

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #123**



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



Excavation at MP 2.75 R1

US EPA ARCHIVE DOCUMENT

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

Date: 11/9/2011

Reporting Period: 0700 hours 10/31/2011 through 0700 hours 11/7/2011

1. Site Data

Site Number:	Z5JS	Contract Number:	
D.O. Number:		Action Memo Date:	
Response Authority:	OPA	Response Type:	Emergency
Response Lead:	PRP	Incident Category:	Removal Action
NPL Status:	Non-NPL	Operable Unit:	
Mobilization Date:	7/26/2010	Start Date:	7/26/2010
Demobilization Date:		Completion Date:	
CERCLIS ID:		RCRIS ID:	
ERNS No.:		State Notification:	
FPN#:	E10527	Reimbursable Account:	

2. Previous Response Actions and Current Response Governance

- Previous response actions performed to date may be found in SITREPs #1 through #122.
- Governance for the project is provided by the U.S. Environmental Protection Agency (U.S. EPA) Federal On-Scene Coordinator (FOSC) and the Michigan Department of Environmental Quality (MDEQ). The structure of the response is the Incident Command System (ICS), with the FOSC serving as the Incident Commander (IC).
- The Operational Periods covered in this report are as follows:
 - 0700 hours on 10/31/2011 through 0700 hours on 11/3/2011, and
 - 0700 hours on 11/3/2011 through 0700 hours on 11/7/2011.

3. Operations Section

- The organizational response structure consisted of the following Branches: 1) Response Action; 2) Control Point Management; 3) Environmental Compliance; 4) River Reopening; 5) Monitoring; 6) Talmadge Creek Remediation; 7) Air Operations; 8) Waste Management; and 9) Wildlife.
- The Operations Section focused on strategy development and tactics for containment of submerged oil in the Delta and the Fan of Morrow Lake and continued to implement staffing plans for project transition into winter operations.

3.1 Response Action Branch

3.1.1 Overbank Action Group

- Teams conducted excavation and restoration at MP 2.75 R1 and MP 15.00 I1.
- Overbank surface cleanup sites are included in the Outstanding Sites Characterization and Reconciliation (OSCAR) Group evaluations. Additional information is provided in Section 3.4.1.

3.1.2 Submerged Oil Group

- On October 28, 2011, all submerged oil recovery efforts and poling efforts were ceased for the year, due to low water and sediment temperatures. As of October 28, 2011, submerged oil recovery work was completed and completeness check forms were signed for 191 of 225 sites (84.9%) identified during the Spring 2011 Reassessment and for 4 of 176 sites (2.3%) identified during the Late Summer 2011 Reassessment (LSR). As of October 28, 2011, LSR poling was completed at 71% of focus areas.
- Throughout the reporting period, teams continued demobilization of all submerged oil activities from the Kalamazoo River, Morrow Lake Delta, and Morrow Lake.

3.1.3 Response Support Group

- The Response Support Group continued maintenance and stabilization of access and staging areas.

3.2 Control Point Management Branch

- Teams continued to enhance surface and subsurface containment as necessary. Teams also continued to perform sheen sweeps along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.
- Teams continued removal of containment from C0.0 to MP 36.50.
- Control point and O&M containment hard boom information is presented in Table 1.

3.3 Environmental Compliance Branch

3.3.1 Operations and Maintenance (O&M) Inspections Group

- Teams continued inspections of control points, containment boom locations, and protective boom locations. Teams evaluated boom placement, boom effectiveness, and presence of accumulated visible oil or oil-saturated soils at various locations.
- Teams conducted inspections of O&M sites and made recommendations for maintenance or closeout and continued assessment of OSCAR sites.

3.3.2 Site Characterization Group

- The Site Characterization Group continued implementation of the Hydrodynamic Assessment Work Plan. Teams conducted velocity monitoring of select locations upstream of Ceresco Dam to Morrow Lake Dam and sediment core collection, logging and sampling.
- Teams conducted visual and ecological assessment at O&M/Strike sites identified during OSCAR process, conducted post-excavation sampling at MP 2.75 R1 and MP 15.00 I1, and conducted expedited Remedial Investigation (RI) work pursuant to plans approved by MDEQ.

3.3.3 Oil Recovery Effectiveness Evaluation Group

- All poling activities were suspended at the direction of U.S. EPA on October 28, 2011 due to low water/sediment temperatures. See Section 3.1.2 for additional information.
- Teams continued to evaluate effectiveness of submerged oil recovery techniques through quantitative evaluation of oil recovered.

3.4 River Reopening Branch

3.4.1 Outstanding Sites Characterization and Reconciliation (OSCAR) Group

- Personnel continued to consolidate and prioritize outstanding overbank ponded sites, O&M sites, sheening bank sites, and tar patty sites.
- Throughout the operational periods, teams conducted further assessments of OSCAR sites along the Kalamazoo River.
- OSCAR sites status information is presented in Table 2.

3.4.2 River Reopening Coordination Group

- No substantial work was conducted during this reporting period.

3.5 Monitoring Branch

3.5.1 Water Quality Monitoring Group

- Enbridge continued to conduct turbidity, dissolved oxygen, and temperature monitoring at the confluence of Talmadge Creek and the Kalamazoo River. Water quality monitoring throughout the Kalamazoo River and Morrow Lake was suspended on October 28, 2011 when submerged oil recovery activities ceased.

3.5.2 Potable Water Sampling Group

- No potable well sampling was conducted during this operational period.

3.5.3 Air Monitoring and Sampling Group

- Enbridge continued to conduct real time air monitoring activities at active work sites, including Talmadge Creek, MP 2.75 R1, and MP 15.0 I1. Teams continued to maintain an odor response team.
- Air sampling results continued to be evaluated from Community Air Sampling activities which were modified October 27, 2011, at the direction of U.S. EPA.
- No odor complaints were received during this reporting period.
- Air sampling and monitoring information is provided in Tables 3 and 4.

3.5.4 Surface Water and Sediment Sampling Group

- Enbridge continued soil, sediment, and surface water sampling in accordance with the MDEQ SAP.
- Surface water samples are collected monthly from 9 locations along the Kalamazoo River and 18 locations on Morrow Lake. No surface water samples were collected during this reporting period.
- Sediment samples are collected quarterly from 2 locations along the Kalamazoo River and 1 location on Morrow Lake. Refer to Table 3 for sediment samples collected during this reporting period.

3.6 Talmadge Creek Remediation Branch

3.6.1 Remedial Investigation Group

- Under the direction of MDEQ, Enbridge continued defining the nature and extent of remaining crude oil impacts to the sediment, bank, and floodplain area of the Talmadge Creek.
- From MP 0.5 to MP 2.25, conducted additional RI work to fill data gaps, collected and logged soil and sediment cores, collected ground water samples, conducted well abandonment.
- Split sample data was reviewed by MDEQ.

3.6.2 Remedial Action Group

- Enbridge continued excavation activities at Talmadge Creek, between MP 0.0 and MP 0.5, and conducted post-excavation verification sampling.
- Enbridge operated and maintained the pump around and GAC systems for remedial action work between MP 0.0 and MP 0.5.

3.7 Air Operations Branch

- During the operational periods, six overflights were conducted for situational awareness.
- Photographs were taken during overflights for presentation during various meetings.

3.8 Waste Management Branch

3.8.1 Decontamination Group

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

3.8.2 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 offsite 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 volumes, analytical data, and physical parameters of oil-containing media. A summary of the estimated volume of recovered oil is presented in Table 10.

3.8.3 Waste Management Characterization Group

- Waste management characterization, manifesting, and coordination of transportation and disposal continued according to approved plans.

3.9 Wildlife Branch

- Twenty eight turtles remained in care at the Wildlife Response center throughout the reporting period. No additional trapping activities were conducted.

4. Planning

4.1 Situation Unit

- Situation Unit personnel observed and documented progress in operational areas, and continued to assess areas of interest including locations of oil sheen, oil removal, and decontamination activities.

4.1.1 GIS Specialists

- GIS personnel continued to support operations with the generation of site maps.

4.2 Environmental Unit

- EPA personnel continued evaluation of the “Consolidated Work Plan for Activities through 2012”.
- EPA personnel continued directing Enbridge efforts to estimate the quantity of submerged oil remaining as of Spring 2011.
- EPA continued coordination with USGS regarding the evaluation of the geomorphology of the Kalamazoo River, and its impact on strategy and tactics for future oil recovery efforts.

4.2.1 Plans/Permitting Group

- Enbridge personnel continued to develop MDEQ plans and permit applications for oil recovery in the Kalamazoo River and Talmadge Creek and developed plans for expedited RIs along the Kalamazoo River at identified OSCAR sites.

4.3 Documentation Unit

- Documentation Unit personnel continued organization and archiving of electronic and paper files.

4.4 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.

5. Command

5.1 Safety Officers

- Safety personnel continued to conduct work site safety inspections and to monitor and advise of weather changes.
- Safety personnel observed and monitored Talmadge coring operations and excavation operations.

5.2 Public Information

- No activity was conducted during this reporting period.
- The number of public inquires reported by Enbridge for this period is presented in Table 11.

6. Landowner Environmental Issues

- Landowner environmental issues reported by Enbridge for the operational periods are presented in Table 12.

7. Finance

- The current National Pollution Funds Center (NPFC) ceiling is \$43.7 Million. Approximately 84.0% of the ceiling has been spent through November 6, 2011. The latest average 7-day burn rate was \$50,657 per day. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 13.

8. Participating Entities

- The Multi-Agency Coordination (MAC) Group continues to meet weekly to discuss the progress of the response. MAC Group meetings will be conducted twice per month starting in the next Operational 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).

9. Personnel On-Site

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

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 – Boom Information

	October/November 2011						
	6	5	4	3	2	1	31
Total Surface Hard Boom (ft)	39,175	39,175	39,175	39,575	39,525	41,075	41,175
[Control Point Surface Hard Boom (ft)]	[28,550]	[28,550]	[28,550]	[28,550]	[28,550]	[29,550]	[29,550]

Table 2 – OSCAR Site Status (as of 11/7/2011)

Pending Review	0
Standard O&M Monitoring	72
Visual Assessment in Process or Pending	2
Site Plan Development (Action Beyond Normal Toolbox Required)	26
Site Plan Execution	0
Submerged Oil Recovery Execution (Using Toolbox Techniques)	3
Permitting (Administratively Complete Permit Application Submitted to MDEQ)	0
Consistent with EPA Order	105
Total Sites	208

Table 3 – Samples Collected By Enbridge

Sample Type	Total	October/November 2011						
		6	5	4	3	2	1	31
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	18	0	1	4	1	5	1	6
Sediment	298	0	114	59	28	53	44	0
Soil	153	0	12	23	38	36	14	30
Air (Odor Complaint)	0	0	0	0	0	0	0	0

Table 4 – Real Time Air Monitoring Counts by Enbridge

Monitoring Location	Total	October/November 2011						
		6	5	4	3	2	1	31
Odor Response	0	0	0	0	0	0	0	0
Work Area	193	0	23	34	31	33	36	36

Table 5 - Equipment Decontamination

Location/Media	Total	October/November 2011						
		6	5	4	3	2	1	31
Frac Tanks	0	0	0	0	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)	17	0	0	1	1	2	1	12
Jon Boats	0	0	0	0	0	0	0	0
Air Boats	6	0	2	0	0	3	0	1
Vehicles	2	0	0	1	1	0	0	0
Boom (linear ft)	5050	0	1050	1150	850	700	850	450
Miscellaneous Items	728	0	308	93	138	3	149	37

Table 6 - Soil and Debris Shipped Off Site (as of 11/7/2011)

Waste Stream	Cumulative	Disposal Facility
<i>Haz Soil (yd³)</i>	<i>19,644</i>	<i>Envirosafe (Oregon, OH)</i>
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	48,987	Terra/C&C
<i>Non-Haz Soil & Debris (yd³) (Excluding Ceresco Dredge)</i>	<i>64,815</i>	<i>Westside Recycling (Three Rivers, MI)</i>
<i>Non-Haz Soil (yd³) (Ceresco Dredge Only)</i>	<i>5,562</i>	<i>EQ/Republic (Marshall, MI)</i>
<i>Haz Debris (yd³)</i>	<i>12,075</i>	<i>EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)</i>
Non-Haz Household Debris (ton)	1,057	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	6,295	

Shaded and italicized items are discontinued waste streams.

Table 7 – Oil/Water Collected by Location (as of 11/7/2011)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	4,868,279
Division C	1,891,406
Division D	121,106
Division E	52,631
Decontamination	2,167,977
Site A	316,784
Other Locations*	1,439,699
Subtotal	16,214,197
Sludge**	474,215
Total Oil/Water	15,739,982

* 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 11/7/2011)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
<i>Non-Haz Water</i>	<i>Battle Creek POTW</i>	<i>Battle Creek, MI</i>	<i>905,480</i>
Non-Haz Water	Dynecol	Detroit, MI	913,642
Non-Haz Water	Liquid Industrial Waste	Holland, MI	582,307
Non-Haz Water	Plummer	Kentwood, MI	90,000
<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			15,724,386

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 11/7/2011)

Item	Cumulative (gallons)
Oil/Water Collected	15,739,982
Oil/Water Shipped Off-Site	15,724,386
Total Oil/Water Remaining On-Site	15,596

Table 10 – Estimated Recovered Oil (as of 10/31/2011)

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	11,473*
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	32,632*
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	41,006*
	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	-	-	1,139,569

*Not all analytical is available at the time of report generation.
 Highlighted items represent discontinued waste streams

Table 11 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	October 2011						
		6	5	4	3	2	1	31
Marshall Community Center	9	0	0	2	0	2	2	3
Oil Spill Public Information Hotline	4	0	0	1	0	1	1	1
Website	1	0	0	0	0	0	0	1
Total Public Inquiries	14	0	0	3	0	3	3	5

Table 12 – Landowner Environmental Issues (as of 11/7/2011)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	8	1

Table 13 - Financial Summary

Item	Expended (Cumulative) (as of 11/7/2011)
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	\$ 19,836,249
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,091,589</u>
Total START Contractor	\$ 21,111,405
Response Contractor Sub-Totals	\$ 25,437,014
EPA Funded Costs: Total EPA Costs	\$ 5,450,885
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,508,854
Sub-Totals	\$ 32,396,753
Indirect Cost	\$ 4,295,155
Total Est. Oil Spill Cost	\$ 36,691,907
Oil Spill Ceiling Authorized by USCG	\$ 43,700,000
Oil Spill Ceiling Available Balance	\$ 7,008,093

Shaded items are discontinued

Table 14 - Personnel On-Site

Agency/Entity	October/November 2011						
	6	5	4	3	2	1	31
U.S. EPA	0	1	2	2	2	2	2
START	4	28	31	33	32	31	32
MDEQ	0	0	7	8	4	9	5
MDEQ Contractors	0	7	12	12	13	9	9
Calhoun County Public Health	0	0	0	1	0	0	0
Calhoun County (CC) EM	0	0	0	0	0	0	0
City of Battle Creek	0	0	0	1	0	0	0
City of Marshall	0	0	0	1	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	1	0	0	0
USGS	0	0	0	1	1	1	1
Michigan State Police EMD	0	0	0	0	0	0	0
Enbridge – Operations	9	44	92	99	103	94	87
Enbridge – Talmadge Creek	6	88	99	96	75	83	65
Enbridge – Kalamazoo River	14	129	190	185	199	224	190
Enbridge – Frac Tank City/Decon	0	34	33	45	49	48	37
Enbridge – Security & Flaggers	7	7	7	7	7	7	7
Enbridge – Wildlife and Comm.	1	2	5	5	4	5	5
Total	41	340	478	497	489	513	440

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