

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #132**



**KALAMAZOO RIVER/ENBRIDGE SPILL – REMOVAL  
SITE # Z5JS  
MARSHALL, MICHIGAN  
LATITUDE: 42.2395273; LONGITUDE: -84.9662018**



**US EPA ARCHIVE DOCUMENT**

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**From:** Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator

**Date:** 2/9/2012

**Reporting/Operational Period:** 0700 hours 1/26/2012 through 0700 hours 2/2/2012

### *1. Site Data*

<b>Site Number:</b>	Z5JS	<b>Response Type:</b>	Emergency
<b>Response Authority:</b>	OPA	<b>Incident Category:</b>	Removal Action
<b>Response Lead:</b>	PRP	<b>NPL Status:</b>	Non-NPL
<b>Mobilization Date:</b>	7/26/2010	<b>Start Date:</b>	7/26/2010
<b>FPN#:</b>	E10527		

### *2. Operations Section*

- The organizational response structure consisted of the following Branches: 1) Overbank; 2) Submerged Oil; 3) Containment; 4) OSCAR; 5) Kalamazoo River; 6) Talmadge Creek; 7) Air Operations; and 8) Waste Management.

#### **2.1 Overbank Branch**

##### *2.1.1 Overbank Science Group*

- On January 23, 2012, Enbridge submitted Response Action Work Plans for OB 8.97 I, OB 9.10 LDB, and OB 10.37 RDB. The plans are currently under review by U.S. EPA.

##### *2.1.2 Overbank Compliance Group*

- The Group completed and submitted permit applications for response actions at the above referenced sites.

##### *2.1.3 Overbank Recovery Group*

- Teams conducted pre-planning for recovery operations at OB 13.40 LDB.
- Teams continued mat installation, erosion control, and site grading along Talmadge Creek, and completed construction of the diversion structure at the MP 2.00 confluence.

- Teams completed demobilization from OB 5.92 RDB.

#### ***2.1.4 Overbank Monitoring Group***

- Teams continued to conduct water quality monitoring during sheet piling removal at OB 5.92 RDB.
- Teams initiated water quality monitoring during diversion installation at MP 2.00 confluence.
- Teams continued to conduct air monitoring and sampling at OB 5.92 RDB and MP 2.00. No air monitoring detections were noted during the reporting period.
- Enbridge continued to maintain an odor response team. One odor complaint was received on February 1, 2012. The odor appeared unrelated to ongoing site activities; therefore, no air monitoring or sampling was conducted as a part of the Enbridge response.
- Air sampling and monitoring information is included in Tables 1 and 2.

### **2.2 Submerged Oil Branch**

#### ***2.2.1 Submerged Oil Science Group***

- The Group continued review of hydrodynamic assessment data and generation of the hydrodynamic model to characterize the movement of submerged oil.
- On January 20, 2012, Enbridge submitted a request for a deadline extension for the Quantification for Submerged Oil Report. EPA will be issuing a response on February 2, 2012.
- The Group continued to compile packages for submerged oil sites being considered and evaluated for potential winter work by the OSCAR Branch.

#### ***2.2.2 Submerged Oil Compliance Group***

- No activities were conducted during the reporting period.

#### ***2.2.3 Submerged Oil Recovery Group***

- No activities were conducted during the reporting period.

#### ***2.2.4 Submerged Oil Monitoring Group***

- No activities were conducted during the reporting period.

### **2.3 Containment Branch**

#### ***2.3.1 Containment Science Group***

- The Group continued refining the hydrodynamic model concepts and modifying the Plan for Preventing Migration of Oil Past the Morrow Lake Dam during Winter/Spring 2011-2012.
- The Group continued to develop subsurface containment strategies for depositional areas along the Kalamazoo River, including the completion of hydraulic calculations to assess various sites under consideration.

### ***2.3.2 Containment Compliance Group***

- The Group completed permit applications for subsurface containment at selected sites along the Kalamazoo River.
- The Group commenced development of necessary permits for subsurface sediment monitoring devices at various locations along the Kalamazoo River.

### ***2.3.3 Containment Recovery Group***

- Teams continued to maintain 3,100 feet of surface hard boom at 13 protective containment sites and 600 feet of surface hard boom at 2 control points. Teams removed debris accumulated within the boomed areas.

### ***2.3.4 Containment Monitoring Group***

- Water level gauges were monitored at multiple locations along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.

## **2.4 OSCAR Branch**

- The OSCAR Branch began modification of the outstanding sites characterization and reconciliation process to address remaining submerged oil locations throughout the Kalamazoo River system. Current efforts include the consolidation of various data sets associated with submerged oil for future review and evaluation. Based on these evaluations, sites will be grouped according to geomorphic setting and other factors. Submerged oil sites also will be prioritized for future recovery operations.
- Sites status information is presented in Table 3.

## **2.5 Kalamazoo River Branch**

### ***2.5.1 Kalamazoo River Remedial Investigation Group***

- Teams initiated implementation the Kalamazoo River RI Work Plan for 13.0 R1.
- Teams continued RI assessment at OB 8.48 LDB.
- Teams began development of the RI Work Plan for MP 11.00 to Morrow Lake Dam.

### ***2.5.2 Kalamazoo River Compliance Group***

- The Group continued restoration and stabilization at various Kalamazoo River Bank Erosion Assessment (KRBEA) Sites.
- The Group continued development of permit applications for the Raymond Road KRBEA site.
- The Group continued evaluation of RI data for MP 2.25 – MP 3.14.

### ***2.5.3 Kalamazoo River Remedial Action Group***

- No activities were conducted during the reporting period.

#### ***2.5.4 Kalamazoo River Monitoring Group***

- Teams performed potable well sampling. Refer to Table 2 for the total number of samples collected during this reporting period, as reported by Enbridge.

### **2.6 Talmadge Creek Branch**

#### ***2.6.1 Talmadge Creek Remedial Investigation Group***

- The Group continued conducting the bulk sediment toxicity study.

#### ***2.6.2 Talmadge Creek Compliance Group***

- The Group continued evaluation of RI data and Verification of Soil Remediation (VSR) data for MP 0.0 to MP 1.0.

#### ***2.6.3 Talmadge Creek Remedial Action Group***

- Teams continued to operate and maintain the pump-around and GAC dewatering systems, and maintained soil erosion and sedimentation controls.
- Completed excavation, restoration, and post-excavation verification sampling from MP 0.5 through MP 1.0.
- Completed set up of mixing station and pump around from MP 1.00 to MP 1.50.
- Teams continued excavation and restoration of the creek on both sides of I-69.
- Teams continued mobilization and mat road installation between MP 1.0 and MP 2.25.

#### ***2.6.4 Talmadge Creek Monitoring Group***

- Teams continued monitoring erosion control devices.
- Teams conducted water quality monitoring during excavation activities along Talmadge Creek.
- Teams continued to conduct air monitoring at Talmadge Creek. No detections were noted during the reporting period.

### **2.7 Air Operations Branch**

- One over-flight was conducted for situational awareness during this reporting period.
- Photographs were taken during the over-flight for presentation during various meetings.

### **2.8 Waste Management Branch**

#### ***2.8.1 Decontamination Group***

- A summary of equipment and boom decontaminated during this reporting period is presented in Table 4.

### ***2.8.2 Transportation and Disposal Group***

- Teams continued to haul contaminated soil, water, and debris to staging areas. Samples were collected for waste characterization and oil recovery determination prior to off-site disposal.
- EPA performed a focused inspection of a vacuum truck load transfer initiating from the Talmadge Creek Overbank excavation to discern the handling of liquid and solid waste streams. As a result, Enbridge submitted the “Water/Solids Segregation Plan” for handling liquid waste streams with a small percentage of sediment/fine particulates present.
- Quantities of oil and debris shipped off-site during the reporting period are presented in Tables 5 through 8.
- The total amount of recovered oil from the inception of the response has been estimated using actual waste stream volumes, analytical data, and physical parameters of oil-containing media. A summary of the estimated volume of recovered oil is presented in Table 9.

### ***2.8.3 Waste Management Characterization Group***

- Waste management characterization, manifesting, and coordination of transportation and disposal continued according to approved plans.

## ***3. Planning***

### **3.1 Situation Unit**

- Situation Unit personnel observed and documented progress in operational areas, and continued to assess areas of interest including locations of oil sheen, turbidity, and ice formation.
- Field observers observed sheen within excavation areas in Talmadge Creek which were being backfilled and restored. Following investigation by Operations, Enbridge continued application of the “jar test” to determine the origin of sheen (petroleum vs. biogenic).
- Research is currently underway to identify more field techniques to effectively determine the origin of sheen.
- Daily situational photo logs were prepared and distributed to project participants.

#### ***3.1.1 GIS Specialists***

- GIS personnel continued to support operations with the generation of site maps.

### **3.2 Environmental Unit**

- EPA continued coordination with United States Geological Survey (USGS) regarding the Kalamazoo River geomorphology evaluation and the impact on strategy and tactics for future oil recovery efforts.

### **3.3 Documentation Unit**

- Documentation Unit personnel continued organizing and archiving electronic and paper files.

### 3.4 Resource Unit

- Personnel continued to produce Incident Action Plans (IAPs), support the planning efforts of operations, and provided information to Logistics personnel in order to properly prepare and procure resources.

## 4. Command

### 4.1 Safety Officers

- Safety personnel continued to conduct work-site safety inspections, with a focus on excavation activities at Talmadge Creek and the diversion installation at the Confluence.
- Throughout the reporting period, minor incidents occurred, including a sprain/strain, a cut, equipment failure, and a rupture of a high pressure hose.

### 4.2 Public Information

- Public Information personnel met with a concerned citizen to discuss air monitoring and sampling throughout the response
- The number of public inquires reported by Enbridge for this period is presented in Table 10.

## 5. Landowner Environmental Issues

- Landowner environmental issues, as reported by Enbridge, are presented in Table 11.

## 6. Finance

- The current National Pollution Funds Center (NPFC) ceiling is \$43.7 Million. Approximately 89.7% of the ceiling has been spent through January 29, 2012. The latest average 7-day burn rate was \$30,924. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 12.

## 7. Scientific Support Coordination Group (SSCG)

- The Chemistry and Biodegradability Subgroup began development of recommendations for analytical testing to fingerprint the released and submerged oil as well as evaluate the biodegradability of the oil.
- The Eco-Toxicity Subgroup held their first teleconference discussing various types of toxicity testing methods and possible sampling designs.
- A preliminary draft of a Conceptual Site Model has been submitted for review by subgroup members.

## 8. Participating Entities

- The Multi-Agency Coordination (MAC) Group continues meeting twice per month to discuss the progress of the response. Entities participating in the MAC include:
  - U.S. Environmental Protection Agency
  - Michigan Department of Environmental Quality
  - Michigan Department of Community Health
  - City of Battle Creek
  - City of Marshall
  - Calhoun County Public Health Department

- Calhoun County Emergency Management
  - Kalamazoo County Health and Community Services Department
  - Kalamazoo County Sheriff
  - Enbridge (Responsible Party).
- For a list of cooperating and assisting agencies and the congressional presence, see SITREP #51 (Sections 3.2 and 3.3).

### 9. Personnel On-Site

- Staffing numbers for the entities and agencies active in the response are presented in Table 13.

### 10. Source of Additional Information

- For additional information, refer to <http://www.epa.gov/enbridgespill>. For sampling analysis data, see <http://response.enbridge.com/response/>.

### 11. Clean-up Progress Metrics

**Table 1 – Real Time Air Monitoring Counts Performed by Enbridge**

Monitoring Location	Total	January/February 2012						
		1	31	30	29	28	27	26
Odor Response	0	0	0	0	0	0	0	0
Work Area	95	22	16	16	0	11	17	18

**Table 2 – Samples Collected By Enbridge**

Sample Type	Total	January/February 2012						
		1	31	30	29	28	27	26
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	0	0	0	0	0	0	0	0
Sediment	14	12	2	0	0	0	0	0
Soil	88	26	22	10	0	0	8	22
Dewatering	4	0	2	0	0	0	2	0
Air (Odor Complaint)	0	0	0	0	0	0	0	0
Air (Work Area)	0	0	0	0	0	0	0	0

**Table 3 – Site Status Information (as of 2/1/2012)**

Overbank Branch	4
Submerged Oil Branch	183
Containment Branch	8
Talmadge Creek Branch	1
Kalamazoo River Branch	4
Consistent with EPA Order and up for MDEQ Part 201 Program	4
<b>Total Sites</b>	<b>204</b>

**Table 4 - Equipment Decontamination**

Location/Media	Total	January/February 2012						
		1	31	30	29	28	27	26
Frac Tanks	2	0	1	1	0	0	0	0
Vac Trucks-Tankers	0	0	0	0	0	0	0	0
Roll-Off Boxes	0	0	0	0	0	0	0	0
Yellow Iron (light)	0	0	0	0	0	0	0	0
Yellow Iron (heavy)	0	0	0	0	0	0	0	0
Jon Boats	0	0	0	0	0	0	0	0
Air Boats	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0
Boom (linear ft)	0	0	0	0	0	0	0	0
Miscellaneous Items	15	2	3	2	0	1	3	3

**Table 5 - Soil and Debris Shipped Off Site (as of 2/1/2012)**

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd <sup>3</sup> )	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	62,998	Terra/C&C
Non-Haz Soil & Debris (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	64,815	Westside Recycling (Three Rivers, MI)
Non-Haz Soil (yd <sup>3</sup> ) (Ceresco Dredge Only)	5,562	EQ/Republic (Marshall, MI)
Haz Debris (yd <sup>3</sup> )	12,075	EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)
Non-Haz Household Debris (ton)	1,200	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	6,533	

Shaded items are discontinued waste streams.

**Table 6 – Oil/Water Collected by Location (as of 2/1/2012)**

Location	Cumulative (gallons)
Division A	5,356,315
Division B	4,890,079
Division C	2,094,238
Division D	121,106
Division E	52,631
Decontamination	2,329,489
Site A	320,909
Other Locations*	1,869,909
Subtotal	<b>17,111,076</b>
<b>Sludge**</b>	<b>474,215</b>
<b>Total Oil/Water</b>	<b>16,636,861</b>

\* Wildlife Center Operations, Sediment Trap Cleaning, Hydro-Vacuuming.

\*\* Sludge collected is tracked as a liquid waste inbound; however, after stabilization, the sludge is disposed of as solid waste. Therefore, the volume of sludge is not included within the cumulative oil/water totals. Stabilized sludge is included in the solid waste disposal metrics.

**Table 7 - Liquid Shipped Off-Site (as of 2/1/2012)**

<b>Stream</b>	<b>Destination Company</b>	<b>Destination Location</b>	<b>Cumulative Volume (gallons) †</b>
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	1,107,180
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,035,407
Non-Haz Water	Plummer	Kentwood, MI	279,525
<i>Hazardous Water</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	<i>3,594,579</i>
<i>Oil</i>	<i>Enbridge Facility</i>	<i>Griffith, IN</i>	<i>766,288</i>
<i>Other Material</i>			<i>1,405,525</i>
<i>Treated Non-Haz Water</i>	<i>Liquid Industrial Waste</i>	<i>Holland, MI</i>	<i>370,200</i>
<i>Treated Non-Haz Water</i>	<i>Plummer</i>	<i>Kentwood, MI</i>	<i>4,976,140</i>
<i>Hazardous Water</i>	<i>Safety Kleen <sup>a</sup></i>		<i>825</i>
<i>Treated Non-Haz Water*</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	<i>150,700</i>
<i>Treated Non-Haz Water*</i>	<i>Battle Creek POTW</i>	<i>Battle Creek, MI</i>	<i>1,968,700</i>
<b>Total</b>			<b>16,636,861</b>

*Shaded and italicized items are discontinued waste streams.*

† Cumulative quantities may not reconcile with previous reports (due to auditing).

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

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

**Table 8 - Oil/Water Remaining On-Site (as of 2/1/2012)**

<b>Item</b>	<b>Cumulative (gallons)</b>
Oil/Water Collected	<b>16,636,861</b>
Oil/Water Shipped Off-Site	<b>16,636,861</b>
<b>Total Oil/Water Remaining On-Site</b>	<b>0</b>

**Table 9 – Estimated Recovered Oil (as of 1/30/2012)**

<b>Waste Stream Containing Recovered Oil</b>	<b>Destination Company</b>	<b>Destination Location</b>	<b>Estimated Oil Volume in Waste Stream (gallons)</b>
<b>Soil - (Impacted Soil &amp; Debris)</b>	C&C Landfill	Marshall, MI	12,571*
<b>Soil - (Impacted Soil &amp; Debris)</b>	Envirosafe/ Westside RDF	Oregon, OH	278,665
<b>Geotube Sediment - (Impacted Sediment)</b>	Envirosafe/ Westside RDF	Oregon, OH	1,298
<b>Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)</b>	EQ Michigan	Belleville, MI	33,697
<b>Frac Tank City - Influent to Carbon Filtration System</b>	C&C Landfill	Marshall, MI	8,109
<b>Frac Tank City - Water</b>	Dynecol	Detroit, MI	46,128**
	Liquid Industrial Waste Services, Inc.	Kentwood, MI	
	Plummers Env Inc.	Holland, MI	
	BC POTW	Battle Creek, MI	
<b>Ceresco Pretreatment System</b>	C&C Landfill	Marshall, MI	90
<b>A-1 Pretreatment System</b>	C&C Landfill	Marshall, MI	9
<b>Oily Water - RPP</b>	Enbridge Facility	Griffith, IN	766,288
<b>Total</b>	-	-	<b>1,146,854</b>

Shaded items represent discontinued waste streams

\*Totals updated for analytical received after report generation. Not all analytical is available at the time of report generation.

\*\* Not all analytical is available at the time of report generation.

**Table 10 – Public Inquiries Received by EPA and Enbridge**

Location/Media	Total	January/February 2012						
		1	31	30	29	28	27	26
Marshall Community Center	3	0	0	3	0	0	0	0
Oil Spill Public Information Hotline	3	1	3	0	0	0	0	0
Website	0	0	0	0	0	0	0	0
<b>Total Public Inquiries</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 11 – Landowner Environmental Issues (as of 2/1/2012)**

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	5	0

**Table 12 - Financial Summary**

Item	Expended (Cumulative) (as of 1/29/2012)
<b>ERRS Contractors</b>	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ 683,330
<b>Total ERRS Contractors</b>	<b>\$ 3,257,571</b>
<b>Other Contractors</b>	
Lockheed Martin (EPW09031) – TAGA Support	\$ 185,951
T&T Bisso (EPA:HS800008)	\$ 882,087
<b>Total Other Contractors</b>	<b>\$ 1,068,038</b>
<b>START Contractor – WESTON (EPS50604)</b>	
T030-Response	\$ 21,648,413
T032-Sampling	\$ 183,567
T037-Doc Support	\$ 1,282,481
<b>Total START Contractor</b>	<b>\$ 23,114,461</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 27,440,070</b>
<b>EPA Funded Costs: Total EPA Costs</b>	<b>\$ 5,632,050</b>
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	<b>\$ 1,622,624</b>
<b>Sub-Totals</b>	<b>\$ 34,694,744</b>
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 890,475
<b>Total Est. Oil Spill Cost</b>	<b>\$ 39,183,471</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	<b>\$ 43,700,000</b>
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 4,516,529</b>

Shaded items are discontinued

**Table 13 - Personnel On-Site**

Agency/Entity	January/February 2012						
	1	31	30	29	28	27	26
U.S. EPA	3	3	2	0	3	3	4
START	20	19	18	0	14	14	17
MDEQ	7	7	7	0	0	7	17
MDEQ Contractors	7	7	7	0	0	7	7
Calhoun County Public Health	0	0	0	0	0	0	2
Calhoun County (CC) EM	0	0	0	0	0	0	1
City of Battle Creek	0	0	0	0	0	0	1
City of Marshall	0	0	0	0	0	0	1
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	0	0	0	1
Kalamazoo Sheriff	0	0	0	0	0	0	0
MDCH	0	0	0	0	0	0	2
USGS	0	0	0	0	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	1
Enbridge – Operations Center	71	71	66	2	20	64	75
Enbridge – Talmadge Creek	70	71	66	8	65	70	72
Enbridge – Kalamazoo River	15	11	12	0	0	11	13
Enbridge – Containment	6	6	6	0	4	6	6
Enbridge – Submerged Oil	2	3	1	0	1	1	1
Enbridge – Overbank	29	27	24	1	23	26	28
Enbridge – Waste Management	35	29	29	0	30	33	34
Enbridge – Security & Flaggers	10	11	11	11	10	11	10
Enbridge –Communications Center	2	2	2	0	0	2	2
<b>Total</b>	<b>277</b>	<b>267</b>	<b>251</b>	<b>22</b>	<b>170</b>	<b>255</b>	<b>295</b>

\*Enbridge Operations and Field include Enbridge and contractors as reported by Enbridge