

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #122**



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



Excavation at Talmadge Creek, MP 0.0

To: Susan Hedman, U.S. EPA Regional Administrator
 James Sygo, MDEQ
 Mark DuCharme, MDEQ
 Mike Alexander, MDEQ
 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
 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: 11/3/2011

Reporting Period: 0700 hours 10/24/2011 through 0700 hours 10/31/2011

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 #121.
- 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 10/24/2011 through 0700 hours on 10/27/2011, and
 - 0700 hours on 10/27/2011 through 0700 hours on 10/31/2011.

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.
- Implement staffing plans for project transition into winter operations.

3.1 Response Action Branch

3.1.1 Overbank Action Group

- Continued preparation for overbank work at MP 2.75 R1.
- Continued excavation and began restoration of 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

- At the start of this reporting period, two teams conducted submerged oil recovery on the Kalamazoo River working at sites including MP 4.15 to MP 4.9, and MP 30.08.
- At the start of this reporting period, four teams conducted submerged oil recovery and woody debris removal within the Morrow Lake Delta, Delta Channels 1 through 6, Delta EE, and Morrow Lake.
- U.S. EPA directed that all submerged oil recovery efforts cease for the year as of October 28, 2011, due to low water/sediment temperatures.
- Submerged oil recovery and cleanup progress information is presented in Tables 1 and 2.

3.1.3 Response Support Group

- Continued maintenance and stabilization of access and staging areas.

3.2 Control Point Management Branch

- Ten teams continued to install and enhance surface and subsurface containment as necessary. Hard boom, X-Tex curtain, and absorbent boom were installed at existing and new locations throughout the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake. Teams also continued to perform sheen sweeps along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.
- Continued removal of containment from C0.0 to MP 36.50 upon completion of submerged oil operations.
- Control and O&M containment hard boom information is presented in Table 3.

3.3 Environmental Compliance Branch

3.3.1 Operations and Maintenance (O&M) Inspections Group

- Two 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.
- One team conducted oversight of the collection and logging of sediment core samples obtained from locations along the E4.0 and E4.5 containment booms at Morrow Lake.

3.3.2 Site Characterization Group

- One team conducted oversight of velocity measurements as part of the Hydrodynamic Assessment Work Plan.

- One team conducted oversight of the on-going temperature effectiveness monitoring in-situ field study (TEMS).
- One team conducted visual and ecological assessment at O&M/Strike sites identified during OSCAR process.
- One team conducted oversight of excavation activities at MP 15.00 II.

3.3.3 Oil Recovery Effectiveness Evaluation Group

- Mid and post recovery poling was conducted by one team on the Kalamazoo River and four teams on Morrow Lake and the Morrow Lake Delta.
- Poling teams continued to evaluate the effectiveness of submerged oil recovery techniques using qualitative evaluation methods (poling).
- All poling activities were ceased at the direction of U.S. EPA on October 28, 2011 due to low water/sediment temperatures.
- Teams coordinated efforts with the River Reopening Branch (see section 3.4).

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, as of October 30, 2011, is presented in Table 4.

3.4.2 River Poling Reassessment Group

- Two teams continued Late Summer 2011 Reassessment (LSR) poling in areas where submerged oil recovery activities were performed. Teams worked on locations primarily between MP 14.00 and MP 15.50, and MP 30.00 and MP 36.50. Light, moderate, and heavy submerged oil remain throughout this area. Heavy and moderate areas were delineated for further recovery activities. Refer to Section 3.1.2 for more information regarding the effectiveness of liberating oil from sediment in decreasing water and sediment temperatures. All LSR activities were ceased at the direction of U.S. EPA on October 28, 2011 due to low water/sediment temperatures.

3.4.3 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 throughout the Kalamazoo River, focusing on active submerged oil recovery work locations and the Morrow Lake fan.

Water quality monitoring in Morrow Lake was halted on October 28, 2011 when submerged oil recovery activities ceased.

3.5.2 Potable Water Sampling Group

- One team continued sampling residential wells following the monthly and quarterly frequencies in accordance with the MDEQ Sampling and Analysis Plan (SAP).
- Samples collected as reported by Enbridge are provided in Table 5.

3.5.3 Air Monitoring and Sampling Group

- Enbridge continued to implement the 2011 Community Air Monitoring and Sampling Plan. Teams also conducted air monitoring and sampling at work area locations for worker safety and maintained an odor response team.
- U.S. EPA personnel performed oversight of air monitoring and sampling plan implementation.
- On October 27, 2011, Enbridge modified the extent of community air monitoring and sampling efforts, following EPA approval. Enbridge will continue to maintain an odor response team and will continue to conduct work site monitoring and perimeter sampling in work site areas in close proximity to residential areas, as directed by U.S. EPA.
- Air sampling and monitoring information is provided in Tables 5 and 6.

3.5.4 Surface Water and Sediment Sampling Group

- Surface water samples are collected monthly from 9 locations along the Kalamazoo River and 18 locations on Morrow Lake. Refer to Table 5 for surface water samples collected during this reporting period.
- Enbridge continued soil, sediment, and surface water sampling in accordance with the MDEQ SAP.
- Sediment samples are collected quarterly from 2 locations along the Kalamazoo River and 1 location on Morrow Lake. Refer to Table 5 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, five teams collected and logged soil and sediment cores, and collected samples for laboratory analysis.
- Three teams collected groundwater samples and abandoned temporary wells.
- Split sample data was reviewed by MDEQ.

3.6.2 Remedial Action Group

- Enbridge continued mobilization, site preparation, and temporary road mat installation for remedial action at Talmadge Creek, between MP 0.0 and MP 0.5.

- Enbridge began set-up of mixing station, staging area, pump around, and GAC system for remedial action work between MP 0.0 and MP 0.5.
- Enbridge began excavation activities at MP 0.0.

3.7 Air Operations Branch

- During the operational periods, six over flights were conducted for situational awareness.
- Photographs were taken during over flights 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 7.

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 8 through 11.

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 seven turtles remained in care at the Wildlife Response center throughout the reporting period. No additional trapping activities were conducted.
- Hours of operation for the Wildlife Response center are now “by appointment”.

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

- 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, focusing on permit applications for dry former overbank submerged oil sites and tar patty 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.
- The number of public inquires reported by Enbridge for this period is presented in Table 12.

6. Landowner Environmental Issues

- Landowner environmental issues reported by Enbridge for the operational periods are presented in Table 13.

7. Finance

- The current National Pollution Funds Center (NPFC) ceiling is \$43.7 Million. Approximately 83.9% of the ceiling has been spent through October 30, 2011. The latest average 7-day burn rate was \$59,463 per day. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 14.

8. Participating Entities

- The Multi-Agency Coordination (MAC) Group continues to meet weekly to discuss the progress of the response. 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 15.

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 – Submerged Oil Recovery Progress for Spring 2011 Reassessment Sites
(as of 10/30/2011)**

Sites Identified for Recovery Operations	225
Recovery Complete and Completeness Check Form Signed	191
Percent Complete	84.9%

**Table 2 – Submerged Oil Recovery Progress for Late Summer 2011 Reassessment Sites
(as of 10/30/2011)**

Sites Identified for Recovery Operations	176
Recovery Complete and Completeness Check Form Signed	4
Percent Complete	2.3%

Table 3 – Boom Information

	October 2011						
	30	29	28	27	26	25	24
Total Surface Hard Boom (linear ft) [Control Point Surface Hard Boom]	41,225 [30,150]	41,225 [30,150]	41,325 [30,250]	42,575 [31,000]	42,225 [29,550]	42,425 [29,550]	43,125 [29,550]

Table 4 – OSCAR Site Status

Pending Review	2
Standard O&M Monitoring	66
Visual Assessment in Process or Pending	6
Site Plan Development (Action Beyond Normal Toolbox Required)	26
Site Plan Execution	4
Submerged Oil Recovery Execution (Using Toolbox Techniques)	1
Permitting (Administratively Complete Permit Application Submitted to MDEQ)	0
Consistent with EPA Order	103
Total Sites	208

Table 5 – Samples Collected By Enbridge

Sample Type	Total	October 2011						
		30	29	28	27	26	25	24
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	78	0	13	11	8	17	15	14
Sediment	91	0	15	9	36	13	18	0
Soil	134	0	34	34	3	10	4	49
Air (Community and Odor Complaint)	96	0	0	20*	16	20	20	20

*Air sampling was suspended on 10/28/11

Table 6 – Real Time Air Monitoring Counts by Enbridge

Monitoring Location	Total	October 2011						
		30	29	28	27	26	25	24
Community	1299	0	0	0	236	384	340	339
Odor Response	0	0	0	0	0	0	0	0
Work Area	689	0	35	183	131	129	92	119
Tar Patty Study	0	0	0	0	0	0	0	0

Table 7 - Equipment Decontamination

Location/Media	Total	October 2011						
		30	29	28	27	26	25	24
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)	6	0	0	0	0	2	0	4
Yellow Iron (heavy)	10	0	2	6	0	0	0	2
Jon Boats	2	0	0	1	0	1	0	0
Air Boats	96	30	33	16	6	2	9	0
Vehicles	1	0	0	0	0	0	1	0
Boom (linear ft)	4000	150	0	350	600	900	800	1200
Miscellaneous Items	388	1	0	75	27	129	68	88

Table 8 - Soil and Debris Shipped Off Site (as of 10/30/2011)

Waste Stream	Cumulative	Disposal Facility
<i>Haz Soil (yd³)</i>	19,644	<i>Envirosafe (Oregon, OH)</i>
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	44,313	Terra/C&C
<i>Non-Haz Soil & Debris (yd³) (Excluding Ceresco Dredge)</i>	64,815	<i>Westside Recycling (Three Rivers, MI)</i>
<i>Non-Haz Soil (yd³) (Ceresco Dredge Only)</i>	5,562	<i>EQ/Republic (Marshall, MI)</i>
<i>Haz Debris (yd³)</i>	12,075	<i>EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)</i>
Non-Haz Household Debris (ton)	1,055	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	6,248	

Shaded and italicized items are discontinued waste streams.

Table 9 – Oil/Water Collected by Location (as of 10/30/2011)

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	2,153,415
Site A	316,784
Other Locations*	1,434,749
Subtotal	16,194,685
Sludge**	474,215
Total Oil/Water	15,720,470

* 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 10 - Liquid Shipped Off-Site (as of 10/30/2011)

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	570,807
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			15,712,886

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 11 - Oil/Water Remaining On-Site (as of 10/30/2011)

Item	Cumulative (gallons)
Oil/Water Collected	15,720,470
Oil/Water Shipped Off-Site	15,712,886
Total Oil/Water Remaining On-Site	7,584

Table 12 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	October 2011						
		30	29	28	27	26	25	24
Marshall Community Center	26	0	0	4	4	2	15	1
Oil Spill Public Information Hotline	10	0	0	0	4	2	1	3
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	36	0	0	4	8	4	16	4

Table 13 – Landowner Environmental Issues (as of 10/30/2011)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	9	1

Table 14 - Financial Summary

Item	Expended (Cumulative) (as of 10/30/2011)
ERRS Contractors	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ 683,330
Total ERRS Contractors	\$ 3,257,571
Other Contractors	
Lockheed Martin (EPW09031) – TAGA Support	\$ 185,951
T&T Bisso (EPA:HS800008)	\$ 882,087
Total Other Contractors	\$ 1,068,038
START Contractor – WESTON (EPS50604)	
T030-Response	\$ 19,558,306
T032-Sampling	\$ 183,567
T037-Doc Support	\$ 1,068,438
Total START Contractor	\$ 20,810,311
Response Contractor Sub-Totals	\$ 25,135,920
EPA Funded Costs: Total EPA Costs	\$ 5,439,088
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,823,682
Sub-Totals	\$ 32,398,690
Indirect Cost	\$ 4,268,997
Total Est. Oil Spill Cost	\$ 36,667,686
Oil Spill Ceiling Authorized by USCG	\$ 43,700,000
Oil Spill Ceiling Available Balance	\$ 7,032,314

Shaded items are discontinued

Table 15 - Personnel On-Site

Agency/Entity	October 2011						
	30	29	28	27	26	25	24
U.S. EPA	0	2	4	3	3	5	3
START	1	33	37	40	43	41	42
MDEQ	0	1	3	5	4	4	4
MDEQ Contractors	0	8	12	12	12	12	11
Calhoun County Public Health	0	0	0	3	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	0	0	0	0
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	1	0	0	0
Kalamazoo Sheriff	0	0	0	1	0	0	0
MDCH	0	0	0	1	0	0	0
USGS	0	0	1	1	1	0	0
Michigan State Police EMD	0	0	0	0	0	0	0
Enbridge – Operations	11	43	99	123	125	115	107
Enbridge – Talmadge Creek	0	77	76	72	63	70	83
Enbridge – Kalamazoo River	22	180	321	329	342	347	338
Enbridge – Frac Tank City/Decon	22	34	35	37	37	36	35
Enbridge – Security & Flaggers	7	7	7	7	7	7	7
Enbridge – Wildlife and Comm.	3	3	7	6	5	6	6
Total	66	388	602	642	642	643	636

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