

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #120**



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



Containment at MP 15.75, North of the Mill Pond

US EPA ARCHIVE DOCUMENT

To: Susan Hedman, U.S. EPA Regional Administrator
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 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: 10/20/2011

Reporting Period: 0700 hours 10/10/2011 through 0700 hours 10/17/2011

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 #119.
- 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 10/10/2011 through 0700 hours on 10/13/2011, and
 - 0700 hours on 10/13/2011 through 0700 hours on 10/17/2011.

3. Operations Section

- This 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.
- Review staffing plans for project transition into winter operations.
- On October 15, 2011, all operations on water were suspended due to high winds.

3.1 Response Action Branch

3.1.1 Overbank Action Group

- Completed demobilization from and restoration of the staging areas for former Islands E and F.
- Completed Island A clean-up and restoration activities.
- Conducted mobilization activities and prepared to install sheet piling at MP 15, Island 1.
- Continued implementation of erosion control measures at temporary facilities and river access sites.
- Continued tar patty recovery work activities.
- 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

- Five teams conducted submerged oil recovery on the Kalamazoo River working at sites including MP 4.15, MP 5.80, the Mill Ponds (MP 14.90 to MP 15.00), MP 21.50 to MP 28.75 and MP 30.00 to MP 36.50.
- 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.
- Submerged oil recovery and cleanup progress information is presented in Tables 1 and 2.
- Coordinated with the Oil Recovery Effectiveness Evaluation Group poling teams and conducted submerged oil recovery at sites identified during the Late Summer 2011 Reassessment.

3.1.3 Response Support Group

- Continued maintenance and stabilization of access and staging areas.
- Continued implementation of river bank erosion restoration and stabilization.

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.

- 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

- Five 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 continued assessing sites identified by the OSCAR Group.
- Two teams supported the OSCAR site activities with poling.

3.3.2 Site Characterization Group

- Two teams conducted visual and ecological assessments of overbank sites from MP 14.00 to MP 15.50, MP 19.25 to MP 25.50, and sites indentified by the OSCAR Group (see Section 3.4.1).
- One team conducted visual assessments at tar patty sites identified by the OSCAR Group.
- One team continued implementation of the Hydrodynamic Assessment Work Plan installing Walling Suspended Sediment tubes and temperature effects study stations, and conducting poling.
- Collected and logged sediment cores for background sediment study.
- One team began conducting fish and macro-invertebrate community assessments along Talmadge creek.

3.3.3 Oil Recovery Effectiveness Evaluation Group

- Mid and post recovery poling was conducted by two teams on the Kalamazoo River and three 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.
- 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 16, 2011, is presented in Table 4.

3.4.2 River Poling Reassessment Group

- One team continued Late Summer 2011 Reassessment poling in areas where submerged oil recovery activities were performed. Teams worked on locations primarily between MP 28.75 and MP 29.85. Light, moderate, and heavy submerged oil remain throughout this area. Heavy and moderate areas were delineated for further recovery activities.

3.4.3 River Reopening Coordination Group

- The River Reopening Coordination Group continued to ensure all work is conducted in accordance with the proposed plan for opening segments of the Kalamazoo River.

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.

3.5.2 Potable Water Sampling Group

- Teams continued sampling residential wells following the monthly and quarterly frequencies in accordance with the MDEQ Sampling and Analysis Plan (SAP). No potable water sampling was conducted during this reporting period.
- 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.
- EPA performed oversight of air monitoring and sampling plan implementation.
- On October 13, 2011, Enbridge, with EPA oversight, responded to one odor complaint at Ceresco Village. No readings were detected above background and no odors were noted. One Summa grab sample was collected. Results are pending.
- 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. No samples were 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. No samples were collected during this reporting period.
- Samples collected as reported by Enbridge are provided in Table 5.

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.
- One team collected background soil and sediment samples upstream of the source area in Talmadge Creek.
- From MP 0.5 to MP 2.25 nine teams collected and logged soil and sediment cores, and collected samples for laboratory analysis.
- One team collected groundwater samples and abandoned temporary wells.
- Split samples for soil, sediment and groundwater were collected by MDEQ.

3.6.2 Remedial Action Group

- Enbridge continued mobilization, site preparation, and temporary road mat installation for remedial action at Talmadge Creek from MP 0.0 to MP 0.5.
- Enbridge received a permit from MDEQ for the remedial action for this section of Talmadge Creek.

3.7 Air Operations Branch

- During the operational periods, five overflights were conducted for situational awareness.
- The overflight for October 15, 2011 was cancelled when field operations were suspended.
- Photographs were taken during overflights for presentation during various meetings.

3.8 Waste Management Branch

3.8.1 Decontamination Group

- Equipment and boom decontaminated during the operational periods are 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

- The Wildlife Branch continued to provide medical health assessment, treatment, and release of rehabilitated wildlife under US Fish and Wildlife Service (USFWS) and Michigan Department of Natural Resources direction.
- Hours of operation for the Wildlife Response center were reduced to 0800 – 1000 hrs M-F and by appointment.
- Prepared for transfer of animals requiring long-term care to rehabilitation at Albion College, Albion Michigan.
- Wildlife care status is presented in Table 12.

4. Planning

4.1 Situation Unit

- Situation Unit personnel observed and documented progress in all 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

- Evaluated the ‘Work Plan for Background Sediment Samples in the Talmadge Creek and Kalamazoo River Watershed’.
- Continued the evaluation of the ‘Temperature Effect on Submerged Oil Work Plan for Bench-Scale Study’.
- 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.

4.2.1 Plans/Permitting Group

- 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 preparatory excavation operations.
- Three minor safety incidents occurred during the reporting period.

5.2 Public Information

- No activity.
- The number of public inquires reported by Enbridge for this period is presented in Table 13.

6. *Landowner Environmental Issues*

- Landowner environmental issues reported by Enbridge for the operational periods are presented in Table 14.

7. *Finance*

- The current National Pollution Funds Center (NPFC) ceiling is \$41.2 Million. Approximately 88.9% of the ceiling has been spent through October 16, 2011. The latest average 7-day burn rate was \$78,684 per day. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 15.

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 16.

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 10/16/2011)

Sites Identified for Recovery Operations	224
Recovery Complete; Completeness Check Form Signed	184
Percent Complete	82.1%

Table 2 – Submerged Oil Recovery Progress for Late Summer 2011 Reassessment Sites (as of 10/16/2011)

Sites Identified for Recovery Operations	151
Recovery Complete; Completeness Check Form Signed	2
Percent Complete	1.4%

Table 3 – Boom Information

	October 2011						
	16	15	14	13	12	11	10
Total Surface Hard Boom (linear ft)	43,225	43,225	43,225	43,025	43,025	43,225	43,675
[Control Point Surface Hard Boom]	[29,750]	[29,750]	[29,750]	[29,750]	[29,750]	[29,750]	[29,750]

Table 4 – OSCAR Site Status

Pending Review	36
Standard O&M Monitoring	48
Visual Assessment in Process or Pending	11
Site Plan Development (Action Beyond Normal Toolbox Required)	18
Site Plan Execution	2
Submerged Oil Recovery Execution (Using Toolbox Techniques)	15
Permitting (Administratively Complete Permit Application Submitted to MDEQ)	1
Consistent with EPA Order	75
Total Sites	206

Table 5 – Samples Collected By Enbridge

Sample Type	Total	October 2011						
		16	15	14	13	12	11	10
Surface Water	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	18	0	5	2	3	3	3	2
Sediment	0	0	0	0	0	0	0	0
Soil	388	0	68	46	50	57	65	102
Air (Community and Odor Complaint)	141	20	20	20	21	20	20	20

Table 6 – Real Time Air Monitoring Counts By Enbridge

Monitoring Location	Total	October 2011						
		16	15	14	13	12	11	10
Community	1758	151	151	288	281	281	302	304
Odor Response	0	0	0	0	8	0	0	0
Work Area	1010	0	0	152	208	246	196	208
Tar Patty Study	0	0	0	0	0	0	0	0

Table 7 - Equipment Decontamination

Location/Media	Total	October 2011						
		16	15	14	13	12	11	10
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)	6	0	1	0	0	0	3	2
Jon Boats	1	0	0	0	0	0	0	1
Air Boats	2	0	2	0	0	0	0	0
Vehicles	1	0	0	0	0	0	0	1
Boom (linear ft)	4500	0	0	550	900	500	1050	1500
Miscellaneous Items	544	0	215	45	82	94	87	21

Table 8 - Soil and Debris Shipped Off Site (as of 10/16/2011)

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)	43,086	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)	1,029	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	6,025	

Shaded and italicized items are discontinued waste streams.

Table 9 – Oil/Water Collected by Location (as of 10/16/2011)

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	2,112,635
Site A	316,464
Other Locations*	1,398,374
Subtotal	16,117,210
Sludge**	474,215
Total Oil/Water	16,591,425

* 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 10/16/2011)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
<i>Non-Haz Water</i>	<i>Battle Creek POTW</i>	<i>Battle Creek, MI</i>	<i>1,968,700</i>
Non-Haz Water	Dynecol	Detroit, MI	913,642
Non-Haz Water	Liquid Industrial Waste	Holland, MI	492,807
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			16,698,106

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 10/16/2011)

Item	Cumulative (gallons)
Oil/Water Collected	16,117,210
Oil/Water Shipped Off-Site	16,109,101
Total Oil/Water Remaining On-Site	8,109

Table 12 – Wildlife

Location	Total	October 2011						
		16	15	14	13	12	11	10
Turtles in Captivity	--	27	27	27	27	27	27	27
Turtles Captured (Oiled) – Field Cleaned	0	0	0	0	0	0	0	0
Turtles Captured (Oiled) – Admitted to Wildlife Center	0	0	0	0	0	0	0	0
Turtles Captured (Un-oiled) – Field Released	0	0	0	0	0	0	0	0
Turtles Released from Captivity	1	0	0	0	0	0	0	1

Table 13 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	October 2011						
		16	15	14	13	12	11	10
Marshall Community Center	18	0	0	0	1	11	5	1
Oil Spill Public Information Hotline	13	0	0	1	5	6	1	0
Website	1	0	0	0	0	0	1	0
Total Public Inquiries	32	0	0	1	6	17	7	1

Table 14 – Landowner Environmental Issues (as of 10/16/2011)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	11	3

Table 15 - Financial Summary

Item	Expended (Cumulative) (as of 10/15/2011)
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	\$ 18,820,842
T032-Sampling	\$ 183,597
T037-Doc Support	\$ 1,039,697
Total START Contractor	\$ 20,044,136
Response Contractor Sub-Totals	\$ 24,369,745
EPA Funded Costs: Total EPA Costs	\$ 5,372,143
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,823,682
Sub-Totals	\$ 31,565,570
Indirect Cost (16.00%)	\$ 5,050,491
Total Est. Oil Spill Cost	\$ 36,616,061
Oil Spill Ceiling Authorized by USCG	\$ 41,200,000
Oil Spill Ceiling Available Balance	\$ 4,583,939

Shaded items are discontinued

Table 16 - Personnel On-Site

Agency/Entity	October 2011						
	16	15	14	13	12	11	10
U.S. EPA	0	2	3	3	3	3	3
START	6	41	42	47	52	49	46
MDEQ	0	0	4	5	4	3	3
MDEQ Contractors	0	8	12	14	14	13	12
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	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	0	1	1	1	0
Michigan State Police EMD	0	0	0	1	0	0	0
Enbridge – Operations	14	70	108	117	118	117	114
Enbridge – Talmadge Creek	0	90	96	104	104	102	85
Enbridge – Kalamazoo River	12	359	354	363	354	349	356
Enbridge – Frac Tank City/Decon	0	37	44	44	43	50	44
Enbridge – Security & Flaggers	7	7	7	7	7	7	7
Enbridge – Wildlife and Comm.	2	2	4	6	6	10	9
Total	41	616	674	717	706	704	679

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