

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #148



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

Submerged Oil Poling Reassessment at MP22.75



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

Date: 6/15/2012

Reporting/Operational Period: 0700 hours 5/31/2012 through 0700 hours 6/7/2012

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) Overbank; 2) Submerged Oil; 3) Containment; 4) River Opening; 5) Kalamazoo River System; 7) Air Operations; and 8) Waste Management.

2.1 Overbank Branch

2.1.1 OSCAR Group

- No activities were conducted during the reporting period.

2.1.2 Overbank Science Group

- No activities were conducted during the reporting period.

2.1.3 Overbank Compliance Group

- No activities were conducted during the reporting period.

2.1.4 Overbank Recovery Group

- No activities were conducted during the reporting period.

2.1.5 Overbank Monitoring Group

- Enbridge continued to maintain an odor response team; however, no odor complaints were received from the public during the operational period.
- Air monitoring and sampling information is included in Tables 1 and 2.

2.2 Submerged Oil Branch

2.2.1 Submerged Oil Assessment Group

- Spring 2012 poling reassessment activities continued. The main areas of focus were from Ceresco Dam (MP 5.85) to the Battle Creek Spillway (MP 15.65), the Morrow Lake Delta, and Morrow Lake. Ten teams conducted poling reassessment activities during the period. The Submerged Oil Assessment Group met daily to review poling results from the Spring 2012 reassessment.
- 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 monitoring and response. See Table 3 for information regarding the total number of sheen differentiation tests conducted and the results of those tests.
- Under USGS oversight, Enbridge collected velocity data from within Morrow Lake. The data will be utilized for the development of containment strategies to prevent the continued migration of oil, oil sheen, submerged oil and oil containing sediments into the Morrow Lake fan and for refinement of the hydrodynamic model.

2.2.2 Submerged Oil Science Group

- Enbridge's re-submittal of the Morrow Lake Monitoring, Assessment, and Management Plan dated May 16, 2012 is currently under review by U.S. EPA.
- Enbridge performed monthly collection of sediment samples from the Walling tube samplers. Sample results will be used as an additional input to the hydrodynamic model and to evaluate potential oil migration throughout the system.
- Enbridge's Kalamazoo River Hydrodynamic Transport Model Report containing baseline model calibration results (e.g. riverine and floodplain grids) and various baseline scenario results, and its addendum are currently under review by U.S. EPA.
- Interpretation of oil fingerprinting data for samples collected from Morrow Lake and from below the Morrow Lake Dam continued.

2.2.3 Submerged Oil Compliance Group

- No activities were conducted.

2.2.4 Submerged Oil Recovery Group

- Implementation of sheen management activities continued. See Table 4 for information regarding the total number of sheen responses by day.

2.2.5 Submerged Oil Monitoring Group

- Odor observations were documented during submerged oil reassessment activities from May 31 to June 2, 2012 at MP26.19, MP26.80 and MP27.90. As a result, air monitoring was performed with photoionization detectors (PIDs) as necessary. No readings above background were observed. U.S. EPA will implement air sampling at these locations during the next operational period.

2.3 Containment Branch

2.3.1 Containment Science Group

- The group submitted the hydrodynamic model outputs and HEC-RAS modeling outputs for the additional 14 sediment trap locations to the MDEQ in support of the permit application.
- The Group continued to develop strategies for evaluating and enhancing the planned sediment traps. Alternate placement of structures is being evaluated through additional hydrodynamic model runs at 6 of the additional 14 sediment trap locations. The results are currently pending.
- U.S. EPA and Enbridge are continuing discussions regarding appropriate alternatives to the installation of E4.5 to prevent the further migration of oil into Morrow Lake.

2.3.2 Containment Compliance Group

- Enbridge tracked an MDEQ permit application for enhanced sediment traps at 14 locations, based on a review of existing hydrodynamic model data and HEC-RAS modeling requirements set forth by MDEQ. The permit application is currently under review by MDEQ. The MDEQ has put the permit application out for public comment until June 12, 2012.

2.3.3 Containment Recovery Group

- Teams continued to maintain 1,500 feet of surface hard boom at 9 protective containment sites, and 3,475 feet of surface hard boom at 3 control points. Teams removed debris accumulated within the boomed areas and recorded observations and estimates of surface area of accumulated petroleum sheen at the 3 control points.

2.3.4 Containment Monitoring Group

- Teams continued implementation of the EOMP process. See Section 2.2.1 for additional details regarding the EOMP.
- Teams performed weekly inspection of the 6 currently-installed sediment trap locations, including visual inspection and limited poling within the sediment traps. Additionally, sediment samplers were visually inspected and samples were retrieved from selected samplers. Sample results will be used to evaluate and verify the effectiveness of the sediment traps.
- Water level gauges were monitored at multiple locations along the Kalamazoo River, Morrow Lake Delta, and Morrow Lake. In addition, daily water and sediment temperature readings were collected at 10 locations.
- Two crews monitored control points, protective containment points, and tracked sheen observations in Talmadge Creek and the Kalamazoo River.

2.4 River Opening Branch

2.4.1 River Opening Media Group

- Media relations personnel ensured appropriate posting of kiosk materials and river signage in River Opening Segment 1 (Perrin Dam to Saylor's Landing). The Group also continued with development of media package materials for the opening of the Phase 2 river segments.

2.4.2 River Opening Assessment Group

- The Group continued preparing for the opening of Phase 2 river segments (Segments 3-8) proposed to be opened after completion of the Spring 2012 Submerged Oil Reassessment.

2.4.3 River Opening Implementation Group

- Maintenance activities, acquisition, and staging of buoys and signage continued.
- Crews inspected and maintained buoys at the E4 control point, four sediment trap structure locations, and at all of the passive sediment collection devices.

2.4.4 River Opening Monitoring & Security Group

- Enbridge conducted routine monitoring of buoys and signage in River Opening Segment 1.

2.5 Kalamazoo River System Branch

2.5.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group

- Implementation of the Kalamazoo River Remedial Investigation (RI) Work Plan continued. As of June 6, 2012, the RI is in progress for 36.04% of the system.

2.5.2 Kalamazoo River Compliance Group

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) sites.

2.5.3 Kalamazoo River Remedial Action Group

- No activities were conducted during the reporting period.

2.5.4 Talmadge Creek/Kalamazoo River Monitoring Group

- Monitoring of erosion control devices continued.
- The Spring 2012 Talmadge Creek Monitoring and Maintenance Plan is under review by U.S. EPA.

2.7 Air Operations Branch

- Two over-flights were conducted for situational awareness during this reporting period. Personnel reported observations of sheen to Operations for follow-up testing and or response consistent with the EOMP. See Section 2.2.1 for additional details regarding the EOMP.

- Photographs were taken during the over-flights for presentation during Operations, Command and General Staff, and Multi-Agency Coordination (MAC) Group meetings.

2.8 Waste Management Branch

2.8.1 Decontamination Group

- A summary of equipment and boom decontaminated during this reporting period is presented in Table 5.

2.8.2 Transportation and Disposal Group

- Enbridge continued to reduce the footprint of Frac Tank City, due to a decrease in the amount of waste being generated as a result of cleanup activities. Crews consolidated materials, continued gravel removal, and conducted restoration of disturbed areas.
- Contaminated soil, water, and debris continue to be transported to Frac Tank City. Samples are collected for oil recovery determination prior to off-site disposal.
- 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 10.
- Quantities of oil and debris shipped off-site during the reporting period are presented in Tables 6 through 9.

2.8.3 Waste Management Characterization Group

- Waste management characterization, manifesting, and coordination of transportation and disposal continued according to approved plans.

3. Planning

3.1 Situation Unit

- Situation Unit personnel observed and documented progress in operational areas, and continued to assess areas of interest including locations of oil globules and oil sheen consistent with the EOMP. See Section 2.2.1 for additional details regarding the EOMP.
- Daily situation photo logs were prepared and distributed to project participants.

3.1.1 GIS Specialists

- GIS personnel continued to support operations with the generation of site maps.

3.2 Environmental Unit

- U.S. EPA continued coordination with United States Geological Survey (USGS) regarding the Kalamazoo River geomorphology evaluation and the impact on strategy and tactics for future oil recovery efforts.

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.
- Two minor safety incidents occurred during the reporting period. A near-miss incident occurred when an Enbridge contractor twisted his ankle. A second near-miss occurred when a boat operator navigated his boat too close to a tree branch.

4.2 Public Information

- The number of public inquires reported by Enbridge for this period is presented in Table 11.

5. *Landowner Environmental Issues*

- Landowner environmental issues, as reported by Enbridge, are presented in Table 12.

6. *Finance*

- The current National Pollution Funds Center (NPFC) ceiling is \$49.7 Million. Approximately 87.6% of the ceiling has been spent through June 3, 2012. The latest average 7-day burn rate was \$33,374. These cost summaries reflect only U.S. EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 13.

7. *Scientific Support Coordination Group (SSCG)*

- Individuals in the Eco-Toxicity Subgroup continue to use the interim version of a Net Environmental Benefits Analysis (NEBA) to assess the harm and benefits accompanying oil recovery efforts. The draft recommendation document will be submitted to the FOSC for review upon incorporation of Spring 2012 poling results.
- The U.S. EPA's Environmental Response Team (ERT) is preparing a report documenting studies with 14 and 28 day sample incubation periods that evaluate the potential biodegradability of submerged oil.

8. *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).

9. Personnel On-Site

- Staffing numbers for the entities and agencies active in the response are presented in Table 14.

10. Source of Additional Information

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

11. Clean-up Progress Metrics

Table 1 – Real Time Air Monitoring Counts Performed by Enbridge

Monitoring Location	Total	May/June 2012						
		6	5	4	3	2	1	31
Odor Response	0	0	0	0	0	0	0	0
Work Area	65	18	17	10	0	7	5	8

Table 2 – Samples Collected By Enbridge

Sample Type	Total	May/June 2012						
		6	5	4	3	2	1	31
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	2	0	0	1	0	0	0	1
Sediment	26	0	0	13	0	0	13	0
Soil	50	12	11	14	0	0	5	8
Dewatering	0	0	0	0	0	0	0	0
Air (Odor Complaint)	0	0	0	0	0	0	0	0
Sheen	0	0	0	0	0	0	0	0
Air (Work Area)	0	0	0	0	0	0	0	0

Table 3 – Sheen Differentiation Test Results

	Total	May/June 2012						
		6	5	4	3	2	1	31
Sheen Tests Performed	15	3	1	3	0	7	1	0
Results Indicated Petroleum Source	4	1	0	1	0	2	0	0
Results Indicated Biogenic Source	9	1	1	1	0	5	1	0
Inconclusive Test Results	2	1	0	1	0	0	0	0

Table 4 – Sheen Responses

Total	May/June 2012						
	6	5	4	3	2	1	31
16	8	2	1	0	1	3	1

Table 5 - Equipment Decontamination

Location/Media	Total	May/June 2012						
		6	5	4	3	2	1	31
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	1	1	0	0	0	0	0	0
Air Boats	0	0	0	0	0	0	0	0
Vehicles	2	2	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 6 - Soil and Debris Shipped Off Site (as of 6/7/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	76,403	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)	1,702	SET/C&C
Non-Haz Impacted Debris (ton)	6,840	

Shaded items are discontinued waste streams.

Table 7 – Oil/Water Collected by Location (as of 6/7/2012)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	5,111,479
Division C	2,096,998
Division D	176,240
Division E	52,631
Decontamination	2,370,969
Site A	322,924
Other Locations*	2,095,671
Subtotal	17,583,227
Sludge**	474,215
Total Oil/Water	17,109,012

* Wildlife Center Operations, Sediment Trap Cleaning, Hydro-Vacuuming.

** Sludge collected is tracked as a liquid waste inbound; however, after stabilization, the sludge is disposed of as solid waste. Therefore, the volume of sludge is not included within the cumulative oil/water totals. Stabilized sludge is included in the solid waste disposal metrics.

Table 8 - Liquid Shipped Off-Site (as of 6/7/2012)

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	1,358,457
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^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			17,109,012

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.

* Treated Non-Haz Water no longer sent to this location.

Table 9 - Oil/Water Remaining On-Site (as of 6/7/2012)

Item	Cumulative (gallons)
Oil/Water Collected	17,109,012
Oil/Water Shipped Off-Site	17,109,012
Total Oil/Water Remaining On-Site	0

Table 10 – Estimated Recovered Oil (as of 6/4/2012)

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	13,813*
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	33,782*
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	-	-	1,148,229

*Total updated for analytical received after report generation
Shaded items represent discontinued waste streams

Table 11 – Public Inquiries Received by U.S. EPA and Enbridge

Location/Media	Total	May/June 2012						
		6	5	4	3	2	1	31
Marshall Community Center	17	5	0	0	0	0	10	2
Oil Spill Public Information Hotline	4	1	0	1	0	0	1	1
Website	2	1	0	1	0	0	0	0
Total Public Inquiries	23	7	0	2	0	0	11	3

Table 12 – Landowner Environmental Issues (as of 5/31/2012)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	5	0

Table 13 - Financial Summary

Item	Expended (Cumulative) (as of 6/3/2012)
ERRS Contractors	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ <u>683,330</u>
Total ERRS Contractors	\$ 3,257,571
Other Contractors	
Lockheed Martin (EPW09031) – TAGA Support	\$ 184,971
T&T Bisso (EPA:HS800008)	\$ <u>882,087</u>
Total Other Contractors	\$ 1,067,058
START Contractor – WESTON (EPS50604) T030-Response	\$ 24,883,168
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,595,343</u>
Total START Contractor	\$ 26,662,078
Response Contractor Sub-Totals	\$ 30,986,707
U.S. EPA Funded Costs: Total U.S. EPA Costs	\$ 5,942,417
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,790,754
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,212,921
Total Est. Oil Spill Cost	\$ 43,531,051
Oil Spill Ceiling Authorized by USCG	\$ 49,700,000
Oil Spill Ceiling Available Balance	\$ 6,168,949

Shaded items are discontinued

Table 14 - Personnel On-Site

Agency/Entity	May/June 2012						
	6	5	4	3	2	1	31
U.S. EPA	3	3	2	0	2	3	3
START	30	30	27	0	23	27	29
MDEQ	6	6	6	0	0	6	6
MDEQ Contractors	7	6	6	0	0	8	8
Calhoun County Public Health	0	0	0	0	0	0	3
Calhoun County (CC) EM	0	0	0	0	0	0	1
City of Battle Creek	0	0	0	0	0	0	1
City of Marshall	0	0	0	0	0	0	0
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	0	0	0	1
Kalamazoo Sheriff	0	0	0	0	0	0	0
MDCH	0	0	0	0	0	0	1
USGS	2	2	2	0	1	1	1
Michigan State Police EMD	0	0	0	0	0	0	0
Allegan County Emergency Management	0	0	0	0	0	0	1
MDNR	0	0	0	0	0	0	1
Enbridge – Operations Center	50	49	49	0	6	46	49
Enbridge – Kalamazoo River	36	40	40	0	15	41	38
Enbridge – Containment	9	9	8	0	8	9	7
Enbridge – Submerged Oil	61	63	61	0	52	60	58
Enbridge – Overbank	3	3	4	0	4	4	9
Enbridge – River Opening	3	3	3	0	0	2	1
Enbridge – Waste Management	13	12	11	0	4	12	13
Enbridge – Security & Flaggers	5	5	5	5	5	5	5
Enbridge – Communications Center	4	4	4	0	0	4	4
Total	232	235	228	5	120	228	240

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