

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #189



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

US EPA ARCHIVE DOCUMENT



Sheet piling installation at MP 21.5 Sediment Trap (09/21/2013)

**To:** Susan Hedman, U.S. EPA Regional Administrator  
James Sygo, MDEQ  
Michelle DeLong, MDEQ  
Dr. Linda Dykema, MDCH  
Deb Cardiff, Kalamazoo County Public Health  
Richard Fuller, Kalamazoo County Sheriff's Office  
James Rutherford, Calhoun County Public Health Department  
Durk Dunham, Calhoun County Emergency Management  
Scott Corbin, Allegan County Emergency Management  
Tiffany Eichorst, City of Battle Creek  
Cheryl Vosburg, City of Marshall  
Christine Kosmowski, Calhoun County Water Resources Commissioner

**From:** Jeffrey Kimble, U.S. EPA, Federal On-Scene Coordinator

**Date:** 10/09/2013

**Operational Period:** 0700 hours 09/09/2013 through 0700 hours 09/16/2013  
0700 hours 09/16/2013 through 0700 hours 09/23/2013

**Reporting Period:** 0700 hours 09/09/2013 through 0700 hours 09/23/2013

### *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>	RP	<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) Environmental Field Teams; and 2) Dredge Operations.

#### **2.1 Environmental Field Teams Branch**

##### *2.1.1 Science Division*

- Sediment trap monitoring continued throughout the reporting period in accordance with the approved Sediment Trap Monitoring and Maintenance Plan (July 10, 2012). Quarterly bathymetry surveys continued throughout the reporting period. Monthly Cylindrical Sampling Device sampling was conducted from September 9 – 13, 2013. Sediment trap poling was conducted from September 16 – 20, 2013.
- E4.0 Containment System monitoring and maintenance continued in accordance with the 2012 Morrow Lake Delta and Morrow Lake Monitoring and Management Work Plan (November 15, 2012). Monthly bathymetry was conducted upstream and downstream of the containment structures from September 16 – 20, 2013.

### ***2.1.2 Water Operations Division***

- Enbridge monitored and maintained 800 feet of surface hard boom at the Ceresco Dam control point, and 4,900 feet of surface hard boom and 4,250 feet of subsurface half-curtain at the E 4.0 Containment System.
- Pursuant to the Emerging Oil Management Program (EOMP), Enbridge and U.S. EPA continued to track the location of sheen and/or oil globules in the main channel and overbank areas. Observations of sheen and/or oil globules were reported back to Operations Section Chiefs for response, if appropriate. Refer to Section 3.1 for locations of oil sheen and globule observations.
- Management of oil sheen and/or globules continued throughout the period. Six responses were conducted during this reporting period. Refer to Table 1 for a summary of sheen responses by day.

### ***2.1.3 Compliance Division***

- On September 13, 2013, MDEQ issued dredge permits to Enbridge for the MP 10.5 sediment trap and for the MP 21.50 sediment trap.
- As of the close of the reporting period, Enbridge was preparing a dredging permit application for recovery at the MP 28.25 sediment trap and supplemental dredging information to the previously issued MDEQ permit for agitation toolbox recovery at the MP 26.00 sediment trap.
- As of the close of the reporting period, Enbridge's dredging supplement to the previously issued MDEQ permit for agitation toolbox recovery at the MP 36.10 sediment trap was in review with MDEQ.

## **2.2 Dredge Operations Branch**

### ***2.2.1 Ceresco, Mill Ponds, Delta/Morrow Lake, and Sediment Trap Divisions***

- Dredging continued at the Ceresco Dam impoundment. During the reporting period, a total of 31,192,376 gallons of water was treated at the Ceresco water treatment facility. Throughout the period, 4,000 feet of dredging containment was maintained, installed, and relocated as appropriate. At the close of the reporting period, a total of 26,704 yd<sup>3</sup> of dredged sediment was onsite in Geotube bags. Once adequately dewatered, sediment is solidified with portland cement in an on-site pugmill and transported off-site for disposal. As of the close of the reporting period, a cumulative total of 12,269 tons of waste from the Ceresco dredge pad has been shipped off site for disposal.
- Dredging continued at the Mill Ponds impoundment. During the reporting period, a total of 4,354,633 gallons of water was treated at the Mill Ponds water treatment facility. Throughout the period, 4,074 feet of dredging containment was installed, maintained, and relocated as appropriate. At the close of the reporting period, a total of 2,222 yd<sup>3</sup> of dredged sediment was onsite in the Geotube bags. Once adequately dewatered, sediment will be solidified with portland cement in an on-site pugmill and transported off-site for disposal. As of the close of the reporting period, a cumulative total of 64 tons of woody debris waste from the Mill Ponds has been shipped off site for disposal.
- Dewatering of the MP 10.5 Sediment trap was conducted on September 20, 2013; excavation began on September 21, 2013. Preparations continued throughout the period for dredging activities at the MP 21.50 RDB sediment trap. During the reporting period, a total of 58,114 gallons of water was treated at the 10.5 sediment trap water treatment facility. Throughout the period, 325 feet of dredging containment was maintained, installed, and relocated as appropriate at the MP 21.5 Oxbow; 200 feet of dredging containment was maintained, installed, and relocated as appropriate at the MP 10.5 sediment trap. At the close of the reporting period, a total of 135 yd<sup>3</sup> of dredged sediment was onsite at the 10.5

sediment trap dredge pad. Sediment is solidified utilizing corn cob grit or sawdust and transported off-site for disposal. As of the close of the reporting period, a cumulative total of 102 tons of waste from the 10.5 sediment trap dredge pad has been shipped off site for disposal.

- Work area air monitoring, dissolved oxygen water quality monitoring, and turbidity water quality monitoring were conducted during dredging activities.

### **2.2.2 Waste Management Division**

- Cumulative quantities of soil, debris, and liquid shipped off-site during the response are presented in Tables 2 and 3.
- The cumulative quantity of recovered oil 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 4.

## **3. Planning Section**

### **3.1 Situation Unit**

- Situation Unit personnel conducted field observations and overflights to document all operational areas, including the dredging activities; locations and integrity of CSDs, buoys and sediment trap structures; and locations of oil sheen and/or globules. During the reporting period, overflights were conducted on September 9 and 18, 2013. See Section 2.1.2 for additional details regarding the EOMP.
- During the reporting period, oil sheen and/or globules were observed at:
  - Ceresco Dam impoundment at multiple locations between MP 4.25 and MP 5.89 on September 9 – 14, 16 – 21;
  - MP 10.5 sediment trap on September 19 and 21;
  - Mill Ponds impoundment at multiple locations between MP 14.25 and MP 15.65 on September 9 – 12, 16 – 17, 19 – 21;
  - Multiple locations between MP 21.5 and MP 36.5 on September 9 – 13, 16 – 21;
  - Morrow Lake Delta and/or Neck on September 9 – 14, 16 – 17, and 19 – 21;
  - Morrow Lake North and/or South Coves on September 9 – 12, 14, 16 – 17, and 19 – 21; and
  - Morrow Lake on September 9, 14, and 19.
- Photographs were taken and distributed to project participants during the weekly Consolidated ICS Meetings.

### **3.2 Environmental Unit**

- U.S. EPA, USGS, and the U.S. Army Corps of Engineers held weekly meetings to discuss Hydrodynamic Model (HDM) activities.
- U.S. EPA continued review of sediment sample analytical results from legacy cores collected by Enbridge.
- U.S. EPA continued review of oil fingerprinting analytical results from sheen and globule samples collected by Enbridge to determine the presence/absence of Line 6B oil.

### 3.3 Documentation Unit

- The Documentation Unit continued organizing and archiving electronic and paper files for post-incident use.

### 3.4 Resource Unit

- The Resources Unit continued to support production of the Incident Action Plan (IAP), supported 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

- Enbridge 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 inquires reported by Enbridge for this period is presented in Table 6.

## 5. *Finance*

- The current National Pollution Funds Center (NPFC) ceiling is \$63.25 million. Approximately 90.3% of the ceiling has been spent through September 22, 2013. The latest average 14-day burn rate was \$29,979 per day. These cost summaries reflect only U.S. EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 7.

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

- No activities were conducted during this operational period.

## 7. *Participating Entities*

- U.S. EPA and MDEQ continued to meet bi-weekly with a group of stakeholders to discuss how to continue to effectively communicate, share information about site progress, and receive feedback about the communication needs of the local communities.
- 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 8.

## 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 Responses**

Total	September 2013													
	22	21	20	19	18	17	16	15	14	13	12	11	10	9
6	0	0	0	0	0	0	1	0	0	0	2	1	1	1

\*Beginning August 21, 2013, sheen responses are no longer requested at the Ceresco Dam impoundment if the sheen is identified to be within containment, despite sheen observations meeting response criteria. Sheen collecting within containment is managed by crews maintaining the containment booms.

**Table 2 - Soil and Debris Shipped Off Site (as of 9/22/2013)**

Waste Stream	Cumulative	Disposal Facility
<i>Haz Soil (yd<sup>3</sup>)</i>	19,644	<i>Envirosafe (Oregon, OH)</i>
Non-Haz Soil (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	88,391	SET/C&C
<i>Non-Haz Soil &amp; Debris (yd<sup>3</sup>)</i> (Excluding Ceresco Dredge)	64,815	<i>Westside Recycling (Three Rivers, MI)</i>
<i>Non-Haz Soil (yd<sup>3</sup>)</i> (Ceresco Dredge Only)	5,562	<i>EQ/Republic (Marshall, MI)</i>
<i>Haz Debris (yd<sup>3</sup>)</i>	12,075	<i>EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)</i>
Non-Haz Household Debris (ton)	1,992	SET/C&C
Non-Haz Impacted Debris (ton)	7,525	

*Shaded and italicized items are discontinued waste streams.*

**Table 3 - Liquid Shipped Off-Site (as of 9/22/2013)**

Stream	Destination Company	Destination Location	Cumulative Volume (gallons)†
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,447,957
Non-Haz Water	Plummer	Kentwood, MI	620,526
<i>Non-Haz Water</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	981,792
<i>Non-Haz Water</i>	<i>Battle Creek POTW</i>	<i>Battle Creek, MI</i>	1,143,280
<i>Hazardous Water</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	3,594,579
<i>Oil</i>	<i>Enbridge Facility</i>	<i>Griffith, IN</i>	766,288
<i>Other Material</i>			1,405,525
<i>Treated Non-Haz Water</i>	<i>Liquid Industrial Waste</i>	<i>Holland, MI</i>	370,200
<i>Treated Non-Haz Water</i>	<i>Plummer</i>	<i>Kentwood, MI</i>	4,976,140
<i>Hazardous Water</i>	<i>Safety Kleen<sup>a</sup></i>		825
<i>Treated Non-Haz Water</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	150,700
<i>Treated Non-Haz Water</i>	<i>Battle Creek POTW</i>	<i>Battle Creek, MI</i>	1,968,700
<b>Total</b>			<b>17,426,512</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 4 – Estimated Recovered Oil (as of 9/23/2013)**

Waste Stream Containing Recovered Oil	Destination Company	Destination Location	Estimated Oil Volume in Waste Stream (gallons)
<b>Soil</b> Impacted Soil & Debris	C&C Landfill	Marshall, MI	14,270*
	Envirosafe/ Westside RDF	Oregon, OH	278,665
<i>Geotube Sediment - (Impacted Sediment)</i>	<i>Envirosafe/ Westside RDF</i>	<i>Oregon, OH</i>	<i>1,298</i>
<b>Debris</b> - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)	EQ Michigan	Belleville, MI	34,659
<i>Frac Tank City - Influent to Carbon Filtration System</i>	<i>C&amp;C Landfill</i>	<i>Marshall, MI</i>	<i>8,109</i>
<b>Frac Tank City - Water</b>	Dynecol	Detroit, MI	46,178
	Liquid Industrial Waste Services, Inc.	Kentwood, MI	
	Plummers Env. Inc.	Holland, MI	
	BC POTW	Battle Creek, MI	
<i>Ceresco Pretreatment System</i>	<i>C&amp;C Landfill</i>	<i>Marshall, MI</i>	<i>90</i>
<i>A-1 Pretreatment System</i>	<i>C&amp;C Landfill</i>	<i>Marshall, MI</i>	<i>9</i>
<b>Oily Water - RPP</b>	Enbridge Facility	Griffith, IN	766,288
<b>Total</b>			<b>1,149,566</b>

Shaded and *italicized* items represent discontinued waste streams.  
 \*Total updated for analytical received after report generation.

**Table 5 – Samples Collected By Enbridge**

Sample Type	Total	September 2013													
		22	21	20	19	18	17	16	15	14	13	12	11	10	9
Surface Water	18	0	0	0	0	8	10	0	0	0	0	0	0	0	0
Private Well	24	0	0	10	13	0	0	0	0	0	1	0	0	0	0
Groundwater	31	0	0	2	2	2	2	4	0	0	6	3	5	3	2
Sediment	104	0	0	0	0	2	1	0	0	0	10	17	30	28	16
Soil	13	0	0	0	0	1	0	12	0	0	0	0	0	0	0
Product	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering	58	0	6	0	0	0	0	26	0	0	0	6	8	12	0
Sheen	4	0	0	0	0	0	0	0	0	0	0	4	0	0	0

**Table 6 – Public Inquiries Received by Enbridge**

Location/Med	September 2013														
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	
Marshall Community Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Oil Spill Public Information Hotline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Website	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total Public Inquiries</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

**Table 7 - Financial Summary (as of 9/23/2013)**

Item	Expended (Cumulative)
<b><i>ERRS Contractors</i></b>	
<i>EQM (EPS50802)</i> T057	\$ 1,199,522
T060	\$ 213,636
<i>LATA (EPS50804)</i> T019	\$ 1,161,082
<i>ER LLC (EPS50905)</i> T040	\$ 683,330
<b><i>Total ERRS Contractors</i></b>	<b>\$ 3,257,571</b>
<b><i>Other Contractors</i></b>	
<i>Lockheed Martin (EPW09031) – TAGA Support</i>	\$ 198,379
<i>Lockheed Martin (EPW09031) -Biodegradability Study</i>	61,886
<i>T&amp;T Bisso (EPA:HS800008)</i>	\$ 882,087
<b><i>Total Other Contractors</i></b>	<b>\$ 1,142,352</b>
<b>START Contractor – WESTON (EPS50604)</b>	
T030-Response	\$ 34,910,379
Community Relations	\$ 114,563
T032-Sampling	\$ 161,045
T037-Doc Support	2,012,612
<b>Total START Contractor</b>	<b>\$ 37,198,599</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 41,605,194</b>
<b>U.S. EPA Funded Costs: Total U.S. EPA Costs</b>	<b>\$ 6,657,020</b>
<b>Pollution Removal Funding Agreements</b>	
Total Other Agencies	\$ 3,237,081
Indirect Cost (16.00%)	\$ 3,520,519
Indirect Cost (8.36%)-payments after 10/1/2011	\$ 1,310,859
Indirect Cost (10.15%)-payments after 10/1/2012	\$ 1,028,907
Cost Documentation/Billing Admin Fee (2.93%)*	\$ 530,815
<b>Total Est. Oil Spill Cost</b>	<b>\$ 57,139,906</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	<b>\$ 63,250,000</b>
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 6,110,094</b>

Shaded and *italicized* items are discontinued

\* Effective on EPA Enbridge costs billed to USCG for bills issued after 6/5/12.

**Table 8 - Personnel On-Site**

Agency/Entity	September 2013													
	22	21	20	19	18	17	16	15	14	13	12	11	10	9
U.S. EPA	0	0	4	4	4	3	3	0	0	3	3	3	3	3
START	3	10	24	24	25	25	25	3	11	23	23	23	23	23
MDEQ	0	0	5	4	6	4	3	0	0	4	3	4	4	4
MDEQ Contractors	0	0	2	2	2	3	2	0	0	2	3	3	3	3
Other Agencies	2	2	3	4	2	2	2	2	2	0	2	0	0	4
Enbridge – Environmental Field Teams – Science*	10	14	40	41	45	42	43	11	12	35	40	45	45	44
Enbridge – Environmental Field Teams – Water Ops*	20	44	61	62	66	66	62	20	44	54	55	54	53	51
Enbridge – Dredge Operations – Ceresco*	90	95	132	138	122	122	109	78	93	109	114	120	110	100
Enbridge – Dredge Operations – Mill Ponds*	7	27	25	26	27	24	27	0	25	28	29	28	28	31
Enbridge – Dredge Operations – Delta/Morrow Lake*	0	0	0	0	0	0	0	0	6	6	6	6	7	12
Enbridge – Dredge Operations – Sediment Traps*	1	37	38	38	28	22	27	0	13	14	15	19	9	12
Enbridge – Waste Management*	0	36	42	41	45	41	35	0	1	36	35	35	36	1
Enbridge – Office Support*	15	24	45	50	49	47	47	13	30	48	50	50	48	47
<b>Total</b>	<b>148</b>	<b>289</b>	<b>421</b>	<b>434</b>	<b>421</b>	<b>401</b>	<b>385</b>	<b>127</b>	<b>237</b>	<b>362</b>	<b>378</b>	<b>390</b>	<b>369</b>	<b>335</b>

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