

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #133



**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:** 2/15/2012

**Reporting/Operational Period:** 0700 hours 2/02/2012 through 0700 hours 02/09/2012

### ***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 February 8, 2012, EPA provided Enbridge with comments to the Response Action Work Plans for OB 8.97 I, OB 9.10 LDB, and OB 10.37 RDB.
- The Group continued the data compilation and information gathering for OB 8.97, OB 9.10 LDB and 10.37 RDB.

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

- The Group followed up on outstanding issues relating to permits for OB 8.97 I, OB 9.10 LDB, OB 10.37 RDB, and OB 13.40 LDB.

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

- Teams mobilized and began site preparation for recovery operations at OB 13.40 LDB.

- Teams continued mat installation, erosion control, and site grading along Talmadge Creek.
- Teams continued daily maintenance and monitoring of the Talmadge Creek diversion system at the Confluence of Talmadge Creek with the Kalamazoo River. The diversion was installed in January 2012 to allow for excavation of the original creek bed at this location.
- Teams continued the pre-planning for OB 8.97 Island, 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 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 February 7 and 8, 2012, USGS representatives met with the Enbridge contractors to review the calibration process for the hydrodynamic model. The calibrated hydrodynamic model is scheduled to be delivered to EPA on February 10, 2012.
- On February 8, 2012 Enbridge submitted a revised Quantification of Submerged Oil Report in response to EPA's February 2, 2012 letter. The report is currently under review by the EPA.
- The Group continued to compile packages for submerged oil sites being considered and evaluated for potential winter work.
- The Group conducted temperature tests of sediment samples collected from SO 8.50, SO 9.0, and SO 9.0 I3.

#### ***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 to develop subsurface containment strategies for depositional areas along the Kalamazoo River.

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

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

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

- On February 7, 2012 the situational overflight identified three areas of sheen along the Kalamazoo River at MP3.5, MP5.0 and MP 5.25. In response, containment boom was deployed at each of these locations.
- As of the close of the operational period, teams continued to maintain 2,950 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.
- A weir dam was constructed at MP1.93 for sediment control within Talmadge Creek. Additional sediment control structures were deployed at strategic locations along the Creek.

### ***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.
- Sites status information is presented in Table 3.

## **2.5 Kalamazoo River Branch**

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

- Teams continued implementation of the Kalamazoo River RI Work Plan for MP 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***

- No activities were conducted during the reporting period

## **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.
- Teams completed excavation, restoration, and post–excavation verification sampling from MP 0.75 through MP 1.25.
- 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.
- Teams conducted research and evaluation to identify field techniques to characterize sheen and residual oil.

## **2.7 Air Operations Branch**

- Two over-flights were 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***

- 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.
- The frequency of paint filter tests was modified for trucks being live loaded during excavation work on Talmadge Creek. Every truck being live loaded with excavated materials from Talmadge Creek will require a paint filter test prior to departing the work site.
- 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.
- Situation Unit personnel observed three areas of sheen within the Kalamazoo River at MP3.5, MP5.0 and 5.25 near C0.4 boat launch.
- 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 site preparation activities at OB 13.40 LDB.
- Throughout the reporting period, three near miss incidents occurred, including a slip, a sprain/strain and a vehicular near miss at the roundabout in downtown Marshall.

### 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 90.1% of the ceiling has been spent through February 5, 2012. The latest average 7-day burn rate was \$29,577. 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 prepared a draft Analytical and Quality Assurance Plan for analytical testing to fingerprint the released and submerged oil.
- The Eco-Toxicity Subgroup continued discussions regarding appropriate types of toxicity testing methods and began preparing a draft design for short-term toxicity testing.

## 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).
- By majority vote, the MAC agreed to add Allegan County Emergency Management as an additional member of the MAC.
- 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	February 2012						
		8	7	6	5	4	3	2
Odor Response	<b>0</b>	0	0	0	0	0	0	0
Work Area	<b>120</b>	21	21	22	0	20	19	17

**Table 2 – Samples Collected By Enbridge**

Sample Type	Total	February 2012						
		8	7	6	5	4	3	2
Surface Water	<b>0</b>	0	0	0	0	0	0	0
Private Well	<b>0</b>	0	0	0	0	0	0	0
Groundwater	<b>3</b>	0	0	0	0	0	1	2
Sediment	<b>8</b>	1	0	0	0	0	7	0
Soil	<b>84</b>	31	21	22	0	10	3	26
Dewatering	<b>4</b>	0	0	0	0	2	0	2
Air (Odor Complaint)	<b>0</b>	0	0	0	0	0	0	0
Air (Work Area)	<b>0</b>	0	0	0	0	0	0	0

**Table 3 – Site Status Information (as of 2/8/2012)**

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	February 2012						
		8	7	6	5	4	3	2
Frac Tanks	2	0	0	2	0	0	0	0
Vac Trucks-Tankers	1	0	0	0	0	0	0	1
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)	1	1	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)	80	0	80	0	0	0	0	0
Miscellaneous Items	10	1	1	0	0	3	2	3

**Table 5 - Soil and Debris Shipped Off Site (as of 2/8/2012)**

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)	65,328	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)	1,207	SET/C&C
Non-Haz Impacted Debris (ton)	6,533	

Shaded items are discontinued waste streams.

**Table 6 – Oil/Water Collected by Location (as of 2/8/2012)**

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	2,333,089
Site A	320,909
Other Locations*	1,882,709
Subtotal	<b>17,147,076</b>
Sludge**	<b>474,215</b>
<b>Total Oil/Water</b>	<b>16,672,861</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 2/8/2012)**

<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	1,119,180
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,059,407
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>16,672,861</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 2/8/2012)**

<b>Item</b>	<b>Cumulative (gallons)</b>
Oil/Water Collected	<b>16,672,861</b>
Oil/Water Shipped Off-Site	<b>16,672,861</b>
<b>Total Oil/Water Remaining On-Site</b>	<b>0</b>

**Table 9 – Estimated Recovered Oil (as of 2/6/2012)**

Waste Stream Containing Recovered Oil	Destination Company	Destination Location	Estimated Oil Volume in Waste Stream (gallons)
Soil - (Impacted Soil & Debris)	C&C Landfill	Marshall, MI	12,603*
Soil - (Impacted Soil & Debris)	Envirosafe/ Westside RDF	Oregon, OH	278,665
Geotube Sediment - (Impacted Sediment)	Envirosafe/ Westside RDF	Oregon, OH	1,298
Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)	EQ Michigan	Belleville, MI	33,739
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,145
	Liquid Industrial Waste Services, Inc.	Kentwood, MI	
	Plummers Env Inc.	Holland, MI	
	BC POTW	Battle Creek, MI	
Ceresco Pretreatment System	C&C Landfill	Marshall, MI	90
A-1 Pretreatment System	C&C Landfill	Marshall, MI	9
Oily Water - RPP	Enbridge Facility	Griffith, IN	766,288
<b>Total</b>	-	-	<b>1,146,945</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	February 2012						
		8	7	6	5	4	3	2
Marshall Community Center	5	1	1	2	0	0	0	1
Oil Spill Public Information Hotline	5	0	0	2	0	0	0	3
Website	0	0	0	0	0	0	0	0
<b>Total Public Inquiries</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>

**Table 11 – Landowner Environmental Issues (as of 2/8/2012)**

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

**Table 12 - Financial Summary**

<b>Item</b>	<b>Expended (Cumulative) (as of 2/5/2012)</b>
<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	\$ 21,802,716
T032-Sampling	\$ 183,567
T037-Doc Support	\$ 1,305,458
<b>Total START Contractor</b>	<b>\$ 23,291,741</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 27,617,350</b>
<b>EPA Funded Costs: Total EPA Costs</b>	<b>\$ 5,631,485</b>
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	<b>\$ 1,622,624</b>
<b>Sub-Totals</b>	<b>\$ 34,871,459</b>
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 905,249
<b>Total Est. Oil Spill Cost</b>	<b>\$ 39,374,959</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	\$ 43,700,000
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 4,325,041</b>

Shaded items are discontinued

**Table 13 - Personnel On-Site**

Agency/Entity	February 2012						
	8	7	6	5	4	3	2
U.S. EPA	3	3	2	0	1	2	2
START	20	21	20	0	16	19	20
MDEQ	2	2	6	0	0	7	7
MDEQ Contractors	7	7	6	0	1	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	0	0	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	68	65	57	2	19	72	70
Enbridge – Talmadge Creek	79	76	73	4	73	73	70
Enbridge – Kalamazoo River	13	13	12	0	1	12	15
Enbridge – Containment	5	5	5	0	6	6	6
Enbridge – Submerged Oil	2	3	1	0	1	3	1
Enbridge – Overbank	36	29	27	0	23	25	28
Enbridge – Waste Management	28	28	24	0	21	23	25
Enbridge – Security & Flaggers	10	11	11	11	11	10	10
Enbridge –Communications Center	2	2	2	0	0	2	2
<b>Total</b>	<b>276</b>	<b>266</b>	<b>246</b>	<b>17</b>	<b>173</b>	<b>262</b>	<b>264</b>

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