

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #156



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

**Poling Along Morrow Lake Delta Boom F**



**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:** 8/22/2012

**Reporting/Operational Period:** 0700 hours 8/2/2012 through 0700 hours 8/9/2012

### *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) Submerged Oil; 2) Containment; 3) Kalamazoo River System; and 4) Waste Management.

#### **2.1 Submerged Oil Branch**

##### *2.1.1 OSCAR Group*

- No activities were conducted during this operational period.

##### *2.1.2 Submerged Oil Science Group*

- Review and revision of the sediment core processing for the submerged oil quantification task continued.
- Enbridge began a pilot test on select sediment cores, including chemical analyses. Results of the pilot testing will be used to validate and potentially refine the visual and UV inspection screening process for sample interval selection.
- Enbridge resumed implementation of the Agitation Effects Study on August 6, 2012. Field data collection was completed on August 9, 2012. Sediment cores collected during the agitation effects study are being held pending the results of the pilot testing to validate the UV inspection screening process. Additional field data collected is currently being compiled for data compilation.

- U.S. EPA and Enbridge resumed the implementation of a sediment coring program on August 6, 2012 with revisions to the core processing/sampling procedures. Teams are collecting duplicate sediment cores and are being held pending the results of the pilot testing to validate the UV inspection screening process.
- Monitoring of submerged oil in Morrow Lake and the Morrow Lake Delta continued according to the Morrow Lake Monitoring, Assessment, and Management Plan. Monitoring frequency of Morrow Lake and Morrow Lake Delta has been reduced to once per month or following significant rain events. On August 7, 2012, the submerged oil poling crew began poling along the E4 containment system booms as part of the E4 Alternative Containment System monitoring requirements.

### ***2.1.3 Submerged Oil Compliance Group***

- No activities were performed during this operational period.

## **2.2 Containment Branch**

### ***2.2.1 Containment Compliance Group***

- Enbridge began obtaining land owner access to install the next phase of sediment trap structures and sampling devices.

### ***2.2.2 Containment Recovery Group***

- Pursuant to the Emerging Oil Management Program (EOMP), Enbridge, U.S. EPA, and MDEQ continued to track the location, response, and sheen differentiation test results of each identified location of sheen. Teams recorded and documented sheen observations in the main channel and overbank areas, and conducted sheen testing as necessary. Sheen observations were reported back to Operations Section Chiefs for response and/or monitoring. See Table 1 for information regarding the total number of sheen differentiation tests conducted, and the results of those tests.
- U.S. EPA, MDEQ, and Enbridge continued to refine the procedure for response to observations of oil sheen. The new procedure will utilize a decision matrix for determining whether response to sheen is necessary based on area of sheen, location, and frequency of occurrence.
- Daily sheen management activities continued with sheen sweep boats conducting routine recovery activities at Ceresco Dam, Mill Ponds, and the Morrow Lake Delta/Morrow Lake, along with other ongoing sheen sweep responses as determined necessary. See Table 2 for information regarding the total number of sheen responses by date.
- As of August 8, 2012, a total of 800 feet of surface hard boom has been deployed at the Ceresco Control Point. Additionally, a total of 8,400 feet of surface hard boom and 5,350 feet of subsurface half curtain has been deployed at the E4 Containment system boom locations. Teams removed debris accumulated within the boomed areas. Inspection of subsurface curtain was performed using an underwater camera.
- Teams performed weekly visual inspections of the 6 currently-installed sediment trap locations.

## **2.3 Kalamazoo River System Branch**

### ***2.3.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group***

- Supplemental RI activities performed by Enbridge in the Source Area were completed. The Response Action Work Plan for the Source area dated August 3, 2012 is presently being reviewed by the MDEQ.

### ***2.3.2 Kalamazoo River Compliance Group***

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) sites.
- Enbridge developed the Source Area MDEQ permit application and submitted for agency review.

### ***2.3.3 Kalamazoo River Remedial Action Group***

- No activities were conducted during the reporting period.

### ***2.3.4 Talmadge Creek/Kalamazoo River Monitoring Group***

- Monitoring of erosion control devices continued.
- Water level gauges were monitored at multiple locations along the Kalamazoo River, Morrow Lake Delta, and Morrow Lake.
- Collection of daily water and sediment temperature readings was suspended during this operational period.
- Enbridge conducted weekly monitoring of buoys and signage along the Kalamazoo River.

## **2.5 Waste Management Branch**

- A summary of equipment and boom decontaminated during this reporting period is presented in Table 3.
- Quantities of soil, debris, and liquid shipped off-site during the reporting period are presented in Tables 4 and 5.
- 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 6.

## **3. Planning**

### **3.1 Situation Unit**

- Situation Unit personnel observed and documented progress in operational areas, assessed locations of oil globules and oil sheen through field observations and weekly over-flights. Personnel reported observations of sheen/product (globules) to Operations for follow-up testing and/or response, consistent with the EOMP. See Section 2.2.2 for additional details regarding the EOMP.
- Photographs were taken and distributed to project participants during Operations, Command and General Staff, and Multi-Agency Coordination (MAC) Group meetings.
- Enbridge continued to maintain an odor response team; however, no odor complaints were received during the operational period. Air monitoring and sampling information is included in Tables 7 and 8.

### **3.2 Environmental Unit**

- Enbridge's Kalamazoo River Hydrodynamic Transport Model Report containing baseline model calibration results (e.g. riverine and floodplain grids) and various baseline scenario results, sensitivity analysis results, and the Report addendum are currently under review by U.S. EPA.

- The pilot study for validation of the UV inspection process for sediment cores began. This also includes evaluating the sediment cores for the possible presence of oil-mineral aggregate (OMA), which may not be visible using current core inspection/UV processes.
- Enbridge and MDEQ continued to review and track RI progress.

### **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 provide information to Logistics personnel in order to properly prepare and procure resources.

## ***4. Command***

### **4.1 Safety Officers**

- Safety personnel continued conducting work-site safety inspections and implementing the plan for integration of public safety and worker safety on the Kalamazoo River.

### **4.2 Public Information**

- The number of public inquiries reported by Enbridge for this period is presented in Table 9.

## ***5. Finance***

- The current National Pollution Funds Center (NPFC) ceiling is \$52.7 Million. Approximately 87.5% of the ceiling has been spent through August 5, 2012. The latest average 7-day burn rate was \$26,378. These cost summaries reflect only U.S. EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 10.

## ***6. Scientific Support Coordination Group (SSCG)***

- The Net Environmental Benefits Analysis (NEBA) was submitted to the FOSC for review.
- SSCG and Enbridge forensic chemists continued to hold weekly conference calls to examine the oil fingerprinting results and compare procedures for applying oil fingerprinting results to measuring Line 6B oil remaining in the Kalamazoo River sediments.
- Recommendations were submitted to the FOSC for the agitation effects study and quantification of submerged oil.

## ***7. Participating Entities***

- 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, see SITREP #51 (Sections 3.2 and 3.3).

#### **8. Personnel On-Site**

- Staffing numbers for the entities and agencies active in the response are presented in Table 11.

#### **9. Source of Additional Information**

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

#### **10. Clean-up Progress Metrics**

**Table 1 – Sheen Differentiation Test Results**

	Total	August 2012						
		8	7	6	5	4	3	2
Sheen Tests Performed	0	0	0	0	0	0	0	0
Results Indicated Petroleum Source	0	0	0	0	0	0	0	0
Results Indicated Biogenic Source	0	0	0	0	0	0	0	0
Inconclusive Test Results	0	0	0	0	0	0	0	0

**Table 2 – Sheen Responses**

Total	August 2012						
	8	7	6	5	4	3	2
49	9	9	9	0	5	8	9

**Table 3 - Equipment Decontamination**

Location/Media	Total	August 2012						
		8	7	6	5	4	3	2
Frac Tanks	0	0	0	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)	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	0	0	0	0	0	0	0	0

**Table 4 - Soil and Debris Shipped Off Site (as of 8/9/2012)**

<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)	76,443	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)	1,718	SET/C&C
Non-Haz Impacted Debris (ton)	7,052	

Shaded items are discontinued waste streams.

**Table 5 - Liquid Shipped Off-Site (as of 8/9/2012)**

<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	1,376,757
Non-Haz Water	Plummer	Kentwood, MI	392,526
<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>17,127,312</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.

**Table 6 – Estimated Recovered Oil (as of 8/6/2012)**

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	13,814
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	33,965
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,176
	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>1,148,413</b>

Shaded items represent discontinued waste streams

**Table 7 – Real Time Air Monitoring Counts Performed by Enbridge**

Monitoring Location	Total	August 2012						
		8	7	6	5	4	3	2
Odor Response	0	0	0	0	0	0	0	0
Work Area	45	5	16	14	0	0	4	6

**Table 8 – Samples Collected By Enbridge**

Sample Type	Total	August 2012						
		8	7	6	5	4	3	2
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	4	0	0	0	0	0	4	0
Sediment	3	0	0	0	0	0	0	3
Soil	3	0	0	0	0	0	0	3
Product	0	0	0	0	0	0	0	0
Dewatering	0	0	0	0	0	0	0	0
Sheen	0	0	0	0	0	0	0	0

**Table 9 – Public Inquiries Received by U.S. EPA and Enbridge**

Location/Med	Total	August 2012						
		8	7	6	5	4	3	2
Marshall Community Center		6	1	0	0	0	0	4
Oil Spill Public Information Hotline		2	0	4	0	0	3	2
Website		0	1	0	0	0	0	0
<b>Total Public Inquiries</b>	<b>23</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>6</b>

**Table 10 - Financial Summary**

Item	Expend (Cumulative) (as of 8/5/2012)
<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	\$ 198,379
Lockheed Martin (EPW09031) -Biodegradability Study	27,357
T&T Bisso (EPA:HS800008)	\$ 882,087
<b>Total Other Contractors</b>	<b>\$ 1,107,823</b>
<b>START Contractor – WESTON (EPS50604)</b>	
T030-Response	\$ 26,643,161
T032-Sampling	\$ 183,567
T037-Doc Support	\$ 1,675,188
<b>Total START Contractor</b>	<b>\$ 28,501,916</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 32,839,953</b>
<b>U.S. EPA Funded Costs: Total U.S. EPA Costs</b>	<b>\$ 6,055,506</b>
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	<b>\$ 1,973,239</b>
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,377,307
Cost Documentation/Billing Admin Fee (2.93%)	\$ 256,369
<b>Total Est. Oil Spill Cost</b>	<b>\$ 46,100,625</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	<b>\$ 52,700,000</b>
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 6,599,375</b>

Shaded items are discontinued

**Table 11 - Personnel On-Site**

<b>Agency/Entity</b>	<b>August 2012</b>						
	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>
U.S. EPA	3	3	1	0	1	1	1
START	14	14	14	0	9	14	16
MDEQ	6	5	5	0	0	6	6
MDEQ Contractors	2	2	2	0	0	2	3
USGS	0	0	0	0	0	0	0
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
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
Michigan State Police EMD	0	0	0	0	0	0	0
Allegan County Emergency Management	0	0	0	0	0	0	0
MDNR	0	0	0	0	0	0	0
Enbridge – Operations Center	54	49	49	0	5	44	44
Enbridge – Kalamazoo River	6	8	8	0	0	14	22
Enbridge – Containment	6	6	6	0	7	12	12
Enbridge – Submerged Oil	12	23	22	0	1	3	5
Enbridge – Waste Management	1	1	1	0	1	1	1
Enbridge – Security & Flaggers	4	4	4	4	4	4	4
Enbridge – Communications Center	4	4	4	0	0	4	4
<b>Total</b>	<b>112</b>	<b>119</b>	<b>116</b>	<b>4</b>	<b>28</b>	<b>105</b>	<b>118</b>

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