

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #127**



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



US EPA ARCHIVE DOCUMENT

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

Date: 12/19/2011

Reporting Period: 0700 hours 11/08/2011 through 0700 hours 12/15/2011

Operational Period: 0700 hours 11/08/2011 through 0700 hours 12/15/2011

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.
- The Operations Section focused on strategy development and tactics for containment of submerged oil in the Delta and the Fan of Morrow Lake and development of Branch priorities and schedules.

2.1 Overbank Branch

2.1.1 Overbank Science Group

- The Group reviewed Remedial Investigation (RI) data for Outstanding Sites Characterization and Reconciliation (OSCAR) sites OB 9.75 I, OB 11.79 LDB, and OB 10.82 I.

2.1.2 Overbank Compliance Group

- The Group continued preparation of the permit for response actions at OB 13.40 LDB.
- River bank erosion restoration and stabilization continued at OB 5.92 RDB.

2.1.3 Overbank Recovery Group

- Teams conducted pre-planning for excavation activities at OB 13.40 LDB.

- Teams conducted site preparation at MP 2.00.
- Mobilization, site preparation, and installation of sheet piling continued at MP 5.92 RDB. Teams completed excavation of the riverbank area and continued efforts to dewater the pond.

2.1.4 Overbank Monitoring Group

- The Group conducted site inspections and recommended site maintenance actions.
- Teams continued to collect water quality readings at OB 5.92 RDB during installation of sheet piling.
- Teams continued to conduct real time air monitoring and sampling activities at OB 5.92 RDB. No air monitoring detections were noted during this reporting period.
- Enbridge continued to maintain an odor response team; however, no odor complaints were received during this reporting period.
- Air sampling and monitoring information is provided in Tables 1 and 2.

2.2 Submerged Oil Branch

2.2.1 Submerged Oil Science Group

- The Group continued to support the OSCAR Branch during review of Late Summer 2011 Reassessment (LSR) sites.
- Teams continued to implement the hydrodynamic assessment activities and the generation of the hydrodynamic model to characterize the movement of submerged oil.
- EPA personnel began review of Enbridge hydrodynamic model data deliverables.
- Planning for sediment sample collection to support the Temperature Effects Study was initiated.

2.2.2 Submerged Oil Compliance Group

- The Group conducted management of large woody debris resulting from weather events, in accordance with applicable permit requirements.

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 refining the hydrodynamic model concepts and developing the Plan for Preventing Migration of Oil Past the Morrow Lake Dam during Winter 2011-2012.
- Development of subsurface containment strategies for various locations along the Kalamazoo River continued.

2.3.2 Containment Compliance Group

- The Group initiated discussions with MDEQ to determine permit requirements for sediment trap structures.

2.3.3 Containment Recovery Group

- Teams continued to enhance surface and subsurface containment and conduct debris removal.
- Deployed control point and protective containment hard boom information is presented in Table 3.

2.3.4 Containment Monitoring Group

- Teams continued inspections of control points and protective boom locations. All containment was assessed to identify modifications required to remain functional during winter operations.
- Water level gauges were relocated and installed at multiple locations along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.

2.4 OSCAR Branch

- The OSCAR Branch continued to consolidate and prioritize outstanding work sites. The Branch participated in data review, quality control, and site closure processes to ensure that all pending issues are addressed. During the reporting period, the OSCAR Branch reviewed data from several recently completed expedited RI sites along the Kalamazoo River to determine whether they are compliant with the EPA Order or needed further site plan development.
- The OSCAR Branch requested information for site determination, and oversaw the transfer of sites between the various Branches.
- OSCAR sites status information is presented in Table 4.

2.5 Kalamazoo River Branch

2.5.1 Kalamazoo River Remedial Investigation Group

- Teams continued implementation and evaluation of the Kalamazoo River RI from MP 2.25 to MP 3.14.
- Teams completed expedited RI activities at OB 26.23 RDB.
- The Group began development of the RI Work Plan for the next phase of the Kalamazoo River.

2.5.2 Kalamazoo River Compliance Group

- The Group continued restoration and stabilization of the Kalamazoo River Bank Erosion Assessment Sites.

2.5.3 Kalamazoo River Remedial Action Group

- Teams collected post-excavation verification samples at OB 5.92 RDB.

2.5.4 Kalamazoo River Monitoring Group

- Teams performed monthly surface water sampling at 10 locations along the Kalamazoo River and 17 locations on Morrow Lake.
- Teams performed quarterly sediment sampling at 2 locations along the Kalamazoo River and 1 location on Morrow Lake.
- Teams performed groundwater sampling from monitoring wells located within the Augusta Municipal Well Field and the Kalamazoo Municipal Well Field.
- Refer to Table 2 for total number of samples collected during this reporting period, as reported by Enbridge.

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.

2.6.3 Talmadge Creek Remedial Action Group

- Teams continued to operate and maintain the pump-around and GAC dewatering systems, and maintain soil erosion controls.
- Excavation and restoration continued from MP 0.5 through MP 1.0.
- Teams remobilized infrastructure from MP 0.0 – MP 0.5 to MP 0.5 – MP 1.0.
- Teams conducted cleanup and final restoration of MP 0.0 to MP 0.50.

2.6.4 Talmadge Creek Monitoring Group

- Teams continued monitoring erosion control devices.
- Teams conducted water and air quality monitoring for excavation activities along Talmadge Creek.

2.7 Air Operations Branch

- One overflight was conducted for situational awareness on December 9, 2011.
- Photographs were taken during the overflight for presentation during various meetings.

2.8 Waste Management Branch

2.8.1 Decontamination Group

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

2.8.2 Transportation and Disposal Group

- Teams continued to haul contaminated soil, water, and debris to staging areas for waste characterization and oil recovery sampling prior to off-site disposal.
- Quantities of oil and debris shipped off-site during the reporting period are presented in Tables 6 through 9.
- The total amount of recovered oil since 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.

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.

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 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 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 awareness for hunting season, seasonal weather changes, and excavation activities at OB 5.92 and Talmadge Creek.
- A near miss incident involving damage to cathodic protection of an underground utility line occurred at Frac Tank City; however, no injuries or utility damage occurred as a result.

- A minor motor vehicle safety incident occurred during the reporting period; however, no injuries were sustained.

4.2 Public Information

- No activities were conducted during this reporting period.
- 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 \$43.7 Million. Approximately 86.7% of the ceiling has been spent through December 12, 2011. The latest average 7-day burn rate was \$36,672 per day. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 13.

7. Participating Entities

- The Multi-Agency Coordination (MAC) Group continues meeting twice per month to discuss the progress of the response; however, the MAC Group did not meet during this reporting period. Entities participating in the MAC include:
 - U.S. Environmental Protection Agency
 - Michigan Department of Environmental Quality
 - City of Battle Creek
 - City of Marshall
 - 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).

8. Personnel On-Site

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

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 – Real Time Air Monitoring Counts Performed by Enbridge

Monitoring Location	Total	December 2011						
		14	13	12	11	10	9	8
Odor Response	0	0	0	0	0	0	0	0
Work Area	104	0	21	21	0	21	21	20

Table 2 – Samples Collected By Enbridge

Sample Type	Total	December 2011						
		14	13	12	11	10	9	8
Surface Water	35	11	11	11	0	0	2	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	11	1	1	1	0	1	2	5
Sediment	8	0	0	0	0	0	0	8
Soil	164	33	33	33	0	0	30	35
Air (Work Area)	18	3	3	3	0	3	3	3
Air (Odor Complaint)	0	0	0	0	0	0	0	0

Table 3 – Deployed Hard Boom Information

	December 2011						
	14	13	12	11	10	9	8
Total Surface Hard Boom (ft)	3,750	3,750	3,750	3,750	3,750	3,750	3,750
[Control Point Surface Hard Boom (ft)]	[400]	[400]	[400]	[400]	[400]	[400]	[400]

Table 4 – OSCAR Site Status (as of 12/15/2011)

Overbank Branch	3
Submerged Oil Branch	198
Containment Branch	5
Talmadge Creek Branch	1
Kalamazoo River Branch	8
Consistent with EPA Order and up for MDEQ Part 201 Program	2
Total Sites	217

Table 5 - Equipment Decontamination

Location/Media	Total	December 2011						
		14	13	12	11	10	9	8
Frac Tanks	4	0	0	0	0	3	1	0
Vac Trucks-Tankers	3	0	1	2	0	0	0	0
Roll-Off Boxes	5	2	0	3	0	0	0	0
Yellow Iron (light)	0	0	0	0	0	0	0	0
Yellow Iron (heavy)	2	0	1	1	0	0	0	0
Jon Boats	2	0	1	0	0	0	1	0
Air Boats	3	0	0	0	0	1	2	0
Vehicles	3	0	1	0	0	1	0	1
Boom (linear ft)	1390	0	350	300	0	200	240	300
Miscellaneous Items	29	16	13	0	0	0	0	0

Table 6 - Soil and Debris Shipped Off Site (as of 12/15/2011)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	58,998	Terra/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)	1,112	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	6,437	

Shaded items are discontinued waste streams.

Table 7 – Oil/Water Collected by Location (as of 12/15/2011)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	4,870,279
Division C	2,058,238
Division D	121,106
Division E	52,631
Decontamination	2,302,489
Site A	316,784
Other Locations*	1,602,876
Subtotal	16,680,718
Sludge**	474,215
Total Oil/Water	16,206,503

* 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 12/15/2011)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	968,480
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	851,007
Non-Haz Water	Plummer	Kentwood, MI	139,000
<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			16,173,236

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 12/15/2011)

Item	Cumulative (gallons)
Oil/Water Collected	16,206,503
Oil/Water Shipped Off-Site	16,173,236
Total Oil/Water Remaining On-Site	33,267

Table 10 – Estimated Recovered Oil (as of 12/12/2011)

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	12,235*
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	33,668
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	45,800*
	Liquid Industrial Waste Services, Inc.	Kentwood, MI	
	Plumbers 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	-	-	1,146,161

Shaded items represent discontinued waste streams

* Not all analytical data was available at the time of report generation

Table 11 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	December 2011						
		14	13	12	11	10	9	8
Marshall Community Center	2	0	1	0	0	0	0	1
Oil Spill Public Information Hotline	3	1	0	1	0	0	1	0
Website	1	1	0	0	0	0	0	0
Total Public Inquiries	6	2	1	1	0	0	1	1

Table 12 – Landowner Environmental Issues (as of 12/15/2011)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	5	3

Table 13 - Financial Summary

Item	Expended (Cumulative) (as of 12/12/2011)
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	\$ 20,750,700
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,158,184</u>
Total START Contractor	\$ 22,092,451
Response Contractor Sub-Totals	\$ 26,418,060
EPA Funded Costs: Total EPA Costs	\$ 5,545,670
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,508,854
Sub-Totals	\$ 33,472,584
Indirect Cost	\$ 4,396,077
Total Est. Oil Spill Cost	\$ 37,868,661
Oil Spill Ceiling Authorized by USCG	\$ 43,700,000
Oil Spill Ceiling Available Balance	\$ 5,831,339

Shaded items are discontinued

Table 14 - Personnel On-Site

Agency/Entity	December 2011						
	14	13	12	11	10	9	8
U.S. EPA	5	4	3	0	3	5	5
START	19	18	18	2	19	24	24
MDEQ	9	9	17	0	1	9	12
MDEQ Contractors	12	11	11	0	2	14	16
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	0	0	0	0	0	1	1
Michigan State Police EMD	0	0	0	0	0	0	0
Enbridge – Operations Center	103	83	78	11	18	75	84
Enbridge – Talmadge Creek Remediation	60	71	65	0	64	70	65
Enbridge – Kalamazoo River Remediation	19	19	19	0	0	10	10
Enbridge – Containment	16	17	17	0	16	17	17
Enbridge – Submerged Oil	5	5	5	0	9	9	10
Enbridge – Enbridge Overbank	60	54	57	11	36	60	56
Enbridge – Waste Management	40	30	29	0	32	28	34
Enbridge – Security & Flaggers	7	7	7	7	7	7	7
Enbridge – Communications Center	4	2	2	0	0	2	4
Total	359	330	328	31	207	331	345

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