

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #137



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



**Talmadge Creek to the Confluence**

**US EPA ARCHIVE DOCUMENT**

**To:** Susan Hedman, U.S. EPA Regional Administrator  
James Sygo, MDEQ  
Mark DuCharme, MDEQ  
Michelle DeLong, MDEQ  
Dr. Linda Dykema, MDCH  
Lt. Barry Reber, Michigan State Police, Emergency Management  
Deb Cardiff, Kalamazoo County  
Lt. Paul Baker, Kalamazoo County Sheriff's Office  
James Rutherford, Calhoun County Public Health Department  
Durk Dunham, Calhoun County Emergency Management  
Scott Corbin, Allegan County Emergency Management  
Mike McKenzie, City of Battle Creek  
Cheryl Vosburg, City of Marshall  
Christine Kosmowski, City of Battle Creek

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

**Date:** 3/19/2012

**Reporting/Operational Period:** 0700 hours 3/01/2012 through 0700 hours 03/08/2012

### ***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***

- Information gathering and data compilation for expedited RI work recently completed at OB 8.48 LDB continued.

##### ***2.1.2 Overbank Compliance Group***

- Tracking and follow up of issues relating *to variances to the permit* for OB 8.97 Island, continued.

##### ***2.1.3 Overbank Recovery Group***

- Daily maintenance and monitoring of the Talmadge Creek diversion system at the Talmadge Creek and Kalamazoo River confluence continued.
- Rain and flooding continued to impede excavation activities at OB 8.97 Island.
- Flooding delayed starting excavation activities at OB 9.10 LDB and OB 10.37 RDB.

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

- Enbridge continued to maintain an odor response team; however, no odor complaints were received during this operational period.
- Air monitoring and sampling information is included in Tables 1 and 2.

### **2.2 Submerged Oil Branch**

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

- In response to EPA's February 2, 2012, letter the Group continued review of the revised Quantification of Submerged Oil Report.
- On February 20, 2012 Enbridge submitted the Report of Findings for Submerged Oil Temperature Effects Study. The report is currently under review by the EPA.
- The temperature effects and quantification study of oiled sediment samples collected from SO 9.00 continued.
- Sediment samples continue to be collected at submerged oil and background locations identified by the OSCAR Branch and agreed upon by the SSCG for aquatic toxicity testing and chemical fingerprinting analysis.
- Modified Temperature Effects Studies were conducted on the samples collected for the SSCG.
- Additional testing was conducted off-site by Dakota Technologies to determine the effectiveness of optical screening of residual oil in sediments.
- Field tests to evaluate qualitative screening methods to differentiate petroleum sheen from biogenic sheen on surface water continued.
- Centrifuge testing was conducted off-site to supplement sub-oil quantification efforts.

#### ***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*

- Under the Group's direction, Enbridge continues to prepare a modified plan and permit application to include 15 additional active sediment traps and fewer passive locations. Enbridge is evaluating information and data requirements for permitting of the additional active trap locations.
- Evaluation of subsurface sediment monitoring strategies and devices for various locations along the Kalamazoo River continued.
- The Group continued to develop strategies for evaluating the hydrodynamic characteristics of the initial six active sediment traps using the numerical Hydrodynamic Model in response to a request for supplemental information from the MDEQ.

### 2.3.2 *Containment Compliance Group*

- The Group continued to track previously submitted MDEQ permit applications for proposed submerged sediment collection structures at six select locations along the Kalamazoo River.

### 2.3.3 *Containment Recovery Group*

- As of the close of the operational period, teams continued to maintain 1,750 feet of surface hard boom at 10 protective containment sites, and 200 feet of surface hard boom at 1 control point. Teams removed debris accumulated within the boomed areas.
- Maintenance and monitoring of sediment control devices within Talmadge Creek between MP 1.4 and MP 2.0 continued as restoration and removal activities progressed downstream.

### 2.3.4 *Containment Monitoring Group*

- Water level gauges continue to be monitored at multiple locations along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.
- Control points in Talmadge Creek and protective containment points in the Kalamazoo River continued to be monitored. Monitoring activities were increased following a failure of a turbidity control structure on March 3, 2012.

## 2.4 OSCAR Branch

- The OSCAR Branch continued refining the characterization and reconciliation process to address remaining submerged oil locations throughout the Kalamazoo River system. Based on these evaluations and the consolidation of various data sets, sites will be grouped according to geomorphic setting and other factors to facilitate development of plans for reassessment and recovery operations. These plans for reassessment and recovery operations continue to be developed by the Submerged Oil Branch.

- Beginning the next operational period, the OSCAR Branch will become the OSCAR Group under the Overbank Branch.
- Sites status information is presented in Table 3.

## **2.5 Kalamazoo River Branch**

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

- Implementation of the Kalamazoo River RI Work Plan for Enbridge owned properties between MP 5.8 and MP 11 continued.
- Additional soil samples to address identified data gaps were collected between MP 2.25 and MP 3.14, OB 8.48 LDB, and MP 13.00 R1.

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

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) Sites.
- Permit applications for the Raymond Road KRBEA site were prepared.
- Evaluation of RI data for MP 2.25 to MP 5.8, OB 8.48 LDB, and MP 13.00 R1 continued.

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

- No activities were conducted during the reporting period.

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

- Teams conducted surface water sampling at monitoring stations in the Kalamazoo River. A sampling summary is presented in Table 2.

## **2.6 Talmadge Creek Branch**

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

- Data compilation from the Talmadge Creek RI study continued.

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

- Evaluation of RI data and Verification of Soil Remediation (VSR) data for MP 0.50 to MP 2.0 continued.

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

- Demobilization of the pump-around, GAC dewatering systems, and flocculent/turbidity control system began.

- Removal of soil erosion and sedimentation controls began as restoration work nears completion.
- Excavation, restoration and demobilization between MP 1.75 and MP 2.25 continued.
- Crews continued to demobilize sheet piling, equipment and road mats from the recently completed confluence excavation. Crews conducted some oil-impacted soil scraping activities in some areas as road mats were being removed between A-Drive and the confluence.

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

- During the reporting period erosion control devices on Talmadge Creek between MP 1.4 and MP 2.0 continued to be monitored.
- Water quality monitoring was conducted during excavation activities along Talmadge Creek. Water quality monitoring activities also continued at the confluence diversion outfall and in the Kalamazoo River downstream of the confluence.
- Air monitoring was conducted during operations 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-flights 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***

- Contaminated soil, water, and debris continue to be removed to staging areas. Samples are collected for oil recovery determination prior to off-site disposal.
- 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.
- Quantities of oil and debris shipped off-site during the reporting period are presented in Tables 5 through 8.

##### ***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.
- Daily situation 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 confluence.
- Throughout the reporting period, the only safety related incident was a near miss involving a traffic incident related to a motorist's refusal to follow a flagger's directions.

#### **4.2 Public Information**

- 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 92.2% of the ceiling has been spent through March 4, 2012. The latest average 7-day burn rate was \$32,159.

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 Eco-Toxicity Subgroup continued preparation of a Net Environmental Benefits Analysis (NEBA) to assess the harm and benefits accompanying oil recovery efforts. Sediment toxicity samples continue to be analyzed by the off-site laboratory.
- The Chemical Fingerprinting and Biodegradation Subgroup submitted to the FOSC additional recommendations to enhance data quality for measurements of oil in sediment samples. Chemical fingerprinting samples continue to be analyzed by the off-site laboratory.

### **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
  - Allegan County Emergency Management
  - 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	March 2012						
		7	6	5	4	3	2	1
Odor Response	0	0	0	0	0	0	0	0
Work Area	95	11	12	12	0	17	22	21

**Table 2 – Samples Collected By Enbridge**

Sample Type	Total	March 2012						
		7	6	5	4	3	2	1
Surface Water	0	0	0	0	0	0	0	0
Private Well	6	0	0	0	0	0	5	1
Groundwater	0	0	0	0	0	0	0	0
Sediment	0	0	0	0	0	0	0	0
Soil	99	21	6	10	0	5	38	19
Dewatering	4	0	2	2	0	0	0	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 3/07/2012)**

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	March 2012						
		7	6	5	4	3	2	1
Frac Tanks	2	1	1	0	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)	4	0	0	2	0	0	2	0
Yellow Iron (heavy)	0	0	0	0	0	0	0	0
Jon Boats	1	0	0	0	0	0	0	1
Air Boats	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0
Boom (linear ft)	200	0	0	0	0	0	200	0
Miscellaneous Items	14	4	1	3	0	1	3	2

**Table 5 - Soil and Debris Shipped Off Site (as of 3/07/2012)**

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)	74,653	SET/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)	1,460	SET/C&C
Non-Haz Impacted Debris (ton)	6,569	

Shaded items are discontinued waste streams.

**Table 6 – Oil/Water Collected by Location (as of 3/07/2012)**

Location	Cumulative (gallons)
Division A	5,356,315
Division B	5,070,429
Division C	2,096,038
Division D	121,106
Division E	52,631
Decontamination	2,352,589
Site A	320,909
Other Locations*	1,971,209
Subtotal	<b>17,341,226</b>
<b>Sludge**</b>	<b>474,215</b>
<b>Total Oil/Water</b>	<b>16,867,011</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 3/07/2012)**

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	1,143,280
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,180,957
Non-Haz Water	Plummer	Kentwood, MI	305,625
<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>16,844,611</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 3/07/2012)**

Item	Cumulative (gallons)
Oil/Water Collected	<b>16,867,011</b>
Oil/Water Shipped Off-Site	<b>16,844,611</b>
<b>Total Oil/Water Remaining On-Site</b>	<b>22,400</b>

**Table 9 – Estimated Recovered Oil (as of 3/05/2012)**

Waste Stream Containing Recovered Oil	Destination Company	Destination Location	Estimated Oil Volume in Waste Stream (gallons)
<b>Soil - (Impacted Soil &amp; Debris)</b>	C&C Landfill	Marshall, MI	13,094*
<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	33,751
<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	46,171
	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>1,147,475</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.

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

Location/Media	Total	March 2012						
		7	6	5	4	3	2	1
Marshall Community Center	8	2	0	2	0	0	4	0
Oil Spill Public Information Hotline	5	2	1	1	0	0	0	1
Website	1	1	0	0	0	0	0	0
<b>Total Public Inquiries</b>	<b>14</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>

**Table 11 – Landowner Environmental Issues (as of 3/07/2012)**

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

**Table 12 - Financial Summary**

Item	Expended (Cumulative) (as of 3/04/2012)
<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	\$ 22,517,098
T032-Sampling	\$ 183,567
T037-Doc Support	\$ 1,386,414
<b>Total START Contractor</b>	<b>\$ 24,087,079</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 28,412,688</b>
<b>EPA Funded Costs: Total EPA Costs</b>	<b>\$ 5,669,245</b>
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	<b>\$ 1,622,624</b>
<b>Sub-Totals</b>	<b>\$ 35,704,557</b>
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 974,896
<b>Total Est. Oil Spill Cost</b>	<b>\$ 40,277,705</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	\$ 43,700,000
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 3,422,295</b>

Shaded items are discontinued

**Table 13 - Personnel On-Site**

Agency/Entity	March 2012						
	7	6	5	4	3	2	1
U.S. EPA	3	2	1	0	1	1	3
START	21	22	19	3	13	13	19
MDEQ	13	6	6	0	0	7	7
MDEQ Contractors	7	5	5	0	3	7	7
Calhoun County Public Health	0	0	0	0	0	0	0
Calhoun County (CC) EM	0	0	0	0	0	0	0
City of Battle Creek	0	0	0	0	0	0	0
City of Marshall	0	0	0	0	0	0	0
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	0	0	0	0
Kalamazoo Sheriff	0	0	0	0	0	0	0
MDCH	0	0	0	0	0	0	0
USGS	2	2	0	0	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	0
Allegan County Emergency Management	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Enbridge – Operations Center	57	59	58	6	15	57	60
Enbridge – Talmadge Creek	64	71	77	6	75	74	84
Enbridge – Kalamazoo River	17	16	16	0	2	13	15
Enbridge – Containment	8	8	9	2	2	7	7
Enbridge – Submerged Oil	8	7	7	0	5	7	8
Enbridge – Overbank	22	22	19	2	20	29	30
Enbridge – Waste Management	31	31	30	2	17	28	28
Enbridge – Security & Flaggers	11	11	11	7	10	11	11
Enbridge –Communications Center	8	8	7	3	3	9	9
<b>Total</b>	<b>272</b>	<b>270</b>	<b>265</b>	<b>31</b>	<b>166</b>	<b>263</b>	<b>288</b>

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