

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #140



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



**Morrow Lake poling crew**

**US EPA ARCHIVE DOCUMENT**

**To:** Susan Hedman, U.S. EPA Regional Administrator  
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 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:** 04/03/2012  
**Reporting/Operational Period:** 0700 hours 3/22/2012 through 0700 hours 03/29/2012

**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) River Reopening; 5) Kalamazoo River; 6) Talmadge Creek; 7) Air Operations; and 8) Waste Management.

**2.1 Overbank Branch**

**2.1.1 OSCAR Group**

- The OSCAR Group conducted data review, quality control, and evaluation of outstanding overbank sites to ensure that all pending issues are addressed.
- Sites status information is presented in Table 3.

**2.1.2 Overbank Science Group**

- Preparation of close out reports for OB 8.97 Island, OB 9.10 Island, and OB 10.37 RDB was initiated.

### ***2.1.3 Overbank Compliance Group***

- Six Shoreline and Overbank Reassessment Technique (SORT) teams began assessment of 426 sites from the confluence of Talmadge Creek and the Kalamazoo River to the Morrow Lake Dam in accordance with the Consolidated Work Plan Fall 2011-2012.

### ***2.1.4 Overbank Recovery Group***

- Impacted surface soil removal activities were completed at OB 8.97 Island and OB 10.37 RDB.

### ***2.1.5 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 Assessment Group***

- Development of the 2012 Submerged Oil Recovery Plan continued.

### ***2.2.2 Submerged Oil Science Group***

- Enbridge's revised Quantification of Submerged Oil Report is currently under review by the U.S. EPA.
- Enbridge's Sediment Trap Monitoring and Maintenance Plan is currently under review by the U.S. EPA.
- Enbridge's request for minimum water temperature for reassessment activities is currently under review by the U.S. EPA.
- Enbridge's Morrow Lake Monitoring, Assessment, and Management Plan is currently under review by the EPA.
- Poling of the Morrow Lake Fan resumed but was suspended as decreased temperature impaired the ability to accurately characterize the degree of oiled sediments.
- Dakota Technologies continued off-site testing of residual oil in sediments to determine the effectiveness of optical screening techniques.
- Enbridge continued off-site centrifuge testing continued to supplement submerged oil quantification efforts.

### ***2.2.3 Submerged Oil Compliance Group***

- No activities were conducted during the reporting period.

### ***2.2.4 Submerged Oil Recovery Group***

- No activities were conducted during the reporting period.

### **2.2.5 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 guidance, Enbridge continued 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.
- Enbridge continued evaluation of subsurface sediment monitoring strategies and devices for various locations along the Kalamazoo River.
- The Group continued to develop strategies for evaluating the hydrodynamic characteristics of the 22 active sediment traps using the numerical Hydrodynamic Model in response to a request for supplemental information from the MDEQ.
- A report containing complete model calibration results (e.g. riverine and floodplain grids) and various baseline scenarios results from the Hydrodynamic Model is being prepared for submittal on April 13, 2012.

### **2.3.2 Containment Compliance Group**

- The Group tracked MDEQ permit applications for 6 proposed sediment collection structures along the Kalamazoo River.

### **2.3.3 Containment Recovery Group**

- Teams continued to maintain 3,300 feet of surface hard boom at 10 protective containment sites, and 1,475 feet of surface hard boom at 4 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, Morrow Lake Delta, and Morrow Lake.
- Crews monitored control points and protective containment points in Talmadge Creek and the Kalamazoo River.

## **2.4 River Reopening Branch**

### **2.4.1 River Reopening Media Group**

- Media relations personnel continued coordination regarding the river reopening, including preparation of kiosk materials, river signage, newspaper advertisements, and radio spots.
- The public meeting will be held at Marshall High School on April 17, 2012.

#### ***2.4.2 River Reopening Assessment Group***

- Continued development of the plan to determine potential remaining impacts in the river and on the overbank areas from the confluence of Talmadge Creek and the Kalamazoo River to Saylor's Landing (MP 2.25).

#### ***2.4.3 River Reopening Implementation Group***

- Development of a buoy permit application for Calhoun County continued.
- Acquisition and staging of river traffic control devices continued.

#### ***2.4.4 River Reopening Monitoring & Security Group***

- Development of a Site Specific Safety Plan for use of the River by both site personnel and the public continued.

### **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 to Morrow Lake Dam continued.

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

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) Sites.

#### ***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***

- The Talmadge Creek Remedial Investigation Group will be combined with the Kalamazoo River Remedial Investigation Group.

### **2.6.2 Talmadge Creek Monitoring Group**

- The Talmadge Creek Monitoring Group will be combined with the Kalamazoo River Monitoring Group.
- Enbridge's Talmadge Creek Monitoring Plan Spring 2012 is currently under review by U.S. EPA.
- Visual monitoring of the confluence by remote web based camera continued. Additional monitoring will be conducted according to the Talmadge Creek Monitoring Plan Spring 2012.

### **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 Operations, Command and General Staff, and Multi-Agency Coordination (MAC) 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***

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### **3.1 Situation Unit**

- Situation Unit personnel observed and documented progress in operational areas, and continued to assess areas of interest including locations of tar flecks, oil globules, oil sheen, and turbidity.
- 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***

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### **4.1 Safety Officers**

- Safety personnel continued to conduct work-site safety inspections, with a focus on activities at Talmadge Creek and the confluence.
- One safety related incident occurred during the operational period. A worker tripped and fell; however, no injuries were sustained and the incident was considered a near miss.

### **4.2 Public Information**

- The number of public inquires reported by Enbridge for this period is presented in Table 10.

## ***5. Landowner Environmental Issues***

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

## ***6. Finance***

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- The current National Pollution Funds Center (NPFC) ceiling is \$49.7 Million. Approximately 82.5% of the ceiling has been spent through March 25, 2012. The latest average 7-day burn rate was \$23,463. 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)***

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- 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 U.S. EPA's Environmental Response Team (ERT) continued studies with 14 and 28 day sample incubation periods that provide evidence of biodegradation of submerged oil.
- Analysis of data from the chemical fingerprinting samples analyzed by the off-site laboratory is currently underway.
- Preparations continued for the next on-site meeting scheduled for March 29-30, 2012.

#### ***8. Participating Entities***

- The MAC Group met March 22 and March 28 to discuss river reopening strategies. 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).
- Beginning Thursday April 12, 2012, the MAC Group will meet weekly at 0900 hours.

#### ***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						
		28	27	26	25	24	23	22
Odor Response	0	0	0	0	0	0	0	0
Work Area	35	14	6	10	0	0	2	3

**Table 2 – Samples Collected By Enbridge**

Sample Type	Total	March 2012						
		28	27	26	25	24	23	22
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	6	0	0	0	0	0	1	5
Sediment	27	0	0	0	0	0	23	4
Soil	17	0	0	0	0	0	0	17
Dewatering	0	0	0	0	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 3/29/2012)**

Overbank Branch	0
Submerged Oil Branch	183
Containment Branch	0
Talmadge Creek Branch	0
Kalamazoo River Branch	0
Consistent with EPA Order and up for MDEQ Part 201 Program	0
<b>Total Sites</b>	<b>183</b>

**Table 4 - Equipment Decontamination**

Location/Media	Total	March 2012						
		28	27	26	25	24	23	22
Frac Tanks	0	0	0	0	0	0	0	0
Vac Trucks-Tankers	0	0	0	0	0	0	0	0
Roll-Off Boxes	1	0	1	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	7	2	4	1	0	0	0	0

**Table 5 - Soil and Debris Shipped Off Site (as of 3/29/2012)**

<b>Waste Stream</b>	<b>Cumulative</b>	<b>Disposal Facility</b>
Haz Soil (yd <sup>3</sup> )	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	75,863	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)	1,606	SET/C&C
Non-Haz Impacted Debris (ton)	6,578	

Shaded items are discontinued waste streams.

**Table 6 – Oil/Water Collected by Location (as of 3/29/2012)**

<b>Location</b>	<b>Cumulative (gallons)</b>
Division A	5,356,315
Division B	5,111,479
Division C	2,096,963
Division D	121,106
Division E	52,631
Decontamination	2,370,969
Site A	320,909
Other Locations*	2,017,239
Subtotal	<b>17,447,611</b>
<b>Sludge**</b>	<b>474,215</b>
<b>Total Oil/Water</b>	<b>16,973,396</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 3/29/2012)**

<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	1,143,280
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,270,157
Non-Haz Water	Plummer	Kentwood, MI	344,725
<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>16,972,911</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 3/29/2012)**

<b>Item</b>	<b>Cumulative (gallons)</b>
Oil/Water Collected	<b>16,973,396</b>
Oil/Water Shipped Off-Site	<b>16,972,911</b>
<b>Total Oil/Water Remaining On-Site</b>	<b>485</b>

**Table 9 – Estimated Recovered Oil (as of 3/26/2012)**

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	13,580*
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	33,754
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,174
	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>1,147,967</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						
		28	27	26	25	24	23	22
Marshall Community Center	12	6	1	3	0	0	0	2
Oil Spill Public Information Hotline	9	3	2	1	0	0	2	1
Website	1	1	0	0	0	0	0	0
<b>Total Public Inquiries</b>	<b>22</b>	<b>10</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>

**Table 11 – Landowner Environmental Issues (as of 3/29/2012)**

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

**Table 12 - Financial Summary**

Item	Expended (Cumulative) (as of 3/25/2012)
<b>ERRS Contractors</b>	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ <u>683,330</u>
<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)	\$ <u>882,087</u>
<b>Total Other Contractors</b>	<b>\$ 1,068,038</b>
<b>START Contractor – WESTON (EPS50604)</b>	
T030-Response	\$ 23,003,277
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,441,510</u>
<b>Total START Contractor</b>	<b>\$ 24,628,354</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 28,953,963</b>
<b>EPA Funded Costs: Total EPA Costs</b>	<b>\$ 5,783,643</b>
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	<b>\$ 1,622,624</b>
<b>Sub-Totals</b>	<b>\$ 36,360,230</b>
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,029,710
<b>Total Est. Oil Spill Cost</b>	<b>\$ 40,988,192</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	<b>\$ 49,700,000</b>
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 8,711,808</b>

Shaded items are discontinued

**Table 13 - Personnel On-Site**

Agency/Entity	March 2012						
	28	27	26	25	24	23	22
U.S. EPA	3	2	1	0	1	2	2
START	30	26	23	0	8	14	16
MDEQ	11	10	11	0	0	6	8
MDEQ Contractors	6	8	6	0	0	6	6
Calhoun County Public Health	1	0	0	0	0	0	2
Calhoun County (CC) EM	1	0	0	0	0	0	1
City of Battle Creek	0	0	0	0	0	0	0
City of Marshall	1	0	0	0	0	0	1
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	1	0	0	0	0	0	1
Kalamazoo Sheriff	1	0	0	0	0	0	0
MDCH	1	0	0	0	0	0	1
USGS	2	0	0	0	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	0
Allegan County Emergency Management	1	0	0	0	0	0	1
Other	1	0	0	0	0	0	1
Enbridge – Operations Center	58	59	60	2	3	64	72
Enbridge – Talmadge Creek	2	3	2	0	1	2	2
Enbridge – Kalamazoo River	10	10	5	0	1	19	22
Enbridge – Containment	18	17	16	7	7	8	8
Enbridge – Submerged Oil	2	2	7	3	3	7	8
Enbridge – Overbank	31	34	30	2	1	31	32
Enbridge – Waste Management	13	13	12	0	0	12	12
Enbridge – Security & Flaggers	10	10	10	10	10	10	10
Enbridge – Communications Center	9	9	9	0	0	9	8
<b>Total</b>	<b>213</b>	<b>203</b>	<b>192</b>	<b>24</b>	<b>35</b>	<b>190</b>	<b>214</b>

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