

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #139



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



To: Susan Hedman, U.S. EPA Regional Administrator
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From: Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator

Date: 4/3/2012

Reporting/Operational Period: 0700 hours 3/15/2012 through 0700 hours 03/22/2012

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 Reopening; 5) Kalamazoo River; 6) Talmadge Creek; 7) Air Operations; and 8) Waste Management.

2.1 Overbank Branch

2.1.1 OSCAR Group

- Sites status information is presented in Table 3.

2.1.2 Overbank Science Group

- Information gathering and data compilation for expedited RI work recently completed at OB 8.48 LDB continued.

2.1.3 Overbank Compliance Group

- The Overbank Compliance Group continued tracking issues relating to the permits for OB 8.97 Island and OB 10.37 RDB.

2.1.4 Overbank Recovery Group

- High water levels continued to impede excavation activities at OB 8.97 Island and OB 10.37 RDB. Approximately 60% of the soil removal work was completed at OB 8.97 Island and 88% at OB 10.37 RDB at the conclusion of the operational period.
- Activities at OB 9.10 LDB were completed.

2.1.5 Overbank Monitoring Group

- Enbridge maintained an odor response team; however, no odor complaints were received during this 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

- Development of the 2012 Submerged Oil Recovery Plan continued.

2.2.2 Submerged Oil Science Group

- Enbridge's revised Quantification of Submerged Oil Report is currently under review by the U.S. EPA.
- EPA provided Enbridge with comments on the Report of Findings for Submerged Oil Temperature Effects Study.
- Enbridge's Sediment Trap Monitoring and Maintenance Plan is currently under review by the U.S. EPA.
- Dakota Technologies continued off-site testing of residual oil in sediments to determine the effectiveness of optical screening techniques.
- Enbridge continued off-site centrifuge testing to supplement submerged oil quantification efforts.
- The Group presented findings from SO 9.00 to the Submerged Oil Assessment Group.

2.2.3 Submerged Oil Compliance Group

- No activities were conducted during the reporting period.

2.2.4 Submerged Oil Recovery Group

- No activities were conducted during the reporting period.

2.2.5 Submerged Oil Monitoring Group

- No activities were conducted during the reporting period.

2.3 Containment Branch

2.3.1 *Containment Science Group*

- Under the Group's guidance, Enbridge continued to prepare a modified plan and permit application to include 15 additional active sediment traps and fewer passive locations. Enbridge is evaluating information and data requirements for permitting of the additional active trap locations.
- Enbridge continued evaluation of subsurface sediment monitoring strategies and devices for various locations along the Kalamazoo River.
- The Group continued to develop strategies for evaluating the hydrodynamic characteristics of the 22 active sediment traps using the numerical Hydrodynamic Model in response to a request for supplemental information from the MDEQ.
- Results from the Hydrodynamic Model are expected to be available April 13, 2012.

2.3.2 *Containment Compliance Group*

- The Group tracked MDEQ permit applications for 6 proposed sediment collection structures along the Kalamazoo River.

2.3.3 *Containment Recovery Group*

- Teams continued to maintain 1,750 feet of surface hard boom at 10 protective containment sites, and 200 feet of surface hard boom at 1 control point. Teams removed debris accumulated within the boomed areas.
- In response to sightings of sheen and oil globules, EPA directed Enbridge to install containment boom at Ceresco and Battle Creek Dams. EPA directed Enbridge to install containment and begin submerged oil monitoring at the Morrow Lake Fan.

2.3.4 *Containment Monitoring Group*

- Water level gauges were monitored at multiple locations along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.
- Control points in Talmadge Creek and protective containment points in the Kalamazoo River were monitored.

2.4 River Reopening Branch

2.4.1 *River Reopening Media Group*

- Media relations personnel continued coordination regarding the river reopening.
- Preparation of kiosk materials and river signage continued.
- A public meeting date of April 17, 2012 was established.

2.4.2 River Reopening Assessment/Confirmation Group

- Continued development of the plan to determine potential remaining impacts in the river and on the overbank areas from the confluence of Talmadge Creek and the Kalamazoo River to Saylor's Landing (MP 2.25).

2.4.3 River Reopening Implementation Group

- Development of a buoy permit application for Calhoun County continued.
- Acquisition and staging of river traffic control devices continued.

2.4.4 River Reopening Monitoring & Security Group

- Development of a Site Specific Safety Plan for use of the River by both site personnel and the public continued.
- A Site Security Plan was developed for sections of the river that will remain closed.

2.5 Kalamazoo River Branch

2.5.1 Kalamazoo River Remedial Investigation Group

- Implementation of the Kalamazoo River RI Work Plan for Enbridge owned properties between MP 5.8 to Morrow Lake Dam continued.

2.5.2 Kalamazoo River Compliance Group

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) Sites.
- Permit applications for the Raymond Road KRBEA site were prepared.
- Evaluation of RI data for MP 2.25 to MP 5.8, OB 8.48 LDB, and MP 13.00R1 continued.

2.5.3 Kalamazoo River Remedial Action Group

- No activities were conducted during the reporting period.

2.5.4 Kalamazoo River Monitoring Group

- Teams conducted surface water sampling at monitoring stations in the Kalamazoo River. A sampling summary is presented in Table 2.

2.6 Talmadge Creek Branch

2.6.1 Talmadge Creek Remedial Investigation Group

- Data compilation from the Talmadge Creek RI study continued.

2.6.2 Talmadge Creek Compliance Group

- Evaluation of RI data and Verification of Soil Remediation (VSR) data for MP 0.50 to MP 2.0 continued.

2.6.3 Talmadge Creek Remedial Action Group

- Crews completed demobilization of sheet piling, equipment, and road mats from the recently completed confluence excavation.

2.6.4 Talmadge Creek Monitoring Group

- Visual monitoring of the confluence by remote web based camera continued.
- Air monitoring was conducted during operations at Talmadge Creek. No detections were noted during the reporting period.

2.7 Air Operations Branch

- Two over-flights were conducted for situational awareness during this reporting period.
- Photographs were taken during the over-flights for presentation during Operations, Command and General Staff, and Multi-Agency Coordination (MAC) 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 4.

2.8.2 Transportation and Disposal Group

- Contaminated soil, water, and debris continue to be removed to staging areas. 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 9.
- Quantities of oil and debris shipped off-site during the reporting period are presented in Tables 5 through 8.

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 tar flecks, oil globules, oil sheen, and turbidity.
- 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

- 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 provided information to Logistics personnel in order to properly prepare and procure resources.

4. Command

4.1 Safety Officers

- Safety personnel continued to conduct work-site safety inspections, with a focus on activities at Talmadge Creek and the confluence.
- One safety related incident occurred during the operational period. The incident consisted of a minor cut requiring minimal first aid.

4.2 Public Information

- The number of public inquiries reported by Enbridge for this period is presented in Table 10.

5. Landowner Environmental Issues

- Landowner environmental issues, as reported by Enbridge, are presented in Table 11.

6. Finance

- The current National Pollution Funds Center (NPFC) ceiling is \$49.7 Million. Approximately 82.1% of the ceiling has been spent through March 18, 2012. The latest average 7-day burn rate was \$32,857. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 12.

7. Scientific Support Coordination Group (SSCG)

- The Eco-Toxicity Subgroup continued preparation of a Net Environmental Benefits Analysis (NEBA) to assess the harm and benefits accompanying oil recovery efforts. Sediment toxicity samples continue to be analyzed by the off-site laboratory.
- The U.S. EPA's Environmental Response Team (ERT) continued studies with 14 and 28 day sample incubation periods that provide evidence of biodegradation of submerged oil.
- Data from the chemical fingerprinting samples analyzed by the off-site laboratory was delivered March 21, 2012.
- Preparations continued for the next on-site meeting scheduled for March 29-30, 2012.

8. Participating Entities

- The MAC Group continues meeting twice per month to discuss the progress of the response. 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 and the congressional presence, see SITREP #51 (Sections 3.2 and 3.3).
- Beginning Thursday April 12, 2012, the MAC Group will meet weekly at 0900 hours.

9. Personnel On-Site

- Staffing numbers for the entities and agencies active in the response are presented in Table 13.

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	March 2012						
		21	20	19	18	17	16	15
Odor Response	0	0	0	0	0	0	0	0
Work Area	84	23	21	24	0	0	9	7

Table 2 – Samples Collected By Enbridge

Sample Type	Total	March 2012						
		21	20	19	18	17	16	15
Surface Water	6	0	0	0	0	0	0	6
Private Well	0	0	0	0	0	0	0	0
Groundwater	11	5	5	0	0	0	1	0
Sediment	6	4	0	0	0	0	0	2
Soil	65	17	13	14	0	0	10	11
Dewatering	0	0	0	0	0	0	0	0
Air (Odor Complaint)	0	0	0	0	0	0	0	0
Air (Work Area)	0	0	0	0	0	0	0	0

Table 3 – Site Status Information (as of 3/22/2012)

Overbank Branch	4
Submerged Oil Branch	183
Containment Branch	8
Talmadge Creek Branch	1
Kalamazoo River Branch	4
Consistent with EPA Order and up for MDEQ Part 201 Program	4
Total Sites	204

Table 4 - Equipment Decontamination

Location/Media	Total	March 2012						
		21	20	19	18	17	16	15
Frac Tanks	2	0	0	0	0	0	0	2
Vac Trucks-Tankers	1	0	0	0	0	0	1	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	5	0	1	3	0	0	0	3

Table 5 - Soil and Debris Shipped Off Site (as of 3/22/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	75,838	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)	1,596	SET/C&C
Non-Haz Impacted Debris (ton)	6,578	

Shaded items are discontinued waste streams.

Table 6 – Oil/Water Collected by Location (as of 3/22/2012)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	5,111,479
Division C	2,096,763
Division D	121,106
Division E	52,631
Decontamination	2,368,269
Site A	320,909
Other Locations*	2,007,754
Subtotal	17,435,226
Sludge**	474,215
Total Oil/Water	16,961,011

* 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 7 - Liquid Shipped Off-Site (as of 3/22/2012)

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	1,265,157
Non-Haz Water	Plummer	Kentwood, MI	337,725
<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			16,960,911

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 8 - Oil/Water Remaining On-Site (as of 3/22/2012)

Item	Cumulative (gallons)
Oil/Water Collected	16,961,011
Oil/Water Shipped Off-Site	16,960,911
Total Oil/Water Remaining On-Site	100

Table 9 – Estimated Recovered Oil (as of 3/19/2012)

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	13,547*
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	33,754
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,173
	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	-	-	1,147,933

Shaded items represent discontinued waste streams

*Totals updated for analytical received after report generation. Not all analytical is available at the time of report generation.

Table 10 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	March 2012						
		21	20	19	18	17	16	15
Marshall Community Center	20	1	3	5	0	0	0	11
Oil Spill Public Information Hotline	5	2	2	0	0	0	1	0
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	25	3	5	5	0	0	1	11

Table 11 – Landowner Environmental Issues (as of 3/22/2012)

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

Table 12 - Financial Summary

Item		Expended (Cumulative) (as of 3/18/2012)	
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		\$	185,951
T&T Bisso (EPA:HS800008)		\$	<u>882,087</u>
Total Other Contractors		\$	1,068,038
START Contractor – WESTON (EPS50604)			
	T030-Response	\$	22,886,353
	T032-Sampling	\$	183,567
	T037-Doc Support	\$	<u>1,426,144</u>
Total START Contractor		\$	24,496,064
Response Contractor Sub-Totals		\$	28,821,673
EPA Funded Costs: Total EPA Costs		\$	5,766,546
Pollution Removal Funding Agreements – Total Other Agencies		\$	1,622,624
Sub-Totals		\$	36,210,843
Indirect Cost (16.00%)		\$	3,598,252
Indirect Cost (8.36%)		\$	1,017,221
Total Est. Oil Spill Cost		\$	40,826,316
Oil Spill Ceiling Authorized by USCG		\$	49,700,000
Oil Spill Ceiling Available Balance		\$	8,873,684

Shaded items are discontinued

Table 13 - Personnel On-Site

Agency/Entity	March 2012						
	21	20	19	18	17	16	15
U.S. EPA	1	1	1	0	1	1	1
START	16	16	13	0	5	20	21
MDEQ	6	6	5	0	0	6	5
MDEQ Contractors	3	4	5	0	0	4	5
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
Village of Augusta	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
USGS	1	1	0	0	0	2	2
Michigan State Police EMD	0	0	0	0	0	0	0
Allegan County Emergency Management	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Enbridge – Operations Center	65	68	65	1	2	58	59
Enbridge – Talmadge Creek	12	12	15	0	0	22	21
Enbridge – Kalamazoo River	21	20	19	0	0	13	16
Enbridge – Containment	7	7	5	0	0	6	5
Enbridge – Submerged Oil	8	2	2	0	0	5	8
Enbridge – Overbank	30	18	24	0	0	17	21
Enbridge – Waste Management	12	25	21	0	0	21	24
Enbridge – Security & Flaggers	11	11	11	9	9	11	11
Enbridge –Communications Center	8	7	8	0	0	8	9
Total	201	198	194	10	17	194	208

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