

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #166**



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



Poling Monitoring Activities in the Morrow Lake Delta

US EPA ARCHIVE DOCUMENT

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From: Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator

Date: 10/29/2012

Reporting/Operational Period: 0700 hours 10/18/2012 through 0700 hours 10/26/2012

1. Site Data

Site Number:	Z5JS	Response Type:	Emergency
Response Authority:	OPA	Incident Category:	Removal Action
Response Lead:	PRP	NPL Status:	Non-NPL
Mobilization Date:	7/26/2010	Start Date:	7/26/2010
FPN#:	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 Submerged Oil Science Group

- On October 12, 2012, U.S. EPA issued an Approval with Modifications letter for Enbridge's 2012 Morrow Lake and Morrow Lake Delta Monitoring and Management Work Plan. Approval is currently pending Enbridge's submittal of a revised plan incorporating the appropriate modifications.
- Teams began Round 10 of submerged oil monitoring (poling) in the Morrow Lake Delta and Round 26 in Morrow Lake, in accordance with the 2012 Morrow Lake and Morrow Lake Delta Monitoring and Management Work Plan (approval pending). Results will be used to monitor the potential movement of Line 6B submerged oil within the Morrow Lake Delta and Morrow Lake, and to evaluate the effectiveness of the E 4.0 Containment System.

2.1.2 Submerged Oil Compliance Group

- No activities were conducted during this operational period.

2.2 Containment Branch

2.2.1 Containment Compliance Group

- No activities were conducted during this operational period.

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 (when necessary) of each identified 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. See Table 1 for information regarding the total number of sheen differentiation tests conducted, and the results of those tests.
- Daily management of oil sheen and/or globules continued with sweep boats conducting routine recovery activities at Ceresco Dam (MP 5.25 to Ceresco control point), MP 21.5 to MP 28.25, and the Morrow Lake Delta/Morrow Lake, along with other ongoing sweep responses as determined necessary. See Table 2 for information regarding the total number of responses to oil sheen and/or globules by date.
- As of October 25, 2012, a total of 800 feet of surface hard boom is 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 have been deployed at the E4 Containment system boom locations. Teams removed debris accumulated within the boomed areas and continued to monitor the E4 system half-curtain locations using an underwater camera. Adjustments to various half-curtains were made as necessary.
- Teams performed weekly visual inspections of the 7 currently-installed Phase I and II enhanced sediment trap structure locations.

2.3 Kalamazoo River System Branch

2.3.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group

- Enbridge continued Kalamazoo River remedial investigation activities, including hydrocarbon fingerprint evaluation of overbank soils and collection of soil samples for background metals analyses.

2.3.2 Kalamazoo River Compliance Group

- No activities were conducted during this operational period.

2.3.3 Kalamazoo River Remedial Action Group

- No activities were conducted during this operational period.

2.3.4 Talmadge Creek/Kalamazoo River Monitoring Group

- Monitoring of erosion control devices continued.
- Water level and flow rate information continued to be downloaded daily from three USGS gauging stations at Marshall, Battle Creek, and Comstock.
- Collection of daily water and sediment temperature readings continued at locations where operational tasks were being performed.

- 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, and documented locations of oil sheen and/or globules through field observations and weekly overflights. Personnel reported observations of oil sheen and/or globules to Operations for follow-up testing and/or response, consistent with the EOMP. Specific observations during this period include the repeated observation of oil sheen and globules at Ceresco Dam from MP 4.5 to the Ceresco Control Point, the Mill Ponds, the north and south coves and the main channel of the Morrow Lake fan, and the Morrow Lake Delta. 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.

3.2 Environmental Unit

- Enbridge, U.S. EPA, and MDEQ will continue to discuss further use of the Kalamazoo River Hydrodynamic Transport Model to support future Operational decisions.
- Review of analytical results from the chemical fingerprint analyses for the oil quantification pilot study continued. The analysis focused on identification of pyrogenic and petrogenic background concentrations within the pilot study core samples and evaluation of the possible presence of oil-mineral aggregate (OMA). Results of the pilot study will be used to validate the UV inspection process for evaluating sediment cores.
- Sediment cores collected during the agitation effects study and the submerged oil quantification program continue to be held in cold storage pending the results of the pilot study.
- Enbridge and MDEQ continued to review and track RI progress.

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

- 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 8.

5. Finance

- The current National Pollution Funds Center (NPFC) ceiling is \$52.7 Million. Approximately 91.1% of the ceiling has been spent through October 21, 2012. The latest average 7-day burn rate was \$22,764 per day. These cost summaries reflect only U.S. EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 9.

6. Scientific Support Coordination Group (SSCG)

- Recommendations regarding the Net Environmental Benefits Analysis (NEBA), agitation effects study and quantification of submerged oil are being reviewed by the FOSC.
- SSCG and Enbridge forensic chemists continued periodic 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.

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 10.

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

Description	Total	October 2012						
		24	23	22	21	20	19	18
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

Description	Total	October 2012						
		24	23	22	21	20	19	18
Responses	44	9	10	4	0	3	9	9

Table 3 - Equipment Decontamination

Location/Media	Total	October 2012						
		24	23	22	21	20	19	18
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 10/24/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil (yd ³) (Excluding Ceresco Dredge)	78,109	SET/C&C
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	64,815	Westside Recycling (Three Rivers, MI)
Non-Haz Soil (yd ³) (Ceresco Dredge Only)	5,562	EQ/Republic (Marshall, MI)
Haz Debris (yd ³)	12,075	EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)
Non-Haz Household Debris (ton)	1,795	SET/C&C
Non-Haz Impacted Debris (ton)	7,121	

Shaded items are discontinued waste streams.

Table 5 - Liquid Shipped Off-Site (as of 10/24/2012)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons)†
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	456,726
<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^a</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>
Total			17,191,512

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 10/22/2012)

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	14,032*
	Envirosafe/ Westside RDF	Oregon, OH	278,665
<i>Geotube Sediment - (Impacted Sediment)</i>	<i>Envirosafe/ Westside RDF</i>	<i>Oregon, OH</i>	1,298
Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)	EQ Michigan	Belleville, MI	34,443
<i>Frac Tank City - Influent to Carbon Filtration System</i>	<i>C&C Landfill</i>	<i>Marshall, MI</i>	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	
<i>Ceresco Pretreatment System</i>	<i>C&C Landfill</i>	<i>Marshall, MI</i>	90
<i>A-1 Pretreatment System</i>	<i>C&C Landfill</i>	<i>Marshall, MI</i>	9
Oily Water - RPP	Enbridge Facility	Griffith, IN	766,288
Total			1,149,109

Shaded and *italicized* items represent discontinued waste streams.

*Total updated for analytical received after report generation.

Table 7 – Samples Collected By Enbridge

Sample Type	Total	October 2012						
		24	23	22	21	20	19	18
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	0	0	0	0	0	0	0	0
Sediment	8	2	4	0	0	0	2	0
Soil	45	10	7	10	0	0	8	10
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 8 – Public Inquiries Received by U.S. EPA and Enbridge

Location/Med	Total	October 2012						
		24	23	22	21	20	19	18
Marshall Community Center	28	5	4	5	0	0	2	12
Oil Spill Public Information Hotline	0	0	0	0	0	0	0	0
Website	2	0	0	1	0	0	1	0
Total Public Inquiries	30	5	4	6	0	0	3	12

Table 9 - Financial Summary (as of 10/21/2012)

Item	Expended (Cumulative)
<i>ERRS Contractors</i>	
<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	\$ <u>683,330</u>
<i>Total ERRS Contractors</i>	\$ 3,257,571
<i>Other Contractors</i>	
<i>Lockheed Martin (EPW09031) – TAGA Support</i>	\$ 198,379
<i>Lockheed Martin (EPW09031) -Biodegradability Study</i>	27,357
<i>T&T Bisso (EPA:HS800008)</i>	\$ <u>882,087</u>
<i>Total Other Contractors</i>	\$ 1,107,823
START Contractor – WESTON (EPS50604)	
T030-Response	\$ 28,027,549
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,784,175</u>
Total START Contractor	\$ 29,995,291
Response Contractor Sub-Totals	\$ 34,360,685
U.S. EPA Funded Costs: Total U.S. EPA Costs	\$ 6,150,227
Pollution Removal Funding Agreements	
Total Other Agencies	\$ 2,051,535
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)-payments after 10/1/2011	\$ 1,310,859
Indirect Cost (10.15%)-payments after 10/1/2012	\$ 242,150
Cost Documentation/Billing Admin Fee (2.93%)*	\$ 303,702
Total Est. Oil Spill Cost	\$ 48,017,409
Oil Spill Ceiling Authorized by USCG	\$ 52,700,000
Oil Spill Ceiling Available Balance	\$ 4,682,591

Shaded and *italicized* items are discontinued

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

Table 10 - Personnel On-Site

Agency/Entity	October 2012						
	24	23	22	21	20	19	18
U.S. EPA	2	1	1	0	0	2	2
START	13	13	12	0	3	13	12
MDEQ	4	5	3	0	0	5	5
MDEQ Contractors	3	3	3	0	0	3	2
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 Mgmt.	0	0	0	0	0	0	0
MDNR	0	0	0	0	0	0	0
Enbridge – Operations Center	24	22	26	0	0	24	24
Enbridge – Kalamazoo River	10	8	8	0	0	11	12
Enbridge – Containment	11	10	10	0	4	12	12
Enbridge – Submerged Oil	7	5	5	0	0	4	4
Enbridge – Waste Management	1	1	1	0	0	1	1
Enbridge – Security & Flaggers	0	0	0	0	0	0	0
Enbridge – Communications Ctr.	16	15	16	0	3	15	16
Total	91	83	85	0	10	90	90

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