

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #134**



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



To: Susan Hedman, U.S. EPA Regional Administrator
James Sygo, MDEQ
Mark DuCharme, MDEQ
Michelle DeLong, MDEQ
Dr. Linda Dykema, MDCH
Lt. Barry Reber, Michigan State Police, Emergency Management
Deb Cardiff, Kalamazoo County
Lt. Paul Baker, Kalamazoo County Sheriff's Office
James Rutherford, Calhoun County Public Health Department
Durk Dunham, Calhoun County Emergency Management
Scott Corbin, Allegan County Emergency Management
Mike McKenzie, City of Battle Creek
Cheryl Vosburg, City of Marshall
Christine Kosmowski, City of Battle Creek

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

Date: 2/23/2012

Reporting/Operational Period: 0700 hours 2/09/2012 through 0700 hours 02/16/2012

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) 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

- The Group continued the data compilation and information gathering for revisions to the Work Plans for OB 8.97 I, OB 9.10 LDB and 10.37 RDB.

2.1.2 Overbank Compliance Group

- The Group followed up on outstanding issues relating to the permit for OB 8.97 I, OB 9.10 LDB, and OB 10.37 RDB..

2.1.3 Overbank Recovery Group

- Teams began site excavation operations at OB 13.40 LDB.
- Teams continued daily maintenance and monitoring of the Talmadge Creek diversion system at the Confluence of Talmadge Creek with the Kalamazoo River. The diversion was installed in January 2012 to allow for excavation of the confluence and the original creek bed at this location.
- Teams continued the pre-planning for excavation activities at OB 8.97 Island, OB 9.10 LDB, and OB 10.37 RDB.

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

- The Group continued review of hydrodynamic assessment data and generation of the hydrodynamic model to characterize the movement of submerged oil. The hydrodynamic model was delivered to EPA on February 10, 2012. The model is currently under review by the EPA.
- On February 8, 2012 Enbridge submitted a revised Quantification of Submerged Oil Report in response to EPA's February 2, 2012 letter. The report is currently under review by the EPA.
- The Group conducted temperature effects studies on oiled sediment samples collected from SO 8.50 and SO 9.0 I3.
- The Group conducted research and evaluation of screening techniques for characterization of sheen and residual oil.

2.2.2 Submerged Oil Compliance Group

- Teams continued to complete ecological assessments at sites determined by 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

- The Group continued to develop subsurface containment strategies for depositional areas along the Kalamazoo River.
- The Group continued to evaluate subsurface sediment monitoring strategies and devices for various locations along the Kalamazoo River.

2.3.2 Containment Compliance Group

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

2.3.3 Containment Recovery Group

- As of the close of the operational period, teams continued to maintain 2,400 feet of surface hard boom at 15 protective containment sites, and 600 feet of surface hard boom at 2 control points. Teams removed debris accumulated within the boomed areas.
- Teams completed maintenance and monitoring of sediment control devices within Talmadge Creek.

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.
- Teams monitored control points in Talmadge Creek, and protective containment points in the Kalamazoo River.

2.4 OSCAR Branch

- The OSCAR Branch continued modification of the outstanding sites characterization and reconciliation process to address remaining submerged oil locations throughout the Kalamazoo River system. Current efforts include the consolidation of various data sets associated with submerged oil for future review and evaluation. Based on these evaluations, 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

- Teams continued implementation of the Kalamazoo River RI Work Plan for MP 13.0 R1.
- Teams began implementation of the Kalamazoo River RI Work Plan for MP 5.8 to MP11.

- Teams continued assessment of RI data for OB 8.48 LDB. Teams collected additional soil and groundwater samples to address identified data gaps.
- Teams began development of the RI Work Plan for MP 11.00 to Morrow Lake Dam.

2.5.2 Kalamazoo River Compliance Group

- The Group continued restoration and stabilization at various Kalamazoo River Bank Erosion Assessment (KRBEA) Sites.
- The Group continued development of permit applications for the Raymond Road KRBEA site.
- The Group continued evaluation of RI data for MP 2.25 – MP 3.14.

2.5.3 Kalamazoo River Remedial Action Group

- Teams conducted sampling activities 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

- The Group continued conducting the bulk sediment toxicity study.

2.6.2 Talmadge Creek Compliance Group

- The Group continued evaluation of RI data and Verification of Soil Remediation (VSR) data for MP 0.0 to MP 1.0.

2.6.3 Talmadge Creek Remedial Action Group

- Teams continued to operate and maintain the pump-around and GAC dewatering systems, and maintained soil erosion and sedimentation controls.
- The Group designed and began construction of a large scale turbidity control system to mitigate sediment and oil contaminated sediment escape into the Kalamazoo River.
- Teams began demobilization from MP 0.75 through MP 1.55.
- Teams completed restoration on both sides of I69.
- Teams began preparation for excavation between MP 1.55 and MP 2.08. Excavation activities ceased until additional sediment control measures could be established.

2.6.4 Talmadge Creek Monitoring Group

- Teams continued monitoring erosion control devices.

- Teams conducted water quality monitoring during excavation activities along Talmadge Creek.
- Teams continued to conduct air monitoring 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 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

- Teams continued to haul contaminated soil, water, and debris 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 the site preparation activities at OB 13.40 LDB.
- Throughout the reporting period, one near miss incident occurred. A roll off box fell while being emptied into a dumpster, no injuries were reported.

4.2 Public Information

- The number of public inquires 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 90.5% of the ceiling has been spent through February 12, 2012. The latest average 7-day burn rate was \$32,555. 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 Chemistry and Biodegradability Subgroup submitted a final Analytical and Quality Assurance Plan for analytical testing to fingerprint the released and submerged oil.
- The Eco-Toxicity Subgroup continued discussions regarding appropriate types of toxicity testing methods and submitted a draft design for short-term toxicity testing.

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						
		15	14	13	12	11	10	9
Odor Response	0	0	0	0	0	0	0	0
Work Area	96	21	13	13	0	13	15	21

Table 2 – Samples Collected By Enbridge

Sample Type	Total	February 2012						
		15	14	13	12	11	10	9

Surface Water	11	0	5	6	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	3	0	0	0	0	0	1	2
Sediment	4	1	1	0	0	1	1	0
Soil	101	9	16	6	0	0	17	22
Dewatering	4	0	0	2	0	0	2	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 2/15/2012)

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						
		15	14	13	12	11	10	9
Frac Tanks	2	0	0	2	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	4	0	0	0	0	0	3	1

Table 5 - Soil and Debris Shipped Off Site (as of 2/15/2012)

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 2/15/2012)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	4,986,079
Division C	2,094,238
Division D	121,106
Division E	52,631
Decontamination	2,333,089
Site A	320,909
Other Locations*	1,887,709
Subtotal	17,152,076
Sludge**	474,215
Total Oil/Water	16,677,861

* 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 2/15/2012)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	1,124,180
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,059,407
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			16,677,861

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 2/15/2012)

Item	Cumulative (gallons)
Oil/Water Collected	16,677,861
Oil/Water Shipped Off-Site	16,677,861
Total Oil/Water Remaining On-Site	0

Table 9 – Estimated Recovered Oil (as of 2/15/2012)

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	12,683*
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	33,744
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	-	-	1,147,035

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						
		15	14	13	12	11	10	9
Marshall Community Center	15	5	4	0	0	0	0	6
Oil Spill Public Information Hotline	6	0	2	2	0	0	0	2
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	21	5	6	2	0	0	0	8

Table 11 – Landowner Environmental Issues (as of 2/15/2012)

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

Table 12 - Financial Summary

Item	Expended (Cumulative) (as of 2/12/2012)
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	\$ 21,970,208
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,333,606</u>
Total START Contractor	\$ 23,487,381
Response Contractor Sub-Totals	\$ 27,812,990
EPA Funded Costs: Total EPA Costs	\$ 5,600,242
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,622,624
Sub-Totals	\$ 35,035,856
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 918,992
Total Est. Oil Spill Cost	\$ 39,553,100
Oil Spill Ceiling Authorized by USCG	\$ 43,700,000
Oil Spill Ceiling Available Balance	\$ 4,146,900

Shaded items are discontinued

Table 13 - Personnel On-Site

Agency/Entity	February 2012						
	15	14	13	12	11	10	9
U.S. EPA	4	4	2	0	2	3	3
START	20	22	18	0	16	21	20
MDEQ	8	7	7	0	0	8	8
MDEQ Contractors	5	7	6	1	1	8	7
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	0
City of Marshall	0	0	0	0	0	0	1
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	1	1	1	1	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	1
Allegan County Emergency Management	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0
Enbridge – Operations Center	74	70	57	1	18	64	70
Enbridge – Talmadge Creek	56	52	68	3	68	80	78
Enbridge – Kalamazoo River	14	13	9	0	0	12	11
Enbridge – Containment	5	5	5	0	4	5	5
Enbridge – Submerged Oil	4	4	4	0	1	3	2
Enbridge – Overbank	47	50	48	8	37	43	40
Enbridge – Waste Management	19	17	19	0	18	22	25
Enbridge – Security & Flaggers	10	11	11	7	10	11	11
Enbridge –Communications Center	2	2	2	1	0	2	2
Total	269	265	257	22	175	282	289

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