

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #159**



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

Flow Velocity Measurement near E4.0 Control Point



US EPA ARCHIVE DOCUMENT

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

Date: 9/24/2012

Reporting/Operational Period: 0700 hours 8/23/2012 through 0700 hours 9/6/2012

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 and fingerprinting analyses. Results of the pilot testing will be used to evaluate the UV inspection process for evaluating sediment cores.
- Sediment cores collected during the agitation effects study continue to be held pending the results of the pilot testing to validate the UV inspection screening process.
- Water and sheen samples collected during the agitation study were submitted for oil fingerprinting analyses.
- Sediment cores collected for the submerged oil quantification program are being held in cold storage pending the results of the pilot testing to validate the UV inspection screening process.

- Site-wide monitoring continued with Late Summer Reassessment 2012 (LSR 2012) poling at select target locations, many of which were recommended for monitoring by Net Environmental Benefits Analysis (NEBA).
- Teams conducted sediment trap baseline survey at Phase II Sediment Trap locations.

2.1.3 Submerged Oil Compliance Group

- No activities were conducted during the reporting period.

2.2 Containment Branch

2.2.1 Containment Compliance Group

- Enbridge continued to obtain land owner access to install selected Phase II sediment trap enhanced structures and Cylindrical Sampling Devices (CSDs).

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 implement the decision matrix for responding to observations of oil sheen.
- Daily sheen management activities continued with sheen sweep boats conducting routine recovery activities at Ceresco Dam (MP 5.25 to Ceresco control point), MP 21.25 – MP 28.0 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 September 6, 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 is deployed at the E4 Containment system boom locations. Teams removed debris accumulated within the boomed areas.
- Teams performed weekly visual inspections of the 6 currently-installed Phase I sediment trap locations.
- Teams continued to conduct inspection, adjustment, and video monitoring activities of the E4 Containment system boom and half curtain locations.

2.3 Kalamazoo River System Branch

2.3.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group

- No activities were conducted during the reporting period.

2.3.2 Kalamazoo River Compliance Group

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) sites.
- The public comment period for Enbridge's Source Area MDEQ permit application closed on September 4, 2012.

2.3.3 Kalamazoo River Remedial Action Group

- Enbridge conducted preparation activities for the Source Area removal project which will commence upon issuance of the MDEQ Permit.

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 were 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, documented 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

- On August 29, 2012, U.S. EPA and Enbridge met to discuss U.S. EPA comments (provided to Enbridge on August 22, 2012) regarding the Kalamazoo River Hydrodynamic Transport Model Report. While a few of the U.S. EPA comments were discussed, Enbridge requested a subsequent meeting to allow them more time to respond to U.S. EPA comments.
- The pilot study for validation of the UV inspection process for sediment cores continued. 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.
- Field data/measurements collected during the agitation experiment are currently being compiled.
- 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.

3.4 Resource Unit

- The Resources Unit continued to support production of Incident Action Plans (IAPs), 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 9.

5. *Finance*

- The current National Pollution Funds Center (NPFC) ceiling is \$52.7 Million. Approximately 88.8% of the ceiling has been spent through September 2, 2012. The latest average 7-day burn rate was \$21,075. 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)*

- 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 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

Description	Total	September 2012						August 2012							
		4	3	2	1	31	30	29	28	27	26	25	24	23	
Sheen Tests Performed	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Results Indicated Petroleum Source	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Results Indicated Biogenic Source	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inconclusive Test Results	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0

Table 2 – Sheen Responses

Total	September 2012						August 2012						
	4	3	2	1	31	30	29	28	27	26	25	24	23
66	9	0	0	9	5	9	10	5	11	0	3	4	1

Table 3 - Equipment Decontamination

Location/Media	Total	September 2012					August 2012									
		5	4	3	2	1	31	30	29	28	27	26	25	24	23	
Frac Tanks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vac. Trucks-Tankers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Roll-Off Boxes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Iron (light)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Iron (heavy)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jon Boats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air Boats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boom (linear ft)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4 - Soil and Debris Shipped Off Site (as of 9/5/2012)

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)	1,757	SET/C&C
Non-Haz Impacted Debris (ton)	7,065	

Shaded items are discontinued waste streams.

Table 5 - Liquid Shipped Off-Site (as of 9/5/2012)

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	416,726
<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			17,151,512

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 9/5/2012)

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	34,072
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			1,148,520

Shaded items represent discontinued waste streams

Table 7 – Real Time Air Monitoring Counts Performed by Enbridge

Monitoring Location	Total	September 2012					August 2012								
		5	4	3	2	1	31	30	29	28	27	26	25	24	23
Odor Response	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Work Area	48	0	0	0	0	6	9	5	10	9	10	0	10	3	2

Table 8 – Samples Collected By Enbridge

Sample Type	Total	September 2012					August 2012								
		5	4	3	2	1	31	30	29	28	27	26	25	24	23
Surface Water	15	0	0	0	0	0	0	0	15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Product	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheen	26	1	0	0	0	0	0	0	25	0	0	0	0	0	0

Table 9 – Public Inquiries Received by U.S. EPA and Enbridge

Location/Med	Total	September 2012						August 2012								
		6	5	4	3	2	1	31	30	29	28	27	26	25	24	23
Marshall Community Center	23	1	0	0	0	0	0	0	2	14	1	3	0	0	1	1
Oil Spill Public Information Hotline	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Website	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Total Public Inquiries	26	1	0	0	0	0	0	0	2	15	1	3	1	0	2	1

Table 10 - Financial Summary

Item	Expended (Cumulative) (as of 9/2/2012)
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	\$ 27,106,042
T032-Sampling	\$ 183,567
T037-Doc Support	\$ 1,715,175
Total START Contractor	\$ 29,004,784
Response Contractor Sub-Totals	\$ 33,342,821
U.S. EPA Funded Costs: Total U.S. EPA Costs	\$ 6,088,381
Pollution Removal Funding Agreements – Total Other Agencies	\$ 2,051,535
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,422,095
Cost Documentation/Billing Admin Fee (2.93%)*	\$ 272,066
Total Est. Oil Spill Cost	\$ 46,775,149
Oil Spill Ceiling Authorized by USCG	\$ 52,700,000
Oil Spill Ceiling Available Balance	\$ 5,924,851

Shaded items are discontinued

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

Table 11 - Personnel On-Site

Agency/Entity	September 2012					August 2012								
	5	4	3	2	1	31	30	29	28	27	26	25	24	23
U.S. EPA	1	2	0	0	0	0	2	2	2	1	0	0	1	2
START	14	14	1	0	1	1	14	16	17	17	0	13	16	16
MDEQ	5	0	0	0	0	4	5	5	5	4	0	0	4	5
MDEQ Contractors	5	0	0	0	0	0	3	3	5	4	0	3	5	5
USGS	0	0	0	0	0	0	0	0	2	0	0	0	0	1
Calhoun County Public Health	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calhoun County (CC) EM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Battle Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Marshall	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalamazoo Sheriff	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDCH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Allegan County Emergency Mgmt.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDNR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enbridge – Operations Center	38	7	2	0	2	4	37	49	40	40	0	12	46	49
Enbridge – Kalamazoo River	7	2	0	0	3	2	10	13	15	14	0	8	14	16
Enbridge – Containment	11	10	3	0	8	8	11	11	12	13	0	6	10	11
Enbridge – Submerged Oil	12	0	0	0	0	0	10	11	19	19	0	16	19	18
Enbridge – Waste Management	1	0	0	0	0	1	2	2	3	3	0	1	3	3
Enbridge – Security & Flaggers	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Enbridge – Communications Ctr.	4	3	0	0	0	1	3	3	4	4	0	0	4	4
Total	102	42	10	4	18	25	101	119	128	123	4	63	126	134

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