

US EPA ARCHIVE DOCUMENT

**Enbridge Line 6B MP 608 Pipeline Release
Marshall, Michigan
Source Contamination Removal and Verification Summary Report
Talmadge Creek Section 1
Stationing 00+00L to 10+00L and 00+00R to 09+00R**

US EPA ARCHIVE DOCUMENT

**Enbridge Energy
September 21, 2010**

Talmadge Creek Source Contamination Removal and Verification Summary Report

Section 1 of 10 – Stationing (00+00L to 10+00L) and (00+00R to 09+00R)

Overview

The Enbridge Source Area Response Plan (SAR) and Sampling and Analysis Plan (SAP), dated 2 August 2010, revised 17 August 2010 was developed to prescribe response activities related to a release of crude oil from Enbridge Energy, Limited Partnership's Line 6B MP 608 pipeline in Marshall, Michigan. A detailed and defined approach to identify and complete source removal was subsequently developed and presented in the 13 September 2010 *Supplement to Source Area Response Plan Approach for Source Contamination Removal, Verification and Backfill, Talmadge Creek, Enbridge Line 6B MP 608*, and the Notice of Approval of Modification dated 14 September 2010. This report presents the results of the implementation of that approach for Section 1 of 10 (Stationing left bank of Talmadge Creek: 00+00L to 10+00L and Stationing right bank of Talmadge Creek: 00+00R to 09+00R).

Supplemental SAR Objectives

The following remedial objectives were identified to develop guidelines and procedures to remove the source area contamination from Talmadge Creek:

- Remove free oil from the banks of Talmadge Creek;
- Stabilize the existing creek bed;
- Identify that adjacent up bank areas are not a source of free oil.

To meet these objectives, the response actions included the completion of the following activities along Talmadge Creek:

- Site clearing and grubbing of trees and vegetation to allow access road construction and implementation of free oil removal activities;
- Construction of temporary access roads into the affected area;
- Construction of flumes along Talmadge Creek to recover free oil;
- Oil and water recovery and subsequent disposal;
- Installation and maintenance of absorbent booms along Talmadge Creek;
- Soil removal, staging, and bulking of crude oil-impacted soil with eventual characterization, transport, and offsite disposal;
- Storm water management and erosion control;

- Interim source area restoration under guidance of Michigan Department of Natural Resources and Environment (MDNRE).

Section Location

For efficiency and clarity in implementation and reporting, Divisions A and B of Talmadge Creek were divided into 10 sections as illustrated in Figure 1. Each section was subsequently divided into approximately 20, 50-foot¹ linear clearance areas (stationing) on both the left and right banks of Talmadge Creek as illustrated in Figure 2, (left and right banks oriented facing downstream). This summary report addresses Section 1 as described in the table below.

Section Number	Stationing
1	Left Bank: 00+00L to 10+00L Right Bank: 00+00R to 09+00R

Section Excavation Methods and Clearance Metrics

Three methods for determining the vertical limit of excavation were developed and identified as A, B, or C. These three methods are defined as:

- A – No visible free oil and the clearance area passed the 40 CFR Appendix 1 to Subpart A of Part 435 - Static Sheen Test. A test pit was then constructed and inspected by the United States Environmental Protection Agency (U.S. EPA) representative after 6 hours. If free oil was observed in the 6-hour test pit, additional excavation was completed until clearance was obtained via method A, B, or C. If free oil was not observed, backfilling was completed.
- B – The vertical limit was reached due to groundwater (excavation proceeded vertically at least 6-inches into groundwater). No 6-hour test pit was required for clearance.
- C – The vertical limit was reached due to the silt/clay confining layer. No 6-hour test pit was required for clearance.

In addition, an approximately 2-foot wide 48-hour observation pit/trench was installed along the wall of the excavation boundary and remained open for a minimum of 48 hours to allow the EPA representative to observe potential accumulation of free oil. If oil was observed, an evaluation of the source was conducted and an XTex curtain was installed to separate the impacted area from the clean area. If no oil was observed, or the barrier curtain was installed, backfilling proceeded.

Soil Sampling and Analysis

Soil samples were collected from the area of excavation and analyzed pursuant to MDNRE approved work plans for the following analytical parameters:

- Total Petroleum Hydrocarbons (TPH):
 - Gasoline Range Organics (GRO);
 - Diesel Range Organics (DRO);

¹ Two areas on the left bank of Talmadge Creek was 25-feet in length.

- Oil Range Organics (ORO);
- Benzene;
- Toluene;
- Ethylbenzene;
- Xylenes;
- Polynuclear Aromatics (PNAs);
- 1,2,4-Trimethylbenzene;
- 1,3,5-Trimethylbenzene;
- Barium;
- Nickel;
- Vanadium;
- Iron.

The analytical results will be evaluated as part of future assessment and remediation activities.

Deviations from SAP

No deviations from the SAP were noted in this Section.

Conclusion

All completed work for this section met the U.S. EPA metrics in compliance with the SAR and the Supplement to the SAR. No additional cleanup is required to fulfill the U.S. EPA's requirements pursuant to the Removal Administrative Order issued by U.S. EPA on July 27, 2010 (Docket No. CWA 1321-5-10-001) pursuant to §311(c) of the Clean Water Act.

Supporting Documentation

The following documentation is included as attachments to this document:

- Location maps indentifying the subject section (Figures 1 and 2);
- Photographs;
- Field notes;
- A table summarizing the following information:

- Identification of final EPA clearance method used to dictate vertical limit (A, B, or C);
- Free oil observed (for Method A);
- Odor (for Method A);
- Sheen test per 40 CFR Appendix 1 to Subpart A of Part 435 (for Method A);
- Photoionization detector (PID) headspace (for Method A);
- Installation date and time of 6-hour test pit;
- EPA representative sign-off and approval of backfilling;
- Installation date and time of 48-hour observation pit/trench;
- 48-hour observation.

Table

Talmadge Creek Source Contamination Removal and Verification Summary Table: Section 1

Division	Section Number	Station Number	Creek Bank (L/R)	Final EPA Clearance Method (A, B, C)	Free Oil Observed (Y/N)	Odor (Y/N)	40 CFR Sheen Test Sheen Observed (Y/N)	PID Headspace (ppm)	Installation Date of 6-hour Test Pit	Installation Time of 6-hour Test Pit	Method A 6-hr Test Pit EPA Representative Sign-off (Y/N)	Installation Date of 48-hour Observation Trench/Pit	Installation Time of 48-hour Observation Trench/Pit	48-hour Observation Completed (Y/N)
A5	1	00+00L - 00+50L	L	A	N	N	N	3.4	9/8/2010	1025	Y	9/8/2010	1305	Y
A5	1	00+50L - 01+00L	L	C	NA	NA	NA	NA	NA	NA	NA	9/8/2010	1630	Y
A5	1	01+00L - 01+50L	L	A	NR	N	N	0.0	9/8/2010	1145	Y	9/9/2010	1700	Y
A5	1	01+50L - 01+75L	L	A	N	N	N	3.7	9/8/2010	1451	Y	9/9/2010	1710	Y
A5	1	01+75L - 02+25L	L	B	NA	NA	NA	NA	NA	NA	NA	9/17/2010	1840	Y
A5	1	02+25L - 02+75L	L	B	NA	NA	NA	NA	NA	NA	NA	9/9/2010	NR	Y
A5	1	02+75L - 03+25L	L	A	N	N	N	0.0	9/9/2010	1118	Y	9/9/2010	NR	Y
A5	1	03+25L - 03+75L	L	B	NA	NA	NA	NA	NA	NA	NA	9/11/2010	NR	Y
A5	1	03+75L - 04+25L	L	B	NA	NA	NA	NA	NA	NA	NA	9/11/2010	NR	Y
A5	1	04+25L - 04+75L	L	A	N	N	N	0.5	9/9/2010	1311	Y	9/9/2010	1311	Y
A5	1	04+75L - 05+25L	L	A	N	N	N	0.6	9/9/2010	1335	Y	9/9/2010	1335	Y
A5	1	05+25L - 05+75L	L	A	N	N	N	2.3	9/9/2010	1344	Y	9/9/2010	1344	Y
A5	1	05+75L - 06+25L	L	A	N	N	N	0.4	9/9/2010	1400	Y	9/9/2010	1400	Y
A5	1	06+25L - 06+50L	L	A	NR	N	N	1.1	9/9/2010	1450	Y	9/9/2010	1450	Y
A5	1	06+50L - 07+00L	L	A	N	N	N	0.5	9/9/2010	1514	Y	9/9/2010	1514	Y
A5	1	07+00L - 07+50L	L	A	N	NR	N	1.5	9/17/2010	1455	Y	9/17/2010	NR	Y
A5	1	07+50L - 08+00L	L	C	NA	NA	NA	NA	NA	NA	NA	9/9/2010	NR	Y
A5	1	08+00L - 08+50L	L	C	NA	NA	NA	NA	NA	NA	NA	9/9/2010	1900	Y
A5	1	08+50L - 09+00L	L	B	NA	NA	NA	NA	NA	NA	NA	9/9/2010	1830	Y
A5	1	09+00L - 09+50L	L	A	NR	N	N	13.2	9/9/2010	1843	Y	9/9/2010	1830	Y
A5	1	09+50L - 10+00L	L	A	N	N	N	8.6	9/9/2010	1850	Y	9/9/2010	NR	Y

See endnotes for description of notations

Talmadge Creek Source Contamination Removal and Verification Summary Table: Section 1

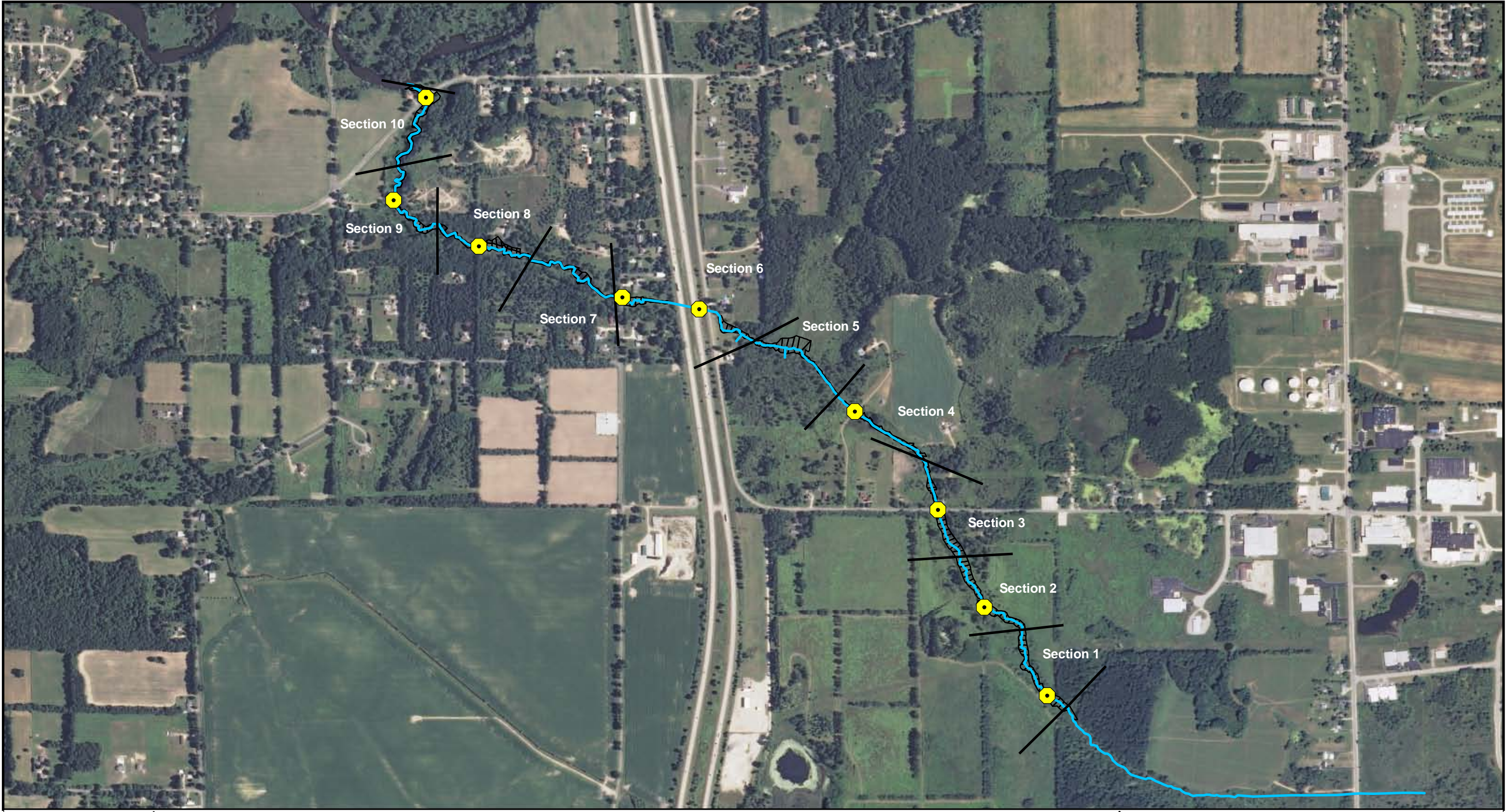
Division	Section Number	Station Number	Creek Bank (L/R)	Final EPA Clearance Method (A, B, C)	Free Oil Observed (Y/N)	Odor (Y/N)	40 CFR Sheen Test Sheen Observed (Y/N)	PID Headspace (ppm)	Installation Date of 6-hour Test Pit	Installation Time of 6-hour Test Pit	Method A 6-hr Test Pit EPA Representative Sign-off (Y/N)	Installation Date of 48-hour Observation Trench/Pit	Installation Time of 48-hour Observation Trench/Pit	48-hour Observation Completed (Y/N)
A5	1	00+00R - 00+50R	R	A	N	N	N	0.0	9/8/2010	1020	Y	9/8/2010	1020	Y
A5	1	00+50R - 01+00R	R	A	N	N	N	0.0	9/8/2010	1046	Y	9/8/2010	1046	Y
A5	1	01+00R - 01+50R	R	A	N	N	N	0.0	9/8/2010	1103	Y	9/8/2010	1103	Y
A5	1	01+50R - 02+00R	R	A	N	N	N	0.0	9/8/2010	1118	Y	9/8/2010	1118	Y
A5	1	02+00R - 02+50R	R	A	N	NR	N	1.7	9/17/2010	1430	Y	NR	NR	NR
A5	1	02+50R - 03+00R	R	A	N	N	N	2.3	9/8/2010	1144	Y	9/17/2010	1750	Y
A5	1	03+00R - 03+50R	R	A	N	N	N	0.0	9/8/2010	1333	Y	9/8/2010	1333	Y
A5	1	03+50R - 04+00R	R	A	N	N	N	0.0	9/8/2010	1405	Y	9/8/2010	1405	Y
A5	1	04+00R - 04+50R	R	A	N	N	N	0.0	9/8/2010	1418	Y	9/8/2010	1422	Y
A5	1	04+50R - 05+00R	R	A	N	N	N	1.2	9/8/2010	1452	Y	9/8/2010	1452	Y
A5	1	05+00R - 05+50R	R	A	N	N	N	0.0	9/8/2010	1522	Y	9/8/2010	1528	Y
A5	1	05+50R - 06+00R	R	A	N	N	N	0.0	9/8/2010	1546	Y	9/8/2010	1549	Y
A5	1	06+00R - 06+50R	R	A	N	N	N	0.0	9/8/2010	1615	Y	9/8/2010	1615	Y
A5	1	06+50R - 07+00R	R	A	N	N	N	0.0	9/8/2010	1655	Y	9/8/2010	1705	Y
A5	1	07+00R - 07+50R	R	A	N	N	N	2.9	9/8/2010	1752	Y	9/8/2010	1800	Y
A5	1	07+50R - 08+00R	R	A	N	N	N	0.0	9/8/2010	1820	Y	9/8/2010	1830	Y
A5	1	08+00R - 08+50R	R	A	N	N	N	0.0	9/8/2010	1845	Y	9/8/2010	1850	Y
A5	1	08+50R - 09+00R	R	A	N	N	N	0.0	9/8/2010	1909	Y	9/8/2010	1916	Y

See endnotes for description of notations

Endnotes for Talmadge Creek Source Contamination Removal and Verification Summary Table

- NR – Information not recorded on field log, however, U.S. EPA representative sign-off obtained.
- NA – Metric not applicable to final site conditions after achieving 'B' or 'C' Method limits. Site conditions prior to achieving final excavation limits were recorded on field notes.
- ND – Not Detected
- PID – Photoionization detector
- ppm – Parts per million

Figures



0 500 1,000 Feet

Legend


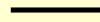
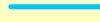
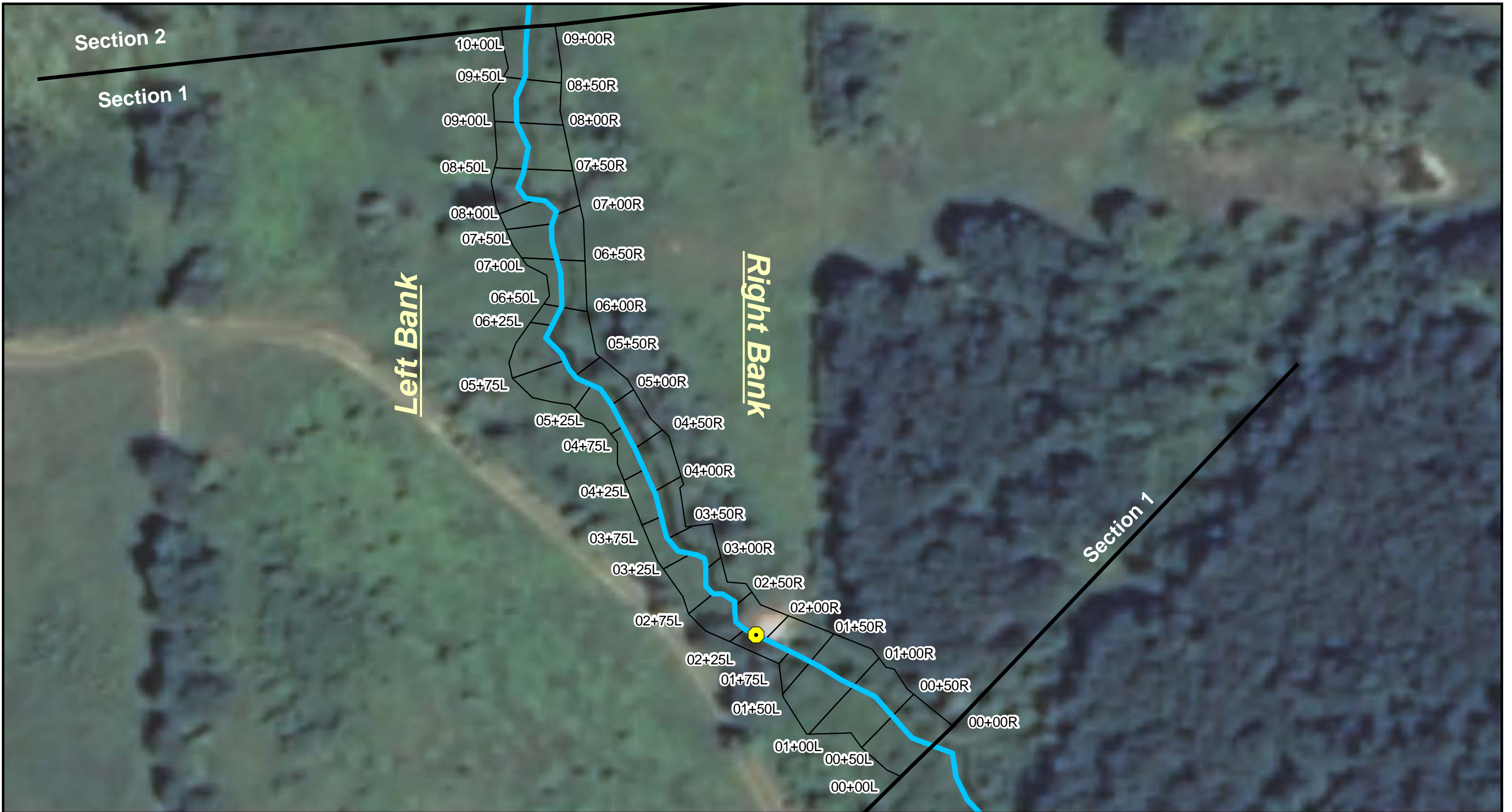
-  Culverts
-  Section Lines
-  Talmadge Creek

FIGURE 1
OVERALL SECTION LOCATION MAP
LINE 6B MP 608
MARSHALL, MICHIGAN

SEPTEMBER, 2010



Section 2

Section 1

Left Bank

Right Bank

Section 1

Legend



Culverts

Section Lines

Talmadge Creek

01+00L



Environmental Clearance Areas



0 55 110 Feet

SEPTEMBER 20, 2010

FIGURE 2
SECTION 1 STATION LOCATIONS
TALMADGE CREEK
LINE 6B MP 608
MARSHALL, MICHIGAN

Field Photographs

Field Photographs – Section 1



00+00L – 00+50L: Looking downstream prior to backfilling (September 8, 2010)



00+50L – 01+00L: Looking upstream at backfilling (September 8, 2010)

Field Photographs – Section 1



01+00L – 01+50L: Looking toward Talmadge Creek at 6-hour test pit prior to backfilling (September 8, 2010)



01+50L – 01+75L: Looking downstream at 6-hour test pit (September 8, 2010)

Field Photographs – Section 1



01+75L – 02+25L: Looking at road over Talmadge Creek (September 19, 2010)



02+25L – 02+75L: Looking upstream (September 9, 2010)

Field Photographs – Section 1



02+75L – 03+25L: Looking upstream (September 9, 2010)



03+25L – 03+75L: Looking toward Talmadge Creek (September 20, 2010)

Field Photographs – Section 1



03+75L – 04+25L: Looking toward Talmadge Creek (September 20, 2010)



04+25L – 04+75L: Looking toward Talmadge Creek (September 9, 2010)

Field Photographs – Section 1



04+75L – 05+25L: Looking toward Talmadge Creek (September 9, 2010)



05+25L – 05+75L: Looking toward Talmadge Creek (September 9, 2010)

Field Photographs – Section 1



05+75L – 06+25L: Looking toward Talmadge Creek (September 9, 2010)



06+25L – 06+50L: Looking toward Talmadge Creek (September 9, 2010)

Field Photographs – Section 1



06+50L – 07+00L: Looking toward Talmadge Creek (September 20, 2010)



07+00L – 07+50L: Looking at 6-hour test pit (September 9, 2010)

Field Photographs – Section 1



07+50L – 08+00L: Looking toward Talmadge Creek (September 20, 2010)



08+00L – 08+50L: Looking upstream prior to final excavation (September 9, 2010)

Field Photographs – Section 1



08+50L-09+00L: Looking toward Talmadge Creek (September 9, 2010)



09+00L – 09+50L: Looking toward Talmadge Creek (September 20, 2010)

Field Photographs – Section 1



09+50L – 10+00L: Looking toward Talmadge Creek at 6-hour test and 48-hour observation pits (September 9, 2010)



00+00R – 00+50R: Looking toward Talmadge Creek (September 19, 2010)

Field Photographs – Section 1



00+50R – 01+00R: Looking toward Talmadge Creek (September 19, 2010)



01+00R – 01+50R: Looking toward Talmadge Creek (September 19, 2010)

Field Photographs – Section 1



01+50R – 02+00R: Looking toward Talmadge Creek (September 19, 2010)



02+00R – 02+50R: Looking at road over Talmadge Creek (September 19, 2010)

Field Photographs – Section 1



02+50R - 03+00R: Looking downstream (September 15, 2010)



03+00R – 03+50R: Looking toward Talmadge Creek (September 19, 2010)

Field Photographs – Section 1



03+50R – 04+00R: Looking toward Talmadge Creek (September 19, 2010)



04+00R – 04+50R: Looking toward Talmadge Creek (September 19, 2010)

Field Photographs – Section 1



04+50R - 05+00R: Looking toward Talmadge creek at 6-hour test pit (September 15, 2010)



05+00R – 05+50R: Looking toward Talmadge Creek (September 19, 2010)

Field Photographs – Section 1



05+50R - 06+00R: Looking toward Talmadge Creek at 6-hour test and 48-hour observation pits prior to backfill (September 15, 2010)



06+00R – 06+50R: Looking toward Talmadge Creek (September 19, 2010)

Field Photographs – Section 1



06+50R - 07+00R: Looking downstream prior to backfill (September 12, 2010)



07+00R - 07+50R: Looking toward Talmadge Creek prior to backfill (September 15, 2010)

Field Photographs – Section 1



07+50R – 08+00R: Looking toward Talmadge Creek (September 20, 2010)



08+00R – 08+50R: Looking toward Talmadge Creek (September 20, 2010)

Field Photographs – Section 1



08+50R – 09+00R: Looking toward Talmadge Creek (September 20, 2010)

Field Notes

1100L
yobur

Date: 9-8-10
Completed By: Tom Flaminio AECOM

Project Name: Marshall Line 6B MP608 Pipeline Release

Project Number: 22131003

Creek Section	Photo ID	Method Used to Indicate Vertical Limit ¹	Free Phase Oil Observed	Odor ²	Sheen Test Rainbow Sheen Observed	Headspace ³ ppm	Time of Test Pit	6-hour Follow-up Inspection Observations and Time (If Applicable)	Time of Trench Excavation	48-hour Follow-up Inspection Observations and Time (If Applicable)	Backfill Approval	
											EPA	Enbridge
00L to 050L	150011	A B C	Y (N)	(N) L M S	Y (N)	3.4	1025	No free oil 4:55	1:05p	9-11-10	(SEA) TUF	TUF
050L to 100L	300011	B D	(N)	(N) L M S	Y (N)	132	-	4:55 PM	4:30p	9-11-10	(SEA) TUF	TUF
100L to 150L	300011	A B C	Y (N)	(N) L M S	Y (N)	0	1145	Free 6:00pm	9:19		(SEA) TUF	TUF
150L to 175L	400011	A B C	Y (N)	(N) L M S	Y (N)	3.7	1151	No free oil 09:00	9:19		(SEA) TUF	TUF
to		A B C	Y (N)	(N) L M S	Y (N)			Galileo	9:30pm			
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							
to		A B C	Y (N)	(N) L M S	Y (N)							

Bob at subridge
* 175L ended at culvert roadway
** pits along bank with mats.
(no trench)

- (1) Depth of Contamination (A) Groundwater (B) Confining Layer (C)
 - (2) None (N), Light (L), Moderate (M), Strong (S)
 - (3) PID readings in ppm above background
- ND = No Detection

photo 1020 =
100 to 150L after
175L

Project Name:

Project Number:

Date: 9-9-10

Conducted by: Tom Flannery

Creek Section	Photo ID	Method Used to Indicate Vertical Limit*	Phase or Outcrop	Depth (ft)	Depth (ft)	Time of Test	Conductivity (ppm)	Field Follow-up Inspection Observations and Findings (if Applicable)	Time of Trench Excavation	Backfill Approval
2+25 to 2+75	020	A	Y	0.0	11:58 AM	Free solvent in culvert - no detect to 1/11	9-10-10	SEA	SEA	SEA
2+75L to 3+25L	007	B	Y	0.5	1:11 PM	208	9-10-10	SEA	SEA	SEA
3+25L to 3+75L	X	A	Y	0.6	1:05 PM	206	9-10-10	SEA	SEA	SEA
3+75L to 4+05L	X	A	Y	2.3	1:44 PM	204	9-10-10	SEA	SEA	SEA
4+25L to 4+75L	006	B	Y	0.4	2:00 PM	203	9-10-10	SEA	SEA	SEA
4+75L to 5+25L	008	B	Y	1.1	14:50	202	9-10-10	SEA	SEA	SEA
5+25L to 5+75L	009	B	Y	0.5	15:14	201	9-10-10	SEA	SEA	SEA
5+75L to 6+25L	014	B	Y	0.7	15:40	200	9-10-10	SEA	SEA	SEA
6+25L to 6+75L	021	B	Y	0.9	15:40	199	9-10-10	SEA	SEA	SEA
6+75L to 7+00L	022	B	Y	1.3	18:43	257	9-10-10	SEA	SEA	SEA
7+00L to 7+50L	023	B	Y	13.2						
7+50L to 8+00L	024	B	Y							
8+00L to 8+50L	025	B	Y							
8+50L to 9+00L	030	B	Y							
9+00L to 9+50L	031	B	Y							

* Dig out of Also observation pit
 3+25 to 3+75 dug out
 on 9/8 OK'd by STA 7325
 with FCM (3+25 to 4+25)
 previously
 AS 7+25 + 3+25
 Excavated on 09/09
 7+50 to 8+00
 Tree, be
 Trench
 signed

Project Name: Marshall Line 5B MP608 Piggline Release

Date: 9/17/10

Crest Section

Project Number: 23131003

Completed By: Robert Heseljak MP #75 to 2725L

Photo ID	Method Used to Indicate Vertical Limit	Photo ID	Free Phase Oil Observed	Odor	Sheen Test Rainbow Sheen Observed	Headspace ppm	Time of Test Pit	6-hour Follow-up Inspection - Observations and Time (if Applicable)	Time of Trench Excavation	Bedrock Approval	
										EPA	Enbridge
18-96	①	920	①	N	N	8.0	-	Dig out - Fail Vig 40	40		
	②		①	N	①	1.3	18:40				

Fail/vs

Close to 2725L pin flag

Will dig out on 9/17/10

② Scrape and vacuum out hole and retest (See line #2)

9/18/10 Note: This pit not needed, already approved at location 2725-275L!

By EPA verified this on 9/18/10

- (1) Depth of Contamination (A), Groundwater (B), Confined Layer (C)
 - (2) None (N), Light (L), Moderate (M), Strong (S)
 - (3) Poreblow in ppm above background
- ND = No Detection

Project Name: Marshall Line 6B MP608 Pipeline Release

Project Number: 22131003

Date: 7/17/10

Completed By: *Michael J. A.*

Creek Section	Photo ID	Method Used to Indicate Vertical Limit ²	Free Phase Oil Observed	Odor ³	Sheen Test Rainbow Sheen Observed	Headspace ³ ppm	Time of Test Pit	6-hour Follow-up Inspection Observations and Time (if Applicable)	Time of Trench Excavation	48-hour Follow-up Inspection Observations and Time (if Applicable)	Backfill Approval	
											EPA	Enbridge
2015 to 2015R		A B C	Y	N L M S	Y							
1975 to 1975		A B C	Y	N L M S	Y							
850L to 850L		A B C	Y	N L M S	Y							
1850 to 1850		A B C	Y	N L M S	Y	1.2	9-14-10					
1150 to 1150		A B C	Y	N L M S	Y	0.3	9-14-10					
1900 to 1900		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							
		A B C	Y	N L M S	Y							

MS Affected on other page Duplicate Form
MS Affected on other page Duplicate Form

2025-207512
 1925-1975

(1) Depth of Contamination (A) Groundwater (B) Confining Layer (C)
 (2) None (N), Light (L), Moderate (M), Strong (S)
 (3) ND = No Detection

Project Name: Marshall Line 6B MP608 Pipeline Release

Project Number: 22131003

Date: 9/17/10 Creek Section

Completed By: Robert Wesselick TP 7+00 to 7+50 L

Photo ID	Method Used to Indicate Vertical Umi*	Photo ID	Free Phase Oil Observed	Odor ¹	Sheen Test Rainbow Sheen Observed	Headspace ² ppm	Time of Test Pit	6-hour Follow-up Inspection Observations and Time (if Applicable)	Time of Trench Excavation	48-hour Follow-up Inspection Observations and Time (if Applicable)	Barfill Approval	Envelope
16:39	A B C		Y (N)	N L M S	Y N	1.5	14:55	1041 9-18-10				(NT)
<p>Notes:</p> <p>Sample close to 7+25 L</p> <p>± 25 feet from creek (only 1 pit) due to concrete MS of pipe line possibly narrowing around creek.</p> <p>4 1/2 inch and 30 inch lines</p> <p>Backfilled 9/20/10</p>												

- (1) Depth of Contamination (A) Groundwater (B) Confined Layer (C)
 - (2) None (N), Light (L), Moderate (M), Strong (S)
 - (3) PID readouts in ppm above background
- ND = No Detection

B-2-

9/9/2010
 P. M. [Signature]

Date: _____
 Completed By: _____

Project Name: Marshall Line 6B MP608 Pipeline Release
 Project Number: 22331003

Creek Section	Photo ID	Method Used to Indicate Vertical Limit ¹	Free Phase Oil Observed	Odor ²	Sheen Test Rainbow Sheen Observed	Headspace ³ ppm	Time of Test Pit	6-hour Follow-up Inspection Observations and Time (if Applicable)	Time of Trench Excavation	48-hour Follow-up Inspection Observations and Time (if Applicable)	Backfill Approval	
											EPA	Enbridge
19450 to 110100	8-33	A B C	Y	N L M S	Y	8.6	6:50 am	257/9-10-10			SEA	TVA
10100 to 10450	0032A	B C	Y	N L M S	Y	0.8	1908	256/9/10/10			SEA	TVA
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							
to		A B C	Y	N L M S	Y							

A5TP

- (1) Depth of Contamination (A)
 Groundwater (B)
 Confining Layer (C)
- (2) None (N), Light (L), Moderate (M), Strong (S)
- (3) PID readings in ppm above background
 ND = No Detection

2

Version 9-18-10

Marshall Line 68 MP508 Pipeline Reliefs

9/5/10

Project Number: 21131003

Completion Date: 9/5/10

Inspector: D. D. D. D.

Creek Section	Photo ID	Method Used to Indicate Vertical Limit*	Free Phase Oil Observed	Odor	Sheath Test: Rainbow Sheen Observed	Headspace ppm	Time of Test Pit	6-Hour Follow-up Inspection Observations and Time (If Applicable)	Time of Trench Excavation	48-Hour Follow-up Inspection Observations and Time (If Applicable)	Backfill Approval	
											RPA	Shirley
00R to 050R	1025	B C	Y (N)	N L M S	Y (N)	0.0 ppm	1020 hrs	No Free Oil	1020	9-10-10	SEA	DND
050R to 100R	1076	B C	Y (N)	N L M S	Y (N)	0.0	1076	No Free Oil	1046	9-10-10	SEA	DND
100R to 150R	1105	B C	Y (N)	N L M S	Y (N)	0.0	1103	No Free Oil	1103	9-10-10	SEA	DND
150R to 200R	1116	B C	Y (N)	N L M S	Y (N)	0.0	1116	No Free Oil	1118	9-10-10	SEA	DND
200R to 250R	1146	B C	Y (N)	N L M S	Y (N)	2.3	1144	No Free Oil	1144	9-10-10	SEA	DND
250R to 300R	1334	B C	Y (N)	N L M S	Y (N)	0.0	1333	No Free Oil	1333	9-10-10	SEA	DND
300R to 350R	1406	B C	Y (N)	N L M S	Y (N)	0.0	1405	No Free Oil	1405	9-10-10	SEA	DND
350R to 400R	1457	B C	Y (N)	N L M S	Y (N)	0.0	1418	No Free Oil	1428	9-10-10	SEA	DND
400R to 450R	1456	B C	Y (N)	N L M S	Y (N)	1.2	1452	No Free Oil	1452	9-11-10	SEA	DND
450R to 500R	1531	B C	Y (N)	N L M S	Y (N)	0.0	1522	No Free Oil	1528	9-11-10	SEA	DND
500R to 550R	1556	B C	Y (N)	N L M S	Y (N)	0.0	1546	No Free Oil	1549	9-11-10	SEA	DND
550R to 600R	1627	B C	Y (N)	N L M S	Y (N)	0.0	1615	No Free Oil	1615	9-11-10	SEA	DND
600R to 650R	1756	B C	Y (N)	N L M S	Y (N)	0.0	1752	No Free Oil	1705	9-11-10	SEA	DND
650R to 700R	1916	B C	Y (N)	N L M S	Y (N)	2.9	1752	No Free Oil	1800	9-10-10	SEA	DND

- (1) Depth of Contamination (A)
- Groundwater (B)
- Confining Layer (C)
- None (N), Light (L), Moderate (M), Strong (S)
- PID readings in ppm above background
- ND = No Detection

NO SHEEN OR PROTECT in any of the minor sheens in 5+500-600 R See field book

Test pit fail @ 9/13/10 re-bermed @ 8/13/10

collected prod

Name: Marshall Line 69 MPS08 Pipeline Release
 Number: 22191009

Date: 9/17/00
 Completed By: Robert Wesejak TAP-100 to 2+50A
 Crack Section

Method Used to Indicate Vertical UTM	Photo ID	Free Phase Oil Observed	Color	Shear Test Rainbow Stream Observed	Headspace ppm	Time of Test Pit	4-hour Follow-up Inspection Observations and Time (if applicable)	Time of Trench Excavation	48-hour Follow-up Inspection Observations and Time (if Applicable)	Insuff / Approval
137	01C	Y	N	Y	1.7	14:30	1014 9:29:20			

Sample closer to 2+25 to 2+50A
 HS = 14:00 TIME
 9-19-10 at 1713 free product. Anthony Jacobone

- (1) Depth of Contamination (A)
- (2) Groundwater (B)
- (3) Confined Layer (C)
- (4) None (N), Light (L), Moderate (M), Strong (S)
- (5) #10 residuals in ppm above background
- NO = No Detection

Project Name: Marshall Line SB 102008 Pipeline Release

Project Number: 22131003

Date: 9/8/10

Completed By: DAN RODRIGUEZ (DARR)

Creek Section	Photo ID	Method Used to Indicate Vertical Limit ¹	Free Phase Oil Observed	Odor ²	Sklem Test Rainbow Sheen Observed	Headspace ³ ppm	Time of Test Pit	6-hour Follow-up Inspection Observations and Time (If Applicable)	Time of Trench Excavation	48-hour Follow-up Inspection Observations and Time (If Applicable)	Backfill Approval	
											EPA	Enbridge
7+50 to 8+00	1834	A B C	Y (N)	N L M S	Y (N)	0.0	1820	085 / No free oil	1830	946 / 9-11-10	SSA	N
8+00 to 8+50	1850	A B C	Y (N)	N L M S	Y (N)	0.0	1845	229 / 9-10-10	1850	948 / 9-11-10	SSA	N
8+50 to 9+00	1919	A B C	Y (N)	N L M S	Y (N)	0.0	1909	231 / 9-10-10	1916	949 / 9-11-10	SSA	N
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							
to		A B C	Y N	N L M S	Y N							

DARR

- (1) Depth of Contamination (A) Groundwater (B) Confining Layer (C)
 - (2) None (N), Light (L), Moderate (M), Strong (S)
 - (3) PID readings in ppm above background
- ND = No Detection

TP-

**Response to EPA Comments for
Source Contamination Removal and Verification Summary Report
Enbridge Line 6B MP 608 Pipeline Release, Marshall, Michigan
Talmadge Creek Section 1 of 10
Stationing 00+00L to 10+00L and 00+00R to 09+00R**

The information below are responses to U.S. EPA's comments of Enbridge Energy's Talmadge Creek Section 1 of 10 Source Contamination Removal and Verification Summary Report:

1. 01+75L – 02+25L EPA's comment: needs signature (culvert crossing area)

Response: EPA signed 48-hour observation on field log on September 25, 2010, field log attached.

2. 07+00L – 07+50L EPA's comment: needs signature (pipeline area)

Response: EPA's signature for both 6-hour and 48-hour was included in the original field log which was submitted to the EPA on September 21, 2010.

3. 08+00L – 08+50L, 08+50L – 09+00L, 09+00L – 09+50L
EPA's comment: photocopy of field log is ripped, missing (above noted stations)

Response: Left corner of field log which includes these clearance areas is torn-off. These clearance areas are included in the original field log which reports observations from Stationing 02+25L to 09+50L which was submitted to EPA in the original report on September 21, 2010. The legible column includes the downstream Stationing of the clearance areas and is described as follows:

07+50L = 07+50L to 08+00L
08+00L = 08+00L to 08+50L
08+50L = 08+50L to 09+00L
09+00L = 09+00L to 09+50L

4. 02+00R – 02+50R EPA's comment: needs signature (culvert crossing area)

Response: EPA signed 48-hour observation on field log on September 25, 2010, field log attached.

Project Name: Marshall Line 68 MPS08 Pipeline Release

Project Number: 22131003

Date: 9/17/10

Creek Section

Completed By: Robert Heselak JAP 10/17/10 to 2+25L

Fail / Visual

Photo ID	Method Used to Indicate Vertical Limit	Photo ID	Free Phase OR Observed	Color	Sheen Test Rainbow Sheen Observed	Headspace ppm	Time of Test Pit	6-hour Follow-up Inspection Observations and Time (if Applicable)	Time of Trench Excavation	48-hour Follow-up Inspection Observations and Time (if Applicable)	EPA	Enbridge
18:36	①	9-20	④	N	N	8.0	18:40	Dig out - Fail Visual	Visual	Method	DNR	
			⑤	N	②	11.3						

Close to 20#25L pin flag
 Will dig out on 9/17/10

② Scrape and vacuum out hole and retest (See line #2)

9/18/10 Note: This pit not needed already approved at location 2+25-2475L!

EP EPA verified this on 9/18/10

- (1) Depth of Contamination (A), Groundwater (B), Confining Layer (C)
 - (2) None (N), Light (L), Moderate (M), Strong (S)
 - (3) PID-readouts in ppm above background
- ND = No Detection

Project Name: Marshall Line 6B MP608 Pipeline Release

Date: 9/17/10

Creek Section

Project Number: 22131003

Completed By: Robert Wesejuk TP2100 to 2+50R

Photo ID	Method Used to Indicate Vertical Link*	Photo ID	Free Phase Oil Observed	Odor ¹	Screen Test (Rainbow Sheen Observed)	Headspace ² ppm	Time of Test Pit	6-hour Follow-up Inspection (if Applicable)	Observations and Time (if Applicable)	Time of Trench Excavation	48-hour Follow-up Inspection (if Applicable)	EPA	Enbridge
14:37	A B C		Y	N	Y	N	17:17	14:30	1014				
								9:29:30					

Notes:

Sample closer to 2+25 to 2+50R

HS = 19:00 Time

9-19-10 at 1713 free product. Anthony Jacobone

- (1) Depth of Contamination (A)
- Groundwater (B)
- Confined Layer (C)
- Noise (N), Light (L), Moderate (M), Strong (S)
- PID readouts in ppm above background
- ND = No Detection