

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #194



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

**US EPA ARCHIVE DOCUMENT**



**Morrow Lake Delta E4.0 Containment Removal Dredging Activities (11/26/2013)**

**To:** Susan Hedman, U.S. EPA Regional Administrator  
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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:** 12/18/2013

**Operational Period:** 0700 hours 11/18/2013 through 0700 hours 11/25/2013  
0700 hours 11/25/2013 through 0700 hours 12/02/2013

**Reporting Period:** 0700 hours 11/18/2013 through 0700 hours 12/02/2013

### *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*

- Monthly Walling tube sampling was conducted during the reporting period, in accordance with the 2013 Submerged Oil Removal and Assessment Work Plan (May 13, 2013).

##### *2.1.2 Water Operations Division*

- Enbridge monitored and maintained 4,200 feet of surface hard boom and 3,875 feet of subsurface half-curtain at the E 4.0 Containment System.
- Management of oil sheen and/or globules continued throughout the period. No responses were conducted during this reporting period.

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

- On November 21, 2013, MDEQ issued Enbridge a modification for oil recovery to the permit for the MP 36.10 sediment trap.
- On November 26, 2013, MDEQ issued Enbridge a modification for oil recovery to the permit for the MP 26.00 sediment trap.
- As of the close of the reporting period, Enbridge's MDEQ dredging permit application for the MP 28.25 sediment trap is in review with MDEQ. The permit application will require a full review by MDEQ and a public notice period.
- U.S. EPA outlined in Section 47 of the March 14, 2013 Administrative Order and subsequently verbally communicated to Enbridge that it is Enbridge's responsibility to apply for MDEQ dredging permits and to modify existing permits to include dredging as the submerged oil recovery method, in a timeframe which allows for compliance with the U.S. EPA Order deadline of December 31, 2013. Enbridge has elected to wait for triggers to occur before applying for or modifying the existing MDEQ dredging permits.

## **2.2 Dredge Operations Branch**

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

- Scraping of the newly exposed overbank soils in the "bowl" area immediately upstream of Ceresco Dam continued throughout the period.
- Dredging continued at the Mill Ponds impoundment. Dredging operations included water treatment and discharge, containment installation and maintenance, dewatering of dredged sediment in Geotube bags, sediment solidification and transportation for off-site disposal.
- Sediment removal activities were completed on November 25, 2013 at the MP 21.50 RDB sediment trap.
- Sediment removal activities were completed on November 21, 2013 at the MP 10.40 North sediment trap.
- Preparations for sediment removal at the MP 36.1 sediment trap continued throughout the reporting period.
- Pre-Dredge bathymetry was completed at the MP 26.00 RDB sediment trap on November 25, 2013 in preparation for sediment removal activities during the next reporting period.
- Pre-Dredge bathymetry continued throughout the period in the Morrow Lake Delta, in preparation for sediment removal activities associated with removal of the E4.0 Containment System prior to winter months. As of the close of the reporting period, dredge operations utilizing a Toyo pump were completed along the C-1 Boom and are ongoing along the C-2 and D Booms.
- Table 1 presents the quantities of water treated at each dredge location during the reporting period. Table 2 presents the estimated dredge waste on-site in Geotube bags, the cumulative estimated dredge waste, and the cumulative waste 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 3 and 4.
- 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 5.

### 3. Planning Section

#### 3.1 Situation Unit

- During the reporting period, overflights were conducted on November 19 and 26, 2013 to document all operational areas and locations of oil sheen and/or globules. Photographs were taken and distributed to project participants in a Situation Update photograph log and 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. The USGS and project personnel from the University of Illinois conducted field work for in situ flume tests of sediment erodability throughout the reporting period.
- 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.
- The USCG is providing the U.S. EPA with on-site support by monitoring safety throughout all active work areas.

**4.2 Public Information**

- The number of public inquires reported by Enbridge for this period is presented in Table 7.

**5. Finance**

- The current National Pollution Funds Center (NPFC) ceiling is \$63.25 million. Approximately 92.9% of the ceiling has been spent through December 1, 2013. The latest average 14-day burn rate was \$20,795 per day. These cost summaries reflect only U.S. EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 8.

**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 9.

**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 – Water Treated During Dredging Operations for the Reporting Period**

Dredge Location	Water Treated (gal)
Ceresco	190,510
Mill Ponds	4,120,396
Sediment Traps	770,350
Morrow Lake	0

**Table 2 – Dredging Waste (as of 12/02/2013)**

<b>Waste Stream</b>	<b>Estimated Dredge Waste On-Site in Geotube bags (yd<sup>3</sup>)</b>	<b>Waste Transferred to Ceresco Dredge Pad (yd<sup>3</sup>)</b>	<b>Cumulative Estimated Dredge Waste (yd<sup>3</sup>)</b>	<b>Cumulative Waste Shipped Off-Site for Disposal (tons)</b>
Ceresco Pad Total	8,997*	5,646	105,466	96,404
Mill Ponds	9,246	1,771	22,046	12,745
Sediment Traps	0	0	11,317	11,312
Morrow Lake Delta	0	1,580	10	0
C0.4/Wildlife Center/C3.2/FTC	N/A	0	864**	834
<b>Total</b>	<b>18,243</b>	<b>8,997*</b>	<b>139,703</b>	<b>121,295</b>

\*Estimate of Ceresco Pad waste includes waste from multiple sites as indicated.

\*\*Estimated dredge waste related to oily debris.

**Table 3 - Soil and Debris Shipped Off Site (as of 12/01/2013)**

<b>Waste Stream</b>	<b>Cumulative</b>	<b>Disposal Facility</b>
<i>Haz Soil (yd<sup>3</sup>)</i>	<i>19,644</i>	<i>Envirosafe (Oregon, OH)</i>
Non-Haz Soil (yd <sup>3</sup> )	174,040	SET/C&C
Non-Haz Soil (yd <sup>3</sup> )	2,814	SET/Ottawa County Farms
Non-Haz Soil (yd <sup>3</sup> )	13,563	SET/WM Westside
<i>Non-Haz Soil &amp; Debris (yd<sup>3</sup>) (Excluding 2010 Ceresco Dredge)</i>	<i>64,815</i>	<i>Westside Recycling (Three Rivers, MI)</i>
<i>Non-Haz Soil (yd<sup>3</sup>) (2010 Ceresco Dredge Only)</i>	<i>5,562</i>	<i>EQ/Republic (Marshall, MI)</i>
<i>Haz Debris (yd<sup>3</sup>)</i>	<i>12,075</i>	<i>EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)</i>
Non-Haz Household Debris (ton)	2,111	SET/C&C
Non-Haz Impacted Debris (ton)	12,785	

*Shaded and italicized items are discontinued waste streams.*

**Table 4 - Liquid Shipped Off-Site (as of 12/01/2013)**

<b>Stream</b>	<b>Destination Company</b>	<b>Destination Location</b>	<b>Cumulative Volume (gallons)†</b>
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,483,707
Non-Haz Water	Plummer	Kentwood, MI	739,314
<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>17,581,050</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 5 – Estimated Recovered Oil (as of 12/02/2013)**

<b>Waste Stream Containing Recovered Oil</b>	<b>Destination Company</b>	<b>Destination Location</b>	<b>Estimated Oil Volume in Waste Stream (gallons)</b>
<b>Soil</b> Impacted Soil & Debris	C&C Landfill	Marshall, MI	21,736*
	Envirosafe/ Westside RDF	Oregon, OH	278,665
<i>Geotube Sediment - (Impacted Sediment)</i>	<i>Envirosafe/ Westside RDF</i>	<i>Oregon, OH</i>	1,298
<b>Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)</b>	EQ Michigan	Belleville, MI	55,086
<i>Frac Tank City - Influent to Carbon Filtration System</i>	<i>C&amp;C Landfill</i>	<i>Marshall, MI</i>	8,109
<b>Frac Tank City - Water</b>	Dynecol	Detroit, MI	46,180
	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>	90
<i>A-1 Pretreatment System</i>	<i>C&amp;C Landfill</i>	<i>Marshall, MI</i>	9
<b>Oily Water - RPP</b>	Enbridge Facility	Griffith, IN	766,288
<b>Total</b>			<b>1,177,462</b>

*Shaded and italicized items represent discontinued waste streams.*

\*Total updated for analytical received after report generation.



**Table 6 – Samples Collected By Enbridge**

Sample Type	Total	November 2013													
		30	29	28	27	26	25	24	23	22	21	20	19	18	17
Surface Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundwater	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sediment	37	0	0	0	0	0	0	0	0	37	0	0	0	0	0
Soil	30	0	0	0	0	0	0	0	0	14	5	8	2	1	0
Product	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering	28	0	0	0	0	4	10	0	0	0	0	0	4	10	0
Sheen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Table 7 – Public Inquiries Received by Enbridge**

Location/Med	November 2013															
	29	28	27	26	25	24	23	22	21	20	19	18	17	16		
Marshall Community Center	0	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	0	
Website	0	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>	<b>0</b>	

**Table 8 - Financial Summary (as of 12/01/2013)**

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>Total ERRS Contractors</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>Total Other Contractors</b>	<b>\$ 1,142,352</b>
<b>START Contractor – WESTON (EPS50604)</b>	
T030-Response	\$ 36,150,340
Community Relations	\$ 114,563
T032-Sampling	\$ 161,045
T037-Doc Support	2,052,120
<b>Total START Contractor</b>	<b>\$ 38,478,068</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 42,884,663</b>
<b>U.S. EPA Funded Costs: Total U.S. EPA Costs</b>	<b>\$ 6,772,030</b>
<b>Pollution Removal Funding Agreements</b>	
Total Other Agencies	\$ 3,762,081
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	\$ 1,170,447
Cost Documentation/Billing Admin Fee (2.93%)*	\$ 571,673
<b>Total Est. Oil Spill Cost</b>	<b>\$ 58,751,446</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	<b>\$ 63,250,000</b>
<b>Oil Spill Ceiling Available Balance**</b>	<b>\$ 4,498,554</b>

Shaded and *italicized* items are discontinued

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

\*\*USCG personnel may increase to compensate for EPA not having all available funds to fully staff the site to execute the OPA Project Plan as approved through 12/31/2013. USCG personnel will fill gaps in contractor/EPA staff planned resources as appropriate.

**Table 9 - Personnel On-Site**

Agency/Entity	November/December 2013													
	1	30	29	28	27	26	25	24	23	22	21	20	19	18
U.S. EPA	0	0	0	0	0	3	3	0	0	1	3	3	3	3
START	4	5	5	0	11	15	15	1	5	16	17	17	16	15
MDEQ	0	0	0	0	4	4	5	0	0	3	3	4	3	4
MDEQ Contractors	0	0	0	0	1	2	2	0	0	1	2	2	2	1
Other Agencies	0	0	0	0	0	0	3	3	3	3	6	6	3	3
Enbridge – Environmental Field Teams – Science*	9	9	11	0	22	29	31	3	15	31	34	36	36	38
Enbridge – Environmental Field Teams – Water Ops*	53	49	51	4	14	53	63	3	67	63	63	62	59	47
Enbridge – Dredge Operations – Ceresco*	79	87	88	18	71	89	82	35	75	74	76	70	74	64
Enbridge – Dredge Operations – Mill Ponds*	55	54	60	2	47	62	65	2	64	72	72	71	67	66
Enbridge – Dredge Operations – Delta/Morrow Lake*	30	32	28	5	23	33	43	8	36	38	41	36	38	35
Enbridge – Dredge Operations – Sediment Traps*	32	36	39	2	37	42	32	20	29	33	29	30	30	31
Enbridge – Waste Management*	0	100	92	0	68	128	120	0	0	124	115	107	104	89
Enbridge – Office Support*	22	23	21	4	37	45	41	7	31	61	46	48	45	44
<b>Total</b>	<b>284</b>	<b>395</b>	<b>395</b>	<b>35</b>	<b>335</b>	<b>505</b>	<b>505</b>	<b>82</b>	<b>325</b>	<b>520</b>	<b>507</b>	<b>492</b>	<b>480</b>	<b>440</b>

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