2011	13:34																	42.28229	-85.48165	Senn, Derreck
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)		Muccianti, Marcus
																				Fairchild, Katie
5/9/2011																		42.28273	-85.48361	Wronka, Hans

Photo Logs

Field Photographs – MP 39.25 – MP 39.50

LDB Zone ID 1, Photo 001



LDB Zone ID 2, Photo 001



Field Photographs – MP 39.25 – MP 39.50

RDB Zone ID 1, Photo 001



RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 39.25 to MP 39.5, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START		MDEQ	GAB	Enbridge
SOTF	START		MDEQ	GAB	Enbridge
PI	START		MDEQ	GAB	Enbridge
FLS	START		MDEQ	GAB	Enbridge
Inundation Model	START		MDEQ		Enbridge

Action Items

Action Item Description	Date Resolved
Reassess poling completion once Morrow Lake poling is complete	6/13/2011

Completeness Check Acknowledged

John Powell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle Delong — MDEQ — 6/13/11 Date

Michelle Delong — Printed Name

Enbridge — 6/13/2011 Date

Dave Berchan — Printed Name

Team 7

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.25 to MP 39.50, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/26/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 4/26/11 — Date

MATTHEW D WESENER — Printed Name

[signature] — Enbridge — 4/26/11 — Date

Derek Senn — Printed Name

Note: Assessed area included the overbank area and no oil was observed. Shoreline area could not be fully assessed due to high water level. This area could be reassessed later by boat if the current water elevation is above the elevation that oil impacts would be expected.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.25 to MP 39.50, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/9/2011 Date

Marcus Mercier Printed Name

[signature] MDEQ — 5-9-2011 Date

Rachel Matthews Printed Name

[signature] Enbridge — 5-9-11 Date

Hans Wronker Printed Name

No Zones Identified

No Visible Oil

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.25 to MP 39.5, Bank or Island: LOO, Segment Length: 0.25 mile

2 inundated areas unable to assess.

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Shauna M Ross — START — 4/26/2011 — Date

Shauna Marie Ross — Printed Name

Chas Veldkamp — MDEQ — 4/26/11 — Date

Chas Veldkamp — Printed Name

Michael Van Loon — Enbridge — 4-26-11 — Date

Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

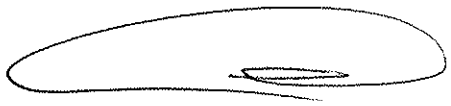
Strike Team

SIGN-OFF SHEET

Segment ID: From MP 39.25 to MP 39.50, Unique ID 39.50 LDB1, Bank LDB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team.



START 5/10/11 Date

Erik Hadwin Printed Name

MDEQ 5/10/11 Date

Matt Wesner Printed Name

Enbridge 5/10/11 Date

Ken Kytta Printed Name

Tetra Tech 5/10/2011

Craig A Wiaman

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 39.25 to MP 39.50, Unique ID LOB2, Bank LOB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. POLYGON IS BEHIND MORROW LAKE IMPOUNDMENT. AREA DOES NOT HAVE DIRECT HYDRAULIC CONNECTION WITH MORROW LAKE. VISUAL ASSESSMENT PERFORMED FROM IMPOUNDMENT ROAD.

[signature] START — 5/10/11 Date

ERIK HADNOT Printed Name

[signature] MDEQ — 5/10/11 Date

MATT WESFNER Printed Name

_____ Enbridge — _____ Date

_____ Printed Name

Segment 39.50 – 39.75

MP 39.50 to MP 39.75

The LDB of segment 39.75 generally consists of an impounded area with a high berm. The reassessment did not identify any evidence of surface oil on the LDB within this segment.

The RDB of segment 39.75 generally consists of wetland scrub-shrub and forested wetland swamp. The reassessment did not identify any evidence of surface oil on the RDB within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

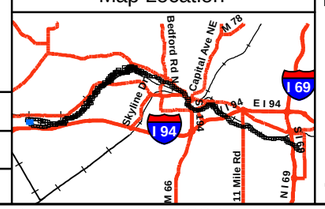
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

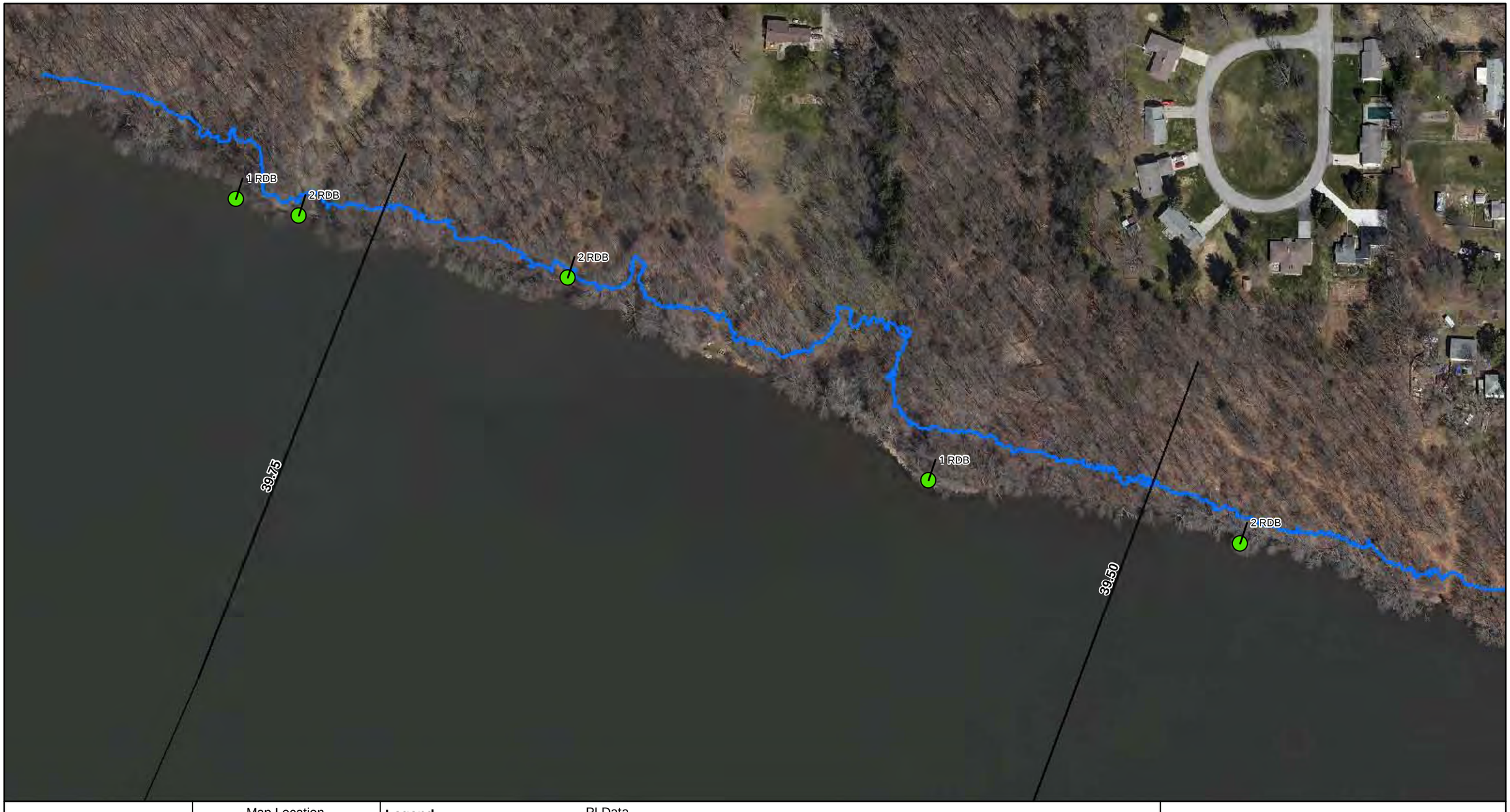
0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP39.50-MP39.75 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\2011_Reassessment\Daily_Progress_Maps\MXDs\SORT_FINAL_MASTER_REPORTS.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP39.50-MP39.75 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character									Oil Distribution				
Mile Marker: 39.75																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
																				MDEQ
Date	**Time**																**Latitude**	**Longitude**		**Enbridge Team Lead**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Other (comments)		IMPOUNDED AREA ON OTHER SIDE OF HIGH BERM; NO OIL IMPACTS EXPECTED; NO ASSESSMENT PERFORMED	Hadwin, Eric
																				Wesener, Matt
5/10/2011	15:31																42.27767	-85.48684		Kytta, Ken

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character												
Mile Marker: 39.75																			
Source: 2011 Reassessment																			
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**	**Oil Distribution**	**Habitat**	**Comments**
Date	**Time**																	**Latitude** / **Longitude**	
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)	
4/26/2011	13:11																	42.28298 / -85.48545	
2	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-scrub/shrub	No oil..
5/10/2011	10:33																	0.00000 / 0.00000	

START
MDEQ
Graan, Tom
Wesener, Matt
Senn, Derreck
Muccianti, Marcus
Bauer, Chris
Haux, Christopher

Photo Logs

Field Photographs MP 39.50 – MP 39.75

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 39.50 – MP 39.75

RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 39.5 to MP 39.75, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	JDP	MDEQ	MD	Enbridge DB
SOTF	START	JDP	MDEQ	MD	Enbridge DB
PI	START	JDP	MDEQ	MD	Enbridge DB
FLS	START	JDP	MDEQ	MD	Enbridge DB
Inundation Model	START	JDP	MDEQ	MD	Enbridge DB

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

JDPowell — START — 6/13/2011 Date

John Powell — Printed Name

Michelle DeLong — MDEQ — 6/13/11 Date

Michelle DeLong — Printed Name

D-Bl — Enbridge — 6/13/2011 Date

Dave Barcham — Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.5 to MP 39.75, Bank or Island: LDR, Segment Length: 0.25 mile

1 inundated area unable to access

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	4/26/2011 Date
Shawna Marie Ross	Printed Name	
[signature]	MDEQ	4/26/11 Date
Chris Veldkamp	Printed Name	
[signature]	Enbridge	4-26-11 Date
Michael Van Loon	Printed Name	

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

and Submerged Oil Task Force (SOTF)

Strike Team

SIGN-OFF SHEET

Segment ID: From MP 39.50 to MP 39.75, Unique ID LOB1, Bank LOB and/or Island ____

Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced reassessment location has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT and SOTF Strike team. POLYGON IS BEHIND MORROW LAKE IMPOUNDMENT. AREA DOES NOT HAVE DIRECT HYDRAULIC CONNECTION W/ MORROW LAKE. VISUAL ASSESSMENT PERFORMED FROM IMPOUNDMENT ROAD.

[signature] START — 5/10/11 Date

Erik Hansen Printed Name

[signature] MDEQ — 5/10/11 Date

MATT WESENER Printed Name

KEN KUYITA Enbridge — 5/10/11 Date

[signature] Printed Name

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 3980 to MP 3975 (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/26/11 — Date

THOMAS P. GRAAN — Printed Name

MDEQ — 4/26/11 — Date

MATTHEW D WESENER — Printed Name

Enbridge — 4/26/11 — Date

Derek Senn — Printed Name

NOTE: ASSESSED AREA INCLUDED THE OVERBANK AREA AND NO OIL WAS OBSERVED. SHORELINE AREA COULD NOT BE FULLY ASSESSED DUE TO HIGH WATER LEVEL, THIS AREA COULD BE REASSESSED LATER BY BOAT IF THE CURRENT WATER LEVEL IS ABOVE THE ELEVATION THAT OIL IMPACTS WOULD BE EXPOSED

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.50 to MP 39.75, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature] START — 5/10/2011 Date

Marcus Muccio Printed Name

Chris Bauer MDEQ — 5/10/2011 Date

Chris Bauer Printed Name

[signature] Enbridge — 5-10-11 Date

Hans Wronka Printed Name

No Zones Identified

No O.Y Observed

Segment 39.75 – 40.00

MP 39.75 to MP 40.00

The LDB of segment 40.00 primarily consists of a man-made structure, Morrow Lake Dam. The reassessment did not identify any evidence of oil staining on the concrete sidewalls within this segment.

The RDB of segment 40.00 generally consists of wetland scrub-shrub and forested wetland swamp habitat. The reassessment did not identify any evidence of surface oil on the RDB within this segment.

The FLS did not detect any oil signatures in this segment and no PI observations were noted.

The attachments provide additional details on this segment.

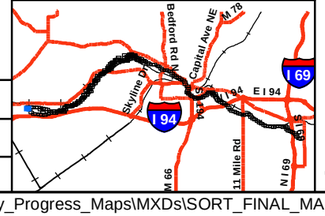
Segment Figures



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data

- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data

- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling

- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300

Scale in Feet

SORT ASSESSMENT
MP39.75-MP40.00 Left Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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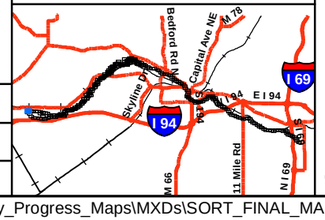
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	DP	6/7/2011
Approved:	PS	6/7/2011
Project #:	60162778	

Map Location



Legend

- No Oil
- Pooled Oil
- Film (Sheen)
- Remaining Observations
- Quarter Mile Grid Segments

PI Data
- High Priority Area
- Inconclusive
- Unconfirmed Areas of Interest

FLS Data
- Oil Signature Detected
- Oil Signature Suspected

Observed Sheen/Globules After Poling
- Heavy
- Moderate
- Light
- None
- Final Inundation Model

N

0 75 150 300
Scale in Feet

SORT ASSESSMENT
MP39.75-MP40.00 Right Bank

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

YUMA Output Summary

2011 Reassessment

Bank: LDB		Oil Thickness					Oil Character										Oil Distribution			
Mile Marker: 40																				
Source: 2011 Reassessment																				
Oil Zone ID	**Feature**	**Pooled Oil**	**Cover**	**Coat**	**Stain**	**Film**	**Fresh Oil**	**Mousse**	**Tarballs**	**Patties**	**Tar**	**Surface Oil Residue**	**Asphalt Pavement**	**No Oil**	**Debris**	**Trunks and Stems**		**Habitat**		**Comments**	**START**
Date	**Time**																	**Latitude**	**Longitude**		**MDEQ**
1	Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Man-Made Structure			Kane, Sean
																					Blazic, Ryan
5/24/2011	14:24																	42.27976	-85.49162		Strand, Dave

2011 Reassessment

Bank: RDB		Oil Thickness					Oil Character											Habitat		Comments	START
Mile Marker: 40																					
Source: 2011 Reassessment																					
Oil Zone ID	Feature	Pooled Oil	Cover	Coat	Stain	Film	Fresh Oil	Mousse	Tarballs	Patties	Tar	Surface Oil Residue	Asphalt Pavement	No Oil	Debris	Trunks and Stems	Oil Distribution				MDEQ
Date	Time																	Latitude	Longitude		Enbridge Team Lead
1	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	T	Wetland-swamp (forested)		ASSESSED OVERBANK AREAS-SHOULD BE MOVED TO SEGMENT 39.75-40	Graan, Tom Wesener, Matt
4/26/2011	12:52																	42.28372	-85.48728		Senn, Derreck
2	Shoreline and Overbank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Wetland-scrub/shrub		No oil.	Muccianti, Marcus Bauer, Chris
5/10/2011	10:48																	0.00000	0.00000		Haux, Christopher

Photo Logs

Field Photographs MP 39.75 – MP 40.00

LDB Zone ID 1, Photo 001



RDB Zone ID 1, Photo 001



Field Photographs MP 39.75 – MP 40.00

RDB Zone ID 1, Photo 002



RDB Zone ID 1, Photo 003



Field Photographs MP 39.75 – MP 40.00

RDB Zone ID 1, Photo 004



RDB Zone ID 1, Photo 005



Field Photographs MP 39.75 – MP 40.00

RDB Zone ID 2, Photo 001



SORT Data Sign off Documentation

Enbridge Line 6B MP 608 Pipeline Release

Reassessment Task Force (RTF) Multi-Tiered Data Evaluation

Completeness Check

Segment ID: From MP 39.75 to MP 40.0, Segment Length: 0.25 mile

The purpose of this form is to acknowledge START, MDEQ, and Enbridge have conducted a completeness check of the data generated by the technologies listed below and as described in the Overbank and Poling Reassessment Work Plan (April 6, 2011). The objective of this check is to optimize the identification of oil impact by ensuring that data from the separate technologies receive integrated comparison and evaluation for the subject creek/river segment.

Initials:

SORT	START	[initials]	MDEQ	[initials]	Enbridge [initials]
SOTF	START	[initials]	MDEQ	[initials]	Enbridge [initials]
PI	START	[initials]	MDEQ	[initials]	Enbridge [initials]
FLS	START	[initials]	MDEQ	[initials]	Enbridge [initials]
Inundation Model	START	[initials]	MDEQ	[initials]	Enbridge [initials]

Action Items

Action Item Description	Date Resolved

Completeness Check Acknowledged

[signature] START — 6/13/2011 Date

John Powell Printed Name

Michelle DeLong MDEQ — 6/13/11 Date

Michelle DeLong Printed Name

[signature] Enbridge — 6/13/2011 Date

Dave Barcham Printed Name

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.75 to MP 40.00, Bank or Island: LDB, Segment Length: 0.25 mile

Includes small section of 39.75 adjacent to 40.00

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

[signature]	START	5-24-11 Date
Jean Vane	Printed Name	
[signature]	MDEQ	5/24/11 Date
Ryan D. Blazic	Printed Name	
David Strand	Enbridge	5/24/11 Date
[signature]	Printed Name	

Team 2

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.75 to MP 40.00, (Bank) or Island: R, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

Thomas P. Graan — START — 4/26/11 — Date

THOMAS P. GRAAN — Printed Name

[signature] — MDEQ — 4/26/11 — Date

MATTHEW D WESENER — Printed Name

[signature] — Enbridge — 4/26/11 — Date

Zach Senn — Printed Name

Note: Assessed area included the overbank area and no oil was observed. Shoreline area could not be fully assessed due to high water level. This area could be reassessed later by boat if the current water elevation is above the elevation that oil impacts is expected.

Enbridge Line 6B MP 608 Pipeline Release

Shoreline and Overbank Reassessment Technique (SORT)

SIGN-OFF SHEET

Segment ID: From MP 39.75 to MP 40.00, Bank or Island: RDB, Segment Length: 0.25 mile

The following signatures represent agreement between START, MDEQ, and Enbridge personnel that the above referenced segment has been adequately reassessed and areas requiring future consideration have been located and documented by the SORT team.

_____ START 5/10/2011 Date

M Kraus _____ Printed Name

Chris Bauer _____ MDEQ 5/10/2011 Date

Chris Bauer _____ Printed Name

_____ Enbridge 5-10-11 Date

Hans Wronka _____ Printed Name

No Zones Identified

No Oil Observed

SO Attachment A

Photos

Attachment 1: Select Submerged Oil Reassessment Poling Photographs

PHOTOGRAPH LOG
Photograph 1

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 5.63	
Date: April 28, 2011	
Description: Heavy sheen and globules at 5.55 North	
View Direction: NA	

PHOTOGRAPH LOG
Photograph 2

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 5.63	
Date: April 30, 2011	
Description: Heavy sheen in the vegetation along the banks in the SE corner of 5.55 North	
View Direction: East	

PHOTOGRAPH LOG
Photograph 3

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 5.63	
Date: April 28, 2011	
Description: Looking toward Ceresco Dam from 5.55 North	
View Direction: Northwest	

PHOTOGRAPH LOG
Photograph 4

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 10.40	
Date: May 7, 2011	
Description: Heavy sheen and globules at 10.5 L2	
View Direction: NA	

PHOTOGRAPH LOG
Photograph 5

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 10.40	
Date: May 7, 2011	
Description: Looking across the 10.5 L2 backwater channel from the left bank	
View Direction: Southeast	

PHOTOGRAPH LOG
Photograph 6

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 19.40	
Date: May 7, 2011	
Description: Heavy sheen and globules at 19.25 L1 B	
View Direction: NA	

PHOTOGRAPH LOG
Photograph 7

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 19.30	
Date: May 7, 2011	
Description: Overview of the 19.25 L1 cut-off channel	
View Direction: Northwest	

PHOTOGRAPH LOG
Photograph 8

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 26.13	
Date: May 10, 2011	
Description: Heavy Sheen and globules at 26.1 Southeast	
View Direction: NA	

PHOTOGRAPH LOG
Photograph 9

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 33.15	
Date: May 18, 2011	
Description: Heavy sheen and globules at 33.0B	
View Direction: NA	

PHOTOGRAPH LOG
Photograph 10

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: 33.15	
Date: May 18, 2011	
Description: Overview of the 33.0B backwater	
View Direction: North	

Attachment 1: Select Submerged Oil Reassessment Poling Photographs

PHOTOGRAPH LOG
Photograph 11

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: Morrow Lake Delta	
Date: May 17, 2011	
Description: Heavy sheen with many globules in Delta V	
View Direction: NA	

PHOTOGRAPH LOG
Photograph 12

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: Morrow Lake Delta	
Date: June 6, 2011	
Description: Heavy sheen with many globules visible next to airboat in Delta B	
View Direction: North	

Attachment 1: Select Submerged Oil Reassessment Poling Photographs

PHOTOGRAPH LOG
Photograph 13

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: Morrow Lake Delta	
Date: 6/6/11	
Description: Heavy sheen with many globules in Delta A	
View Direction: NA	

PHOTOGRAPH LOG
Photograph 14

Project Name: Enbridge Line 6B Submerged Oil Task Force	
Mile Post: Morrow Lake Delta	
Date: 6/6/11	
Description: Delta A, looking toward the main channel	
View Direction: North	

SO Attachment B

Longitudinal Profile Tech Memo

March 4, 2011

To: Robert Steede, Enbridge

From: Brad Schrotenboer, Tetra Tech
Dave Richardson, Tetra Tech
Jen Holmstadt, Tetra Tech

Cc: Steve McGee, Tetra Tech
Stavros Patselos, Tetra Tech

Subject: **Talmadge Creek and Kalamazoo River Longitudinal Profile Marshall, Michigan**

INTRODUCTION

This technical memorandum summarizes the methods, results, and geomorphic analysis of a longitudinal profile developed for Talmadge Creek and the Kalamazoo River between the Enbridge spill release site and the Morrow Lake Dam. The longitudinal profile survey was completed during the emergency response field investigation conducted in the late summer and fall of 2010. This emergency response focused on primary areas of submerged and overbank oil deposition. Geomorphic methods were used to develop a list of potential submerged oil deposition areas. Development of a detailed longitudinal profile is a key part of the fluvial geomorphic process.

A longitudinal profile is an upstream to downstream cross-section of the water surface and river bed. This cross-section is used to determine the gradient of the channel. Channel gradient has a direct impact on the sediment depositional patterns. A low channel gradient results in lower water velocities; lower water velocities result in increased sediment deposition. A steep channel gradient results in higher water velocities, which cause increased sediment erosion. Thus, gradient is a critical component in determining where contaminants have deposited in the channel.

Geomorphic methods such as longitudinal profiles can also be used to select sample locations. By concentrating sample locations in areas where sediment deposition is most probable, the horizontal and vertical extent of contaminated sediments is delineated accurately and efficiently. The longitudinal profile completed for Talmadge Creek and the Kalamazoo River will be an important tool for designing a focused sampling program for the 2011 field season.

METHODS

Data Collection

Bathymetric surveys are the preferred method to develop a contour map of the river channel bed. A contour map is a useful tool for generating longitudinal profiles. Unfortunately, Talmadge Creek does not have sufficient water depth for bathymetric data to be collected successfully. In addition, the only portion of the oil impacted Kalamazoo River with water depths sufficient to perform a bathymetric survey was Morrow Lake. However, data to create a longitudinal survey in shallow water can be collected by manual poling and surveying water surface elevations.

In order to generate a longitudinal profile of Talmadge Creek and the Kalamazoo River, poling of the thalweg was conducted at approximately 150 foot interval along the impacted area. The thalweg is the deepest section of the river channel and provides the most reliable point to measure channel gradient. At each poling location, water surface elevation was measured with a Leica RX1200 RTK GPS. A total of 1,466 thalweg and water surface elevation measurements were collected between the source location on Talmadge Creek and the Kalamazoo River confluence with Morrow Lake.

The longitudinal profile data is referenced to the average gage height at the USGS gage in Marshall, MI and Battle Creek, MI. During the longitudinal profile field work, the gage heights were obtained concurrently to provide a water reference elevation for the survey data. The average gage height at the Marshall, MI gage during the survey was 4.33 feet, with a range of 4.31 to 4.37 feet. Average gage height at the USGS gage in Battle Creek, MI during the survey was 3.07 feet, with a range of 3.07 to 3.08 feet.

Morrow Lake has water depths sufficient to collect bathymetric data. Therefore, single beam sonar was used to collect channel bed elevations in Morrow Lake. The longitudinal profile maps show the channel gradient based on the poling and the bathymetry.

Data Processing

After the data was collected, the GPS survey points were checked to determine accuracy. Because the channel gradient is low in many locations, the GPS data must be very precise to correctly characterize the channel morphology. Therefore, only raw elevation data where the standard deviation height measurement (the Leica measure of vertical accuracy) was less than 0.2 feet were used in constructing the longitudinal profile. A total of 900 out of 1,466 locations met this criterion. At locations where the vertical accuracy did not fall within the standard deviation, water surface elevation was estimated using a constant slope, distance-weighted interpolation between the nearest upstream and downstream measured water surface elevations. Because of the very shallow stream gradient along most of the project area, this method provided a very good estimation of water surface elevation at points where GPS vertical accuracy did not fall within the standard deviation. Therefore, all 1,466 survey points were used to construct the longitudinal profile.

To generate the final profile, a 3-point moving average was calculated for the water surface elevation data for the Kalamazoo River. A moving average was not used for Talmadge Creek survey locations because the gradient was steeper and survey locations were more widely distributed. To calculate a moving average, each measured location was averaged with the locations nearest upstream and downstream (excluding discontinuities such as dams). After the water surface elevations were calculated, thalweg elevations were determined. To calculate thalweg elevation, water depth was subtracted from the moving average water surface elevation at each location (or spot water surface elevation, for Talmadge Creek). Each location was assigned a milepost using one-one hundredth mile intervals that correspond to the distance from the source. If a location was directly between two one-one hundredth mile stations, resolution was made to 0.005 miles. Water surface and thalweg elevations were plotted as XY scatter plots using elevation in feet above msl, and milepost in miles downstream of the source. A smoothed line was automatically generated to connect all of the data points.

Bathymetry data was used to generate the longitudinal profile of Morrow Lake. The average water surface between MP 37.3 and MP 37.7 was calculated (774.8 ft msl) and used as a constant elevation for the lake. The bathymetry data was used to determine the course of the former river channel and to calculate thalweg elevations. Thalweg elevations were calculated in one-one hundredth mile intervals, providing an accurate depiction of channel slope across the lake. Therefore, this section of the profile is displayed differently on the maps and graphs.

Stream gradients were calculated in half-mile or one-mile intervals where thalweg elevation and water surface elevations were measured. However, fluvial conditions in some segments of the river prevented accurate measurements. For example, the concrete section of the Kalamazoo River in Battle Creek had water velocities too high to allow precise measurements of the thalweg; therefore, in these situations water surface elevations were estimated using a constant slope between elevations upstream and downstream.

RESULTS OF LONGITUDINAL PROFILE ANALYSIS

The following section discusses the results of the longitudinal profile generated for Talmadge Creek, the Kalamazoo River, and Morrow Lake. Between the Talmadge Creek Source Area and Morrow Lake, water surface elevation drops a total of 137 feet (Graph 1); water surface elevations drop a combined twenty-four feet over dams and spillways. Channel gradient ranges from near zero ft/mile to greater than 25 ft/mile. The results of the longitudinal profile are presented in Figures 1-11 and Graphs 1-5 and referenced in the discussion below.

Talmadge Creek

The impacted section of Talmadge Creek is a two-mile long meandering stream. Water surface elevation drops approximately 38 feet between the source area and the confluence with the Kalamazoo River at MP 2.03 (Figure 1, Graph 1). Approximately 1.1 miles downstream of the source area, Talmadge Creek passes underneath I-69 through a series

of culverts. The culverts constrict the channel, causing water to pond upstream of the culverts where channel gradient is nearly zero. Downstream of I-69, channel gradient increases until the confluence with the Kalamazoo River, with the steepest segment of the channel between the source area and the confluence occurring between MP 1.5 and MP 2.0. Water surface elevations for Talmadge Creek decrease from 912 ft msl at the source area to 874 ft msl (Graph 2A, 2B).

Kalamazoo River

Talmadge Creek enters the Kalamazoo River at MP 2.03 (Figure 1). Between the confluence with Talmadge Creek and Ceresco Dam, the Kalamazoo River drops five feet in elevation over 3.75 miles (Figure 1, 2, Graph 3). The stream gradient gradually decreases to almost zero upstream of Ceresco Dam (MP 5.8). The effects of Ceresco Dam are evident from the longitudinal profile as far upstream as MP 4.25. Between the confluence and MP 4.25 average water depth is 2.4 ft, but from MP 4.25 to Ceresco Dam average water depth increases to 4.1 ft. The segment of the river between MP 4.25 and Ceresco Dam represents the first significant depositional area of the Kalamazoo River downstream of Talmadge Creek.

Over Ceresco Dam, water surface elevation drops approximately eleven ft. Downstream of the dam the channel is a typical meandering channel with relatively fast flow. Between the dam (MP 5.8) and MP 14.2, channel gradient is fairly consistent and generally ranges between 2.5 and 5 ft/mile (Figure 3, 4, 5, Graph 4). The channel between Ceresco Dam and MP 14.2 is a typical meandering channel with relatively fast flow (Figure 4). At MP 14.2, average water depth increases and stream gradient decreases behind the Kalamazoo River Dam (MP 15.65, Figure 4; Graph 4). This segment of river is the second significant depositional area of the Kalamazoo River below its confluence with Talmadge Creek, and includes the areas known as the North and South Mill Ponds.

At the Kalamazoo River Dam, water surface elevation drops approximately twelve feet (Figure 5, Graph 5). The channel in this segment of river has anthropogenic impacts related to erosion and flood control). The channel is lined with rip rap to MP 15.79. Between MP 15.79 and MP 16.49, the channel is lined with concrete. Due to safety considerations, it was not possible to measure water depths or thalweg elevations within or upstream of the concrete channel. Gradient was interpolated for this segment of river between the nearest upstream and downstream measurement points, and was estimated to be 13.7 ft/mile.

Water surface elevation and water depth measurements were resumed at MP 16.5, where the concrete channel ends and the Battle Creek River joins the Kalamazoo River. Gradient from MP 16.5 to MP 16.8 is approximately 10.6 ft/mile (0.20%), but shallows to 1.0 ft/mile (0.02%) by MP 17.5 Figure 5, 6, Graph 5). After MP 17.5, gradient gradually declines to near zero behind a concrete sill at MP 20.49 (Figure 6, Graph 5). This sill causes water to pond upstream for approximately 1 mile. The sill increases water depth to ~2.8 ft. from an average of 2.3 ft further upstream.

Downstream of the sill, gradient remains generally low for the next mile to MP 21.5 (Figure 7, Graph 5). The artificially straightened channel, constructed as part of the Kalamazoo River Diversion Project, ends at MP 21.5. Starting at MP 21.5, the stream gradient is less than 2.5 ft/mile except for a few short steep sections (Figure 8, 9, 10, 11, Graph 5).

MP 36.0 is the approximate upstream influence of Morrow Lake Dam (Graph 5). From MP 36.0 to Morrow Lake Dam, the stream gradient is close to zero. Starting at the mouth of the Kalamazoo River into Morrow Lake (MP 37.70), the mile markers and channel bed elevations as shown on the accompanying graphs of the longitudinal profile follow the thalweg of the submerged channel of the Kalamazoo River (Figure 11). Approximate elevation of Morrow Lake at the time of survey was 774.8 feet msl. Maximum water depth in the lake occurs at its far western edge, near the dam, where water depths are approximately 14 feet.

GEOMORPHIC ANALYSIS

Geomorphic analysis of contaminant deposition relies on multiple lines of evidence, and longitudinal profiles are a key tool for understanding the distribution of contaminants in a fluvial system. To analyze the results of the Talmadge Creek and Kalamazoo River longitudinal profile, the profile was compared to the depositional pattern observed during the 2010 field investigation. The profile should reflect depositional and erosional areas that were directly observed during field work. The longitudinal profile is accurate at a scale of approximately 200 feet (approximate distance between survey locations). Therefore, depositional areas at smaller scales may not be reflected in the profile. In the event that the results of the profile conflict with observed geomorphic conditions, additional lines of evidence, such as anthropogenic impacts, fate and transport mechanisms, or valley characteristics were considered.

The following section summarizes the geomorphic conditions reflected in the longitudinal profile and those conditions directly observed during the 2010 field season.

Talmadge Creek

Talmadge Creek is a highly developed meandering channel with a steep gradient. Although steep gradients generally prohibit extensive sediment deposition, the meanders in Talmadge Creek slow water velocities, especially downstream of point bars, which cause sediments and contaminants to deposit. In addition, Talmadge Creek is subject to anthropogenic impacts that influence deposition and erosion. Talmadge Creek is close to the source area, exposing it to higher volumes of spilled oil than areas further downstream. In addition, the culverts under I-69 constrict the stream channel causing sediment and oil deposition upstream (Figure 1, Graph 2A, 2B). Thus, the geomorphic and anthropogenic features of the creek resulted in significant oil deposition in Talmadge Creek.

Kalamazoo River Confluence to Ceresco Dam

After Talmadge Creek enters the Kalamazoo River, channel gradient generally decreases. This section of river has three distinct reaches that reflect changes in channel gradient and depositional environment. The first reach, from the confluence to MP 3.0, has steeper gradients and limited deposition (Figures 1, 2, Graph 3). The second reach, from MP 3.0 to MP 4.25, has a shallower gradient and depositional areas along the south bank and downstream of the islands. The third reach, from MP 4.25 to Ceresco Dam, represents the first major depositional area downstream of the source area. Anthropogenic factors in this reach have impacted channel gradient and water depths, which then impact the depositional environment. The first factor, a former railroad bed, obstructs water flow and causes oil to deposit upstream and downstream of the bed. The second factor, Ceresco Dam, increases water depth and slows water velocities, causing oil to deposit upstream of the dam.

Ceresco Dam to Kalamazoo River Dam

Between Ceresco Dam and Kalamazoo River Dam, the Kalamazoo River has two distinct reaches that reflect changes in depositional environment. The first reach, between Ceresco Dam and MP 14.2, is characterized as a generally non-depositional environment, with one exception: the oxbow at MP 12.5. This is not represented on the longitudinal profile, because the longitudinal survey followed the thalweg of the main channel. The oxbow was identified as a primary deposition area during the 2010 remediation activities (Figure 3, 4, 5, Graph 4).

The second reach in this segment of river, from MP 14.2 to the Kalamazoo River Dam (MP 15.65), is dominated by anthropogenic impacts to the channel. Three bridges, a set of culverts under a road, and a highly urbanized upland have altered the natural morphology of the channel and impacted the depositional environment. In particular, the bridge at MP 15.25 contributes to slowed water velocities and increased water depths, resulting in South Mill Pond. The culverts under the bridge at MP 15.56 have impacted the channel in a similar fashion and created North Mill Pond. These ponds are significant depositional areas and were identified as primary deposition areas during 2010 field activities.

Kalamazoo River Dam to Morrow Lake Dam

Between Kalamazoo River Dam and Morrow Lake Dam, the morphology of the river can be divided into several segments. The following section addresses each of these segments separately.

Kalamazoo River Dam (MP 15.65) to MP 16.8

This segment of river has two reaches (Figure 5, Graph 5). The first reach, between Kalamazoo River Dam and MP 15.79, has a natural stream bed and a moderate gradient. The second reach (MP 15.79 to MP 16.8) has significant anthropogenic impacts; the channel is concrete lined in the city of Battle Creek. The gradient in this reach is steep and water velocity high; therefore, this reach is largely non-depositional. The concrete

channel ends at the confluence of the Battle Creek River and the Kalamazoo River (MP 16.5).

MP 16.8 to Custer Drive Bridge (MP 21.3)

This segment is dominated by anthropogenic activities. Large parts of this segment have been engineered for flood control purposes. Channel gradient decreases downstream of the confluence of the Battle Creek River and Kalamazoo Rivers; however, flow remains high because of increased water volume from Battle Creek. The channel from Mile 16.5 to Mile 21.5 has been engineered (straight reach) to expedite flow for flood control. Oil deposition begins around MP 18.1 where the channel gradient drops below 1.0 ft/mile (Figure 5, 6). The deposition between MP 18.1 and MP 21.5 was typically associated with bridges (MP 18.1 and MP 18.8) or along the channel banks (areas of slower flow).

Custer Drive Bridge (MP 21.3) to MP 36.0

Between Custer Drive Bridge and MP 36.0, the Kalamazoo River is natural and largely free of anthropogenic impacts. Frequent, high-amplitude meanders create multiple depositional areas. These depositional areas are predominantly cutoff channels, areas downstream of islands, near-bank areas, and areas of channel widening (Figure 7, 8) and are separated, for purposes of this discussion, into five reaches. In the first reach, MP 21.5 to MP 22.4, an oxbow is present north of the river channel. This future oxbow lake was identified as a primary deposition area during the 2010 field activities. The second reach, between MP 22.4 and MP 27.6, has a steeper channel gradient and is largely non-depositional (Figure 7, 8), except for some backwater areas, generally on the downstream sides of point bars. Examples of the backwater areas are 2010 remediation areas MP 26.0, MP 26.25, and MP 26.65.

The third reach, between MP 27.6 and MP 31.9, has localized deposition along the channel banks, and in some backwater areas. The fourth reach, between MP 31.9 and MP 34.3, has consistent deposition along both channel banks (Figure 9, 10). Several primary deposition areas were located in this reach during the 2010 field activities. The final reach, between MP 34.3 and MP 36.0 has steeper channel gradients and limited deposition (Figure 10).

MP 36.0 to MP 37.7

This segment of river is dominated by a large delta with multiple small islands. Deltas are traditionally formed when a river enters into a larger body of water causing water velocity to slow which promotes sediment deposition. This section of river behaves as a delta because the Kalamazoo River widens considerably between MP 36.5 and MP 37.5. The shallow channel gradient causes water velocity to decrease and sediment deposition to increase (Figure 10, Graph 5). In this case, the delta and accreted islands likely formed when the Morrow Lake Dam was built and the water level rise changed the depositional pattern of the river inlet to the impoundment. As of a result of this impoundment, this area would have flooded and submerged all the lower lying land area.

Because of this increased likelihood of deposition and lower energy conditions of dispersed flow, submerged oil was found throughout this area. The longitudinal profile shows this area is a flat gradient at close to zero ft/mile. This flat gradient is typical of a dam controlled water elevation.

MP 37.7 to Morrow Lake Dam

MP 37.7 to Morrow Lake Dam is characterized by a man-made lake created by damming the Kalamazoo River. The dam decreases channel gradient and increases water depth, forming a lake (Figure 11, Graph 5). The lake is 781 acres in size and supports multiple uses including a recreational sport fishery, boating, swimming, and industrial uses. The major depositional area within Morrow Lake is identified by a subaqueous sedimentary fan of nearly uniform depth located where the constricted channel enters Morrow Lake. This fan is formed when water velocity decreases as it enters Morrow Lake, resulting in a depositional environment across the mouth in a roughly semi-circular form. The longitudinal profile indicates a flat channel gradient exists in Morrow Lake due to the effect of the dam.

Sampling conducted in Morrow Lake indicates the oil deposition is limited to the sedimentary fan located between MP 37.7 and MP 38.25. The remainder of Morrow Lake has not shown any oil deposition in the lake sediment.

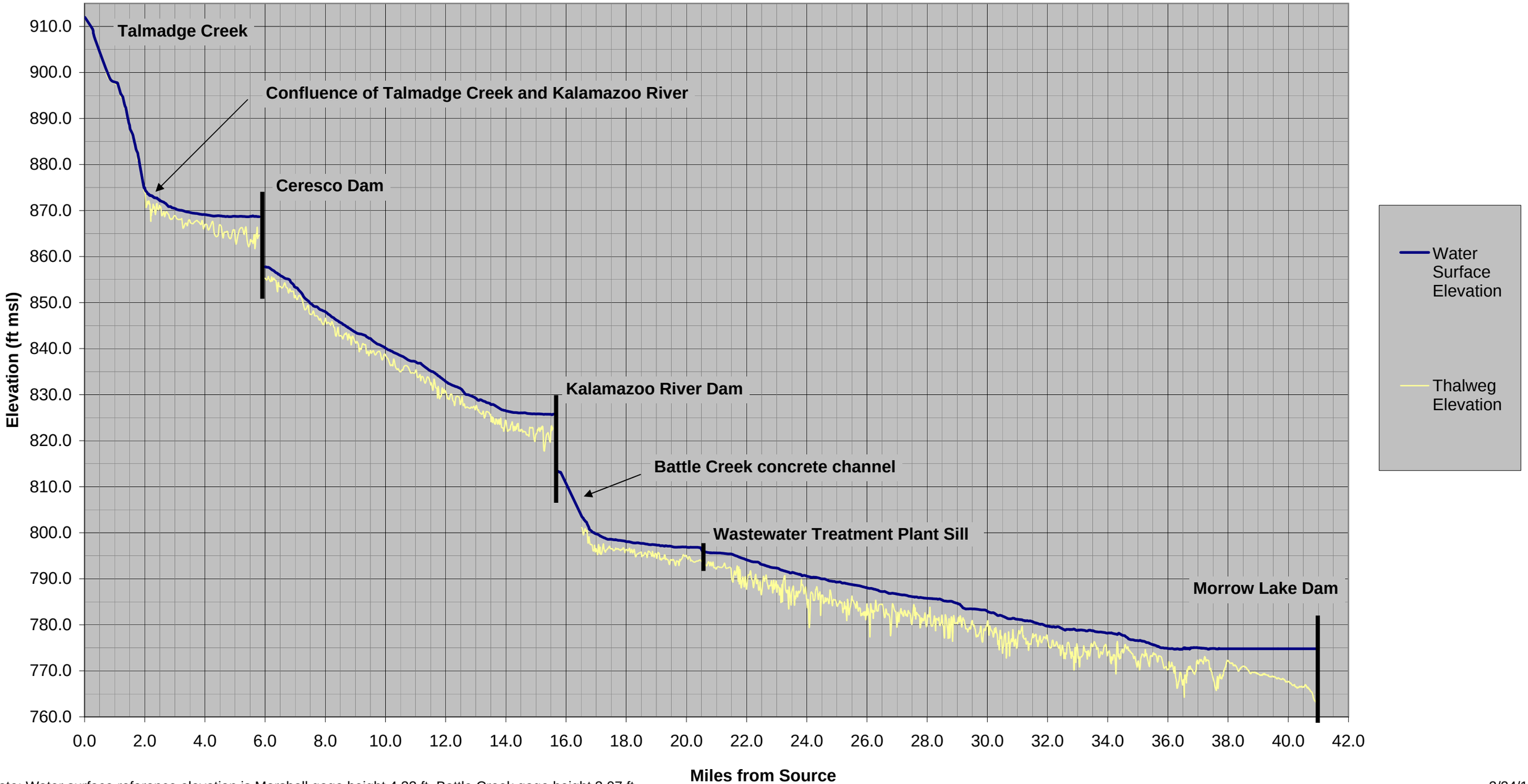
CONCLUSION

A geomorphic analysis of contaminant distribution in a fluvial system relies on multiple lines of evidence. Contaminant distribution is dependent on geomorphic factors (e.g. gradient, water velocity, channel width, etc.) and anthropogenic factors (e.g. dams, bridges, erosion controls, etc.). Longitudinal profiles are one line of evidence in understanding these factors and can aid in designing efficient sampling programs and remediation activities. To that end, a longitudinal profile was generated for the impacted portions of Talmadge Creek, the Kalamazoo River, and Morrow Lake. The profile largely confirmed the geomorphic and/or anthropogenic reasons for the depositional patterns observed during 2010 field activities. An understanding of the depositional pattern will aid in designing a focused geomorphic sampling program for the 2011 field season.

Graphs 1 - 5

Graph 1: Longitudinal Profile - Talmadge Creek and Kalamazoo River - Source to Morrow Lake Dam

TETRA TECH EC, INC.

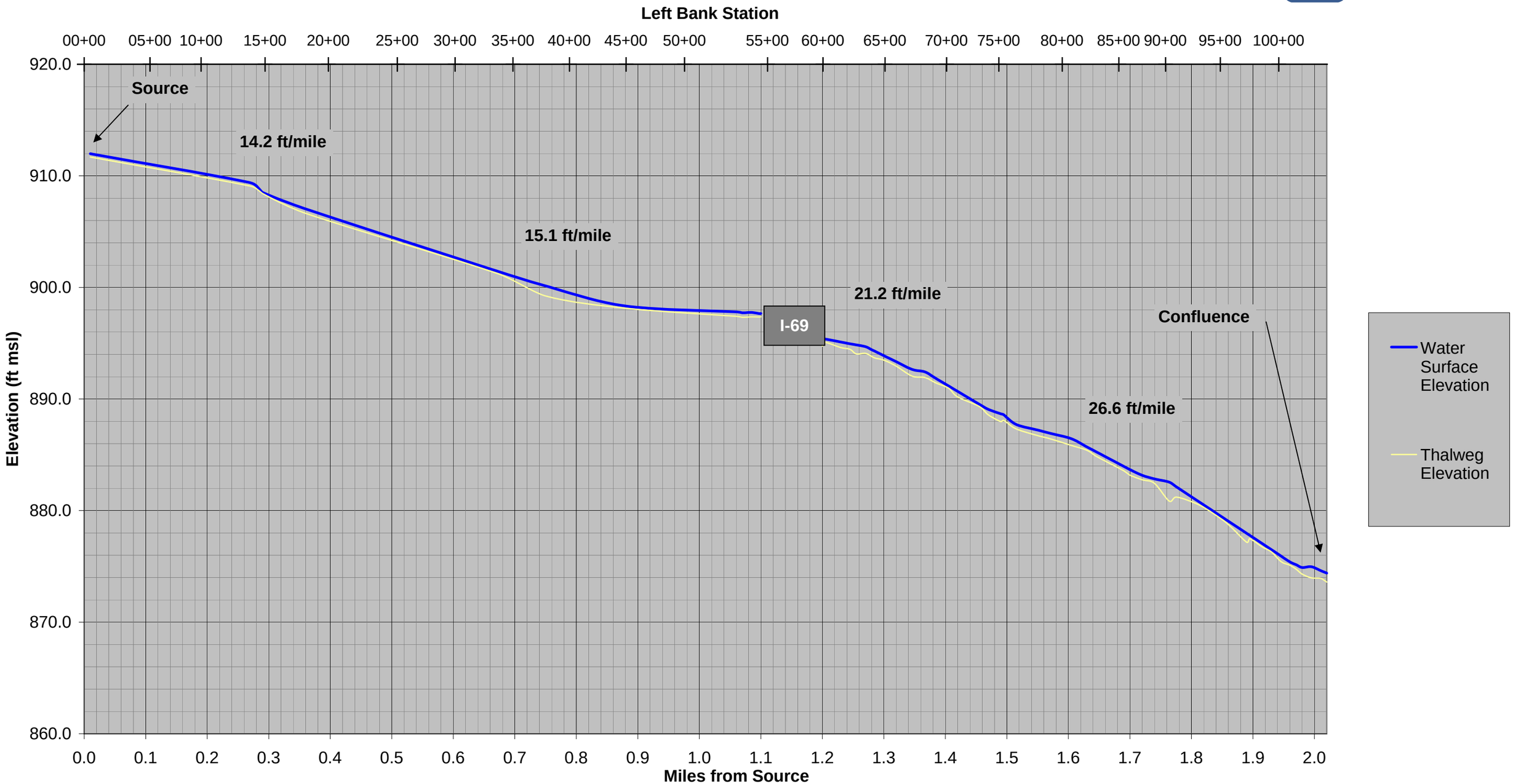


Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

2/24/11

Graph 2A: Longitudinal Profile - Talmadge Creek (Left Bank Stationing)

TETRA TECH EC, INC.

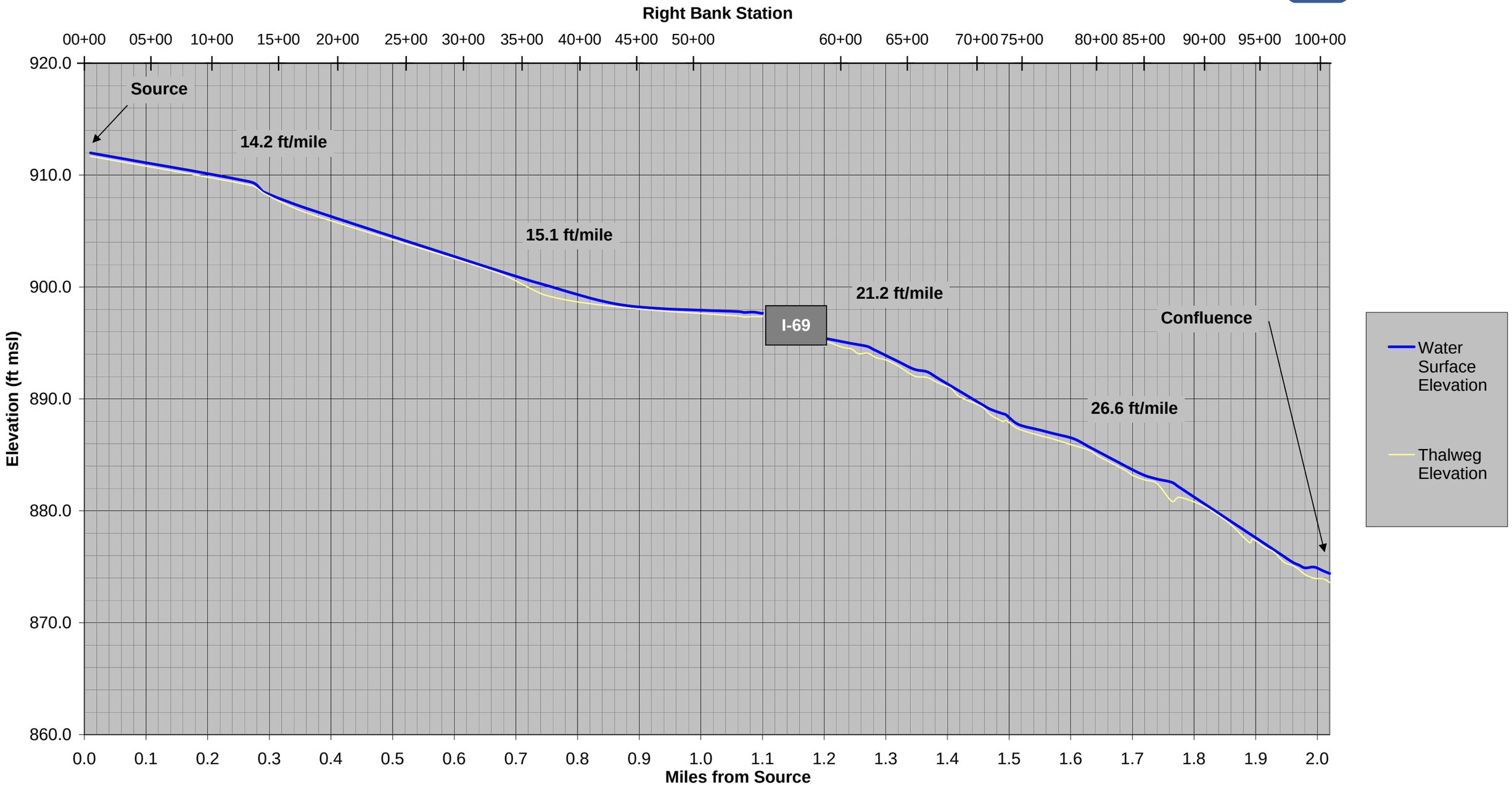


Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft. Stream gradients in half-mile intervals starting at 0.0. Talmadge Creek left bank stationing is offset from right bank stationing due to differences in meander radius.

2/24/11

Graph 2B: Longitudinal Profile - Talmadge Creek (Right Bank Stationing)

TETRA TECH EC, INC.

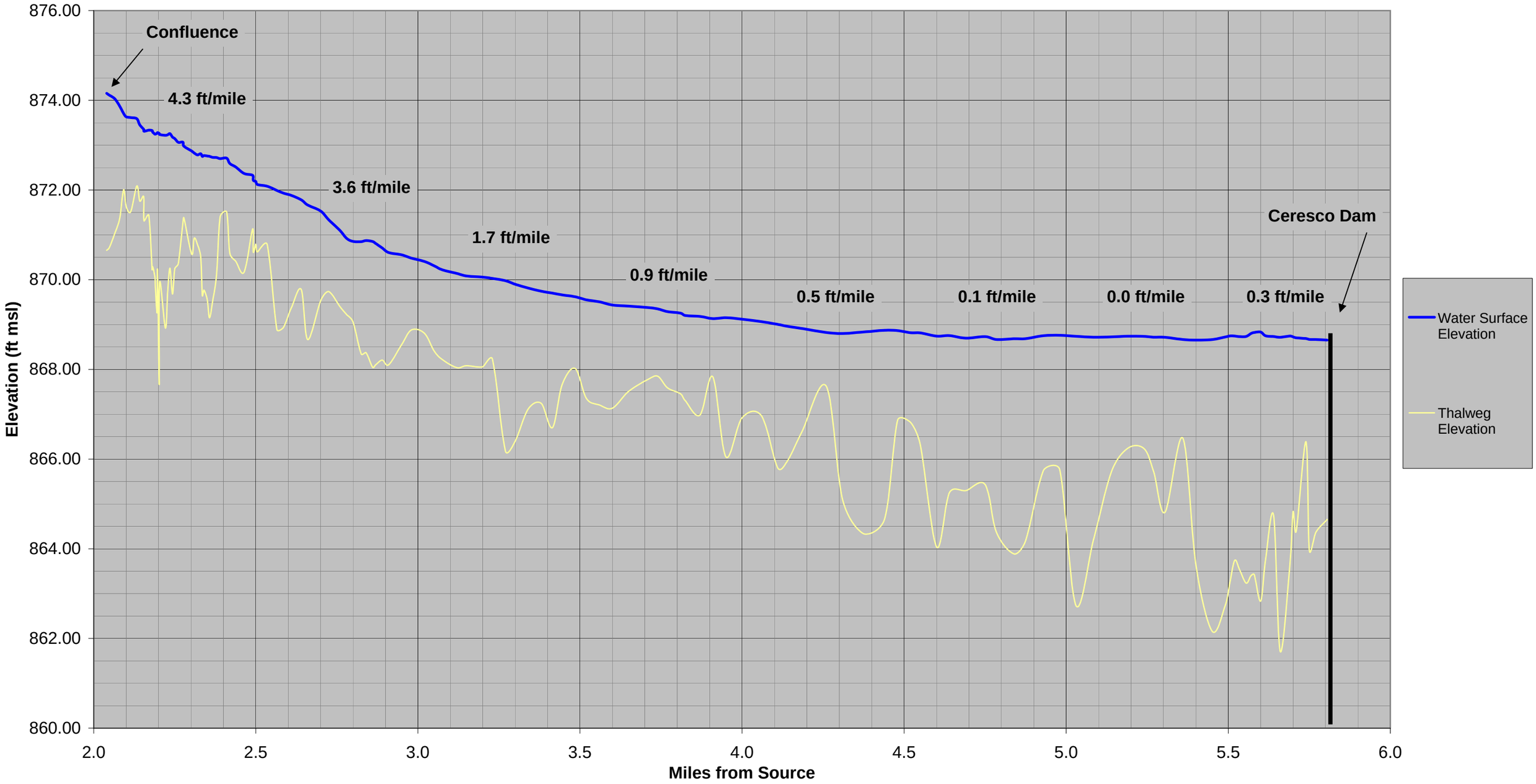


Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft. Stream gradients in half-mile intervals starting at 0.0. Talmadge Creek right bank stationing is offset from left bank stationing due to differences in meander radius.

2/24/11

Graph 3: Longitudinal Profile - Confluence to Ceresco Dam

TETRA TECH EC, INC.

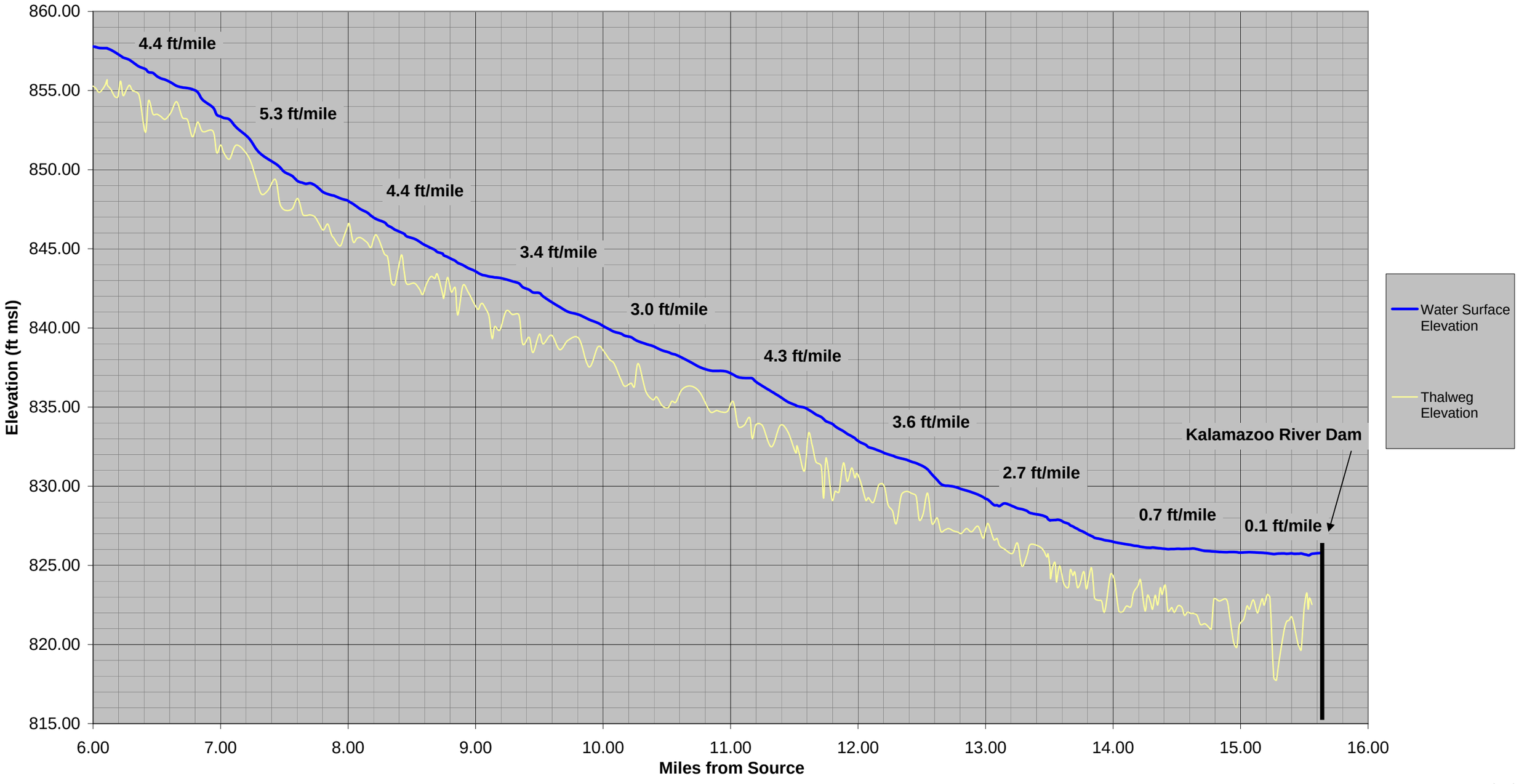


Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft. Stream gradients in half-mile intervals starting at 2.0.

2/24/11

Graph 4: Longitudinal Profile - Ceresco Dam to Mill Pond

TETRA TECH EC, INC.

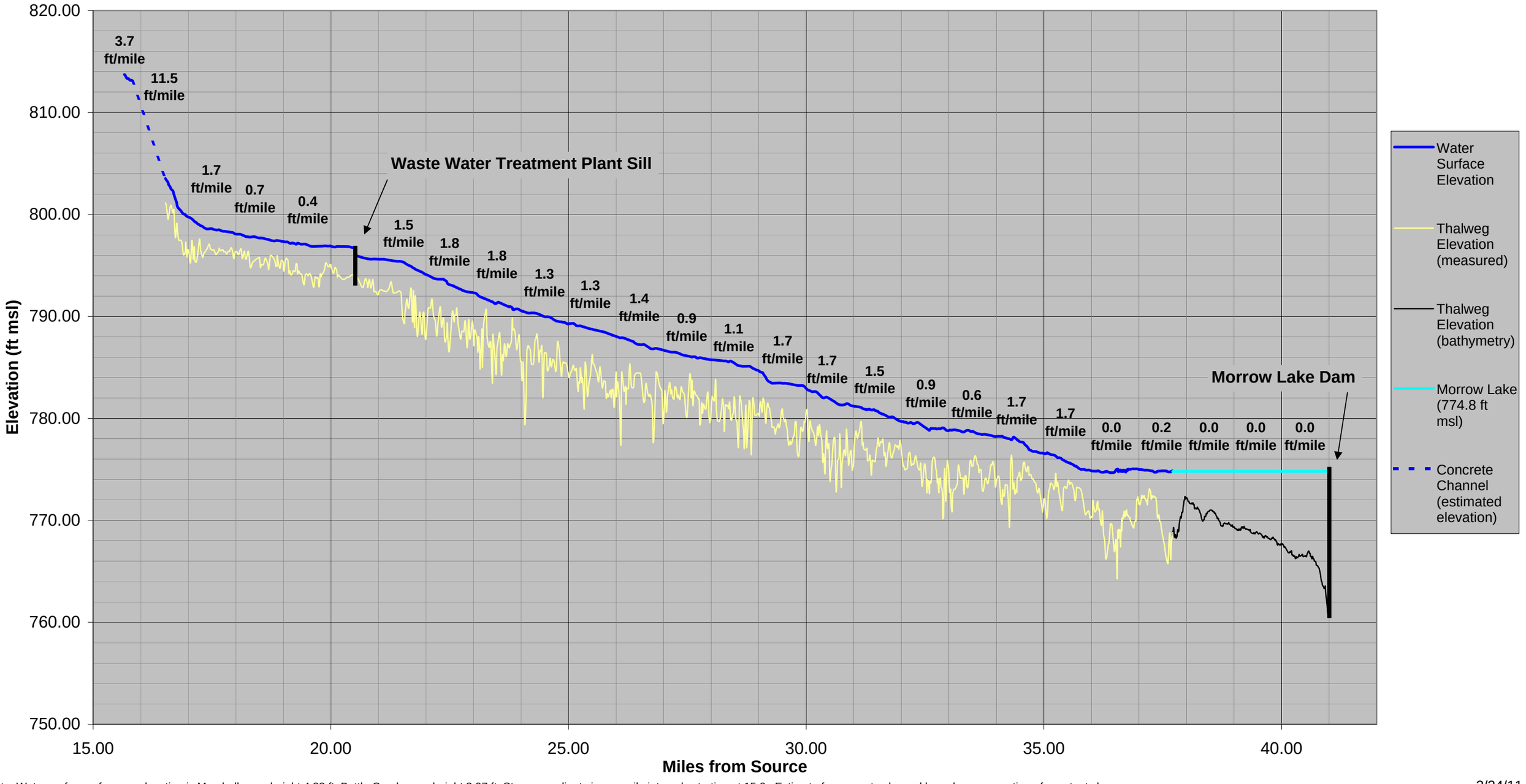


Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft. Stream gradients in one mile intervals starting at 6.0.

2/24/11

Graph 5: Longitudinal Profile - Mill Pond to Morrow Lake

TETRA TECH EC, INC.

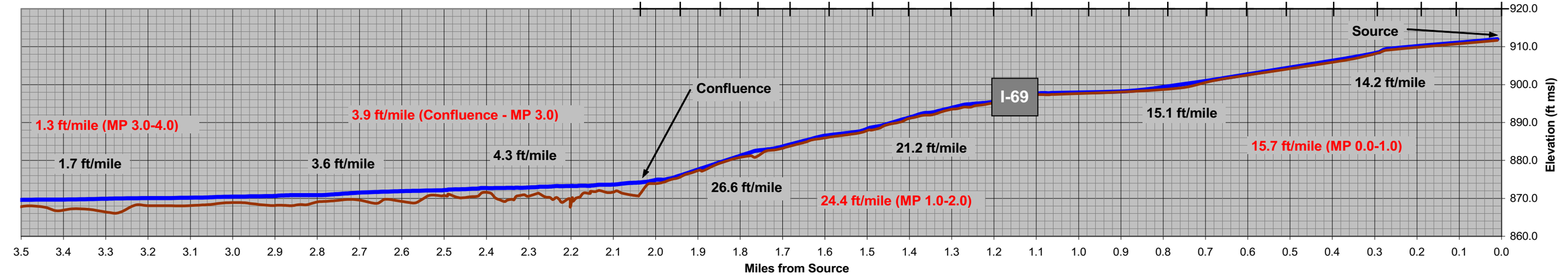


Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft. Stream gradients in one mile intervals starting at 15.0. Estimate for concrete channel based on assumption of constant slope.

2/24/11

Figures 1 - 11





N
W E
S

0 500 1,000 Feet

1 inch = 1,000 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft for Kalamazoo River profile.

Stream gradients listed in black text represent half-mile intervals starting at MP 0.0.

Stream gradients listed in red text represent one-mile intervals starting at MP 0.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 1
LONGITUDINAL PROFILE
Source to MP 3.5

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

2/23/11 -- B. Schrotenboer

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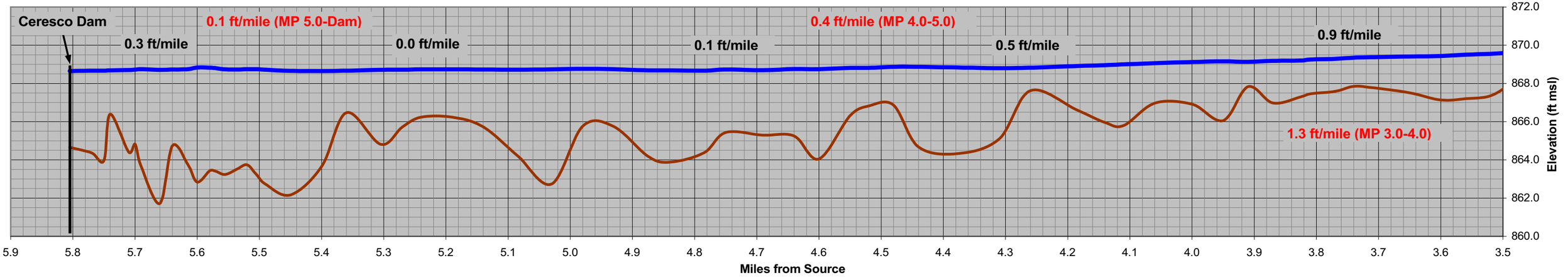

N E S W

0 500 1,000 Feet

1 inch = 1,000 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals starting at MP 3.5 (interval truncated above dam).

Stream gradients listed in red text represent one-mile intervals starting at MP 3.0 (interval truncated above dam).

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 2
LONGITUDINAL PROFILE
MP 3.5 to Ceresco Dam
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

2/23/11 -- B. Schrotenboer

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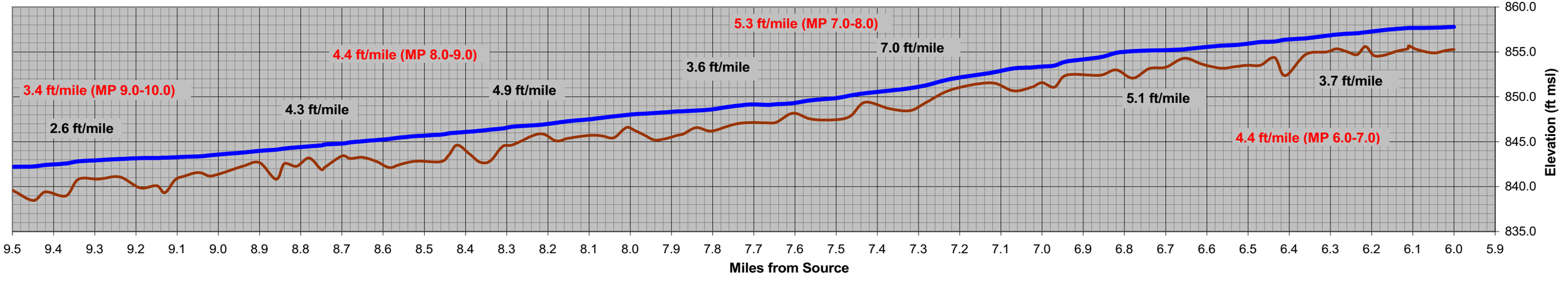

N
W E
S

0 500 1,000 Feet

1 inch = 1,100 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals starting at MP 6.0.

Stream gradients listed in red text represent one-mile intervals starting at MP 6.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 3
LONGITUDINAL PROFILE
Ceresco Dam to MP 9.5
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

2/23/11 -- B. Schrotenboer

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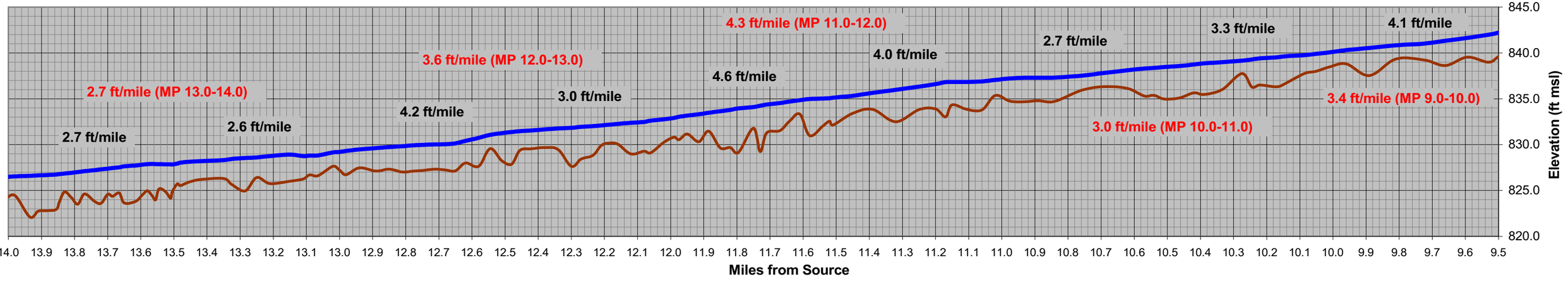

N
W E
S

0 500 1,000 Feet

1 inch = 1,300 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals starting at MP 9.5.

Stream gradients listed in red text represent one-mile intervals starting at MP 9.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 4
LONGITUDINAL PROFILE
MP 9.5 to MP 14.0
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

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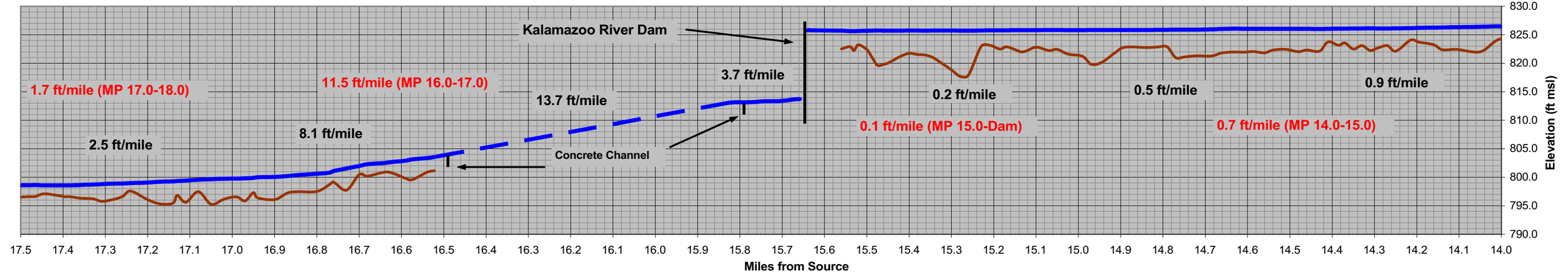

N E S W

0 500 1,000 Feet

1 inch = 1,000 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Estimated Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients in black text represent half-mile intervals for MP 14.0 to MP 15.5 and MP 16.5 to MP 17.5.
Stream gradient immediately below Kalamazoo River Dam is for field measured segment only.
Stream gradient where water surface elevation is estimated (13.7 ft/mile) assumes a constant slope.

Stream gradients listed in red text represent one-mile intervals starting at MP 14.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 5
LONGITUDINAL PROFILE
MP 14.0 to MP 17.5
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

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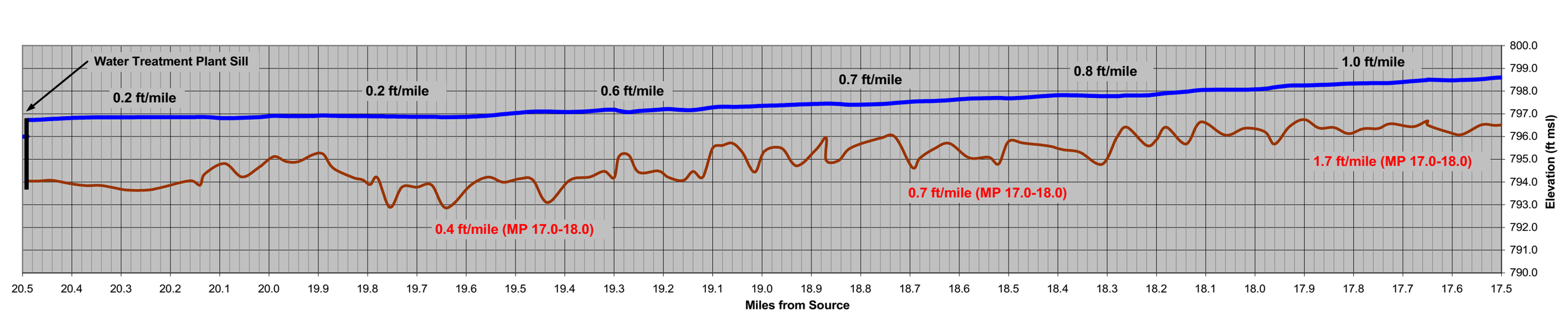



1 inch = 1,000 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals from MP 17.5 to MP 20.5.

Stream gradients listed in red text represent one-mile intervals starting at MP 17.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 6
LONGITUDINAL PROFILE
MP 17.5 to MP 20.5
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

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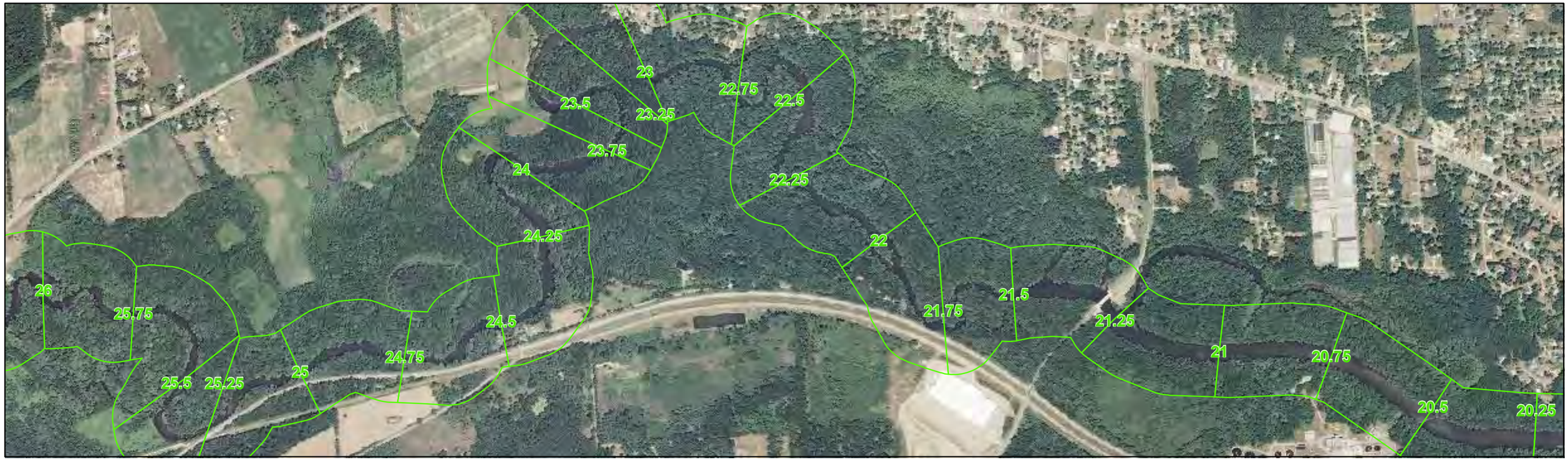

N
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0 500 1,000 Feet

1 inch = 1,100 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals starting at MP 20.5, except for MP 22.37 to 22.47, which is calculated separately.

Stream gradients listed in red text represent one-mile intervals starting at MP 21.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 7
LONGITUDINAL PROFILE
MP 20.5 to MP 25.5
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

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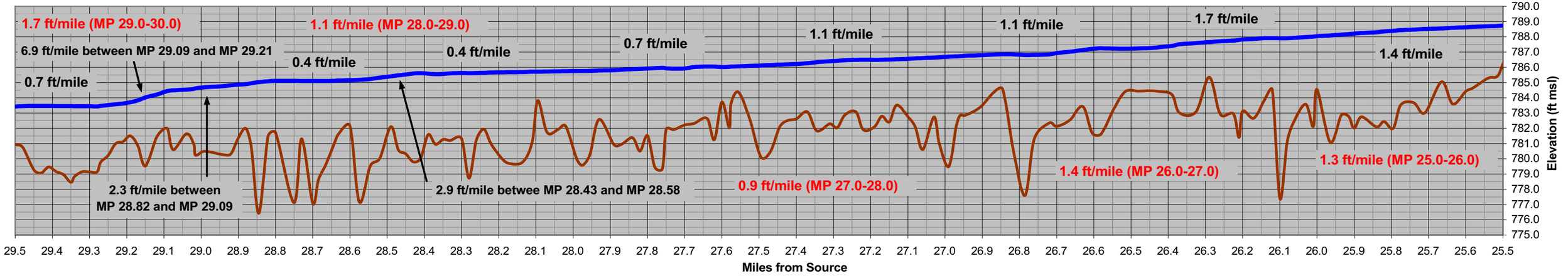



1 inch = 1,000 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals, except significant breaks in slope have been calculated separately.

Stream gradients listed in red text represent one-mile intervals starting at MP 25.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 8
LONGITUDINAL PROFILE
MP 25.5 to MP 29.5
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

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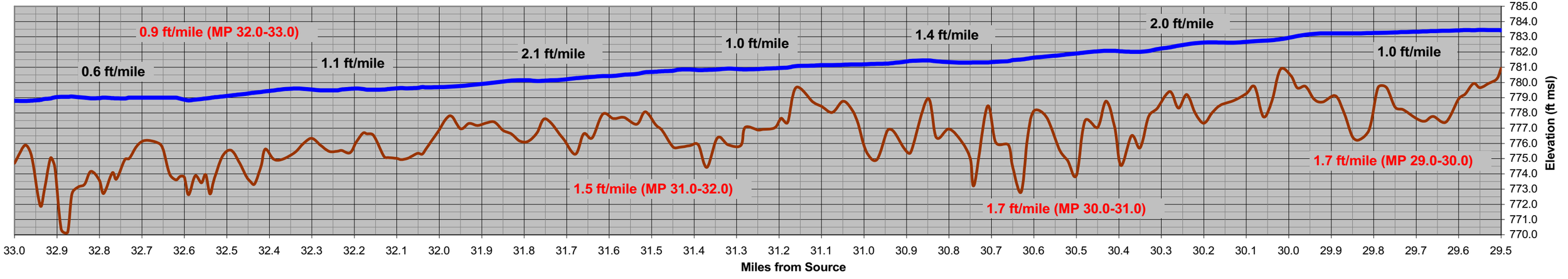

N W E S

0 500 1,000 Feet

1 inch = 1,000 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals starting at MP 29.5.

Stream gradients listed in red text represent one-mile intervals starting at MP 29.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 9
LONGITUDINAL PROFILE
MP 29.5 to MP 33.0

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

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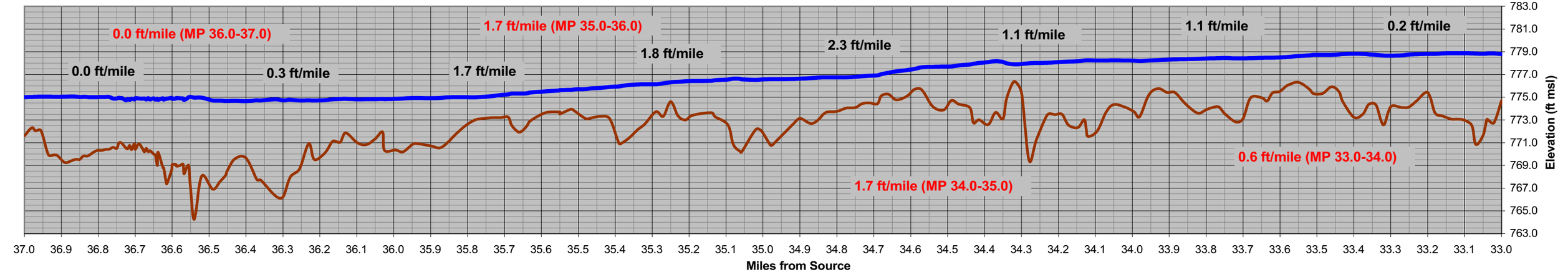

N
W
E
S

0 500 1,000 Feet

1 inch = 1,000 feet

Legend

- Quarter Mile Section
- Water Surface Elevation
- Thalweg Elevation

Note: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft.

Stream gradients listed in black text represent half-mile intervals starting at MP 33.0.

Stream gradients listed in red text represent one-mile intervals starting at MP 6.0.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 10
LONGITUDINAL PROFILE
MP 33.0 to MP 37.0

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

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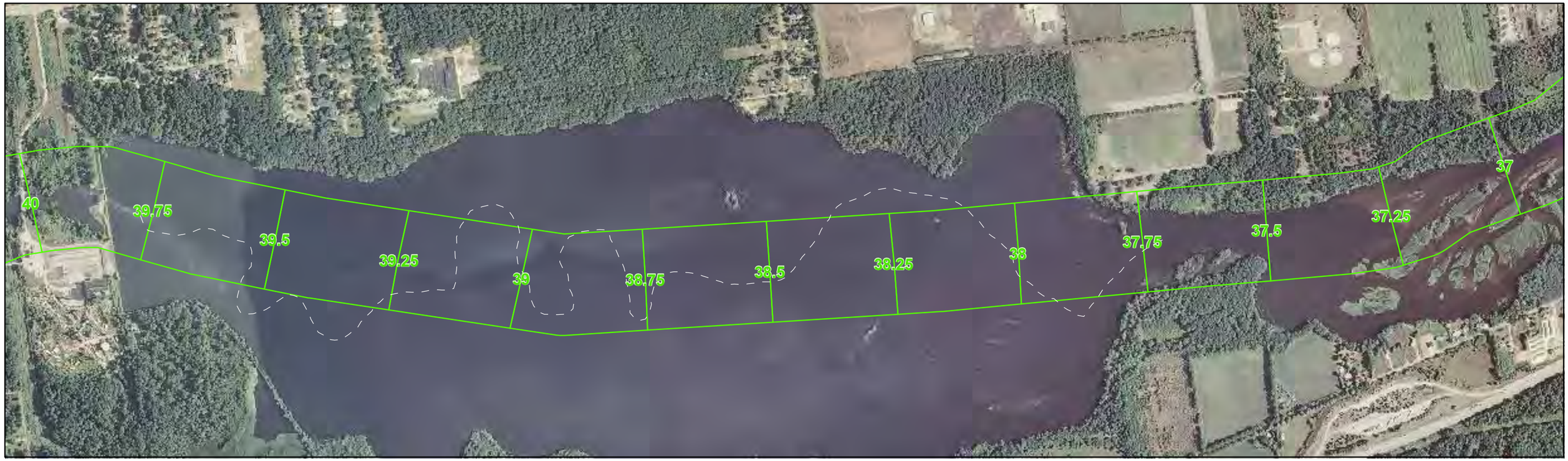

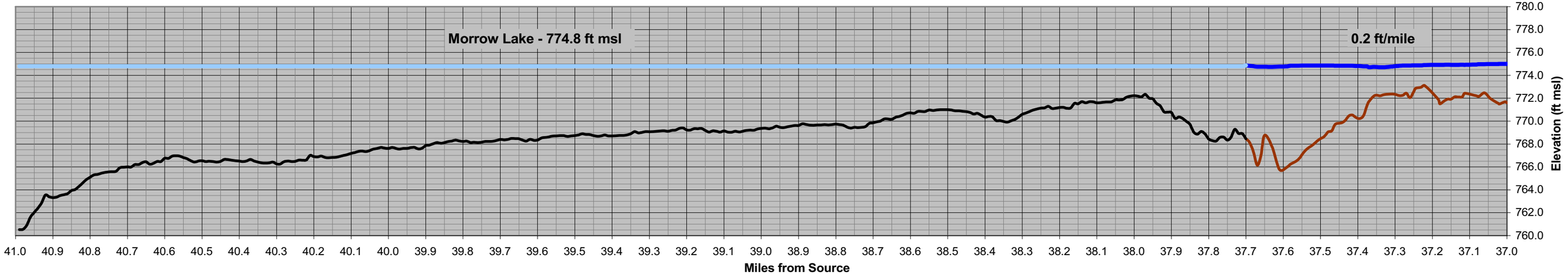

N
W E
S

0 500 1,000 Feet

1 inch = 1,000 feet

Legend

- Former Kalamazoo River Channel
- Quarter Mile Section
- Water Surface Elevation (Kalamazoo River)
- Morrow Lake
- Thalweg Elevation (Measured)
- Thalweg Elevation (Calculated from Morrow Lake Bathymetry)

Notes: Water surface reference elevation is Marshall gage height 4.33 ft, Battle Creek gage height 3.07 ft. Stream gradient is for measured portion only (MP 37.0 to MP 37.7). Morrow Lake elevation was accurate at the time of survey, but will fluctuate. Thalweg elevation for Morrow Lake follows the former river channel as identified using bathymetry. On the longitudinal profile, mile points are calculated along former (submerged) channel downstream of MP 37.7, resulting in differences from quarter mile section mileposts.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 11
LONGITUDINAL PROFILE
MP 37.0 to MP 41.0
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

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SO Attachment C

Oil Mark Survey Tech Memo

March 18, 2011

To: Robert Steede, Enbridge
James Snider, Enbridge
James Tolbert, AECOM

From: Brad Schrotenboer, Tetra Tech
Dave Richardson, Tetra Tech
Jen Holmstadt, Tetra Tech

Cc: Steve McGee, Tetra Tech
Stavros Patselas, Tetra Tech
Roxanne Clarke, Tetra Tech

Subject: **Oil Mark Survey Technical Memorandum**
Marshall, Michigan

Introduction

This technical memorandum summarizes the methods, results, and geomorphic analysis of an oil mark survey developed for the Kalamazoo River and between its confluence with Talmadge Creek and Morrow Lake. The oil mark survey measurements were completed during the emergency response field investigation conducted in November and early December 2010.

The Kalamazoo River was in flood-stage during the oil spill; therefore, a significant amount of overbank flow occurred during the release. This flow caused oil staining of overbank vegetation along much of the impacted area. These oil marks can aid in determining the high water level after release. Measuring the location and elevation of these marks allows for a delineation of the extent of overbank flooding. The oil mark survey will increase our understanding of the flood extent and will assist in estimating the extent of the potentially impacted area.

Methods

Data Collection

The oil mark survey began at the confluence of the Kalamazoo River and Talmadge Creek and concluded at Morrow Lake. The survey focused on areas near the channel banks. A total of 878 oil marks were surveyed, including 86 between the confluence and

Ceresco Dam, 592 between Ceresco Dam and Kalamazoo River Dam, and 200 between Kalamazoo River Dam and Morrow Lake.

At each location, the survey position (xy coordinates) and elevation of the oil mark were recorded using a Leica RX1200 RTK GPS. A relative height measurement was taken at each mark as well, referenced to either the river water surface or the ground surface (in tenths of feet). If conditions at the survey location prevented direct GPS measurement (e.g. tree cover), a small horizontal offset was made using a standard bubble level to maintain the proper elevation of the mark.

In areas where multiple oil marks were present in close proximity, not all oil marks were surveyed. Because the river level was dropping at the time of release, many areas contain oil marks at multiple levels that correspond to different river stages. Where possible, only the highest oil marks were surveyed in order to capture the highest water level for that location.

Data Processing

After collection, the survey data were processed and screened for accuracy. While some locations had GPS elevations of sufficient accuracy to use directly, at most locations it was necessary to use the measured offsets (relative heights referenced to ground surface or river surface). These offsets were converted to absolute elevations using other data sources.

To convert the relative heights, a digital elevation model (DEM) for Calhoun County and longitudinal survey data were used. For the heights referenced to the ground surface, elevations from the Calhoun County DEM were added to the measured height above the ground. However, the Calhoun County DEM had no elevation data for water bodies such as rivers. Therefore, some locations that were referenced to the ground surface but still fell within the DEM "river" area (which did not match exactly with current conditions) could not be referenced to the DEM and were not used to determine flood extent. These locations are still shown as spot locations on the attached figures.

To convert the relative heights referenced to the water surface, longitudinal survey data were used. The offsets were referenced to the same water levels represented by the longitudinal survey data [the "reference water surface", corresponding to USGS Marshall gage height of 4.33 ft and USGS Battle Creek gage height of 3.07 ft; Longitudinal Profile Technical Memorandum, March 2011]. Longitudinal survey elevations were interpolated using inverse distance weighting to develop a water elevation surface. The values from the water elevation surface were then added to the offset elevations.

Once absolute elevations were determined for survey locations, the data was quality-checked to remove any locations that did not appear to represent high-water marks. For example, any locations with elevations significantly higher or lower than surrounding data points were identified as outliers and discarded. Therefore, a total of 534 survey

locations, or about 80% of the total collected, were used to estimate flood extent between the confluence and Kalamazoo River Dam.

Interpolation of the flood elevation surface used the method of inverse distance weighting and was done in two parts; first for the floodplain upstream of Ceresco Dam and then for the floodplain between Ceresco Dam and Kalamazoo River Dam. The estimated flood surface was intersected with the DEM to retain any areas where the estimated flood surface elevation was higher than the corresponding floodplain. Results were shaded according to the magnitude of the difference between the flood surface and the floodplain. This represents the estimated maximum overbank water depth after flood release.

Because appropriate digital elevation data was not available for areas downstream of Kalamazoo River Dam, estimated flood extent could only be calculated for areas upstream of this point (Figures 1-21). However, spot survey locations and relative heights of oil marks are available downstream of this location and still provide vital data on potential impact to this part of the river. These data are included in the results and analysis and shown on Figures 22-54.

Results

The Kalamazoo River was in flood-stage (above bankfull discharge) at the time of the oil release. However, rise in water level was not uniform along the channel due to varying overbank topography, localized changes to bank configuration, channel width, vegetation, and other factors affecting local water level. Therefore, a survey of oil marks was needed to accurately estimate the location and extent of overbank flooding. The following section provides a summary of the results of the oil mark survey completed for the Kalamazoo River. More detailed results for each reach are provided on Figures 1-54, which are referenced in the text below.

Confluence to Ceresco Dam

Upstream of Ceresco Dam, peak water level after the release was approximately 2.5-2.7 feet above the reference water surface. In this reach, overbank flooding was greatest between the confluence and MP 2.75 (Figure 1). Some areas, such as the south (left) bank point bar between MP 2.24 and MP 2.53, were submerged to depths of more than 2 feet.

Downstream of MP 2.75, overbank flooding was minimal and mostly confined to a narrow strip of floodplain along both banks (generally less than 100 feet wide) and to the tributary delta at MP 4.4 (Figures 2-6). Water from the Kalamazoo River may have flooded the tributary as much as 500 feet upstream. In contrast to the relatively minimal overbank flooding in this reach, all the mid-channel islands were submerged by flood waters after release (Figures 1-3).

Ceresco Dam to MP 9.75

Downstream of Ceresco Dam, overbank flooding was more extensive (Figures 6-12). The relative height of oil marks was variable in this reach, ranging from ~2.0 feet to over 3.0 feet above the reference water surface in some areas. Evidence of overbank flooding was observed up to 250 feet inland from the channel.

Immediately below the dam, oil marks were minimal. Oil recovery activities (including water washing) may have diminished observable oil marks (Figures 6). Between 12 Mile Road bridge and MP 6.70, oil marks along the banks were generally minimal, except on the upstream side of the island at MP 6.25 and along the right bank from MP 6.25 to MP 6.5 (Figures 6-7).

The mid-channel islands between MP 8.02 and MP 8.30 were submerged after release (Figure 9). These islands had the most significant oil staining noted in the entire survey. Oil marks tended to be slightly higher above water level on the upstream sides of the islands than on the downstream sides.

Significant overbank flooding occurred along the left bank from MP 8.22 to MP 8.47 and from MP 8.98 to MP 9.12 (Figures 9 and 11).

MP 9.75 to MP 13.75

In contrast to the intermittent flooding between Ceresco Dam and MP 9.75, the area between MP 9.75 and MP 13.75 had significant overbank flooding (Figures 12-17). The low bank and broad, low floodplain of this area is susceptible to flooding, and the high oil marks found here (exceeding 4.0 feet above the reference water surface and 2.0 feet above the bank in many areas) suggest flooding may have extended over 1,000 feet from the bank in some areas. Overbank flood depths ranged from 2.0 feet in some areas to greater than 3.0 feet. Thus, this reach had the most extensive overbank flooding upstream of the Kalamazoo River Dam.

Between approximately MP 9.75 and MP 12.0, overbank flooding probably occurred along both banks (Figures 12-15) except on some outside meander bends. In particular, the point bars at MP 9.90, MP 10.32, and MP 11.45 had numerous oil marks. The peninsula on the right bank (MP 11.08-MP 11.60) was submerged, along with the mid-channel islands throughout this segment.

Based on oil mark observations, the river likely did not top the right bank between MP 12.05 and MP 12.40 (Figure 15). Although overbank morphology in this area is depositional, the amount of observed oil staining was lower than expected. The small island at the east entrance to the MP 12.5 oxbow had moderate amounts of oil staining, but the main island separating the oxbow from the main channel only had moderate staining along the main channel. The rest of the island had minimal oil staining, as did both banks along the oxbow channel (Figure 16).

Overbank flooding along the right bank from MP 12.65 to MP 13.25 was significant (Figures 16-17). This is the most spatially extensive area of floodplain upstream of the Kalamazoo River Dam. The combination of high water levels and expansive level floodplain topography results in a large area susceptible to flooding; in some areas over 1,000 feet from the bank. Likewise, flooding between MP 13.25 and MP13.75 was the deepest overbank flooding upstream of the Kalamazoo River Dam, exceeding 3 feet in some areas (Figure 17).

MP 13.75 to Kalamazoo River Dam

Downstream of MP 13.75, the relative height of oil marks and the depth of estimated flood water over the floodplain decreases. Between Beadle Lake Road Bridge and Main Street Bridge, oil marks were observed up to 4 feet above the reference water surface (Figure 18). Further downstream, the relative height of oil marks continues to decrease, to less than 2.5 feet above the reference water surface near the Mill Ponds (Figure 21). Overbank flooding in this reach was restricted to relatively small areas of floodplain and to mid-channel islands.

No evidence was found during the field survey to suggest that the south Mill Pond levee was overtopped after release (Figure 20). The levee along the west side of the north Mill Pond was overtopped at peak river level only near its north end. At this location, oil staining was noted on Purple Loosestrife plants on the levee, but less than 1 foot above the ground (Figure 21). Most of the levee (south of this point) was higher than the water level at release and therefore not overtopped.

Kalamazoo River Dam to MP 21.5

Downstream of the Kalamazoo River Dam (MP 15.65), the natural channel of the Kalamazoo River was altered for flood control, affecting the floodplain for this reach of the river. A concrete channel was constructed as part of the Kalamazoo River Diversion Project. No overbank flooding occurred along the concrete channel, and it was not possible to survey for oil marks in this segment of river.

The concrete channel ends at MP 16.49 (Figure 22) where the Battle Creek River joins the Kalamazoo River. This segment of river (MP 16.49-MP 21.5) has been artificially straightened. A berm, constructed during the straightening effort, restricts the floodplain. However, oil marks were observed along the banks in this segment of river, indicating that flood levels ranged between 2.5 and 3.9 feet above the reference water surface (Figures 22-29)

MP 21.5 to MP 24.75

Downstream of MP 21.5, the Kalamazoo River has a more extensive floodplain. Visible oil marks were intermittent, and concentrated in a few areas (Figures 30-34). The left bank at MP 21.5 and MP 22.55 had marks about 2.5 feet above the floodplain. Further downstream, the right bank at MP 23.23 had oil marks up to 3.1 feet above the floodplain

(Figure 32). Numerous oil marks were noted on both banks between MP 24.5 and MP 24.75 (Figure 34). Oil marks on the north bank adjacent to the oxbow lake (Figure 34) suggest the oxbow was connected to the main channel during high flood-stage after the spill. MP 24.75 is the furthest downstream that significant oil marks were noted in the survey.

MP 24.75 to Morrow Lake

Downstream of MP 24.75, observed oil marks were sporadic and generally adjacent to the channel (Figures 35-54). Oil staining is minimal; often only oil-stained vegetation wrapped around trunks and branches at the high water mark was observed. Upstream of MP 33.0, oil marks were approximately 4 feet above the reference water surface; in contrast, downstream of MP 33.0 oil marks were 3 feet or less.

Downstream of MP 36.0, the influence of Morrow Lake dam would have moderated the rise in water level. The oil marks found in this area were ~1.0 foot above the reference water surface (Figures 51-52). However, oil marks here were faint and difficult to distinguish from water marks.

Geomorphic Analysis

Fluvial geomorphic methods provide a means of predicting and analyzing the depositional pattern of contamination in a river system. Typically, data from many sources or a 'multiple lines of evidence' approach is used to support and verify the interpretations. In this survey, the presence and height of oil marks and a DEM were used to predict the depositional pattern of spilled oil for the Kalamazoo River.

Based on the results of this survey, some patterns in overbank deposition are evident. The areas associated with overbank deposition include:

1) High-amplitude meanders with significant point bar deposits. Point bars are most likely to have deposits along upstream edges.

2) Mid-channel islands. The most significant deposits of oil were found on mid-channel islands.

3) Areas with extensive, level floodplain topography upstream of anthropogenic activity (e.g. bridges, railroad crossings, etc).

In contrast to in-channel depositional patterns, dams appear to limit overbank deposition. Typically, the dam increases the water storage capacity of the channel. Water depths upstream of dams are typically deeper; thus, waters are more confined to the channel upstream of dams.

The following section summarizes the overbank deposition of oil for the Kalamazoo River.

Confluence to Ceresco Dam (Figures 1-6)

From the confluence with Talmadge Creek to Ceresco Dam, the Kalamazoo River is subject to variation in geomorphic characteristics from both natural and anthropogenic influences. At the confluence, Kalamazoo River water volume and velocities are higher than Talmadge Creek, resulting in limited overbank deposition north of the confluence. Upstream of 15 Mile Road bridge; however, numerous oil marks along the south bank indicate the presence of oil, probably in association with the Kalamazoo River thalweg (along the south bank) and the confluence of Talmadge Creek from the south (Figure 1).

Between the confluence and MP 2.75, the most significant evidence of flooding was observed on mid-channel islands and two point bars (associated with meander bends), which were inundated during the oil release. The combination of proximity to the source and relatively high-amplitude meanders affected oil deposition in this segment of river.

Downstream of MP 2.75, the river has low-amplitude meanders and steep banks. Upstream of Ceresco Dam, increased water depths limit overbank deposition and confine floodwaters to the channel. Therefore, limited evidence of overbank deposition was observed between MP 2.75 and Ceresco Dam (Figures 1, 2).

Ceresco Dam to Kalamazoo River Dam (Figures 6-21)

Downstream of Ceresco Dam to MP 9.75, the river is characterized by low-amplitude meanders and small point bars (Figures 6-12). Therefore, potential overbank deposition is limited in this area. Flooding was probably limited to within 250 feet of the channel. Most overbank impact was to the mid-channel islands.

Between MP 9.75 and MP 13.75 (Figures 12-17), several geomorphic and anthropogenic factors coincide to increase the likelihood of overbank deposition. This reach has an extensive floodplain and high-amplitude meanders with large point bars. Indeed, the greatest densities of oil marks occurred on the upstream sides of point bars. Other floodplain features, such as ridge and swale topography and backwater wetlands, act to pond flood water and increase overbank deposition. Anthropogenic impacts (i.e. Raymond Road Bridge and Beadle Lake Road Bridge) restrict flow across the floodplain and increase flood depths upstream. The combination of anthropogenic and geomorphic factors resulted in the most significant overbank flooding observed along the Kalamazoo River (Figure 55). The area between MP 9.75 and MP 13.75 represents the largest area, in acres, flooded between the confluence and the Kalamazoo River Dam. Flood waters may have extended up to 1000 feet from the bank between MP 12.75 and MP 13.25 (Figures 16-17). The deepest overbank flood depths were between MP 13.25 and Beadle Lake Road Bridge.

Downstream of MP 13.75, the floodplain is limited and the banks are steep. Similar to the Ceresco Dam, the Kalamazoo River Dam limits overbank flooding and oil deposition (Figures 17-21).

Kalamazoo River Dam to Morrow Lake (Figures 22-54)

Between the Kalamazoo River Dam and MP 21.5, the river has been significantly altered by anthropogenic activity. Modifications to the channel during the Kalamazoo River Diversion Project mostly eliminated the floodplain in this area. In addition, dredging activities resulted in steep river banks, further diminishing potential overbank flooding. Therefore, while oil marks were observed along the banks in this reach, oil deposition was limited (Figures 22-28).

The natural river channel resumes at MP 21.5. Oil deposition downstream of MP 21.5 is probably limited. Oil marks are generally observed in sporadic clusters. The oxbow lake between 24.5 and 24.75 was connected to the channel after the spill occurred. Downstream of 24.75, evidence of overbank deposition is widely scattered and minimal (Figures 28-54).

Conclusion

Three principal factors influence the overbank deposition of oil: 1) geomorphic setting (i.e. point bars, mid-channel islands, floodplain, etc), 2) distance from the oil source, and 3) anthropogenic modifications of the river system. The interaction of these factors controls the depositional pattern of oil.

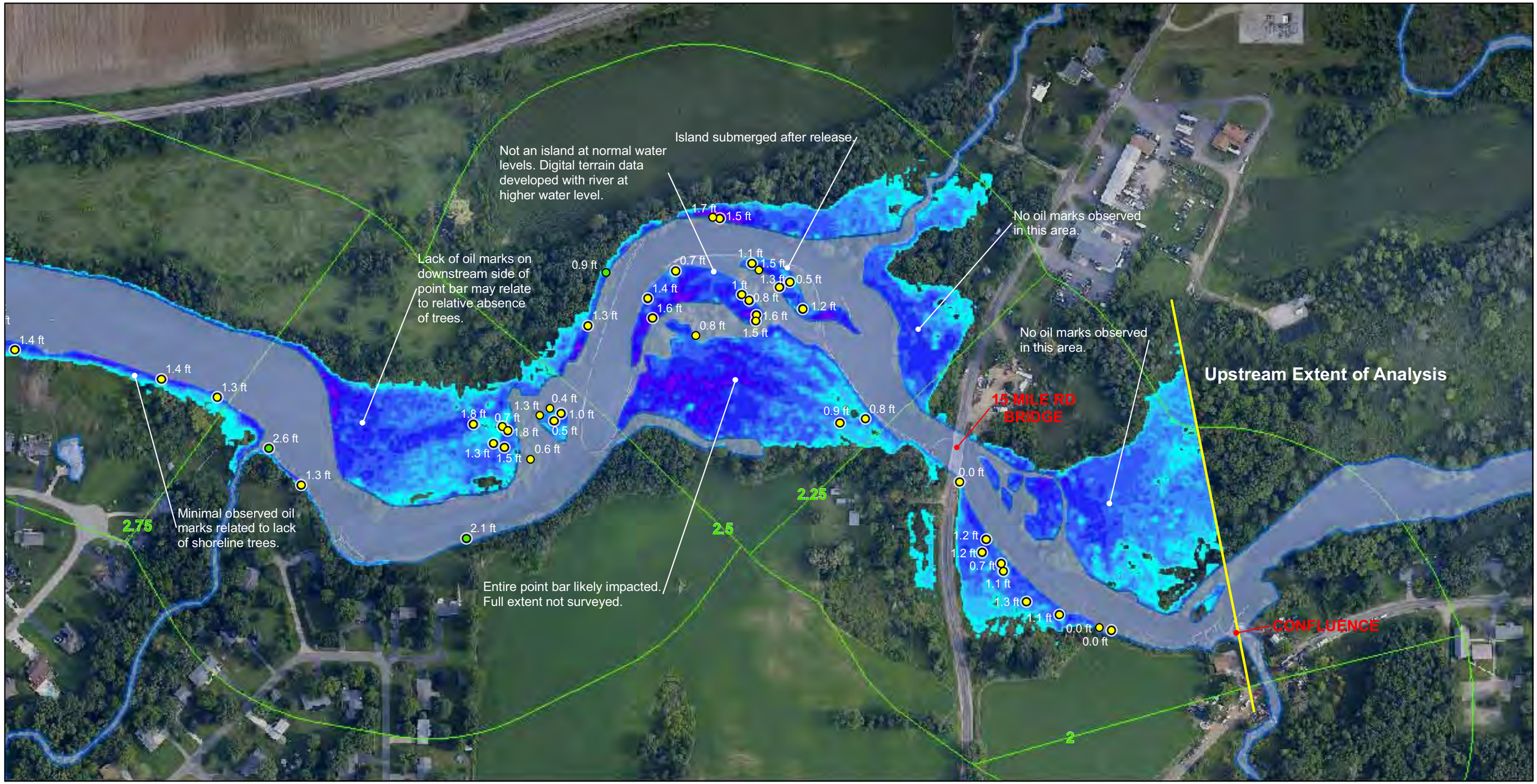
Geomorphic setting affects depositional environments. In particular, two geomorphic environments were prevalent depositional areas: points bars associated with high-amplitude meanders and mid-channel islands. Oil marks were consistently identified in higher densities on the upstream side of point bars. In addition, high-amplitude meanders are generally associated with larger floodplains subject to increased overbank deposition.

Similar to geomorphic setting, anthropogenic modifications to the fluvial system can increase or eliminate natural depositional areas. For example, the berm from MP 12.05 to MP 12.40 decreases the potential for overbank deposition. In contrast, Beadle Lake Road bridge increased overbank flooding upstream.

Finally, distance from the oil source affected the amount of oil available for overbank deposition. In general, as distance from the source increases, the amount of deposited oil decreases.

The results of this survey reveal the differences between overbank (floodplain oil) and in-channel (submerged oil) depositional patterns. In-channel depositional areas are primarily influenced by channel gradients and water depths (i.e. Ceresco Dam, North and South Mill Ponds, etc.). These areas have limited overbank deposition. In contrast, overbank depositional areas typically have minimal in-channel deposition. For example, the largest

overbank depositional area (between MP 9.75 and MP 13.75) has minimal in-channel deposition because channel gradient is steeper in this area. Thus, it is important to design an adaptive management strategy that incorporates an understanding of the unique geomorphology influencing both oil pathways.



N
W E
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0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

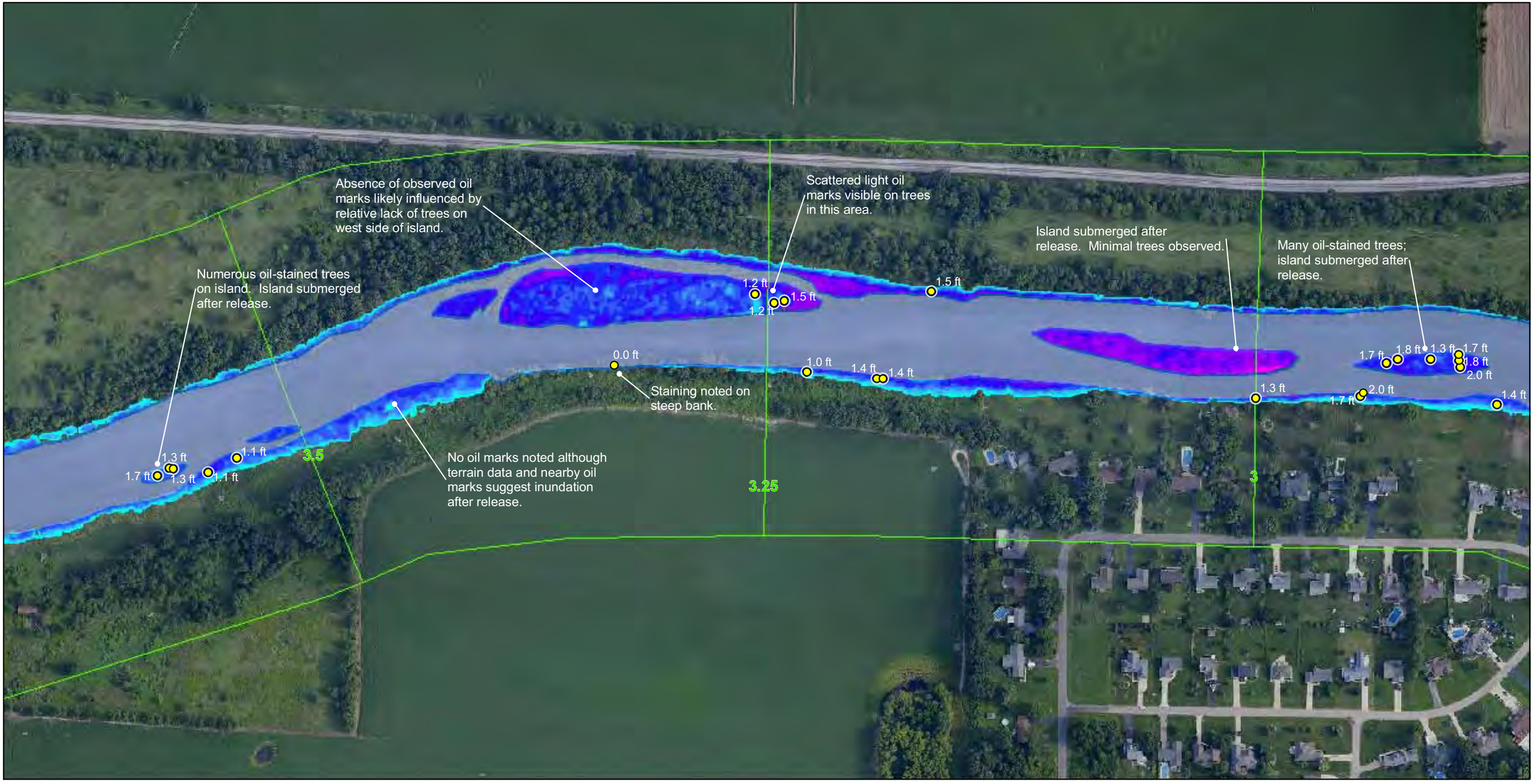
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 1
RELEASE FLOOD EXTENT
MP02.00-MP03.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

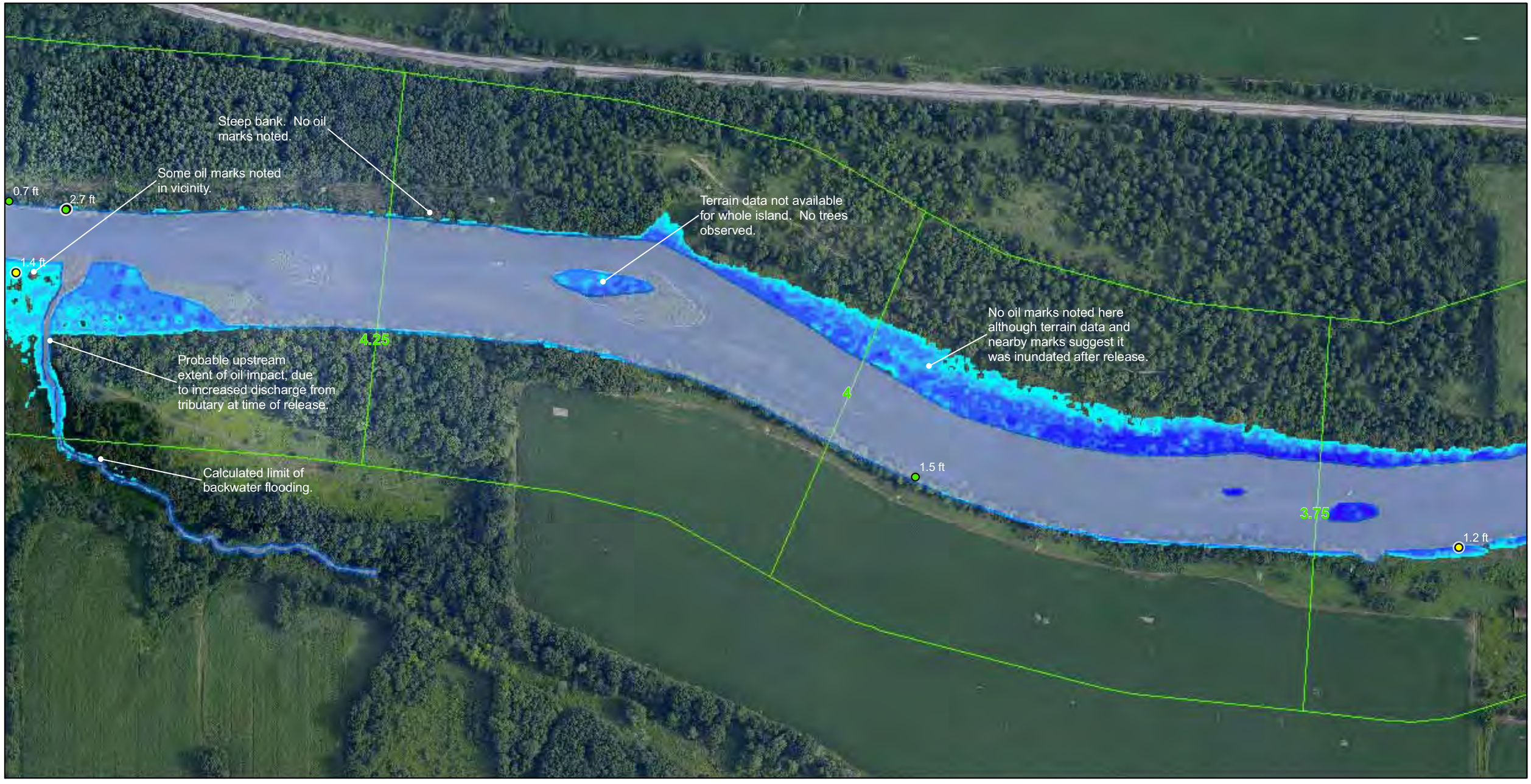
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 2
RELEASE FLOOD EXTENT
MP03.00-MP03.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

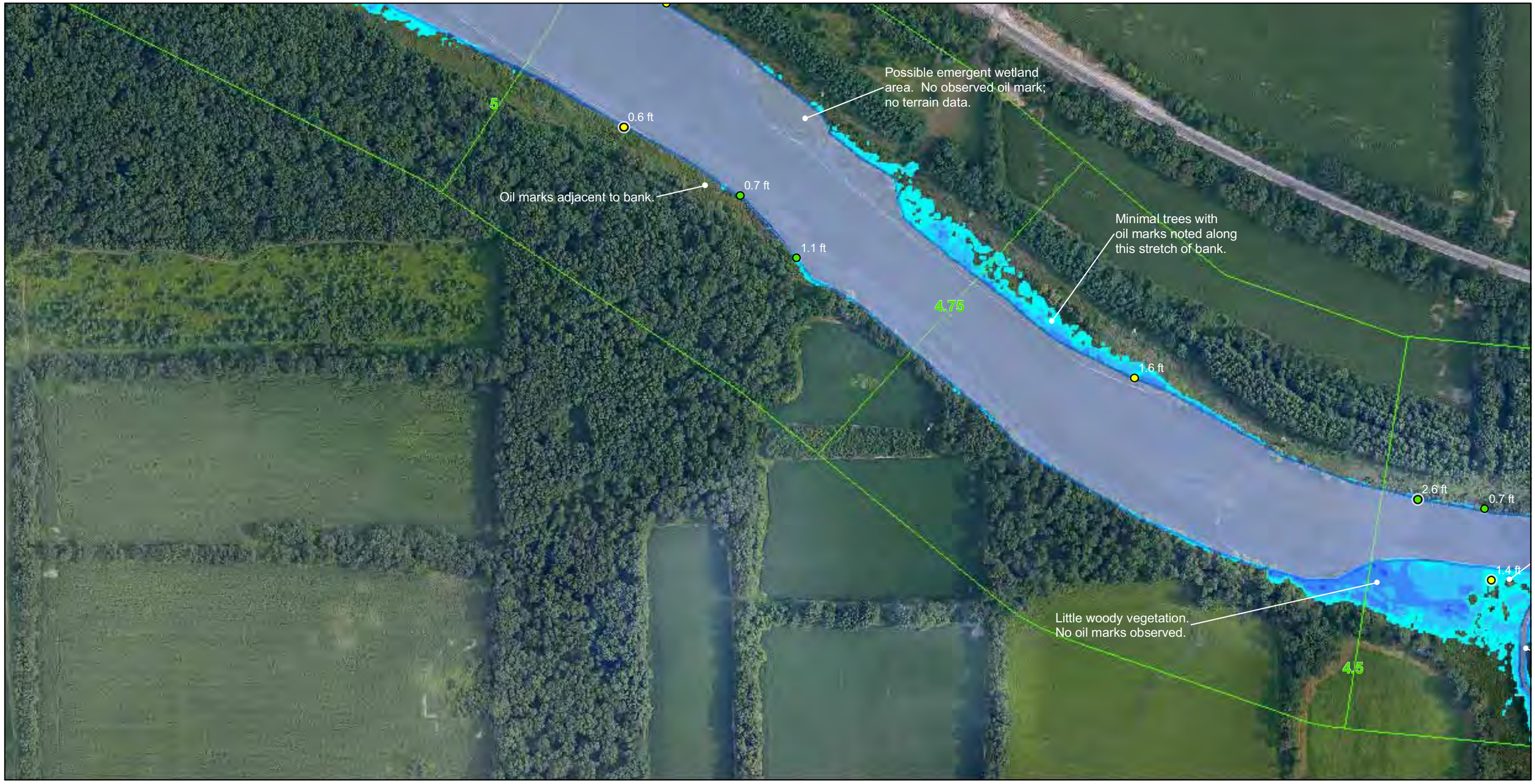
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 3
RELEASE FLOOD EXTENT
MP03.75-MP04.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

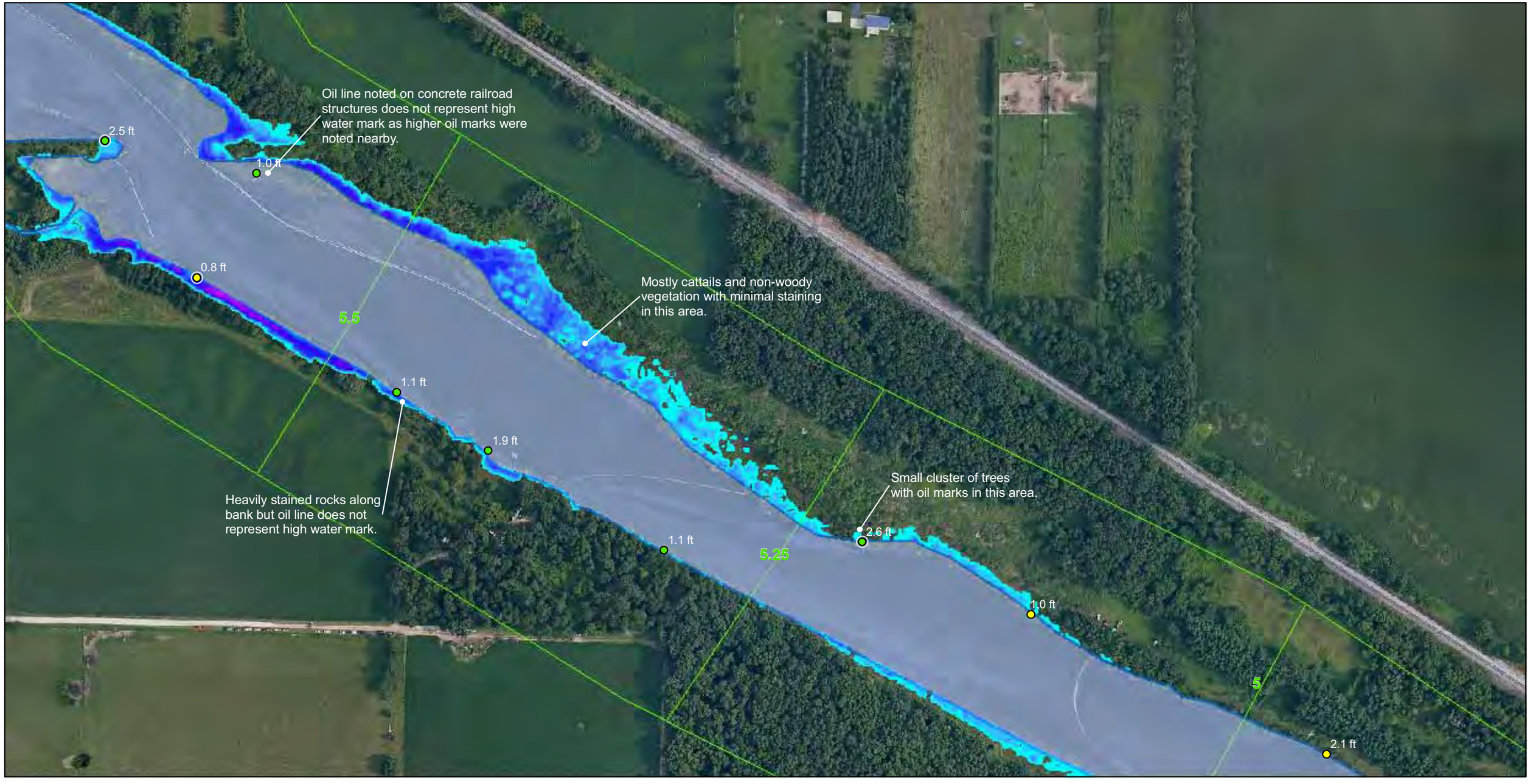
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 4
RELEASE FLOOD EXTENT
MP04.50-MP05.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 5
RELEASE FLOOD EXTENT
MP05.00-MP05.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

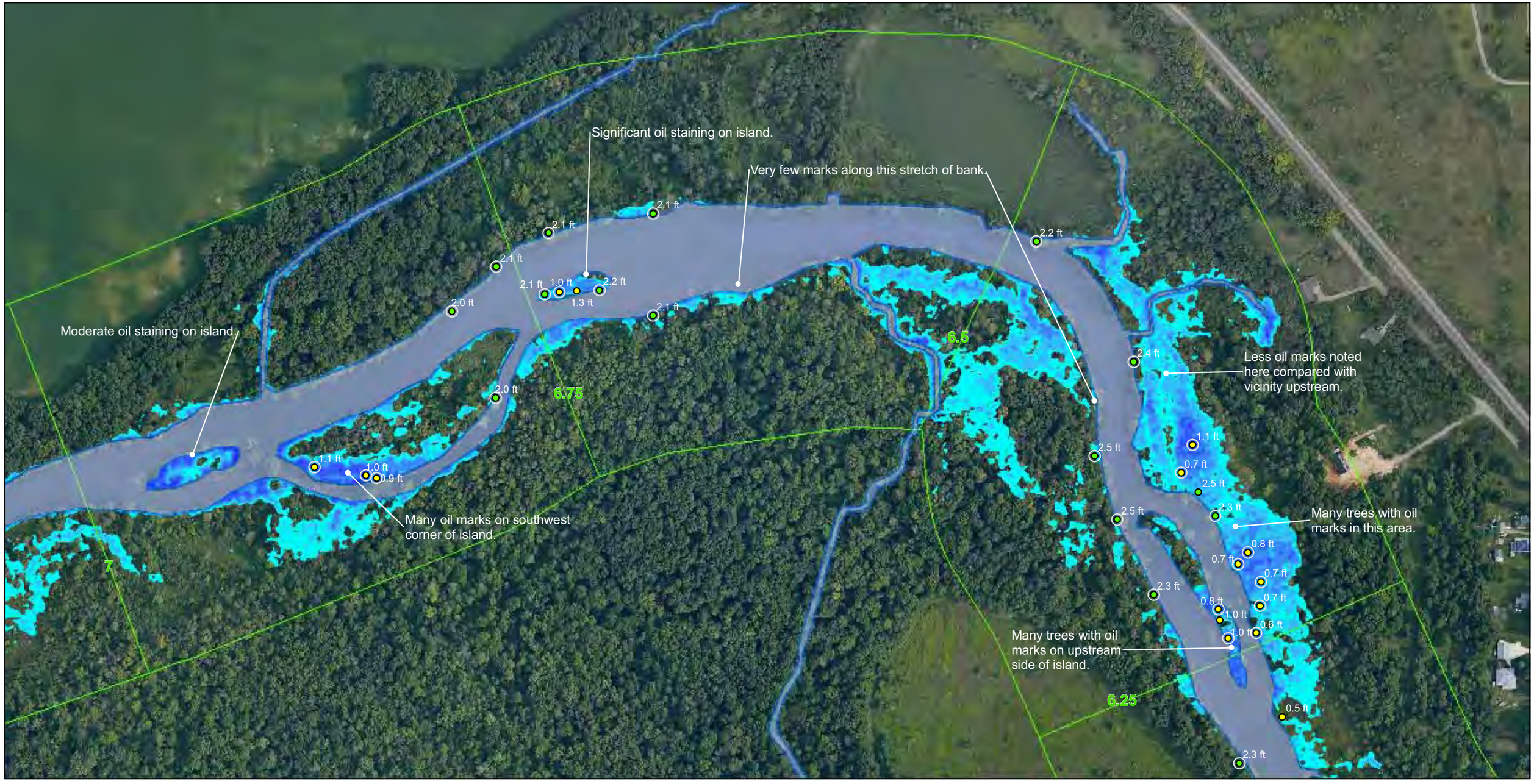
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 6
RELEASE FLOOD EXTENT
MP05.50-MP06.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

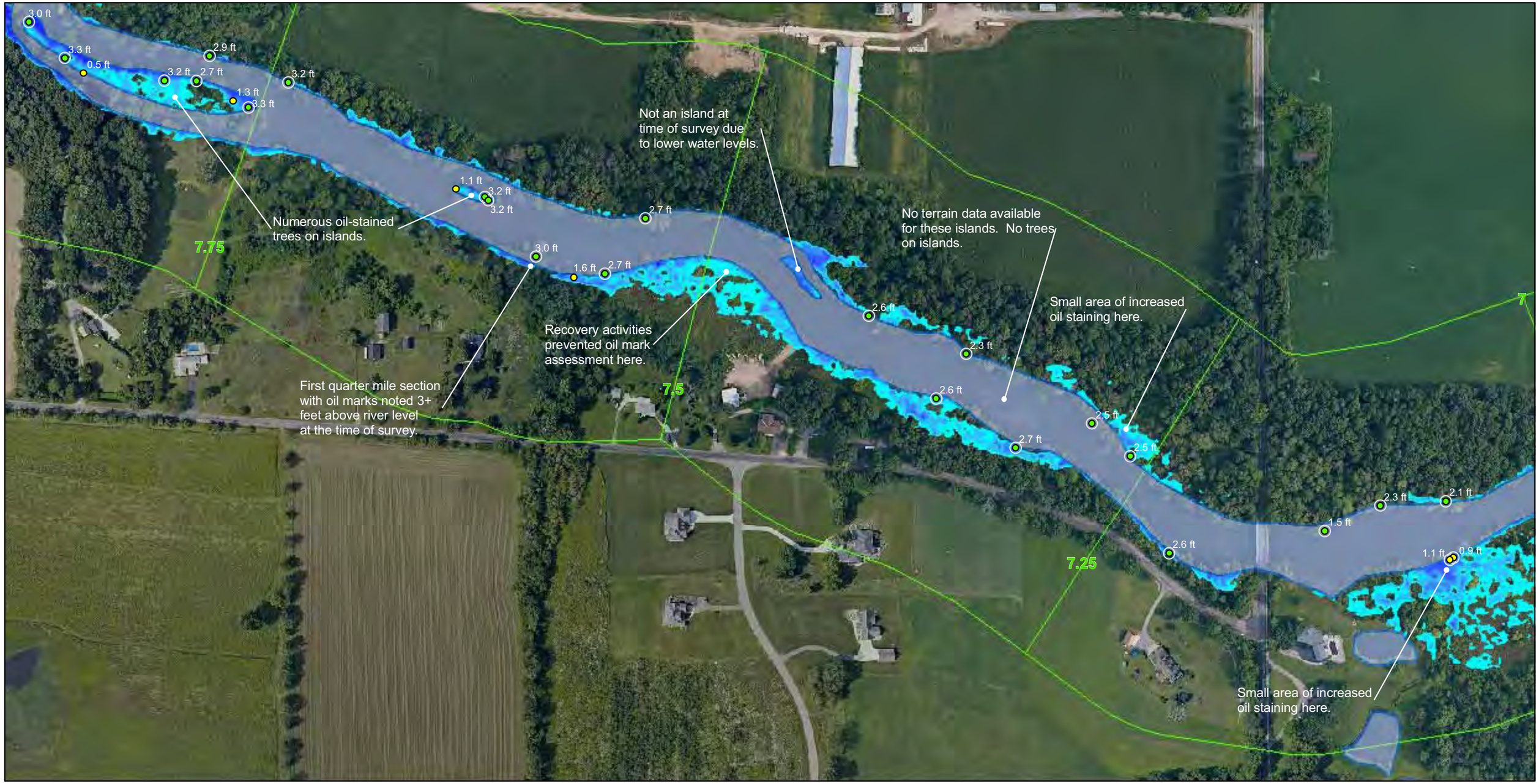
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 7
RELEASE FLOOD EXTENT
MP06.25-MP07.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

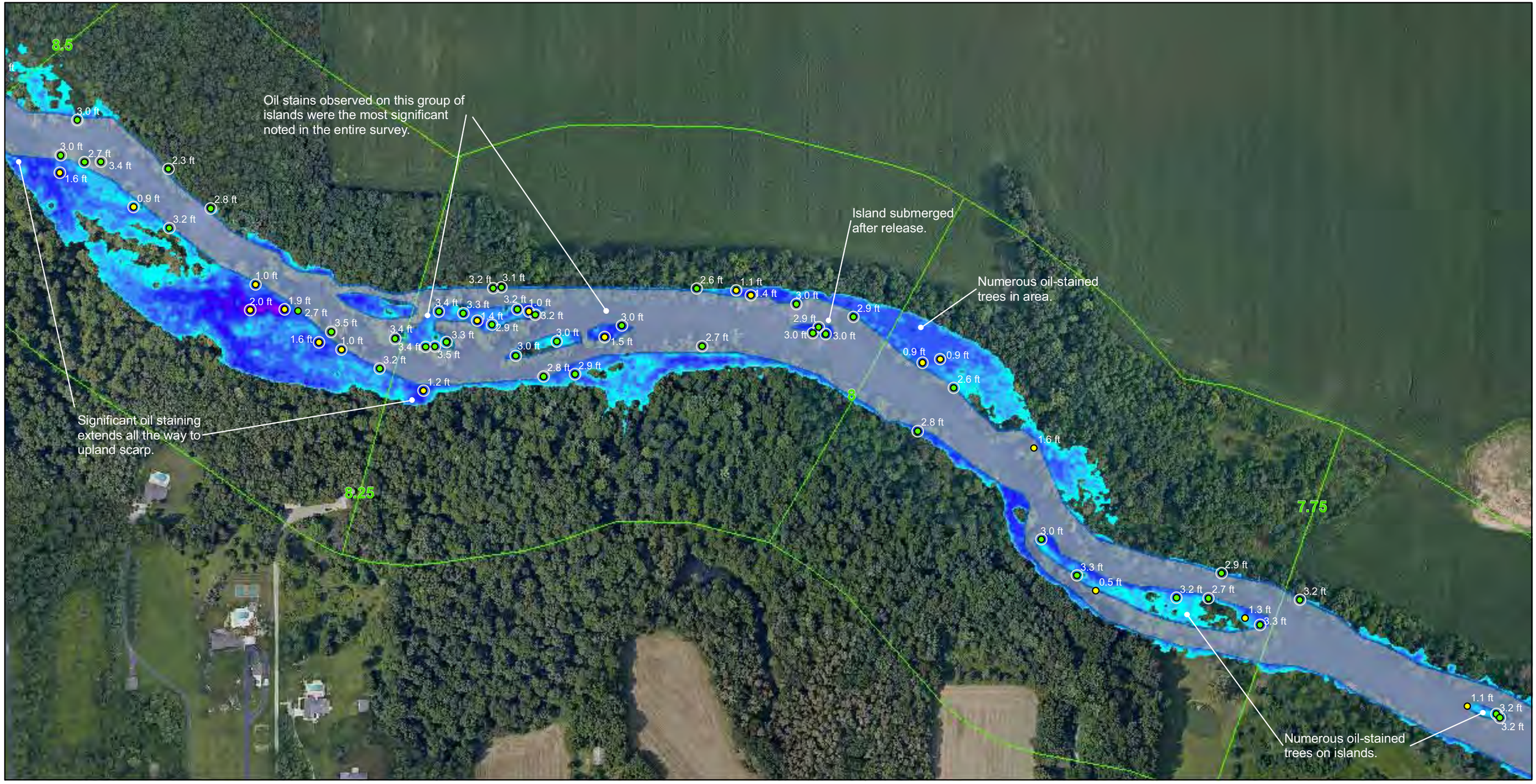
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 8
RELEASE FLOOD EXTENT
MP07.00-MP07.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

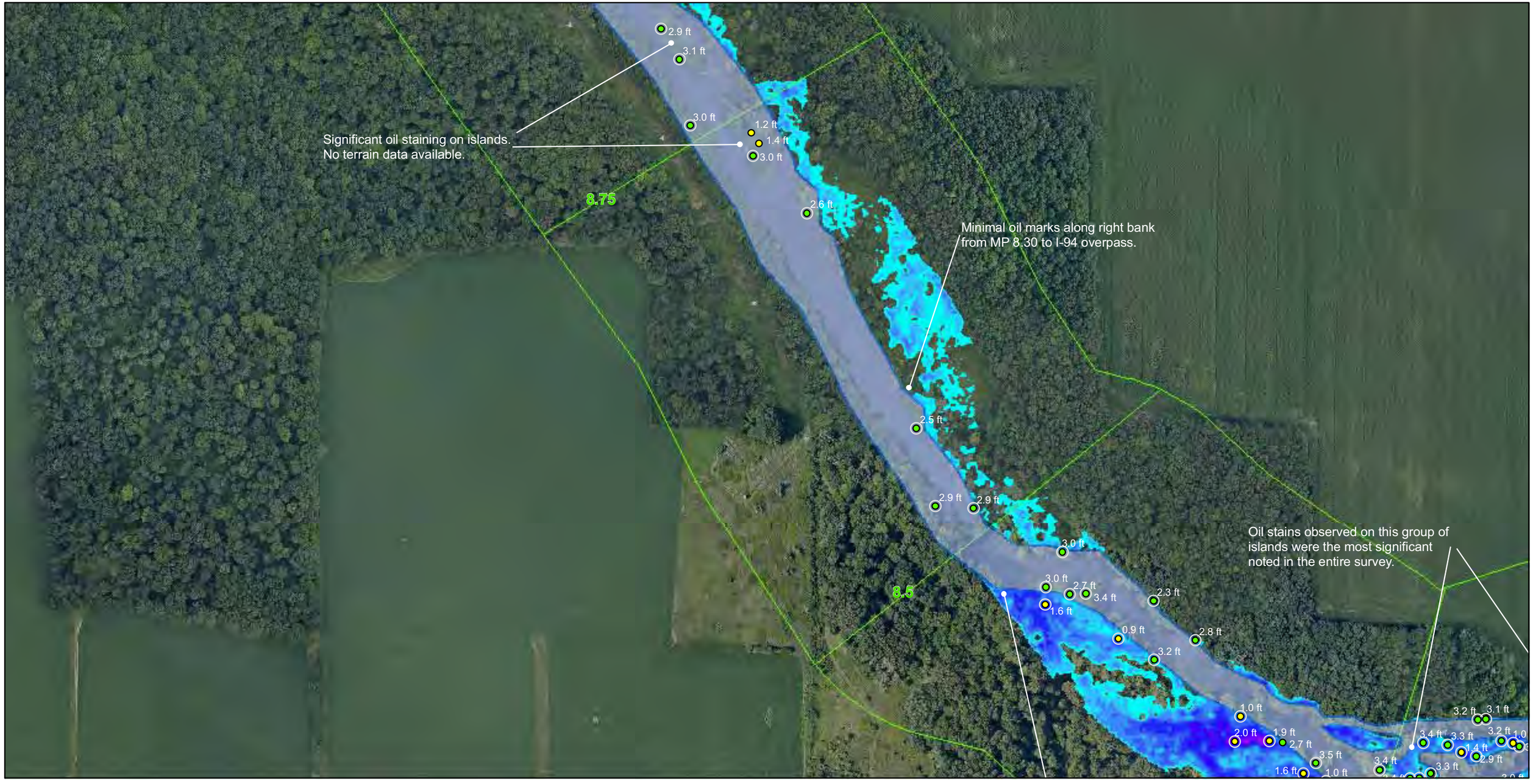
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 9
RELEASE FLOOD EXTENT
MP07.75-MP08.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

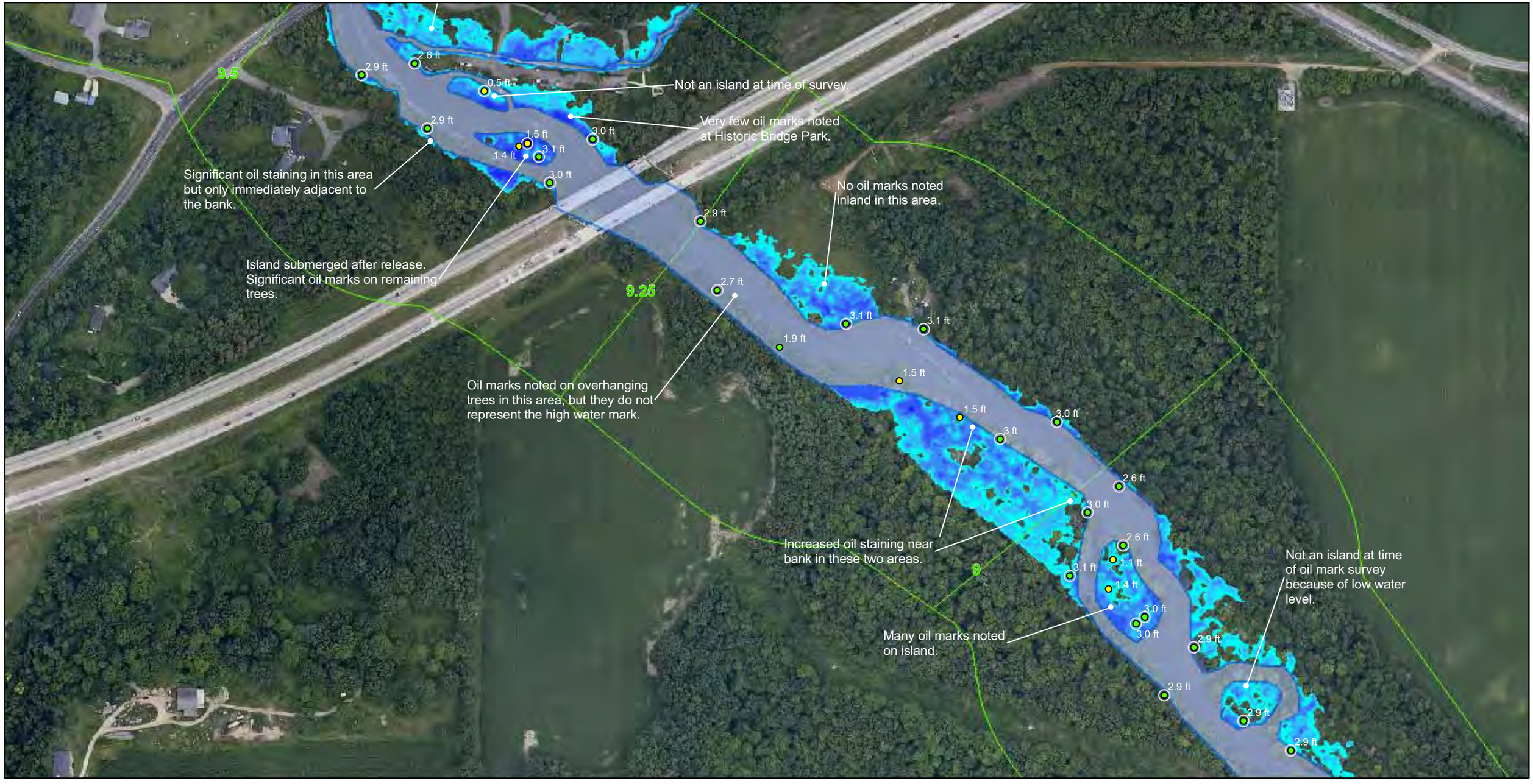
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 10
RELEASE FLOOD EXTENT
MP08.25-MP08.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

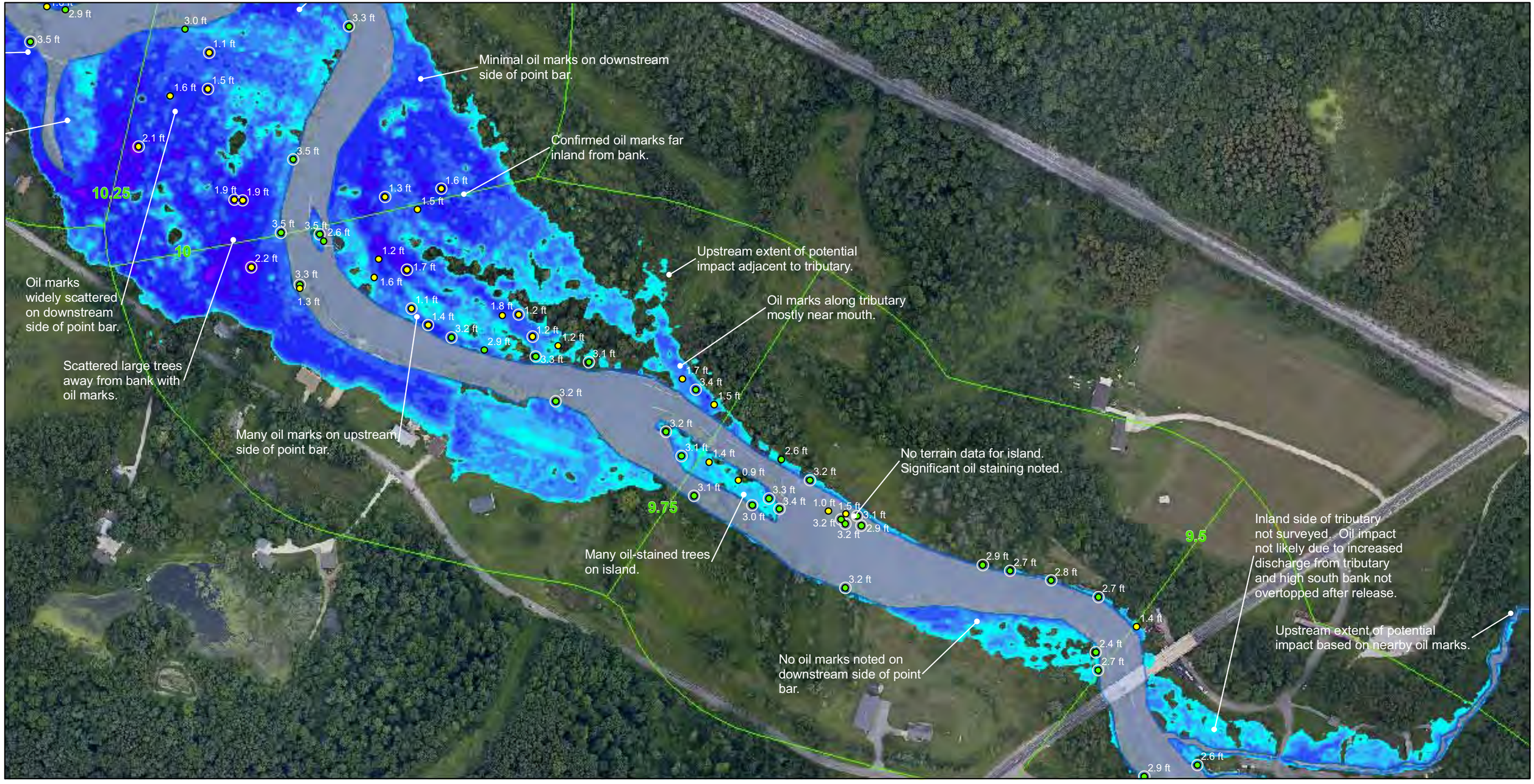
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 11
RELEASE FLOOD EXTENT
MP08.75-MP09.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

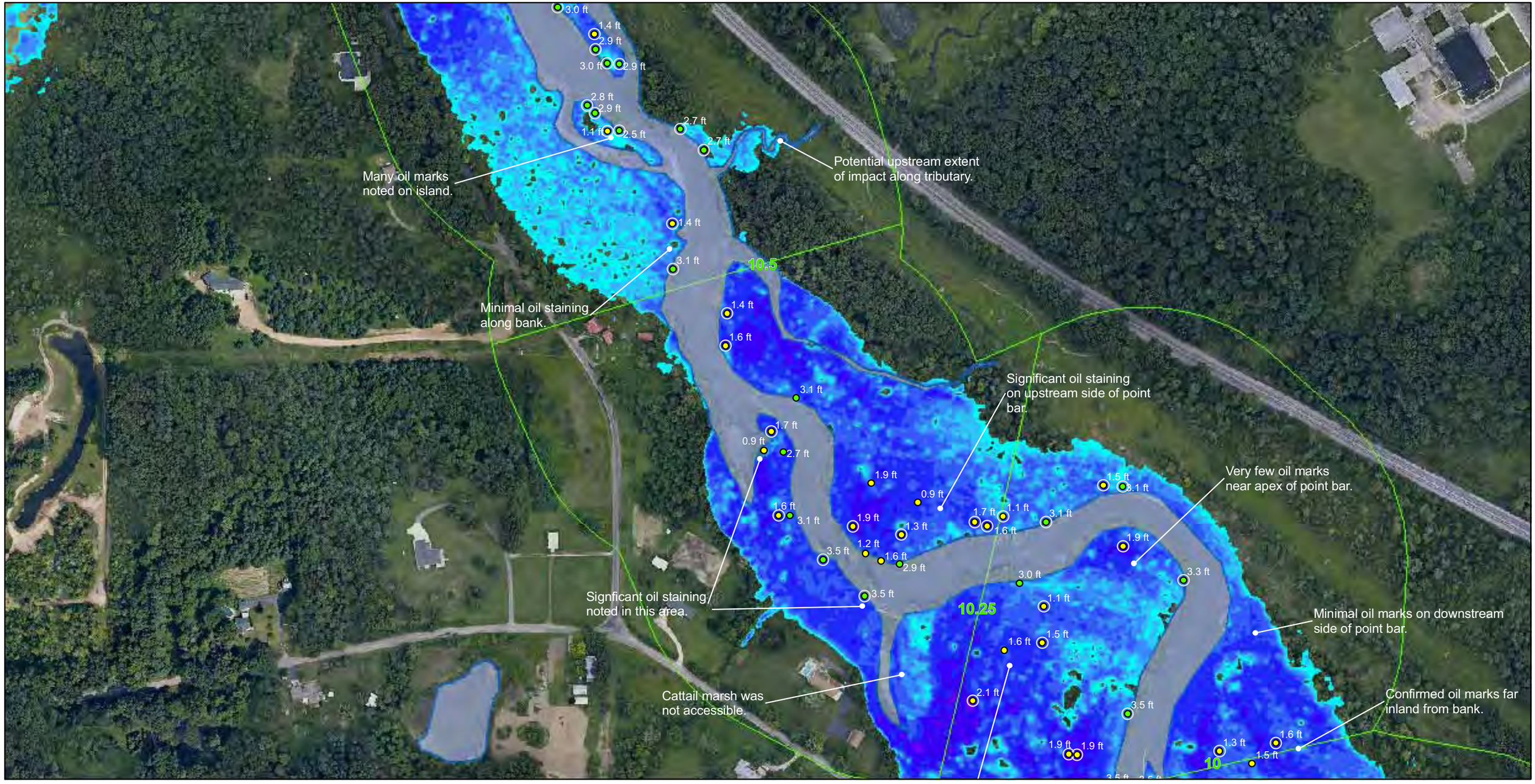
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 12
RELEASE FLOOD EXTENT
MP09.50-MP10.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*

Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

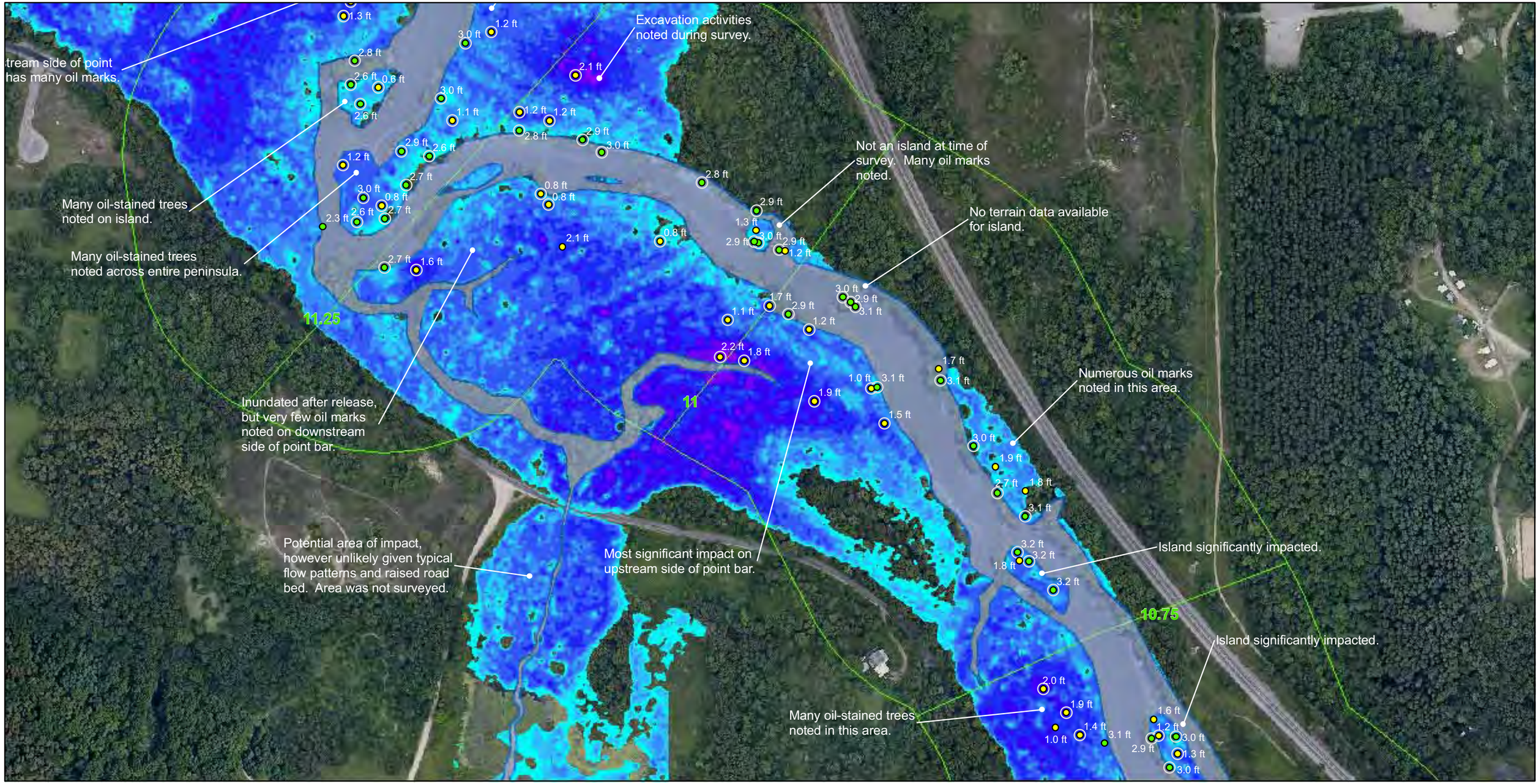
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 13
RELEASE FLOOD EXTENT
MP10.00-MP10.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

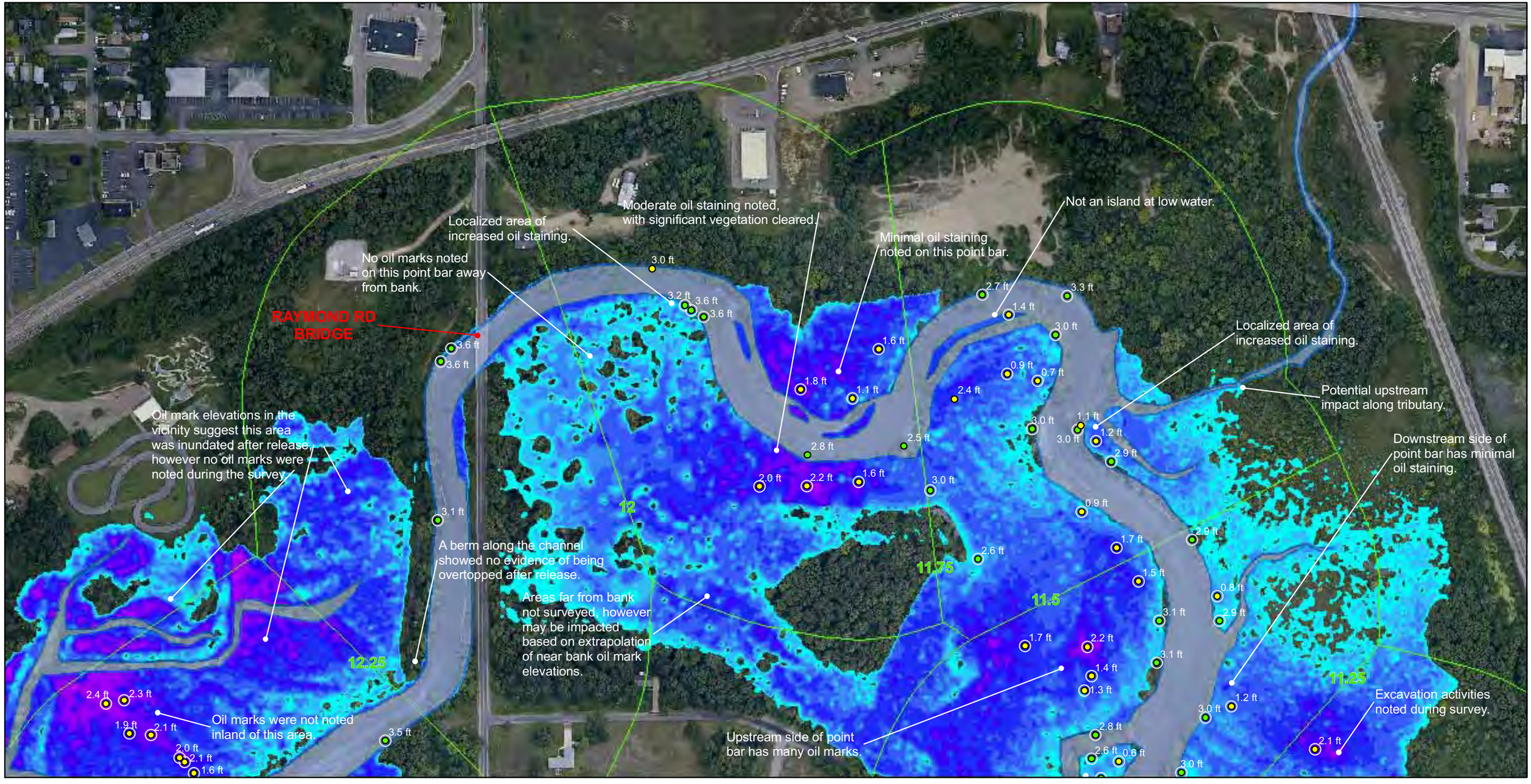
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 14
RELEASE FLOOD EXTENT
MP10.75-MP11.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*

Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

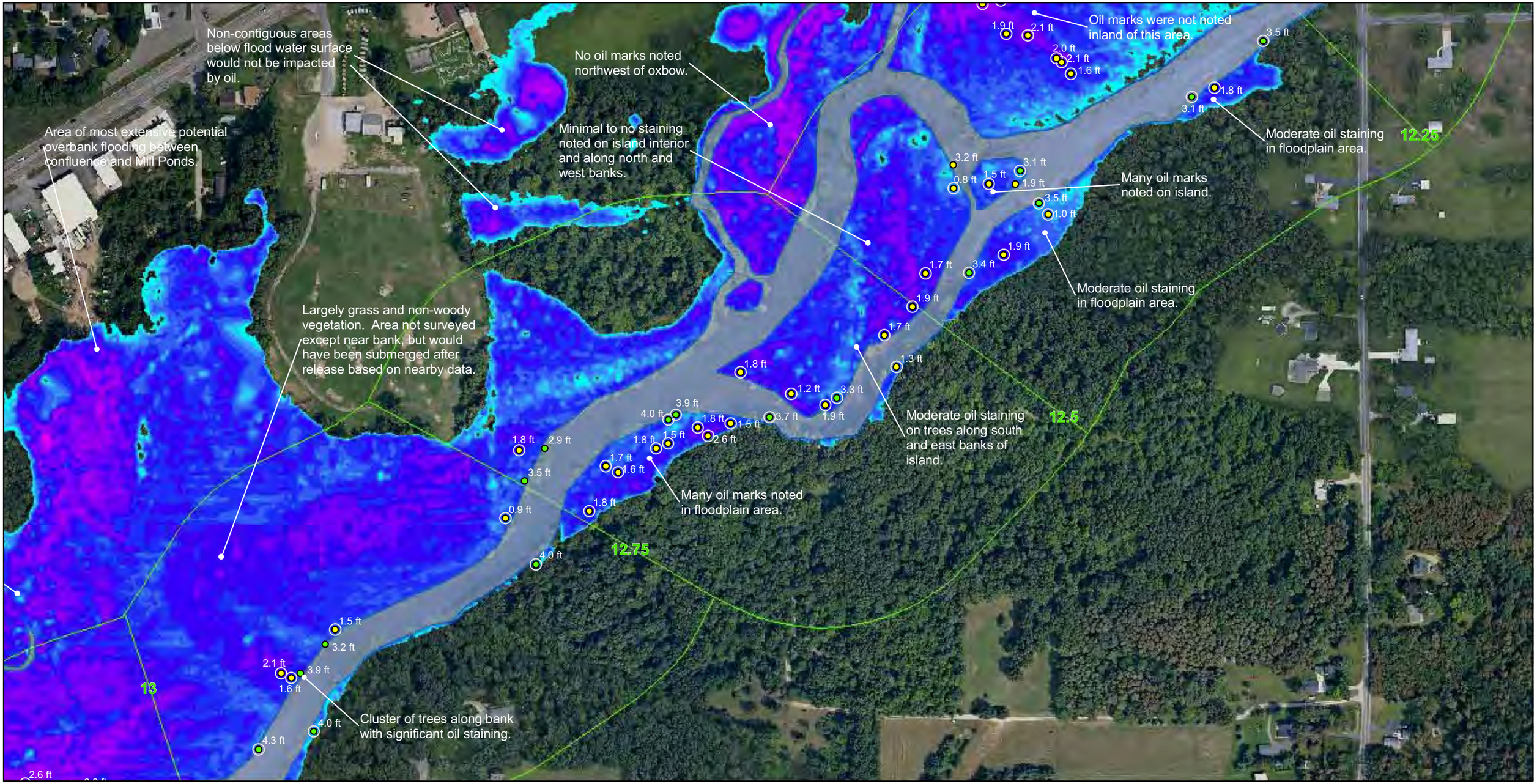
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 15
RELEASE FLOOD EXTENT
MP11.25-MP12.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

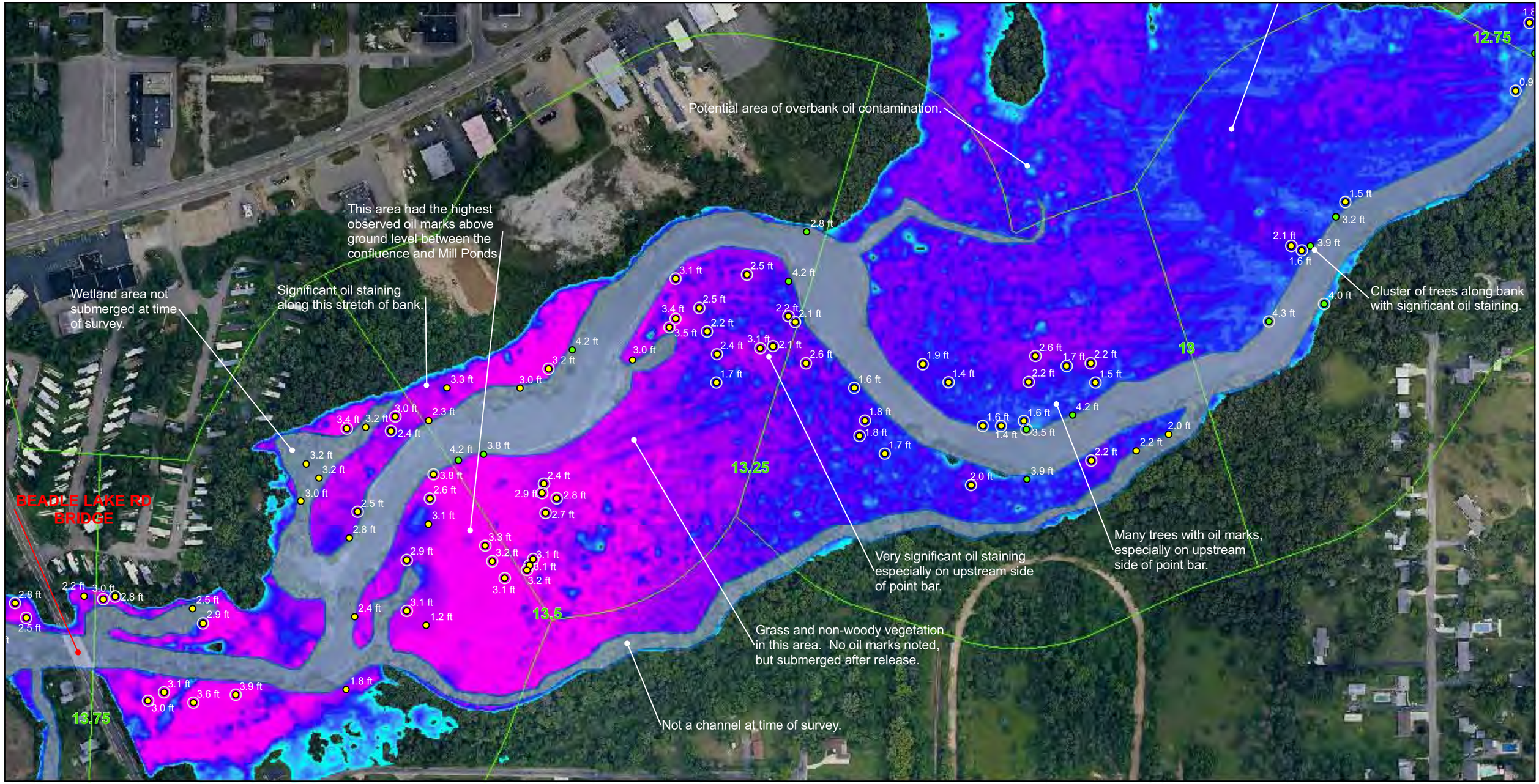
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 16
RELEASE FLOOD EXTENT
MP12.25-MP13.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*

Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 17
RELEASE FLOOD EXTENT
MP12.75-MP13.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

Significant oil staining along bank from bridge to approximately MP 14.25.

COLUMBIA AVENUE BRIDGE

Few widely scattered oil marks.

Many oil marks noted along bank.

14.25

14

No islands here at time of survey. Significant oil staining noted.

Wetland area not submerged at time of survey.

This area had the highest observed oil marks above ground level between the confluence and Mill Ponds.

Significant oil staining along this stretch of bank.

BEADLE LAKE RD BRIDGE

Numerous oil marks noted in vicinity.

MAIN ST BRIDGE

13.75

N

W E

S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

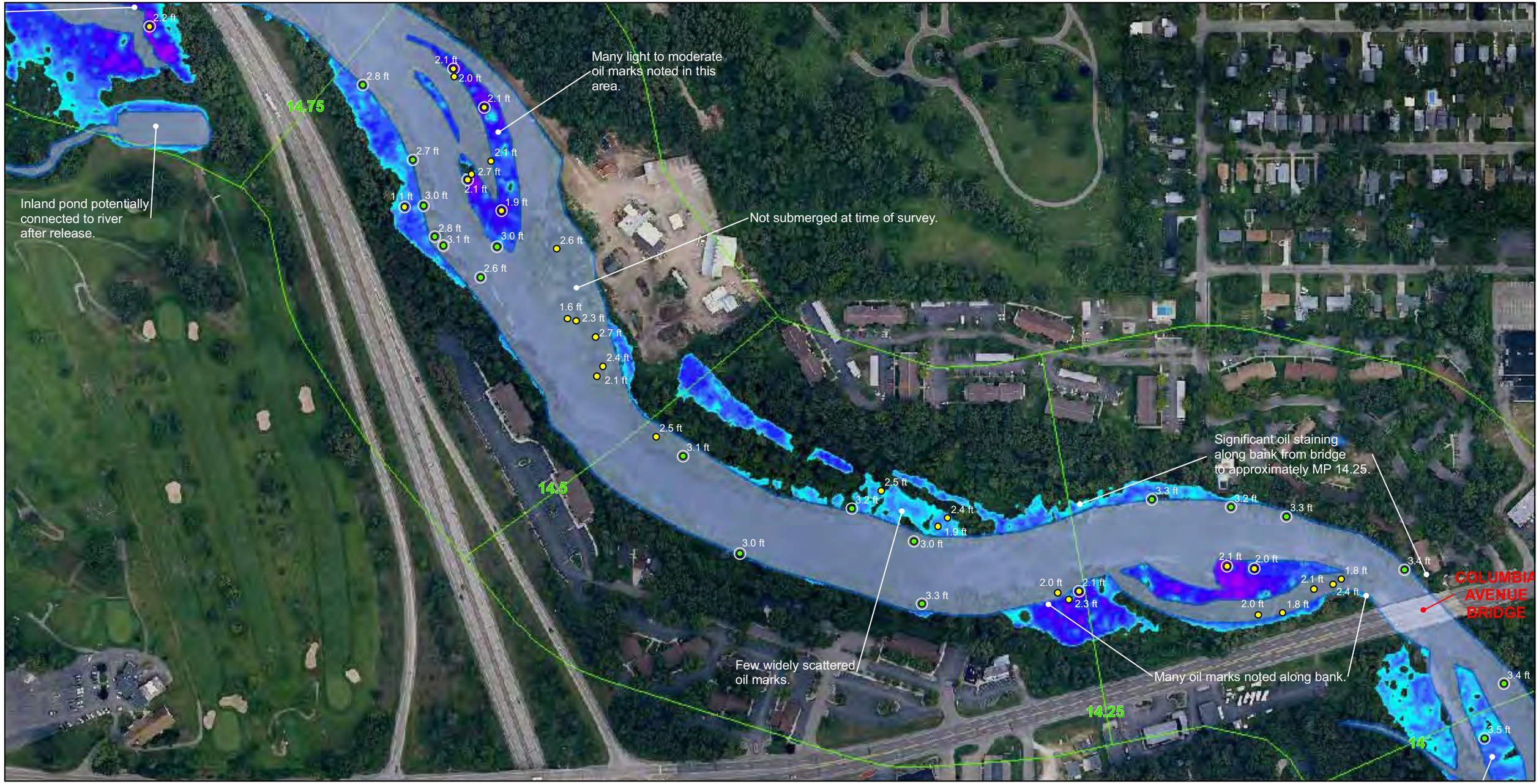
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 18
RELEASE FLOOD EXTENT
MP13.50-MP14.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

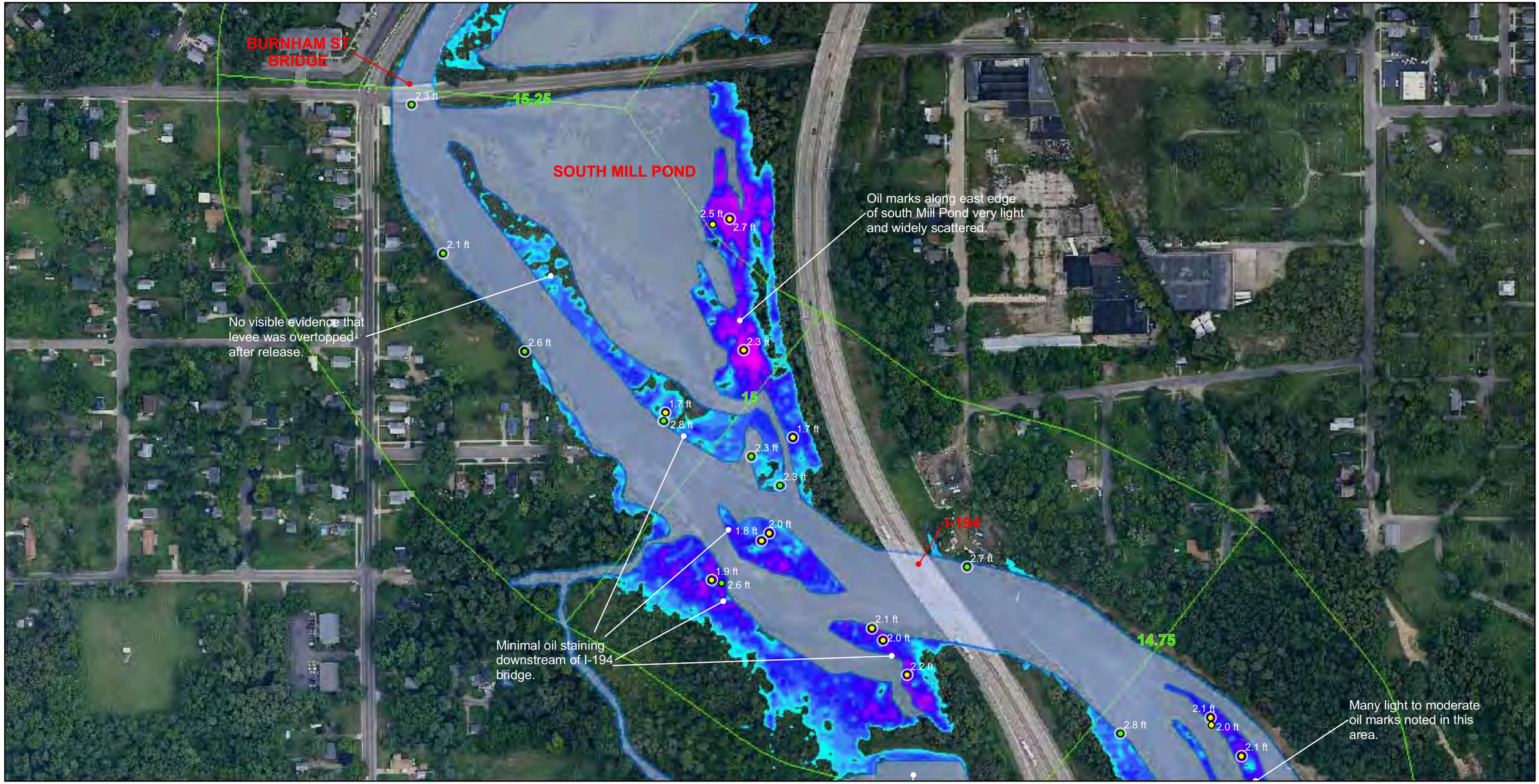
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 19
RELEASE FLOOD EXTENT
MP14.00-MP14.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*

Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

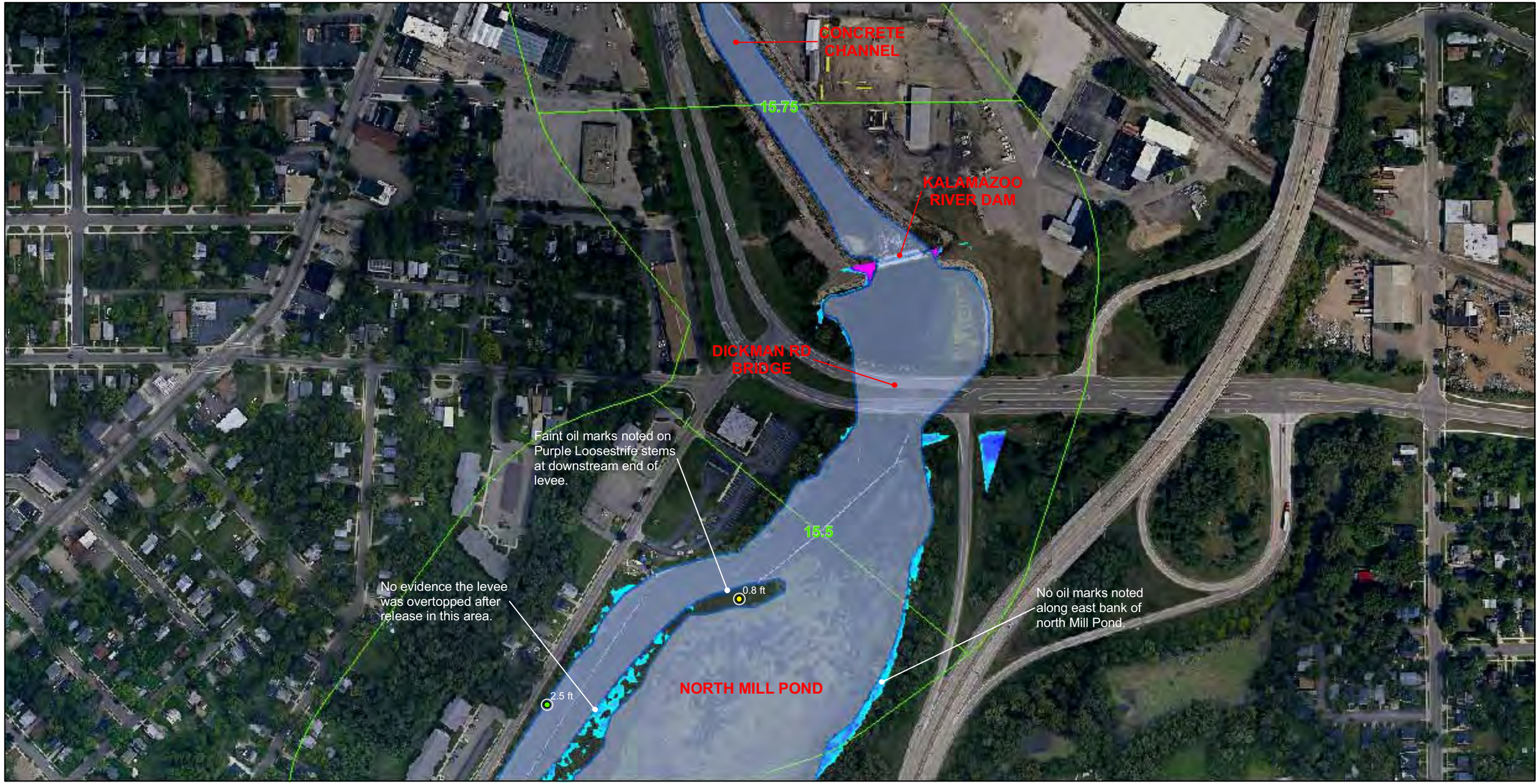
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 20
RELEASE FLOOD EXTENT
MP14.75-MP15.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Survey Location

- Height above ground surface (ft)
- Height above water surface (ft)*
- Location used for flood extent calculation

Digital Elevation Model river extent**

Estimated peak overbank water depth (ft) after release, calculated from visible oil marks***

0.1 - 0.3	1.8 - 2.0
0.4 - 0.6	2.1 - 2.3
0.7 - 0.9	2.4 - 2.7
1.0 - 1.3	2.8 - 3.0
1.4 - 1.7	3.1+

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

** Digital elevation data (1 ft resolution raster) from City of Battle Creek and Calhoun County. Coverage does not include hydrologic features.

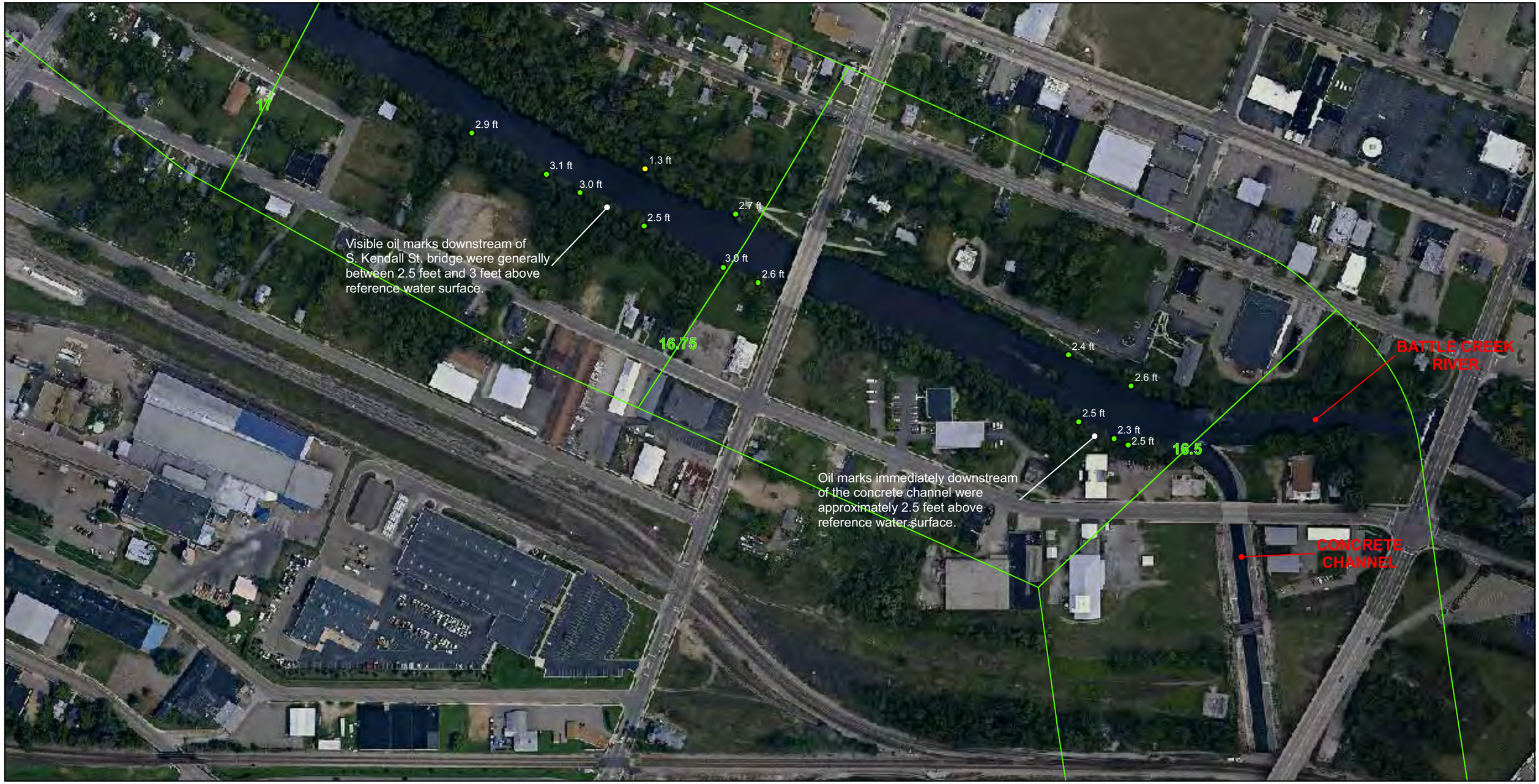
*** Shaded extent does not represent impacted area. Oil marks visually confirmed only at shown survey locations.

Coordinate System: Michigan State Plane South. Vertical Datum: NAVD88
Horizontal Datum: NAD83. Units: International Feet

FIGURE 21
RELEASE FLOOD EXTENT
MP15.25-MP15.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 22
RELEASE FLOOD EXTENT
MP16.25-MP17.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

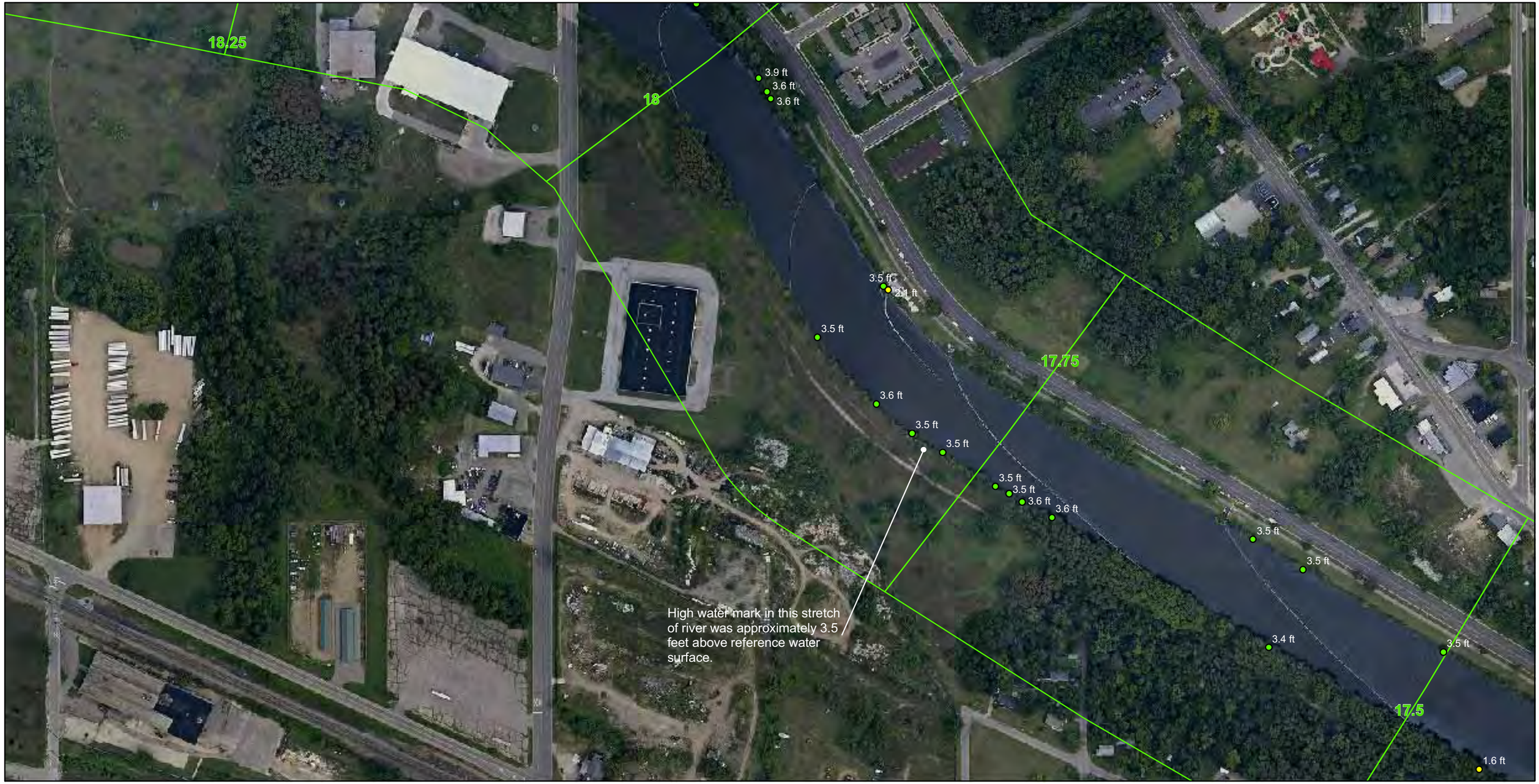
Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 23
RELEASE FLOOD EXTENT
MP17.00-MP17.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 24
RELEASE FLOOD EXTENT
MP17.50-MP18.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 25
RELEASE FLOOD EXTENT
MP18.00-MP18.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 26
RELEASE FLOOD EXTENT
MP18.75-MP19.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 27
RELEASE FLOOD EXTENT
MP19.25-MP20.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.

er.

Water treatment plant sill.

3.6 ft

20.5

20.25

1.6 ft

3.5 ft

1.7 ft

1.5 ft

3.3 ft

Small area of floodplain.

20

N

W E

S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 28
RELEASE FLOOD EXTENT
MP20.00-MP20.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 29
RELEASE FLOOD EXTENT
MP20.50-MP21.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 30
RELEASE FLOOD EXTENT
MP21.25-MP22.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 31
RELEASE FLOOD EXTENT
MP22.00-MP22.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 32
RELEASE FLOOD EXTENT
MP22.50-MP23.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 33
RELEASE FLOOD EXTENT
MP23.50-MP24.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

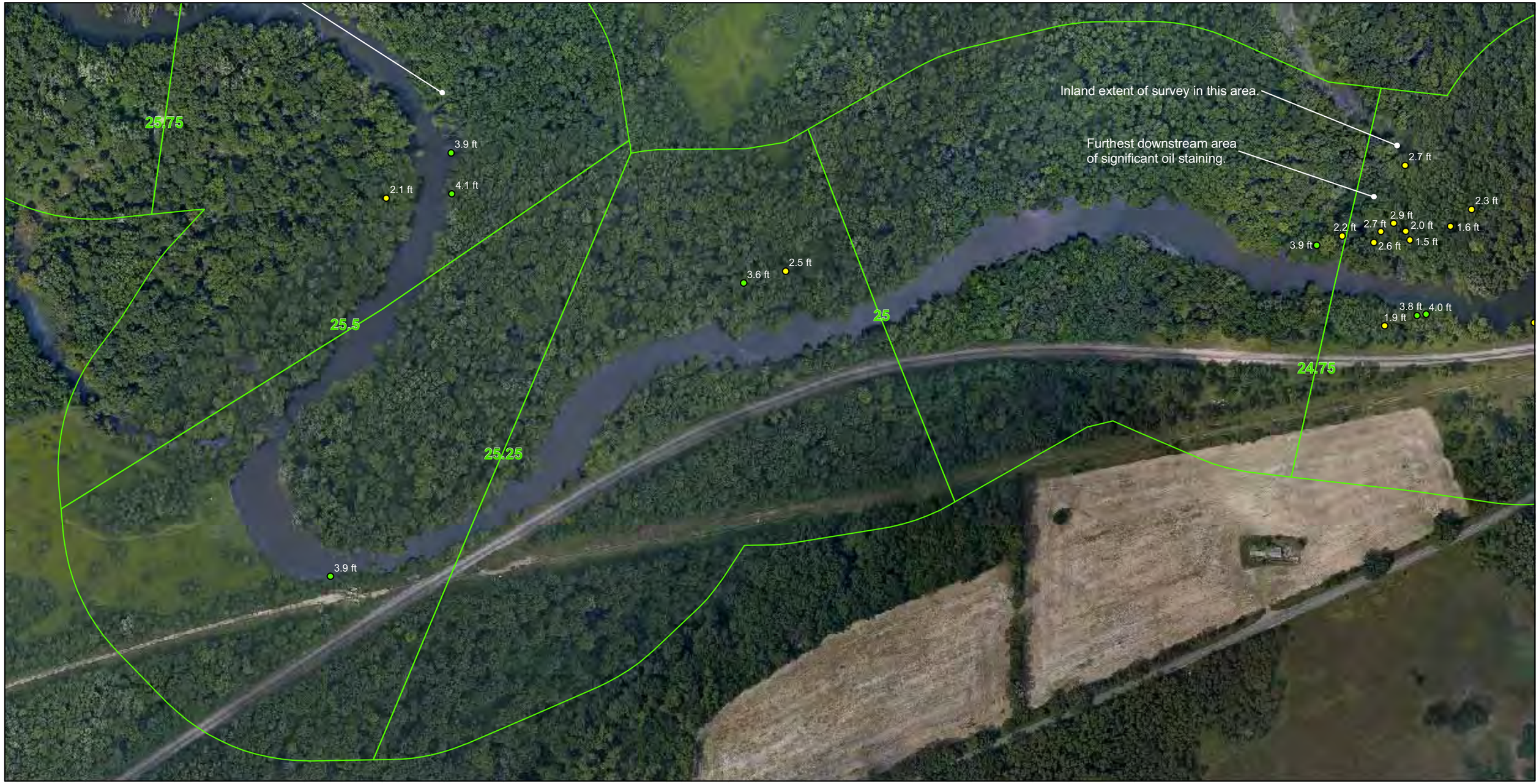
Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 34
RELEASE FLOOD EXTENT
MP24.25-MP25.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 35
RELEASE FLOOD EXTENT
MP24.75-MP25.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 36
RELEASE FLOOD EXTENT
MP25.50-MP26.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 37
RELEASE FLOOD EXTENT
MP26.50-MP27.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 38
RELEASE FLOOD EXTENT
MP27.50-MP28.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 39
RELEASE FLOOD EXTENT
MP28.00-MP28.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 40
RELEASE FLOOD EXTENT
MP28.75-MP29.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 41
RELEASE FLOOD EXTENT
MP29.25-MP30.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 42
RELEASE FLOOD EXTENT
MP30.00-MP30.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 43
RELEASE FLOOD EXTENT
MP30.75-MP31.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 44
RELEASE FLOOD EXTENT
MP31.25-MP31.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 45
RELEASE FLOOD EXTENT
MP31.75-MP32.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 46
RELEASE FLOOD EXTENT
MP32.25-MP33.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

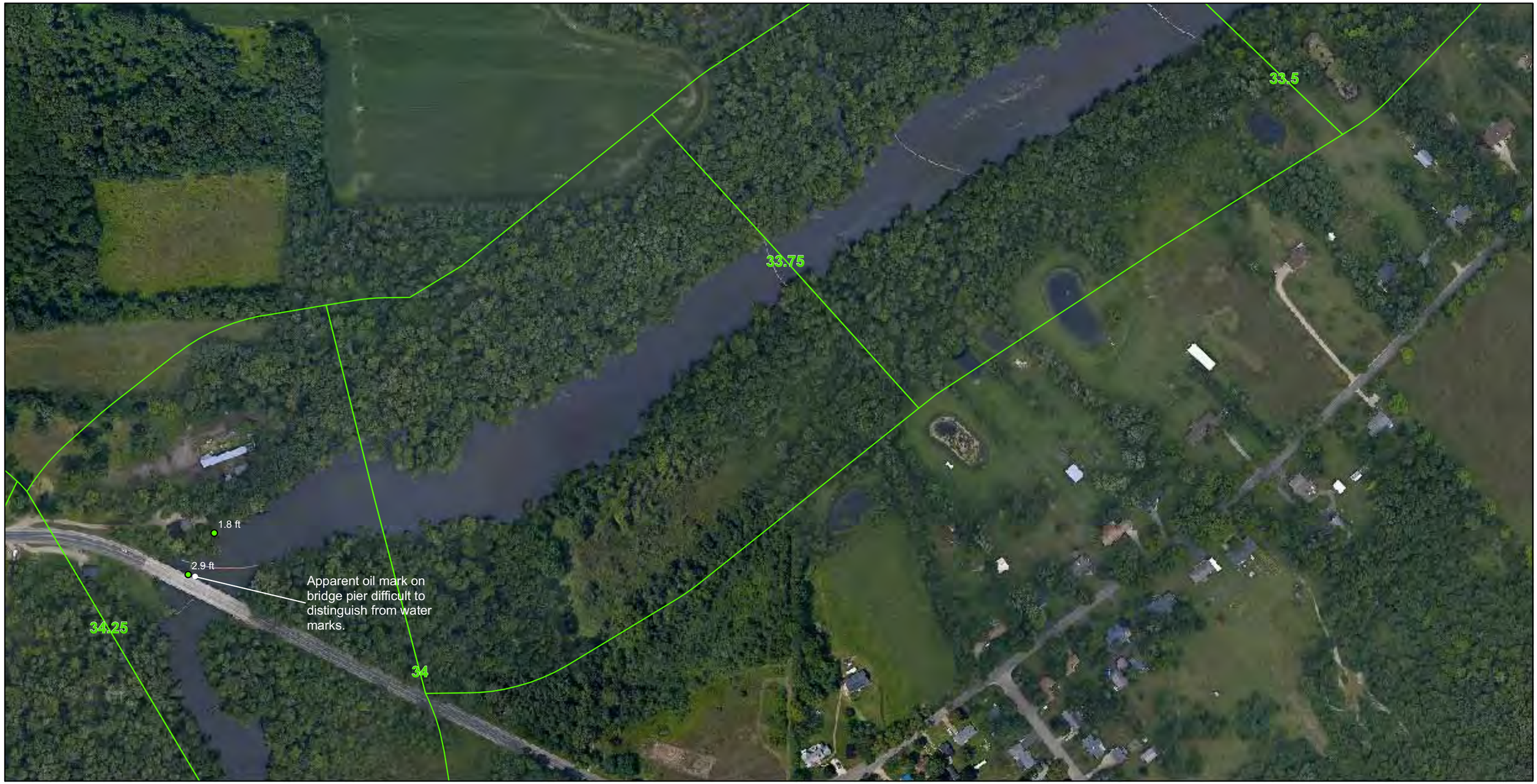
Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 47
RELEASE FLOOD EXTENT
MP33.00-MP33.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 48
RELEASE FLOOD EXTENT
MP33.50-MP34.25

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 49
RELEASE FLOOD EXTENT
MP34.00-MP35.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 50
RELEASE FLOOD EXTENT
MP34.75-MP35.75

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 51
RELEASE FLOOD EXTENT
MP35.50-MP36.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 52
RELEASE FLOOD EXTENT
MP36.00-MP36.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 53
RELEASE FLOOD EXTENT
MP36.50-MP37.00

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 125 250 Feet

1 inch = 250 feet

Legend

Oil Mark Visual Confirmation

- Height above ground surface (ft)
- Height above water surface (ft)*

* Water surface reference elevation: Marshall gage height 4.33 ft; Battle Creek gage height 3.07 ft.

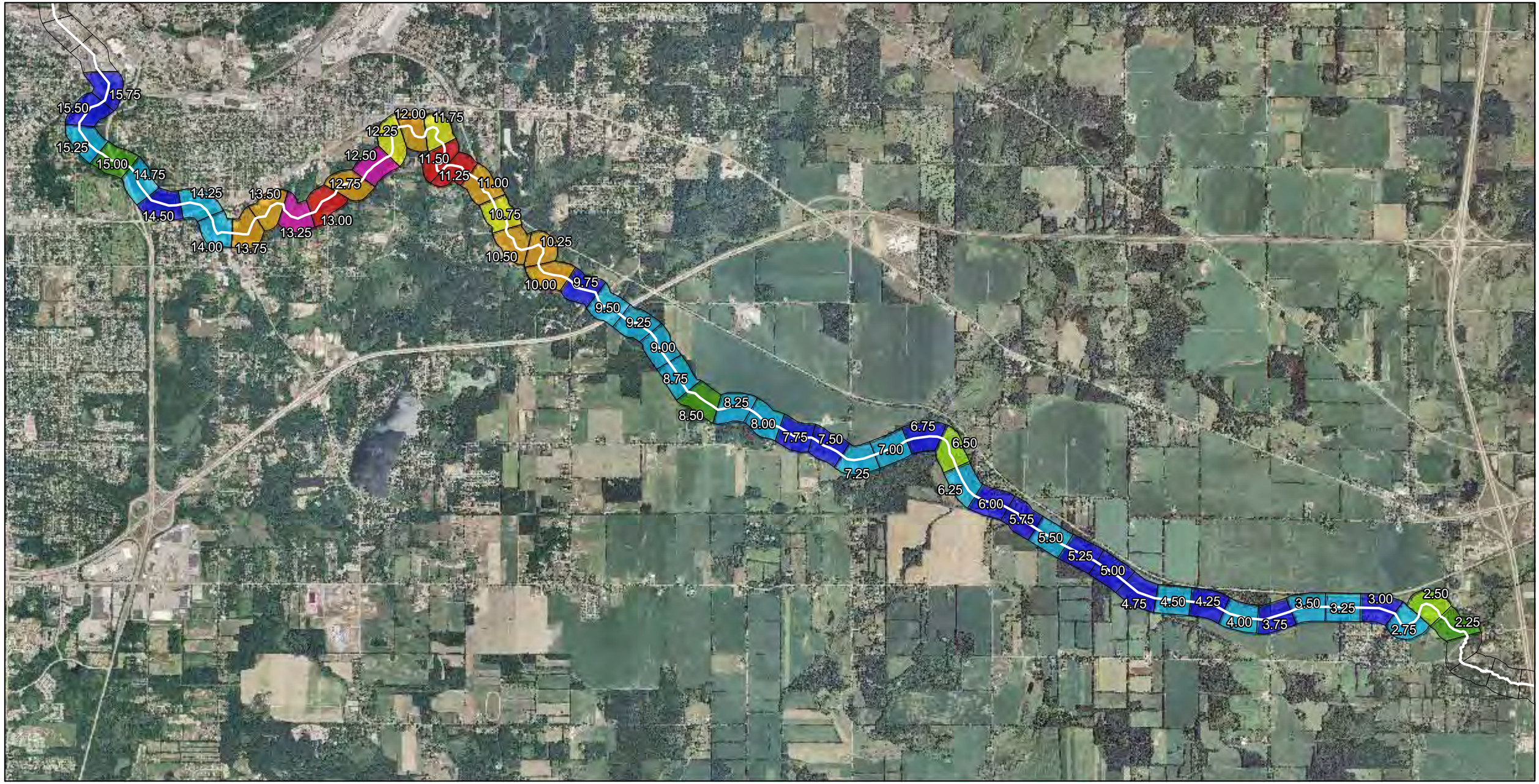
Note: Due to lack of high accuracy digital elevation data downstream of MP15.65, extent data below this point is restricted to oil mark visual confirmation points.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 54
RELEASE FLOOD EXTENT
MP36.75-MP37.50

ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.



N
W E
S

0 1,750 3,500 Feet

1 inch = 3,500 feet

Legend

River

Quarter Mile Section**

Estimated overbank flooded area (acres) after release, by quarter mile section*

- <2.00
- 2.00 - 3.99
- 4.00 - 5.99
- 6.00 - 7.99
- 8.00 - 9.99
- 10.00 - 14.99
- 15.00 - 19.99
- 20.00+

* Acreages estimated using oil mark elevations and Calhoun County digital terrain data

** Mileage represents downstream end of section.

Coordinate System: Michigan State Plane South
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Units: International Feet

FIGURE 55
POST-RELEASE FLOODED AREA
Confluence to Mill Ponds
ENBRIDGE LINE 6B RESPONSE
KALAMAZOO AND CALHOUN COUNTIES
MICHIGAN

TETRA TECH EC, INC.