

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #135



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



Talmadge Creek Turbidity Control System

US EPA ARCHIVE DOCUMENT

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From: Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator
Date: 3/5/2012
Reporting/Operational Period: 0700 hours 2/16/2012 through 0700 hours 02/23/2012

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

2.1 Overbank Branch

2.1.1 Overbank Science Group

- Data compilation and information gathering continued for OB 8.97 Island, OB 9.10 LDB and 10.37 RDB.
- Work Plans for OB 8.97, OB 9.10 LDB and 10.37 RDB were revised and resubmitted based on comments from the Group.

2.1.2 Overbank Compliance Group

- Tracking and follow up of outstanding issues relating to permits for OB 8.97 Island, OB 9.10 LDB, and OB 10.37 RDB continued.

2.1.3 Overbank Recovery Group

- Excavation was completed and crews began demobilization from OB 13.40 LDB.
- Daily maintenance and monitoring of the Talmadge Creek diversion system at the Confluence of Talmadge Creek with the Kalamazoo River continued. The diversion was installed in January 2012 to allow for excavation of the original creek bed at this location.
- Pre-planning for recovery activities at OB 8.97 Island, OB 9.10 LDB, and OB 10.37 RDB continued.

2.1.4 Overbank Monitoring Group

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

2.2 Submerged Oil Branch

2.2.1 Submerged Oil Science Group

- Select members of the Group met at the Tetra Tech Atlanta office to review and reconcile numerous data gaps in the Hydrodynamic Model. They continued to develop the hydrodynamic model to characterize the movement of submerged oil during diverse river conditions and situations.
- In response to EPA's February 2, 2012 letter, the Group continued review of the revised Quantification of Submerged Oil Report
- On February 20, 2012 Enbridge submitted the Report of Findings for Submerged Oil Temperature Effects Study. The report is currently under review by the EPA.
- The temperature effect study and quantification study continued on oiled sediment samples collected from SO 9.00 I3.
- Sediment samples were collected at submerged oil and background locations identified by the OSCAR Branch and agreed upon by the SSCG for aquatic toxicity testing and chemical fingerprinting analysis. In addition, weathered oil samples were submitted for laboratory analysis of chemical composition, and fingerprinting.
- Bench testing was conducted using a submersible fluorometer to evaluate the presence of residual oil suspended in the water column.
- Field tests were performed to evaluate qualitative screening methods to differentiate petroleum sheen from biogenic sheen on surface water.

2.2.2 Submerged Oil Compliance Group

- Teams continued to complete ecological community and habitat assessments in support of the OSCAR Branch.

2.2.3 Submerged Oil Recovery Group

- No activities were conducted during the reporting period.

2.2.4 Submerged Oil Monitoring Group

- No activities were conducted during the reporting period.

2.3 Containment Branch

2.3.1 Containment Science Group

- Development of subsurface containment strategies continued for 12 additional depositional areas along the Kalamazoo River, including three potential additional sites transferred from the OSCAR Branch.
- Under the Group's direction, Enbridge is preparing a modified plan and permit application to include additional active sediment traps and fewer passive locations. Enbridge is evaluating information and data requirements for permitting of the additional active trap locations.
- The Group continued evaluation of subsurface sediment monitoring strategies and devices for various locations along the Kalamazoo River.

2.3.2 Containment Compliance Group

- The Group continued to track previously submitted MDEQ permit applications for proposed submerged sediment collection structures at six select locations along the Kalamazoo River.

2.3.3 Containment Recovery Group

- As of the close of the operational period, teams continued to maintain 1,750 feet of surface hard boom at 12 protective containment sites, and 300 feet of surface hard boom at 2 control points. Teams removed debris accumulated within the boomed areas.
- Teams continued maintenance of sediment control devices within Talmadge Creek between MP 1.4 and MP 2.0.

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.
- A team monitored control points in Talmadge Creek and protective containment points in the Kalamazoo River.

2.4 OSCAR Branch

- The OSCAR Branch continued refining the characterization and reconciliation process to address remaining submerged oil locations throughout the Kalamazoo River system. Based on these evaluations and the consolidation of various data sets, sites will be grouped according to geomorphic setting and other factors to facilitate development of plans for reassessment and recovery operations.
- Sites status information is presented in Table 3.

2.5 Kalamazoo River Branch

2.5.1 *Kalamazoo River Remedial Investigation Group*

- Implementation of the Kalamazoo River RI Work Plan for MP 13.0 R1 continued.
- Implementation of the Kalamazoo River RI Work Plan for MP 5.8 to MP11 began.
- Assessment of RI data for OB 8.48 LDB continued. Teams collected additional soil and groundwater samples to address identified data gaps.
- Development of the RI Work Plan for MP 11.00 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 developed.
- Evaluation of RI data for MP 2.25 – MP 3.14 continued.

2.5.3 *Kalamazoo River Remedial Action Group*

- Sampling activities were conducted at OB13.40 LDB.

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 0.0 to MP 1.0 continued.

2.6.3 Talmadge Creek Remedial Action Group

- Operation and maintenance of the pump-around and GAC dewatering systems is on-going.
- Maintenance of soil erosion and sedimentation controls continues.
- Construction was completed and operation of a large scale turbidity control system began in order to mitigate sediment and oil contaminated sediment from entering the Kalamazoo River during remediation activities.
- Demobilization from MP 0.75 through MP 1.55 began.
- Excavation between MP 1.55 and MP 2.08 was initiated. Excavation activities were suspended until additional sediment control measures could be established.

2.6.4 Talmadge Creek Monitoring Group

- Teams continued monitoring erosion control devices on Talmadge Creek between MP 1.4 and MP 2.0.
- Water quality monitoring was conducted during excavation activities along Talmadge Creek.
- Air monitoring was conducted during operations at Talmadge Creek. No detections were noted during the reporting period.

2.7 Air Operations Branch

- Three over-flights were conducted for situational awareness during this reporting period.
- Photographs were taken during the over-flights for presentation during various 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 were 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 oil sheen, turbidity, and ice formation.
- 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 excavation activities at Talmadge Creek and OB 13.40 LDB.
- Throughout the reporting period, one near miss incident occurred. A worker entered the swing radius of an excavator, no injuries were reported. Two non-injury medical issues were reported.

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 \$43.7 Million. Approximately 91.1% of the ceiling has been spent through February 19, 2012. The latest average 7-day burn rate was \$30,933. 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)

- In accordance with the analytical plans prepared by the SSCG subgroups, Kalamazoo River sediment sampling was initiated. Samples will be analyzed to measure the levels of oil constituents and to examine potential aquatic toxicity as recommended by the SSCG.

8. Participating Entities

- The Multi-Agency Coordination (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).

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	February 2012						
		22	21	20	19	18	17	16
Odor Response	0	0	0	0	0	0	0	0
Work Area	105	21	20	13	0	8	18	25

Table 2 – Samples Collected By Enbridge

Sample Type	Total	February 2012						
		22	21	20	19	18	17	16
Surface Water	2	0	2	0	0	0	0	0
Private Well	30	8	12	10	0	0	0	0
Groundwater	0	0	0	0	0	0	0	0
Sediment	16	8	5	3	0	0	0	0
Soil	44	10	9	0	0	0	15	10
Dewatering	4	0	2	2	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 2/22/2012)

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	February 2012						
		22	21	20	19	18	17	16
Frac Tanks	2	0	1	0	0	1	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)	150	0	0	150	0	0	0	0
Miscellaneous Items	0	0	0	0	0	0	0	0

Table 5 - Soil and Debris Shipped Off Site (as of 2/22/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	66,468	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)	1,219	SET/C&C
Non-Haz Impacted Debris (ton)	6,546	

Shaded items are discontinued waste streams.

Table 6 – Oil/Water Collected by Location (as of 2/22/2012)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	4,988,079
Division C	2,096,038
Division D	121,106
Division E	52,631
Decontamination	2,333,089
Site A	320,909
Other Locations*	1,903,659
Subtotal	17,177,026
Sludge**	474,215
Total Oil/Water	16,702,811

* 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 2/22/2012)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	1,136,680
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,071,407
Non-Haz Water	Plummer	Kentwood, MI	279,525
<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	16,702,361

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 2/22/2012)

Item	Cumulative (gallons)
Oil/Water Collected	16,702,811
Oil/Water Shipped Off-Site	16,702,361
Total Oil/Water Remaining On-Site	450

Table 9 – Estimated Recovered Oil (as of 2/20/2012)

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	12,801*
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	33,749
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,150
	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	-	-	1,147,158

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	February 2012						
		22	21	20	19	18	17	16
Marshall Community Center	8	4	1	1	0	0	0	2
Oil Spill Public Information Hotline	3	0	1	1	0	0	0	1
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	11	4	2	2	0	0	0	3

Table 11 – Landowner Environmental Issues (as of 2/22/2012)

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

Table 12 - Financial Summary

Item	Expended (Cumulative) (as of 2/19/2012)
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	\$ 22,135,888
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,352,109</u>
Total START Contractor	\$ 23,671,564
Response Contractor Sub-Totals	\$ 27,997,173
EPA Funded Costs: Total EPA Costs	\$ 5,647,836
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,622,624
Sub-Totals	\$ 35,267,633
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 938,369
Total Est. Oil Spill Cost	\$ 39,804,254
Oil Spill Ceiling Authorized by USCG	\$ 43,700,000
Oil Spill Ceiling Available Balance	\$ 3,895,746

Shaded items are discontinued

Table 13 - Personnel On-Site

Agency/Entity	February 2012						
	22	21	20	19	18	17	16
U.S. EPA	3	3	2	0	1	3	4
START	26	24	23	0	15	17	20
MDEQ	7	7	4	0	1	8	8
MDEQ Contractors	6	6	5	0	0	5	6
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	1	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	0
Other	0	0	0	0	0	0	0
Enbridge – Operations Center	73	72	70	4	23	65	69
Enbridge – Talmadge Creek	73	68	68	3	52	51	53
Enbridge – Kalamazoo River	15	17	16	0	3	14	14
Enbridge – Containment	6	5	5	0	5	5	5
Enbridge – Submerged Oil	6	10	5	0	2	4	5
Enbridge – Overbank	56	76	59	4	60	59	45
Enbridge – Waste Management	17	18	19	0	18	16	17
Enbridge – Security & Flaggers	11	11	11	10	11	9	10
Enbridge – Communications Center	5	2	2	0	0	2	2
Total	305	320	290	21	192	259	259

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