

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #157



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

Morrow Lake Walling Tube Sampling



US EPA ARCHIVE DOCUMENT

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

Date: 8/29/2012

Reporting/Operational Period: 0700 hours 8/9/2012 through 0700 hours 8/16/2012

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 OSCAR Group

- No activities were conducted during this operational period.

2.1.2 Submerged Oil Science Group

- Enbridge continued the pilot test on select sediment cores, including chemical analyses. Thirty-five sediment samples from 12 cores were released to Alpha Laboratory for analysis. Alpha completed ISM sub-sampling of the sediment samples. Fingerprint analysis of the sediment samples is currently in progress. Results of the pilot testing will be used to validate and potentially refine the visual and UV inspection screening process for sample interval selection. Analytical results from the pilot test are expected by August 31, 2012.
- Sediment cores collected during the agitation effects study continue to be held pending the results of the pilot testing to validate the visual and UV inspection screening process. Additional field data collected is currently being compiled.

- Enbridge completed the sediment coring program utilizing the revised core processing/sampling procedures. All cores including the duplicate sediment cores and are being held in cold storage pending the results of the pilot testing to validate the visual and UV inspection screening process.
- U.S. EPA, MDEQ, and Enbridge continued discussions regarding sitewide monitoring tasks, including revisions to current monitoring and additional requirements outlined to Enbridge on August 8, 2012. The requirements include development of a formal monitoring program for the E4 Alternative Containment system and implementation of additional submerged oil reassessment activities at target areas throughout the affected river system.
- No monitoring of submerged oil in Morrow Lake and the Morrow Lake Delta was performed this operational period. Frequency of ongoing monitoring of Morrow Lake and the Morrow Lake Delta has been reduced to once per month or after a significant rain event. Submerged oil poling along the E4 containment system booms was suspended on August 10, 2012 pending the completion of the monthly sediment trap monitoring for the Phase 1 sediment traps.
- Crews completed the collection of suspended sediment from the Walling Tube sampling devices. The Walling Tube sampling devices were reinstalled throughout the river system.
- Teams completed the monthly sediment trap sampling and monitoring for MP 14.75, MP 19.25, and MP 28.25 and partially completed the sampling and monitoring of MP 10.75. Product and heavy rainbow sheen was discovered emanating from the left bank near a tree root system at MP 10.75. A crew is working on completing the monthly monitoring and sampling at sediment traps at MP 21.5 and MP 36.10 and will return to MP 10.75 to complete the sampling and monitoring.

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 continued the process of obtaining land owner access to install the next phase of sediment trap structures and sampling devices. Crews will inspect the newly proposed sediment trap locations and evaluate river conditions for installation of Cylindrical Sampling Devices (CSD) and structures.

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 sheen response flow chart will utilize a decision matrix for determining whether a response is necessary based on size of impacted area, location, and frequency of sheen occurrence.
- Daily sheen management activities continued with sheen sweep boats conducting routine recovery activities at Ceresco Dam, MP21.25 – MP28.0 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 15, 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 4 currently-installed sediment trap structure locations to assess the structures for signs of degradation.

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 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 monitoring at multiple gauge locations along the Kalamazoo River, Morrow Lake Delta, and Morrow Lake has been suspended. Water levels will be obtained from USGS Gauging Stations going forward.
- Collection of daily water and sediment temperature readings were only collected 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, 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 inquires 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 87.8% of the ceiling has been spent through August 12, 2012. The latest average 7-day burn rate was \$25,350.

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) is being reviewed by the FOSC.
- 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 regarding the agitation effects study and quantification of submerged oil are being reviewed by the FOSC.

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						
		15	14	13	12	11	10	9
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						
	15	14	13	12	11	10	9
54	4	10	12	0	9	9	10

Table 3 - Equipment Decontamination

Location/Media	Total	August 2012						
		15	14	13	12	11	10	9
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 8/16/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	76,443	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)	1,724	SET/C&C
Non-Haz Impacted Debris (ton)	7,059	

Shaded items are discontinued waste streams.

Table 5 - Liquid Shipped Off-Site (as of 8/16/2012)

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	408,726
<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			17,143,512

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 8/13/2012)

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
Total			1,148,414

Shaded items represent discontinued waste streams

*Not all analytical is available at the time of report generation.

Table 7 – Real Time Air Monitoring Counts Performed by Enbridge

Monitoring Location	Total	August 2012						
		15	14	13	12	11	10	9
Odor Response	0	0	0	0	0	0	0	0
Work Area	34	7	4	8	0	10	2	3

Table 8 – Samples Collected By Enbridge

Sample Type	Total	August 2012						
		15	14	13	12	11	10	9
Surface Water	17	0	17	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	34	33	1	0	0	0	0	0
Soil	0	0	0	0	0	0	0	0
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						
		15	14	13	12	11	10	9
Marshall Community Center	4	1	0	0	0	0	0	3
Oil Spill Public Information Hotline	2	1	0	0	0	0	0	1
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	6	2	0	0	0	0	0	4

Table 10 - Financial Summary

Item	Expended (Cumulative) (as of 8/12/2012)
ERRS Contractors	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ 683,330
Total ERRS Contractors	\$ 3,257,571
Other Contractors	
Lockheed Martin (EPW09031) – TAGA Support	\$ 198,379
Lockheed Martin (EPW09031) -Biodegradability Study	27,357
T&T Bisso (EPA:HS800008)	\$ 882,087
Total Other Contractors	\$ 1,107,823
START Contractor – WESTON (EPS50604)	
T030-Response	\$ 26,761,109
T032-Sampling	\$ 183,567
T037-Doc Support	\$ 1,687,012
Total START Contractor	\$ 28,631,688
Response Contractor Sub-Totals	\$ 32,969,725
U.S. EPA Funded Costs: Total U.S. EPA Costs	\$ 6,061,608
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,973,239
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,388,666
Cost Documentation/Billing Admin Fee (2.93%)	\$ 260,350
Total Est. Oil Spill Cost	\$ 46,251,840
Oil Spill Ceiling Authorized by USCG	\$ 52,700,000
Oil Spill Ceiling Available Balance	\$ 6,448,160

Shaded items are discontinued

Table 11 - Personnel On-Site

Agency/Entity	August 2012						
	15	14	13	12	11	10	9
U.S. EPA	2	2	1	0	1	2	3
START	17	16	16	0	6	13	13
MDEQ	5	6	5	0	0	5	6
MDEQ Contractors	2	3	3	0	0	2	2
USGS	1	1	0	0	0	0	0
Calhoun County Public Health	0	0	0	0	0	0	2
Calhoun County (CC) EM	0	0	0	0	0	0	0
City of Battle Creek	0	0	0	0	0	0	1
City of Marshall	0	0	0	0	0	0	1
Kalamazoo County Public Health	0	0	0	0	0	0	1
Kalamazoo Sheriff	0	0	0	0	0	0	1
MDCH	0	0	0	0	0	0	1
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	45	46	45	0	5	49	54
Enbridge – Kalamazoo River	13	14	8	0	0	5	6
Enbridge – Containment	8	9	10	0	7	10	6
Enbridge – Submerged Oil	13	11	15	0	0	2	12
Enbridge – Waste Management	5	1	1	0	0	1	1
Enbridge – Security & Flaggers	4	4	4	4	4	4	4
Enbridge – Communications Center	3	3	2	0	0	4	4
Total	118	116	110	4	23	97	118

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