

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Kalamazoo River/Enbridge Spill - Removal POLREP-SITREP



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region V



**Subject:** SITREP # 47  
Kalamazoo River/Enbridge Spill  
Z5JS  
Marshall, MI  
Latitude: 42.2395273 Longitude: -84.9662018

**To:** Lt. Paul Baker, Kalamazoo County Sheriff's Office  
James Rutherford, Calhoun County Public Health Department  
Durk Dunham, Calhoun County Emergency Management  
Brian Whitsett, Michigan State Police, Emergency Mgt.  
Greg Danneffel, MDNRE  
Kathy Schley, City of Battle Creek  
Leon Zupan, Enbridge  
Susan Hedman, U.S. EPA Regional Administrator  
Rebecca Humphries, MDNRE  
Jim Sygo, MDNRE  
Connie Gibson, Calhoun County Sheriffs Office  
Cheryl Vosburg, City of Marshall  
David Chung, U.S. EPA  
Jason El-Zein, U.S. EPA  
Duty Officer, NRC  
Michael Chezik, U.S. Department of Interior  
Linda Nachowicz, U.S. EPA  
OSLTF USCG, USCG  
Jill Slaght, 7th District of Michigan  
Ken Brock, 7th District of Michigan  
Bruce Vanotteren, MDNRE  
Brian Pierzina, PHMSA Central Region  
Thomas Hemminger, USCG Grand Haven  
Ronna Beckmann, U.S. EPA  
Scott Corbin, Allegan County EMA Director

**From:** Ralph Dollhopf, U.S. EPA Incident Commander  
Stephen Wolfe, U.S. EPA On-Scene Coordinator  
Jeff Kimble, U.S. EPA Deputy Incident Commander  
Mark Durno, U.S. EPA Deputy Incident Commander

**Date:** 9/11/10

**Reporting Period:** 1900 hours 9/9/10 to 1900 hours 9/10/10

## 1 Introduction

### 1.1 Background

#### 1.1.1 Site History

##### Background Information

Site Number: Z5JS

D.O. Number:

Response Authority: OPA

Response Lead: PRP

NPL Status: Non NPL

Mobilization Date: 7/26/2010

Demob Date:

CERCLIS ID:

ERNS No.:

FPN#: E10527

Contract Number:

Action Memo Date:

Response Type: Emergency

Incident Category: Removal Action

Operable Unit:

Start Date: 7/26/2010

Completion Date:

RCRIS ID:

State Notification:

Reimbursable Account

#### 1.1.2 Incident Category

Emergency Response - Pipeline Rupture

#### 1.1.3 Site Description

A 30-inch pipeline ruptured, releasing crude oil (NRC report of 19,500 barrels) into a culvert leading to Talmadge Creek. Talmadge Creek is a tributary to the Kalamazoo River. The response site is along Talmadge Creek and the Kalamazoo River running from Marshall, Michigan, to downstream of Battle Creek, Michigan. The Kalamazoo River is bordered by marshland and developed properties for the approximate 30-mile stretch of the response site.

#### 1.1.4 Preliminary Removal Assessment/Removal Site Inspection Results

Approximately 30 miles of the Kalamazoo River have been impacted. The Kalamazoo River experienced flooding before and after the spill. The river levels later fell and stranded oil in some backwaters, wetlands and floodplains. Talmadge Creek was boomed off at the confluence to the Kalamazoo River. Containment and absorbent boom were deployed along the Kalamazoo River and Talmadge Creek. Containment and absorbent boom also were deployed in Morrow Lake.

### 1.1.5 Enforcement Activities, Identity of Potentially Responsible Parties

Enbridge is the RP.

On July 27, 2010, EPA issued an Administrative Order under section 311(c) of the Clean Water Act to Enbridge. Enbridge has submitted and EPA has approved the following deliverables required by the Order including but not limited to: *Operational Health and Safety Plan; Pipeline Repair Workplan; Sampling and Analysis Plan; Quality Assurance Project Plan; Oil Containment and Recovery Plan; Source Area Remediation Plan; Remediation Plan for Downstream Impacted Areas; and Waste Treatment, Transportation, and Disposal Plan.*

## 1.2 Incident Objective and Command Emphasis

The following incident objectives and command emphasis are taken from the IAP for the Operational Period September 10, 2010, 0700 to September 12, 2010, 0700.

### Incident Objectives

1. Ensure health and safety of the public and response and recovery personnel.
2. Ensure effective transition of regulatory oversight of the oil impacted areas from EPA to MDNRE jurisdiction as appropriate.
3. Maintain the isolation of the Kalamazoo River from up-gradient source area.
4. Contain and recover oil and contaminated vegetation in Talmadge Creek and Kalamazoo River.
5. Maintain effective unified communications with cooperating and assisting agencies and the public.
6. Perform remediation and restoration of all affected public and private areas of river and river systems.
7. Provide protection of environmentally and culturally sensitive areas including wildlife and historic properties.
8. Protect threatened and endangered species and continue to recover and rehabilitate injured wildlife.
9. Continue to collect, coordinate, manage and communicate environmental and public health data including maintenance of Joint Information Center function.

### Command Emphasis

1. Finalize submerged oil containment and recovery tactics for highest priority targets in the Kalamazoo River and at Morrow Lake.
2. Develop a plan to ensure thorough assessment of overbank and areas of concern.
3. Complete necessary grade restoration and stabilization work plans along Talmadge Creek in accordance with MDNRE guidance.
4. Finalize a Ground Water Monitoring Plan to facilitate lifting of the Bottled Water Advisory.

## 1.3 Strategic Considerations

- 1) Air-lift support for operations on the impacted area along the Kalamazoo River will be occurring.
- 2) Emphasis with Enbridge to implement submerged oil recovery plan. Focus remains on Ceresco Dam area.
- 3) Develop and implement plans to augment the identification and documentation of overbank areas of concern.

## 2 Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

The response site extends from the pipeline break to the dam at the end of Morrow Lake. Operationally, the response has been divided into two Oil Recovery and Cleanup Branches: East and West. These branches have been geographically divided into five Divisions, A through E, with Division A starting at the pipeline break and Division E ending at the western edge of Morrow Lake (see attached map). The East Branch includes Divisions A and B and the West Branch includes Divisions C, D and E. Division C is currently an area of command emphasis and has been further subdivided into four groups performing similar response activities in order to accelerate cleanup progress in that Division. Certain control points are denoted by division letter then control point number (i.e., C3 refers to control point three within Division C). Additionally the entire length of the site is now divided into one-quarter mile sections.

The Unified Command organizational charts (ICS 207 forms) are presented in Figures 1- 4. The ICS 207 Forms describe in detail the work breakdown structure for the response action.

The following activities occurred during the reporting period from 1900 hours on September 9, 2010 to 1900 hours on September 10, 2010:

#### Division A

Division A has been extended to incorporate the portion of Talmadge Creek from Location A4 to Division Drive.

#### Enbridge reported the following:

- Scraped Locations A5 and A6 under the guidance of AECOM per EPA's observations.
- Began restoration activities. Equipment is being staged on-site.
- Assigned crew to walk the creek and clean up hot spots per EPA map and visual inspection. Approximately 75% of Division A has been cleared for restoration to begin.

#### EPA observed the following:

- Relocation of silt fence from Location A6.4 to Division Road.
- Continuing hauling operations from soil staging area adjacent to the source. Tandem dump trucks are staged at the construction entrance and hauling is ongoing.
- Ongoing DECON on the south end of the source area holding cells.
- Continuing as needed operation of wood chipper depending on quantity of mats and trees delivered at any given time.
- Staging of contaminated log boom, sorbent pads, and collection bags are staged adjacent to the wood chipper.
- Collection bags and contaminated materials were observed to be put through the chipper and hauled off with wood material and contaminated soil.
- Modification of excavation operations per "Approach for Source Contamination Removal, Verification, and Backfill" addendum to the work plan.
  - Five excavation and test pit construction crews are operational.
- Resumption of backfilling operations on the west side of Talmadge Creek at Location A5 and A6.7.

## Division B

### Enbridge reported the following:

- Addressed safety issues on the matt roads.
- Continued removal of contaminated soil at Location B4. 22 yards removed today.
- Ordered liner for relocation of the DECON site at Location B5.
- Continued maintaining silt fence and boom at Locations B4 and B5.

### EPA observed the following:

- Excavation of contaminated soil at Location B4.
- Deployment of log and snare booms at Location B4.
- Skimming operations and deployment of sorbent boom at Location B4.5
- Suspension of backfilling along Talmadge Creek pending approval work plan by MDNRE.
- Suspension of grade restoration and stabilization activities along Talmadge Creek pending approval of the Approach for Source Contamination Removal, Verification, and Backfill plan by MDNRE. EPA has approved the plan.
- Ongoing repair of silt fences throughout Division B.
- Continuing ongoing as needed repair and replacement of log boom throughout Division B as recommended by START and EPA.
- Continuing suspension of excavation operations in Locations B2, B3, B4.5, and B5.
- Continuing soil staging and processing at staging area next to Location B4.

## Oversight Monitoring Group

### River Branch Task Force 1 observed the following:

- Excavation of approximately 140 cubic yards of soil at Location B4.
- Ongoing backfilling, test pit, and clearance operations in coordination with EPA in Locations A5 through A6.
- Backfilling and seeding/mulching operations from Location A1 to A4 are complete.
  - Distribution of hay over seeded/mulched areas.
  - No construction activities in seeded/mulched areas.
  - RP requested phone notification of hot spots in Locations A1 through A6 so that immediate corrective action can be taken.
- Ongoing silt fence and boom operations at Locations B2, B2.5, B2.7, and B3.
- Continuing vacuum truck operations at Location B5.
- Continuing suspension of excavation activities at Location B2, B2.7, and B5.

### River Branch Task Force 1 reported the following:

- START GIS will continue to provide hot spot location maps for Locations A5, A6, B2, B4, and B5. RP is provided with these maps.

## Division C

### Enbridge reported the following:

- Cleared vegetation on island at Location C0.
- Continued shoreline cleanup at Locations C0.3, C0.5, C1.5 from MP8.5 to 9.0, C3.2, C4.8, and C4.85.

- Began island cleanup at Location C0.3.
- Continued skimming operations at Location C1.
- Awaiting clearance on island at MP8.5.
- Continued debris collection at Locations C3.2, C3.9, C4.8, C4.85, and C5.

EPA observed or reported the following:

- From MP2.25 to MP6 (Group 1):
  - Cleaning of heavy oiled areas along left descending bank at MP2.5.
  - Cleaning of private residential bank at MP2.75.
  - On Island A at MP3.0:
    - Mopping and trimming of vegetation.
    - Emanation of sheen from hot spots despite vegetation removal and flushing.
    - New growth is sprouting and prospering. Crews are instructed not to disturb new growth.
    - Placement of cut brush atop oil to help absorb the product. EPA advised that grass must be turned to avoid any additional harm.
  - Walkthrough of area previously flagged green by SCAT step 3 along left descending bank in area at MP3.25. Product was identified under the grass. This has previously been a problem which operations continue to try to correct. EPA spoke with Enbridge who agreed this area needed to be addressed. Enbridge removed the green flag from this area.
  - Cleanup of hot spots behind deterrent fencing along right descending bank at MP3.25. USFWS had granted permission to continue work in this area. Crews must ensure fence is left in good condition after cleanup operations.
  - Replacement of sorbent booms at MP3.75 and MP4.0.
  - Continuing flushing operations on Islands D at MP3.75, Island E at MP4.0, and on the left descending bank at MP4.5.
  - On Left descending bank at MP4.25:
    - Area is heavily oiled and is a high priority for cleanup with a large work crew.
    - Logistically challenging due to the marsh and wet vegetation prevalent in the area.
    - Workers are trying to walk through areas of soft deep soils.
    - One worker reported illness yesterday brought on by heat, use of gas powered equipment, and strain from working in thick, deep mud.
    - Carbon Monoxide readings in the area as high as 5.7ppm.
  - On September 9, 2010, Enbridge stated that the flushing option was not effective at MP2.5. EPA advised Enbridge to develop an alternate plan and present it to the UC.
- MP6.5 to MP10 (Group 2):
  - Clearing of M6.25 through MP7.75 by SCAT step 4. Division group supervisor awaiting paperwork for final sign off.
  - Division group supervisor request notification when SCAT team is working in the area.

- Meeting with assessment team checking green flagged areas. Areas were denoted as ready for SCAT inspection or marked with an orange flag in areas where sheen was present as appropriate.
- Blue flagging of area between MP8.75 and MP9.75 as ready for SCAT inspection.
- Ongoing cleanup activities from MP8.25 to MP8.5.
- From MP10 to MP15 (Group 3 and 4):
  - Chainsaw operations along left descending bank between MP10.25 and MP10.5.
  - Shoreline cleanup along right descending bank in upstream island at MP10.75.
  - Cleanup 1000 feet inland of left descending bank at MP11.0:
    - Large area with complicated terrain features such as small gullies and ravines.
    - Shallow soil scraping in areas of impacted soil.
    - Multiple areas that contractor is unsure of how to address.
  - Overbank removal on left descending bank from MP11.25 to MP11.50
  - No crew surveying impacted overbanks or floodplain areas at MP11.7.
  - Identified multiple product pockets 1-3 feet in diameter on island area between MP12.25 and MP12.5. Identified 3x2 pocket of rainbow sheen on eastern side of island. Enbridge has been notified.
  - Denuding of 75x75 foot area by skid steer spinning in place with rubber tracks to loosen soils.
    - Heavy equipment cleanup operations taking place outside of the approved cleanup methods for this area.
    - EPA contacted the Overbank Division Supervisor who was unaware of the use of the heavy equipment.
  - Vegetation removal on right descending bank at MP13.5.
  - Presence of large sign in water near the shoreline that may be hazard to boat traffic near left descending bank at MP14.0. Unable to remove or relocate sign from air boat.
  - Large area of junk and debris along right descending bank shoreline at MP14.25. Impacted vegetation and soil throughout the area. Junk pile is denoted on SCAT survey sketches. Sorbent boom is has been deployed downstream.

USCG observed the following:

- Completion of demobilization of boat DECON site at Location C0.
- Vacuum truck operations at Ceresco Dam.
- Collection Point at Location C5 is fully operational with no problems reported.
- USCG advised site supervisor at Location C11.25 that this location is unfavorable for equipment and super sack helicopter drops due to heavy forestry in the area.
- Ongoing boat operations to address hot spot areas at Collection Point 12.25.

**Division D**

Enbridge reported the following:

- No activity.

EPA observed the following: (No new activities reported)

- Completion of boom deployment at area east of Location D2. Area has been designated as a “NO GO” area for all propeller boats.

- Installation of double silt fences at each oxbow mouth and single silt fences at two additional points within the oxbow at Location D5. Sorbent boom was deployed on each side of every silt fence.
- Collaboration with technical services pertaining to cleanup options for the oxbow at Location D5. Emphasis was placed on the cleanup of the top two inches of very fine sediments that demonstrate contamination and produce sheen.
- Scraping and collection of soiled vegetation from beneath the Angell Street Bridge.
- Installation of boom along the oxbow at Location D5.
- Discussion of general safety issues as well as IAP tasks specific to Division D at the IAP/Safety tailgate at Location D3.
- Investigation of oxbows within Divisions D and E.
- Continuing cleanup of shoreline at MP16.5 to MP16.75.
- Continuing removal of soil from Location D2.5.
- Continuing operation and maintenance of both lines of gabion baskets.
- Continuing presence of heavy oiling on booms throughout Division D. As reported in previous two reports, booms need decontamination and/or replacement.

### **Division E**

Enbridge reported the following: (No new activities reported)

- Constructed, maintained, and DECONed gabion baskets at Location E0.5.
- Continued removal of debris and maintenance of booms at Locations E1 E3, E4, and E5.
- Continued sheen patrols at Location E4.5.

EPA observed the following: (No new activities reported)

- Demobilization of Location E4. A guard remains on duty for sign in/out. Boom and garbage are still staged on-site.
- Investigation of conflicting reports of sheen on Morrow Lake. Reconnaissance from MP34.25 to downstream of Morrow Lake revealed the following:
  - Identified random sheens ranging from silver to iridescent and varying in size ranging from quarter size up to four feet from MP34.25 to MP37.0.
  - Identification of heavy sheen, tar flakes, and globules in several places along the river as follows:
    - Right descending bank of MP34.5:
      - No boom in place for containment.
      - Strong odor and heavy sheen in marshy swamp area upriver of the Time Out Lounge and Restaurant at 11447 E. Michigan Street.
    - Sheen at MP34.75.
    - Right descending bank at MP 35 near Location E3:
      - Boomed area.
      - Significant sheen outside the boom.
      - Odor and significant sheen upon agitation.
    - Product globules on sand bar at MP35.75 through MP36.0.
    - 200 yard long ribbon sheen between MP35.75 and MP36.0.
    - Sheen, tar flakes, and globules at MP37.5 on SE section of Morrow Lake.
    - Large sheen notes on lake near residential homes on lakeshore (Miller Road).

- Blue poly drum noted at MP37.0 on an island.
- Investigation is incomplete but is slated to be completed tomorrow.
- Identification of no air quality issues by CTEH air monitoring personnel at Location E0.5. EPA has requested the area be retested on another day when air speeds are lower and also requests that CTEH provide locations, time intervals, constituents tested, and detection limits.
- Response to resident's concern as to the nature and extent of the cleanup along the river.

### 2.1.2 Branch Operations

In addition to the East and West Recovery Branches, EPA, USCG and Enbridge Operations have five Branches that conduct activities in all Divisions: DECON, Environmental Compliance and Oversight; Monitoring; Wildlife Environmental/Damage Assessment; and Air Ops.

#### Technical Services Group

EPA reported the following: (No new activities reported)

- Surveyed various sections of suspected submerged oil in Division D.
- Evaluated containment strategies and recovery methods.
- Surveyed overbank areas in Division C.
- Researched more efficient cleanup methods.

#### Environmental Compliance and Oversight Branch

Enbridge reported the following: (No new activities reported)

- Hot spot cleanup in Divisions A and B.
- Continuing collection of soil scraping and documentation collection in Locations A6, B2 and B5.
- Continuing collection of soil samples and documentation at Location A6 and B2.
- Continuing implementation of MDNRE and EPA approved Source Contamination Removal, Verification, and Backfill Plan.
- Continuing oversight of SCAT inspection teams.

EPA reported the following:

- Two START teams continued oversight of CTEH air monitoring crews in Divisions A through E.
- One START oversight team shadowed the TP surface water sampling team and took one split sample in division E.

Transportation and Disposal reported the following:

- Verified the Enbridge projected 200 cubic meters of oil in four Frac tanks.
- Confirmed sampling of roll off within Frac Tank City which was reported to have been emitting vapors potentially including VOC's and hydrogen sulfide.
- Reviewed and provided comments to the Enbridge draft DECON Water Sampling Plan.
- Met with Enbridge contractors to finalize approach and formulas to be used to determine oil volumes in soil and debris. Continued discussions on soil and debris where data is limited.

- Provided Enbridge contractors with TSCA disposal criteria for PCB as it relates to sediment disposal.
- Working with Enbridge to plan for the recycling of RCRA empty drums.
- Ongoing daily QA/QC of data.
- Visually assessed debris grinding operations within the soil staging area (Division A) to determine the degree of fugitive plastic generated during the process. Findings indicated the process was successful in not generating wind-blown plastic and debris, including: PPE, boom, sorbent pads, and materials generated as per the clean-up.

### **DECON Branch**

Enbridge reported the following: (No new activities reported)

- Continued construction of central DECON area at Location C0.5.
- Established new cleaning area for large equipment in Division A.
- Central staging area at C0.5 is currently able to handle 40 roll off boxes.

EPA reported the following: (No new activities reported)

- Received and continues to review the Enbridge Line 6B MP 608 Decontamination of Equipment and Personnel Work Plan
- (Revised September 5, 2010).
- Performed a visual assessment of DECON operations within Frac Tank City, confirming adherence to the Enbridge Decontamination of Equipment and Personnel Work Plan and documenting activities using the DECON checklist.
- Observed confined space entries into frac tanks.
- Observed the approximately 90 x 160-foot DECON area established in Division A for use in decontamination of large equipment.
- Continued reconnaissance of DECON sites within Divisional locations
- Continued follow-up on tracking the DECON water generated during CTEH operations at Morrow Lake for inclusion into waste streams.
- Reviewed draft Enbridge DECON water sampling plan.

### **Monitoring Branch**

Primary responsibility for sampling air sampling activities was turned over to Enbridge personnel on 08/28/10.

Enbridge reported the following:

- Focused air sampling programs are continuing around the Baker Estates Mobile Home Park, the Day Care, Ceresco Dam, and the source area.
- Ongoing real time monitoring for benzene and VOCs.
- Continuation of air sampling program to collect 24-hour summa mini-can samples, grab samples, and passive dosimeter samples in addition to the real-time air monitoring samples.
- Collection of samples as indicated in Table 1:

**Table 1 - Samples Collected as of 9/10/10 1515**

| <b>Sample Type</b>            | <b>Number collected</b> |
|-------------------------------|-------------------------|
| Surface Water                 | 29                      |
| Vertical Water Column Samples | 0                       |
| Private Well Samples          | 5                       |
| Sediment Samples              | 8                       |
| Sheen Samples                 | 0                       |
| Other                         | 0                       |
| Soil Samples                  | 0                       |

EPA reported the following actions or observations:

- Duplicate air monitoring conducted at 25 locations with no benzene or other air contaminants detected.
- Collection of samples as indicated in Table 2.

**Table 2 - Samples Documented in SCRIBE as of 9/10/10**

| <b>Media</b>  | <b>Sample Type</b> | <b>Number collected</b> |
|---------------|--------------------|-------------------------|
| Air           | Summa Canister     | 0                       |
| Air           | Tedlar Bags        | 0                       |
| Air           | Monitoring Events  | 10                      |
| Surface Water | Grab               | 0                       |
| Sediment      | Grab               | 0                       |

Two SCAT teams reported the following:

- Conducted ReSCAT evaluations in Divisions C and D.

Three Submerged Oil Task Force teams reported the following:

- Deployment of three teams to Division C:
  - Oversight of sediment coring and qualitative/quantitative analysis of sediment impact by Team A :
    - Eleven bathymetry spot evaluations collected in middle of channel just upstream of Ceresco Dam.
    - Polling to delineate final location of sediment curtain on south side of channel upstream of Ceresco Dam.
    - Collected four quantitative sample locations upstream from Ceresco Dam.

- Oversight of sediment coring and qualitative/quantitative analysis of sediment impact by Team B :
  - Collected three sediment cores.
  - Collected poling locations primarily between MP20.5 and MP21.75.
  - Targeted previously selected potential submerged oil locations.
- No oversights performed by Team B. Priority and secondary areas in Division C have been characterized according to Tetra Tech.
- Oversight of sediment coring collection for qualitative/quantitative analysis of sediment impact by Team C.
  - Poling in Morrow Lake delta.
  - Collected twenty nine poling locations between MP37 to MP37.75. Sheen observed at twenty two of these locations.
  - Focused along islands toward south shoreline.
  - Collected seven quantitative sediment cores.

#### Environmental Unit Observations:

- No oversight of sediment coring performed on September 9, 2010.
- TetraTech reported the following:
  - Logged and sampled three sediment cores downstream of Ceresco Dam.
    - Submitted eight post Terra Vac sediment cores for 12 hour TPH analysis. Results obtained on same day.
  - Mapped bathymetry locations inside silt curtain upstream of Ceresco Dam.
  - Transported cores from two launch sites to cold storage.

#### The Overbank Group reported the following:

- Referred eight areas for re-SCAT
  - MP8.0
  - MP8.75
  - MP9.0
  - MP9.25
  - MP9.5
  - MP22.25
  - MP22.75
  - MP23.0
- Assessed overbanks in Location C3 and MP1.75 through 13.25.
- Observed overbank work in multiple areas at MP8.25 and MP10.0 through MP10.25.

#### **Wildlife Environmental Damage Assessment Branch**

##### USFWS reported the following:

- Brought in approximately 70 turtles.
- Observed oiled turtles in Morrow Lake.
- Received four oiled geese carcasses from hunters as well as reports that cleaned and released birds with bands have been shot.
- Captured two oiled geese.
- Observed seven locations with significant sheen ribbons, dots, or pools. Locations are provided in the table below:

| Latitude | Longitude | Observation |
|----------|-----------|-------------|
|----------|-----------|-------------|

|           |           |                       |
|-----------|-----------|-----------------------|
| 42.272330 | -85.46767 | sheen dots            |
| 42.27582  | -85.45100 | sheen dots            |
| 42.27549  | -85.44740 | sheen noted           |
| 42.27395  | -85.44084 | sheen ribbons         |
| 42.27514  | -85.43629 | massive sheen ribbons |
| 42.27758  | -85.43161 | sheen pools           |
| 42.27819  | -85.43943 | sheen ribbons         |

- Participated in Environmental Advisory Group.
- Planning for deer hunter education and outreach.
- Distribution of business card sized handout with hotline number for workers.
- Arranged for NRDA teams to use data collected by JFNew for additional tree and vegetation surveys for the peninsula at MP11.25 that will now be cleaned by excavation.
- Continuing trap preparation at MP15.
- Turtle, heron, and beaver trapping continue.
- Review of water quality data to determine if/when another collection should be done.

As of September 9, 2010 at 0700, the wildlife center reported 323 animals in captivity and 792 released to date.

### Air Ops Branch

Since August 23, 2010, both the EPA START Situation Unit FOB and Enbridge have been using the Enbridge funded helicopter for their daily over-flights. The EPA helicopter will be available, as needed, for IC and other federal needs.

### Enbridge reported observing the following during two over flights:

- Changes in Sheen:
  - Additional sorbent boom deployed at confluence of Kalamazoo River and Talmadge Creek.
  - Decontamination of booms at Location B5.
  - Minimal sheen upstream and downstream of peninsula at Ceresco Dam.
  - Less sheen on water at the oxbow at MP21.5. Sheen was contained and no sheen was observed on main waterway.
  - Minimum sheen observed upstream of E0.5 at the border between MP26.25 and 26.50.
  - No sheen observed on the Morrow Lake delta
  - No sheen observed through Location B2 and B3.
  - No sheen at Control Point B5.
  - No sheen at pond area before Interstate 69 in Division B where minor sheen was reported yesterday.
  - No sheen at Location B4.7 and B5.
  - Containment of sheen upstream of Location C5.
  - No sheen at confluence point between Kalamazoo and Battle Creek river.
  - No sheen at the confluence, Baker Estates, and downstream of Ceresco Dam.
  - No sheen upstream of boat launch at Location D2.
  - No sheen upstream of culvert crossings in Locations A5 and A6.
  - Boom contained sheen and a skimmer in the Mill Pond at MP14.5 in Location C6.
  - No sheen and floating debris observed at the Morrow Lake Delta.

- Continuing containment of sheen at both north and south areas upstream of the Ceresco Dam.
- Continuing presence of sheen south of a small island at Location C10.75.
- No sheen on Morrow Lake and its' shores.
- Operational Observations:
  - Removal of soil from the south central and south east cells at Frac Tank City. The northeast cell was being worked on and one cell was being used for materials staging.
  - Minor activity at submerged oil treatment cells at Ceresco Dam.
  - Installation of silt curtain boom at Ceresco Dam.
  - Presence of new vegetation in the seeded areas across Division A.
  - No activity at Location B2.7 and B4.7.
  - Operations at the test pits upstream of Division Drive at Location B2.
  - Discontinuation of bypass pump operations in Division B.
  - Significant activity at Frac Tank City DECON area
  - Heavy activity in Division C.
  - Booming around islands in Division C remains effective.
  - Continuing boom activity at the peninsula above Ceresco Dam and at the dam itself.
  - Operation of experimental submerged oil treatment cells upstream of Ceresco Dam.
  - Installation of silt fence at Location D1.
  - Replacement of boom at 35<sup>th</sup> Street at the Morrow Lake delta.
  - Boat activity on Morrow Lake included seven manned boats.

EPA observed the following during one over flight:

- Changes in sheen:
  - No sheen was observed at Locations A1 through A4.
  - No sheen was observed at Location A5.
  - No evidence of sheen at Locations A5, A6, the pond north of Talmadge Creek just east of I-69 in B2.7, the ponds north of Talmadge Creek west of I-69 in B4, or at the confluence of Talmadge creek and the Kalamazoo River.
  - Boom contained sheen near the island in the Mill Pond at MP14.5 in Location C6.
  - Sheen at MP21.0 in Division D.
  - Continuing presence of significant sheen in the oxbow area at MP21.5 in Location D4.25. Amount of sheen is similar to yesterday.
  - Continuing presence of sheen along the northern shoreline of the Kalamazoo River near Location E0.5 north of Shady Oaks Campgrounds.
  - Continuing absence of oil and sheen on Morrow Lake.
- Operational Observations:
  - Sprouts of new vegetation visible across Locations A3 and A4. Standing water on ground cover at several locations.
  - Heavy equipment operation as well as several confirmation test pits at Location A5.
  - Loading of soil into trucks in the eastern soil staging area at Frac Tank City.
  - Active decontamination of frac tanks and vacuum trucks at the south end of Frac Tank City.
  - Deployment of additional boom at the confluence of Talmadge Creek and the Kalamazoo River. No sorbent pads were observed.

- Heavy cleanup on Islands A, B, E, and F in Division C. Workers were observed pumping water from the Kalamazoo River onto the last two islands above Ceresco Dam to saturate the surface and recover oil/sheen.
- Heavy shoreline cleanup along the south shore of the Kalamazoo River upstream of the peninsula and Ceresco Dam.
- Boom replacement upstream of the Ceresco Dam.
- Observed the island at MP8.5 that has been cordoned off due to H&S concerns. No changes or activity noted.
- Heavy cleanup between MP11 and MP12.25 in Division C.
- Installation of sheen skimmer in the Mill Pond at MP14.5.
- Initiation of new booming strategy just west of Custer Road in the oxbow area at MP21.5. Sorbent boom was placed across the channel at several locations.

### 2.1.3 Progress Metrics

All progress metrics in Section 2.1.2 are as reported by Enbridge unless otherwise indicated.

#### Boom Report

**Table 3 - Boom Report (9/10/10 1900)**

|                      |         |
|----------------------|---------|
| Number of Locations  | 25      |
| Boom Deployed (feet) | 116,506 |

#### Soil and Debris Waste Tracking

**Table 4 - Soil and Debris Waste Tracking (9/9/10)**

| Waste Stream*                                | Quantity Shipped | Cumulative Quantity Shipped |
|--|------------------|-----------------------------|
| Haz Soil (yd <sup>3</sup> ) <sup>a</sup>     | 0                | 15,344                      |
| Non Haz Soil (yd <sup>3</sup> ) <sup>b</sup> | 1,062            | 18,195                      |
| Haz Debris (yd <sup>3</sup> ) <sup>c</sup>   | 0                | 12,075                      |
| Non Haz Debris (ton) <sup>c</sup>            | 6.7              | 916                         |

\* Information for water (other than daily quantity shipped) is reported in other tables below. Quantity awaiting disposal is estimated.

- Haz (Benzene)-impacted soil is being sent to EnviroSafe (Oregon, OH).
- Non Haz soil is being sent to Westside Recycling (Three Rivers, MI) and EQ/Republic (Marshall, MI).
- Roll-off boxes containing waste sorbents, boom, pads, plastic, PPE, and oiled vegetation and biomass are being sent to EQ facility (Michigan Disposal) in Wayne, MI and Republic (Marshall, MI).

## Oil/Water Recovery Tracking

Note: Some of the values in the tables below have been audited and reconciled by Enbridge and may not correlate with previously reported values.

**Table 5 –Oil water collected by location (9/9/10, 0700)**

| Location         | Cumulative Total Collected (gallons) |
|------------------|--------------------------------------|
| Division A       | 4,826,618                            |
| Division B       | 3,406,975                            |
| Division C       | 814,750                              |
| Division D       | 117,825                              |
| Division E       | 49,950                               |
| DECON            | 100,240                              |
| Other Locations* | 203,238                              |
| <b>TOTAL</b>     | <b>9,519,596</b>                     |

\* Includes Frac, DECON, and Wildlife Center.

**Table 6 - Oil water Separation (9/9/10, 0000)**

| Oil-Water - Enbridge Facility in Griffith, IN Facility (gallons) |                  |
|--|------------------|
| Oil  | 699,823          |
| Other Material   | 1,382,983        |
| <b>TOTAL</b>   | <b>2,082,806</b> |

**Table 7 – Liquid Shipped Off-site (9/9/10, 0000)**

| Oil/Water leaving Site  | Destination                                   | Daily Quantity Shipped (Gallons) | Cumulative Quantity Shipped (Gallons) |
|-------------------------|---|----------------------------------|---------------------------------------|
| Haz Water               | Dynecol, Detroit, MI                          | 18,038                           | 2,079,136                             |
| Oil/Water               | Enbridge Facility, Griffith, IN               | 0                                | 2,082,806                             |
| Treated Non Haz Water   | Liquid Industrial Waste Services, Holland, MI | 0                                | 370,200                               |
| Treated Non Haz Water   | Plummer, Kentwood, MI                         | 0                                | 1,625,800                             |
| Haz Water               | Safety Kleen <sup>a</sup>                     | 0                                | 550                                   |
| Treated Non Haz Water * | Dynecol, Detroit, MI                          | 0                                | 134,200                               |
| Treated Non Haz Water * | Battle Creek POTW                             | 0                                | 1,968,700                             |
| <b>Totals</b>           |   | <b>18,038</b>                    | <b>8,261,392</b>                      |

\* Treated Non Haz Water no longer sent to this location.

a. New Age lab water and methanol mix generated by mobile laboratory.

† Volumes have decreased due to an EPA audit conducted 09/03 through 09/06. Results concurred with Enbridge

**Table 8 - Oil/Water Volume Summary (Gallons)**

|   |                  |
|---|------------------|
| Oil/Water Collected <sup>a</sup>        | 9,519,596        |
| Oil/Water Shipped Off-site <sup>b</sup> | 8,261,392        |
| <b>OIL/WATER REMAINING ON-SITE</b>      | <b>1,258,204</b> |

a. As of 9/10/10, 0700

b. As of 9/9/10

## 2.2 Planning Section

### Data Management Unit

The Data Management Unit reported the following:

The DMU continued processing surface water sampling data, importing preliminary and validated analytical results into SCRIBE.

### Situation Unit Field Observers

Situation Unit FOB observed the following:

- At Division C near Ceresco Dam:
  - Operation of two vacuum trucks near the abandoned building drawing oil skimmed from stillwater area upstream of the dam. One john boat crew collecting oily debris from boom collection point in this same vicinity.
  - A great blue heron was feeding in the Kalamazoo River by the spillway.
  - No boat activity in the open water areas upstream and downstream of the dam.
- At Location C3:
  - Unloading of two skid steers, two Bobcat mini excavators, one skid-mounted vacuum system and one portable generator at newly constructed helicopter pad at location 42.30528N 85.1425W.
  - Safety meeting with ground crew participating in helicopter drop.
  - Unloading of equipment by super sac helicopter. A team of three riggers and one spotter observed at MP 11.25 to work at the drop site.
  - Arrival of helicopter on helicopter pad.
  - Nine helicopter drops at area C11.25 between 1415 and 1439.
- At Location C3.7:
  - Continuation of shoreline cleanup and removal of woody debris.
  - Disposal of bags of vegetation. Bags are brought in by air boat and hauled to one of four roll of boxes on site.
  - Presence of portable toilets being transported by boat on the Kalamazoo River.

#### 2.2.1 Anticipated Activities for Next Reporting Period

In the next operational period, Operations anticipates final clearance of Division A and bank stabilization in Division B as well as performing the same or similar activities as in the previous operational period, with a focus on activities in Division C.

### 2.2.2 Issues

Calhoun County public health reported the following:

- Discussed the plan for reduced frequency of air monitoring presented by CTEH and Enbridge.
- Discussed the plan for reduced analyte list and frequency of ground and well water testing. Item tabled until next meeting.
- Discussed the requirements for lifting the drinking water advisory.
- Reviewed the Baker Estates Indoor Air Sampling report. No benzene was detected.

### 2.3 Logistics Section

Logistics reported the following:

- Ordered a mobile office trailer for the Operations Section since USEPA Mobile Command Bus was relocated to the Enbridge Spill site near Romoville, Illinois.
- Set traps to capture a skunk which has been in the area during hours of darkness.
- Accidental orange button push on radio S-83 at approximately 1705. COML was notified by the MI state Police and the situation was resolved.

### 2.4 Safety Officer

The following health and safety items were noted:

- Worker in group 1 was reporting general malaise. This worker was operating gas-powered hand tools. He was assessed by the medic but did not require medical treatment.
- Strong odors noted above Ceresco Dam.
- Boat traffic in area above Ceresco Dam should be limited to workers only.
- Enbridge has performed maintenance on the mat road to fill in hazardous gaps that are observed to hinder safe ATV travel.
- Dust suppression issues were identified by START health and safety. Enbridge will place ply ash in the middle of the soil handling area to provide a wind break.
- Corrective actions including better signage, spotters and flaggers, and traffic barriers, have been implemented by Enbridge to address safety issues with travel on the mat roads.

Enbridge reported the following Health and Safety issues:

- Three incidents:
  - A worker slipped off a crossbeam in Frac Tank City resulting in a back sprain. Worker was transported to the health center.
  - A worker was treated with first aid after hearing his elbow pop. Worker was examined. No swelling was evident. Injury was iced and the worker was returned to duty.
  - Worker in Division C suffered from heat stress and fatigue. The worker was feeling ill after lunch, threw up, and took a nap in an air conditioned ambulance. The worker returned to duty later that day.
- Three boats were observed violating the newly enacted buddy system rules for water operations. Supervisor was unaware of the new practice, was briefed, and is now aware of new requirements.

- During lift operations, the helicopter pilot was unaware of the location of the landing zone. A course correction caused the swinging load to pass overhead of workers between MP3.7 and MP3.9.
- After lift operations at Location C11.25, river was opened. Too many boats left the shore simultaneously. A large boat got stuck. Two people got out of the boat and started to push it from the water without waders.
- A worker was observed without hearing protection on a stationary boat. USCG was given hearing protection.
- A worker showed up in field at lift area without eye protection and was given a pair of safety glasses.

EPA reported the following:

- Reviewed the safety messages for the new IAP during the 0630 Operations briefing.
- Briefed the Unified Command and General Staff meeting on Medical Unit Leader position, Fatigue Management Plan, and Facility Emergency Response Plan. The decision for the MUL position and the Fatigue Management Plan were approved and signed by the UC.
- Viewed the helicopter operations for lifting mechanized equipment into the oxbow area. Road closures and safety briefings were provided in accordance with the plan approved for the lifting operations.
- A helicopter operated by Enbridge was operating in the area of the lifting operation. This should have been a no fl zone during the lifting operations in accordance with the plan.
- Met with MIOSHA to discuss new safety plans being implemented.

## **2.5 Liaison Officer**

The Liaison Officer reported the following actions:

- The Liaison Office coordinated with Kalamazoo County Sheriff's Office in the drafting of a protocol for Unified Command review for the proper handling of found property or other items encountered during the response that could be the potential subject of a criminal investigation.

## **2.6 Finance Section**

The current NPFC issued ceiling was \$18 million. Approximately 84.7% of the ceiling had been spent through September 9, 2010, with a burn rate of \$196,979 per day. These cost summaries reflect only EPA-funded expenditures for the incident.

**Table 9 - FPN E10527 - Enbridge Pipeline Oil Spill (09/09/10)**

| <b>ERRS Contractors</b>               |      | <b>Est.<br/>Expended</b> | <b>Est Burn Rate<br/>(Lastest Daily)</b> |
|---------------------------------------|------|--------------------------|--|
| EQM (EPS50802)                        | T057 | \$1,250,017              | \$0                                      |
|                                       | T060 | 220,434                  | 1,600                                    |
| LATA (EPS50804)                       |      | 1,451,396                | 0  |
| ER LLC (EPS50905)                     |      | 723,669                  | 0  |
| <b>ERRS Contractors</b>               |      | <b>\$3,645,516</b>       | <b>\$1,600</b>                           |
| TNT Bisso                             |      | 787,000                  | 27,000                                   |
| <b>START Contractor</b>               |      |                          |  |
| WESTON (EPS50604)                     |      | 4,979,974                | 73,593                                   |
| <b>Response Contractor Sub-Totals</b> |      | <b>\$9,307,816</b>       | <b>\$102,193</b>                         |
| EPA Funded Costs:                     |      |                          |  |
| Total EPA Costs                       |      | 2,822,874                | 50,950                                   |
| Pollution Removal Funding             |      |                          |  |
| <b>Total Other Agencies</b>           |      | <b>911,760</b>           | <b>16,667</b>                            |
| Sub-Totals                            |      | \$13,147,124             | \$16,667                                 |
| Indirect Cost (14.15%)                |      | 2,103,540                | 27,170                                   |
| <b>Total Est. Oil Spill Cost</b>      |      | <b>\$15,250,664</b>      | <b>\$196,979</b>                         |

**2.7 Information Officer**

The Public Information Office reported the following activities:

No report was filed.

**Media Inquiry Line (877-440-7157)<sup>a</sup>**

Calls received during last reporting period: 0

Enbridge reported the following call volume and community center visits:

**Oil Spill Public Information Hotline (800-306-6837)<sup>b</sup>**

Calls received during last reporting period: 13

<sup>a</sup> No update provided for the Media Inquiry Line

<sup>b</sup> No update provided for the Oil Spill Public Information Hotline

**Community Center Visits<sup>c</sup>: 19**

Visits by location during last reporting period:

|              |    |
|--------------|----|
| Battle Creek | 13 |
| Marshall     | 6  |

Enbridge reported that it received 2 inquiries from its [www.response.enbridgeUS.com](http://www.response.enbridgeUS.com) website.

## **2.8 Response Actions to Date**

Response Actions to date may be found in Situation Reports 1 through 46.

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<sup>c</sup> No update provided for the Community Center visits

### 3 Participating Entities

#### 3.1 Unified Command

U.S. EPA  
MDNRE  
Michigan State Police Emergency  
Management Division  
City of Battle Creek  
Cooperating and Assisting Agencies

Calhoun County Public Health  
Department  
Calhoun County Emergency Management  
Kalamazoo County Sheriff  
Enbridge (Responsible Party)

#### 3.2 Cooperating and Assisting Agencies

ATSDR  
Calhoun Conservation District  
Calhoun County Commission  
City of Kalamazoo  
City of Marshall  
Emmett Township  
Fredonia Township  
Kalamazoo County Office of Emergency  
Management  
Marshall Area Firefighters Ambulance  
Authority

Marshall Police Department  
Marshall Township Government and Fire  
Department  
Michigan Department of Agriculture  
MDCH  
NOAA  
Oakland County HAZMAT/RRTN  
PHMSA  
USCG  
U.S. Department of the Interior/USGS  
USFW

#### 3.3 Congressional Presence

State Representative Jase Bolger  
State Representative Kate Segal  
State Representative Ken Kurtz  
State Representative Phil Browne  
State Representative Phyllis Browne  
State Representative Bob Geuck  
State Representative Tanya Schuitmaker  
State Senator Mike Nofs  
U.S. Congressman Mark Schauer  
U.S. Senator Carl Levin  
U.S. Senator Debbie Stabenow

#### 4 Personnel On Site

**Table 10. Personnel On Site 9/10/10**

| Agency/Entity                             | Numbers Reported |
|---|------------------|
| EPA                                       | 45               |
| START                                     | 44               |
| Calhoun County Public Health Dept. (CCPH) | 3                |
| Calhoun County (CC) Sheriff               | 6                |
| City of Battle Creek                      | 3                |
| Kalamazoo Sheriff                         | 2                |
| MDNRE                                     | 7                |
| Michigan State Police (MSP)               | 1                |
| NOAA - National Weather Service           | 2                |
| NOAA- NRDA                                | 2                |
| USCG                                      | 5                |
| USFWS                                     | 4                |
| USFWS Contractors                         | 0                |
| Enbridge                                  | 15               |
| Enbridge Contractors                      | 1256             |
| <b>Total</b>                              | <b>1,395</b>     |

## 5 Definition of Terms

|                  |  |
|------------------|--|
| ATSDR            | Agency for Toxic Substances and Disease Registry         |
| CCPH             | Calhoun County Public Health                             |
| CIC              | Community Involvement Coordinator                        |
| CTEH             | Center for Toxicology and Environmental Health           |
| DMU              | Data Management Unit                                     |
| EMT              | Emergency Medical Technician                             |
| ENVL             | Environmental Unit Leader                                |
| EPA              | Environmental Protection Agency                          |
| EQM              | Environmental Quality Management                         |
| ER               | Environmental Restoration                                |
| ERRS             | Emergency and Rapid Response Services                    |
| ERT              | Emergency Response Team                                  |
| EU               | Environmental Unit                                       |
| FOB              | Field Observer   |
| GLNPO            | Great Lakes National Program Office                      |
| H <sub>2</sub> S | Hydrogen Sulfide   |
| HASP             | Health and Safety Plan                                   |
| IAP              | Incident Action Plan                                     |
| IC               | Incident Commander                                       |
| ICP              | Incident Command Post                                    |
| IN               | Indiana  |
| JIC              | Joint Information Center                                 |
| LEL              | Lower Explosive Limit                                    |
| LNO              | Liaison Officer  |
| LSC              | Logistics Section Chief                                  |
| MDA              | Michigan Department of Agriculture                       |
| MDCH             | Michigan Department of Community Health                  |
| MDMB             | Michigan Department of Management and Budget             |
| MDNRE            | Michigan Department of Natural Resources and Environment |
| MI               | Michigan   |
| MIOSHA           | Michigan Occupational Safety and Health Administration   |
| MP               | Mile Post  |
| NOAA             | National Oceanic and Atmospheric Administration          |
| NPFC             | National Pollution Fund Center                           |
| NRC              | National Response Center                                 |
| NRG              | National Response Group                                  |
| OSHA             | Occupational Safety and Health Administration            |
| PHMSA            | Pipeline and Hazardous Materials Administration          |
| PIO              | Public Information Officer                               |
| POTW             | Publicly Owned Treatment Works                           |
| Ppbv             | Parts Per Billion Volume                                 |
| PPE              | Personal Protective Equipment                            |
| ppm              | Parts Per Million  |
| PVC              | Polyvinyl Chloride                                       |
| QA/QC            | Quality Assurance/Quality Control                        |
| RP               | Responsible Party  |
| SCAT             | Shoreline Contamination Assessment Team                  |
| START            | Superfund Technical Assessment and Response Team         |
| T&D              | Transfer and Disposal                                    |
| UC               | Unified Command  |
| USCG             | United States Coast Guard                                |

|                 |   |
|-----------------|---|
| USDA            | United States Department of Agriculture       |
| USDOT           | United States Department of Transportation    |
| USFWS           | United States Fish and Wildlife Service       |
| U.S. EPA        | United States Environmental Protection Agency |
| VOCs            | Volatile Organic Compounds                    |
| yd <sup>3</sup> | Cubic Yards                                   |

## **6 Source of Additional Information**

### **6.1 Additional Information**

For additional information please refer to <http://www.epa.gov/enbridgespill.html>. For sampling analysis data, please see <http://response.enbridge.com/response/main.aspx?id=13168>.

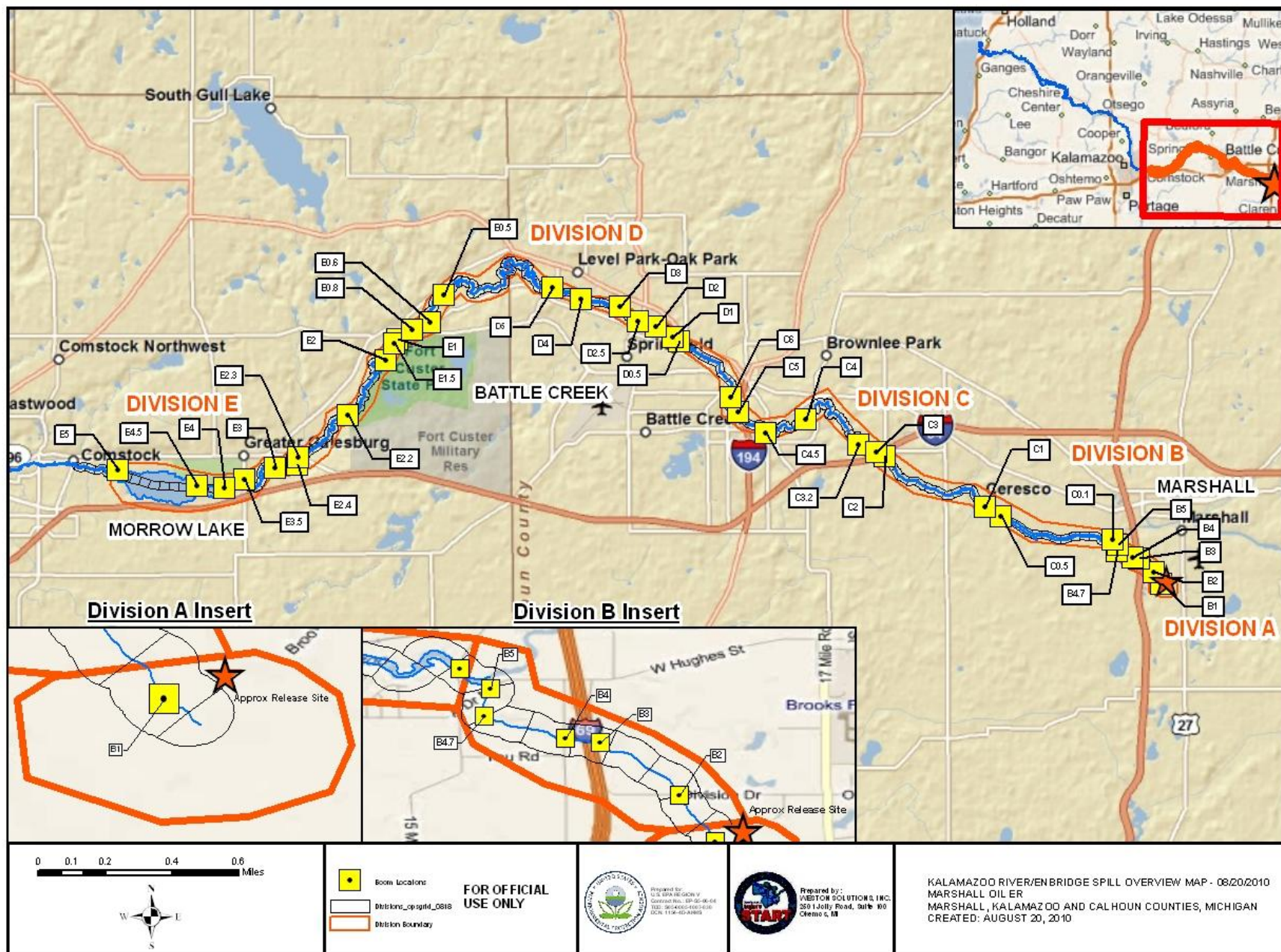
### **6.2 Reporting Schedule**

SITREPs have been created daily and will continue until the UC establishes a different reporting schedule, in conjunction with the planning cycle.

## **7 Situational Reference Materials**

See attached Map, entitled “Kalamazoo River/Enbridge Spill Overview Map,” for more information.

See attached Unified Command Organizational Charts (ICS 207) entitled, “Enbridge Pipelines Response Unified Command”, “Planning Section”, “Operations”, and “Division C.”



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## Enbridge Pipelines Response Unified Command

### INCIDENT COMMANDERS

Jeff Kimble (US EPA) / Ralph Dollhopf (US EPA) (9/8) / Greg Danneffel (MDNRE) /  
 Durk Dunham (CCEM) / Paul Makoski (CCPHD) / Lt. Brian Whitsett (Michigan State Police)  
 Lt. Paul Baker (Kalamazoo Cty Sheriff's Office)  
 Mike McKenzie (City of Battle Creek) / Leon Zupan (Enbridge) /  
 Byron Nieves (Enbridge), Deputy

### SAFETY OFFICER

Brian Kovak (US EPA)  
 Melissa Linden (US EPA)  
 TJ Waldo (START EPA)  
 Mike Stuart (START EPA)  
 Richard Oleschuk (Enbridge)

### LIAISON OFFICER

Lynn Donley (US EPA)  
 Angela Risdon (Enbridge)

### INFORMATION OFFICER

Don de Blasio (US EPA)  
 Janet Pope (US EPA)  
 Kevin O'Connor (Enbridge)  
 Terri Larson (Enbridge)  
 Kelsey Myhre (Enbridge)  
 Heather Keenan (Enbridge)

### OPERATIONS SECTION

Brian Kelly (U.S. EPA), Chief  
 Brad Shamla (Enbridge), Chief  
 Tricia Edwards (U.S. EPA), Deputy  
 Tom Fridel (Enbridge), Deputy  
 Mark Ploen (O'Brien's / Enbridge), Deputy

(See Ops Chart)

### PLANNING SECTION

Bill Weber (O'Brien's/Enbridge), Chief  
 Mike Ribordy (US EPA), Chief  
 Brian Johnson (Enbridge), Deputy (9/10)  
 Gary Gregory (O'Brien's/Enbridge), Deputy

(See Page 2)

### LOGISTICS SECTION

Jim Ursic (US EPA)  
 Greg Dearden (Enbridge)

### SUPPLY MANAGER

Jeff Borseth (US EPA)

### ORDERING MANAGER

Nathan Graen (Enbridge)

### FACL

Paul Millar (Enbridge)

### SECURITY

Stan Shook (Enbridge)

### COMMS UNIT

Paul Zanter (US EPA)  
 Walter Williams (US EPA)

### FINANCE SECTION

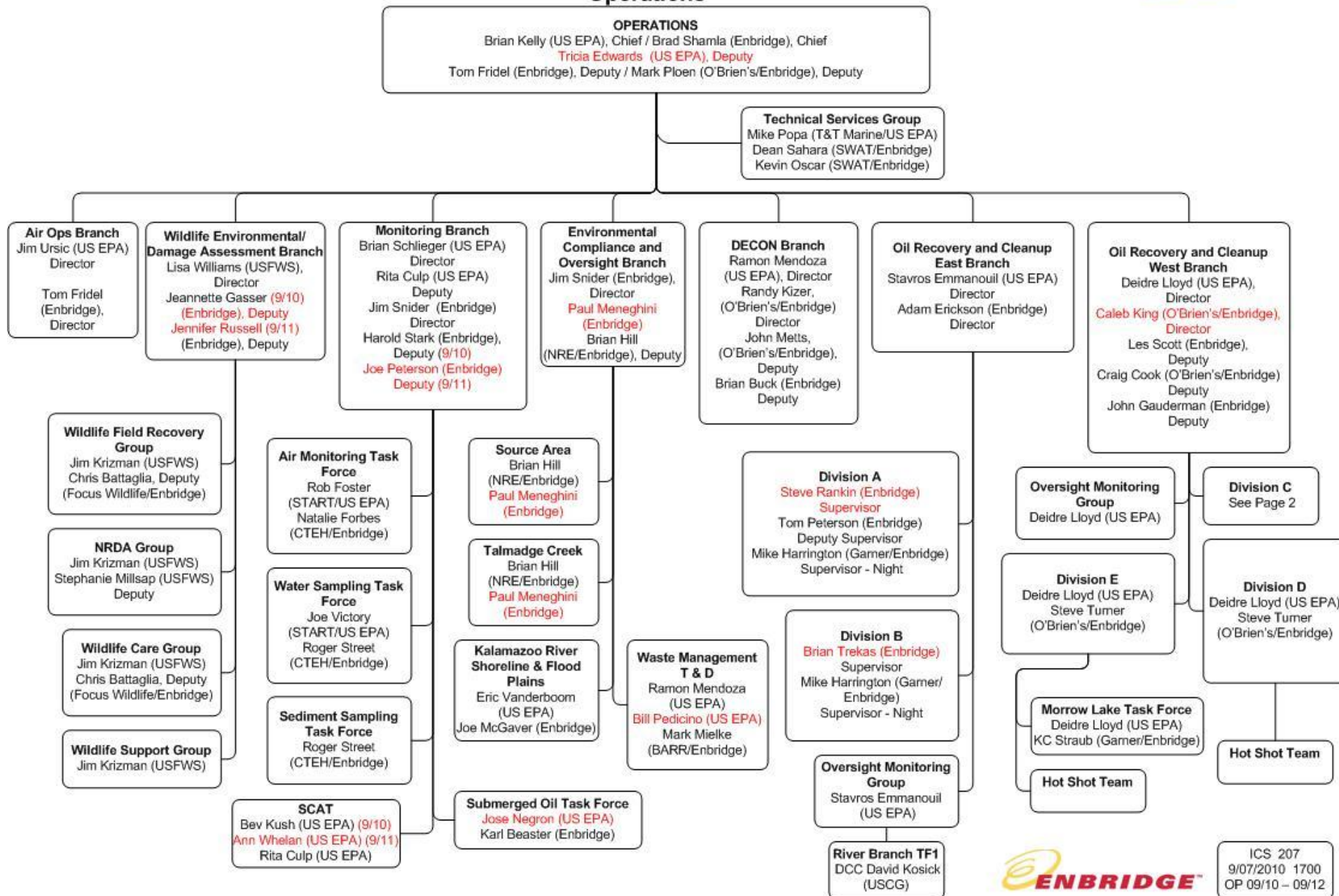
Richard Hackley (US EPA)  
 (Available Off-Site)  
 Steve Neyland (Enbridge)  
 Mark Maki (Enbridge)

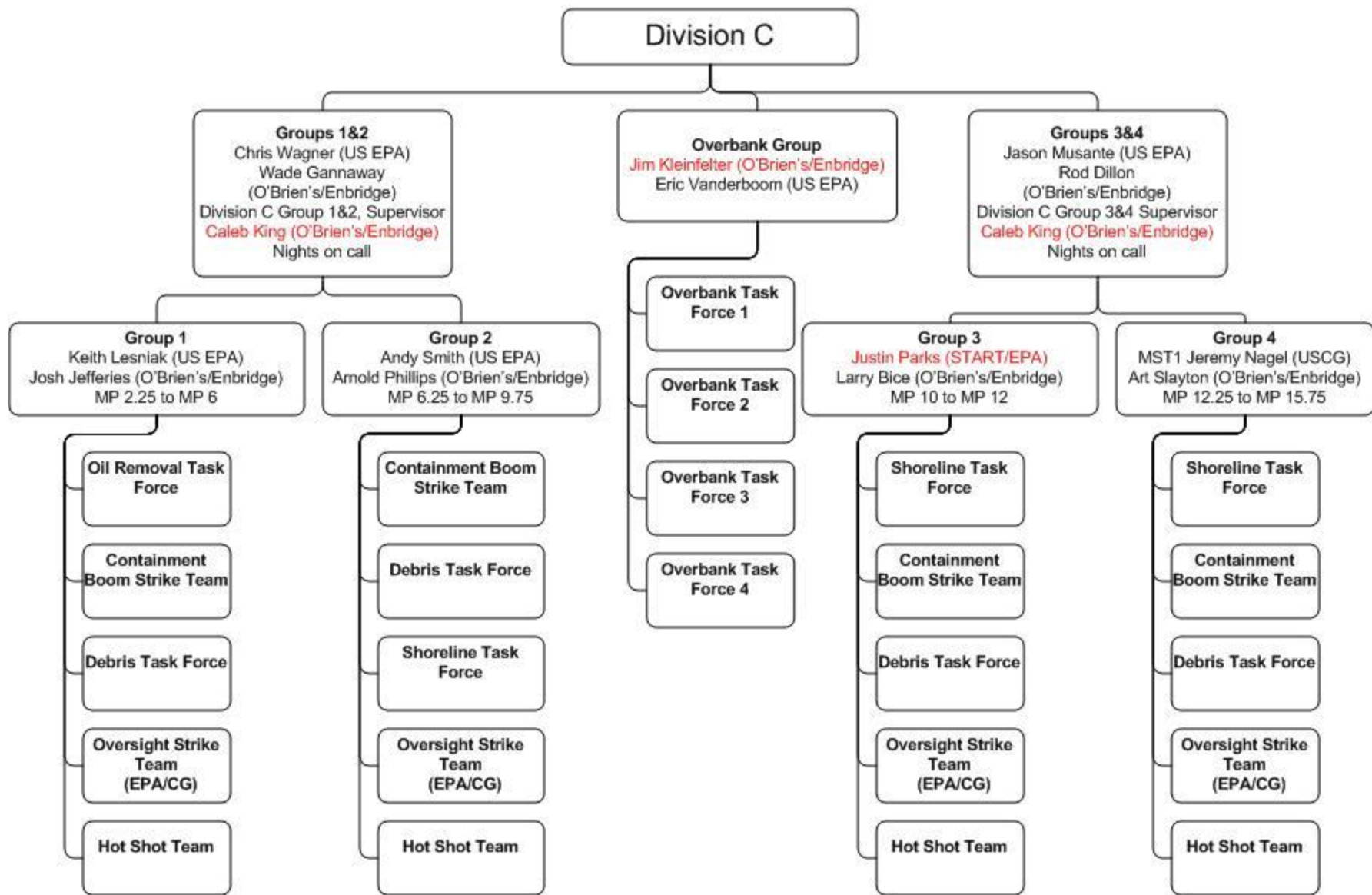


ICS 207  
 9/09/2010 1700  
 OP 9/10 - 9/12



## Operations





ICS 207  
9/09/2010 1700  
OP 9/10 - 9/12



