

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #109



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



Testing of New Submerged Oil Recovery Tool in the Morrow Lake Delta

US EPA ARCHIVE DOCUMENT

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

Date: 7/26/2011

Reporting Period: 0700 hours 7/18/2011 through 0700 hours 7/25/2011

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 #108.
- 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: 0700 hours on 7/18/2011 through 0700 hours on 7/21/2011 and 0700 hours on 7/21/2011 through 0700 hours on 7/25/2011.

3. Operations

- This operational phase of the response consisted of: 1) Air Operations; 2) Waste Management; 3) Environmental Compliance including Control Point Management; 4) Response Action including Overbank Excavation, Overbank Surface Cleanup, and Submerged Oil Recovery in the Kalamazoo River; 5) Monitoring; and 6) Wildlife Operations.

3.1 Air Operations Branch

- During the operational periods, six over-flights were conducted for situational awareness.

3.2 Waste Management Branch

3.2.1 Decontamination Unit

- Equipment and boom decontaminated during these two operational periods are presented in Table 1.

3.2.2 Transportation and Disposal Unit

- Enbridge continued phased decommissioning of the waste management area at Soil Staging Area A.
- Waste management, characterization, and coordination of transportation and disposal continued according to approved plans. Quantities of oil and debris shipped off site during the reporting period are presented in Tables 2 through 5.
- EPA continued oversight of waste characterization, transportation, and disposal activities including composite sampling during live loading operations at Mile Post (MP) 11.25 R2 and MP 9.50 Island excavation sites.

3.3 Environmental Compliance Branch

3.3.1 Operations and Maintenance (O&M)

- During the operational periods, Enbridge continued to monitor O&M sites. 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. Daily O&M activity and progress tracking information is presented in Table 6.
- O&M personnel continued to install and enhance surface and subsurface containment as necessary. Hard boom, X-Tex curtain, absorbent boom, t-posts, and cinder block anchors were installed at existing and new locations throughout the Kalamazoo River from MP 4.5 through MP 23.0. Personnel also installed double containment with hard boom and X-Tex sediment curtain at Control Point E 4.5 at MP 38.0.
- Teams continued to perform sheen sweeps along the Kalamazoo River between MP 11.25 and MP 14.35 and between Control Points E4 and E5.
- Throughout the operational periods, teams conducted pilot tests on alternative containment strategies. An open boom configuration utilizing a cascade system was tested in the Kalamazoo River (MP 14.2) and the Morrow Lake Delta.

3.4 Response Action Branch

3.4.1 Overbank Surface Cleanup Unit

- During these two operational periods, overbank surface cleanup work was conducted along Talmadge Creek, the Kalamazoo River, and islands within the Kalamazoo River from MP 2.5 to MP 14.0 and MP 28.75. Enbridge teams removed tar patties using approved techniques to eliminate visible surface contamination. Recovered materials were handled in accordance with the management practice for

proper disposal. Erosion control and stabilization measures were implemented as required at each area of tar patty removal. Overbank surface cleanup progress information is presented in Table 7.

3.4.2 Overbank Excavation Unit

- During the operational periods, teams completed excavation and temporary restoration activities at the MP 9.5 Island in Historic Bridge Park and continued excavating and maintaining the temporary restoration at MP 11.25 R2. Teams also began constructing access and conducting site preparation at MP 4.5 L1 and MP 21.5 Oxbow overbank excavation sites.

3.4.3 Submerged Oil Recovery and Cleanup Unit

- Submerged oil recovery operations continued on the Kalamazoo River, Morrow Lake Delta, and in areas surrounding the islands adjacent to Morrow Lake. Recovery operations followed the approved submerged oil recovery tool box techniques including flushing and other mechanical agitation techniques.
- During the operational periods, teams conducted site preparation and recovery operations along the Kalamazoo River from MP 5.25 to MP 24.65. Teams also continued submerged oil recovery, site preparation, woody debris removal, and vegetation removal activities using aquatic vegetation cutters in the Morrow Lake Delta. Submerged oil recovery and cleanup progress information is presented in Table 8.

3.5 Monitoring Branch

3.5.1 Surface Water and Sediment Sampling

- Under MDEQ direction, soil, sediment and surface water sampling were performed in accordance with the existing Sampling and Analysis Plan (SAP) with a reduced sampling frequency as approved by the MDEQ. Samples collected as reported by Enbridge are provided in Table 9.
- Low dissolved oxygen (DO) levels resulted in stressed fish immediately upstream of Ceresco Dam on July 21, 2011. Teams conducted flushing and introduced open-channel water. Two dedicated teams were brought in for DO and turbidity monitoring throughout the Kalamazoo River, focusing on active work locations.

3.5.2 Air Monitoring and Sampling

- Enbridge continued to implement the 2011 Air Monitoring and Sampling program, currently consisting of air monitoring at work area locations for worker safety and maintaining an odor response team. Air sampling information is provided in Table 9.
- On July 19, 2011 Enbridge responded to an odor complaint from a resident in Battle Creek. Personnel noted a decaying organic odor. Air monitoring was conducted for benzene, H₂S, and VOCs. No detections were observed. A grab sample was collected and analyzed. No results above the Human Health Screening levels were detected. Two Summa canisters were deployed for 24 hour sampling. Results are currently pending.

3.6 Wildlife Branch

- The Wildlife Branch continued to provide medical health assessment, treatment, and release of rehabilitated wildlife under US Fish and Wildlife Service (USFWS) direction.
- Throughout the two operational periods, the Wildlife Branch conducted turtle trapping and release along the Kalamazoo River. Trapping information is presented in Table 10.

4. Planning

4.1 Situation Unit

- Situation Unit personnel observed and documented progress in all operational areas and continued to assess areas of interest such as observations of oil sheen, oil removal and decontamination activities. Significant observations during the operational periods are as follows:
 - Sheen and sediment generated by submerged oil recovery operations were observed outside of containment above Ceresco Dam.
 - Sediment generated by submerged oil recovery operations was observed escaping containment and flowing down the river from MP 5.3 to MP 5.55.
 - Sheen was observed in the pond and within the river channel at the Shady Bend Campground from MP 27.0 – MP 28.0.
 - Sheen was observed within the river channel from 14.25 – 15.75 and within the Mill Pond. Sediment was also observed breaching the sediment curtain at MP 14.25.
 - River levels continue receding throughout the Kalamazoo River, resulting in the formation of mud flats at former submerged oil locations.

4.2 Environmental Unit

- The Public Health Group (PHG) under the Environmental Unit continues to be led the Michigan Department of Community Health (MDCH). The PHG continues to review report submittals received from Enbridge and evaluate a path forward for the reopening of the Kalamazoo River, public parks, bridges and public access points along the Kalamazoo River and Morrow Lake.
- The Recovery Task Force conducted coordination of oil recovery activities including overbank surface recovery and submerged oil recovery activities.

4.3 Documentation Unit

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

4.4 GIS Support

- During these two operational periods, EPA GIS personnel continued to support operations with the generation of site maps.

5. Command

6.1 Safety

- Safety personnel continued to conduct work site visits along the Kalamazoo River. No major safety issues were observed.
- Heat stress continued to be an operational and safety focus throughout the operational periods. Fifteen personnel experienced heat stress; however, 10 of those were able to resume work. Meetings were held with contractor safety personnel to ensure adequate cooling accessories and shelters were available for workers.
- On July 18, 2011, an individual in a boat fell into the pump exhaust when a boat hit something underwater. Enbridge Safety provided first aid for the worker and no further medical attention required.

- Throughout the two operational periods, minor incidents occurred, including 2 falls into the Kalamazoo River, 2 insect bites, a cut, and a tire blowout. All the affected personnel were able to return to work.

6.2 Public Information

- During these two operational periods, the Public Information Officer (PIO) coordinated media interviews, developed fact sheets, prepared for public meetings. The PIO also participated in a congressional update conference call, a media update conference call, and a stakeholder conference call regarding site cleanup progress.
- The quantity of public inquires reported by Enbridge for this period is presented in Table 11.

6. Landowner Environmental Issues

- Landowner environmental issues, as reported by Enbridge for this period are presented in Table 12.

7. Finance

- The current National Pollution Funds Center (NPFC) issued ceiling is \$34.2 Million. Approximately 88.2% of the ceiling has been spent through July 24, 2011. As of July 17, 2011, the latest average 7-day burn rate was \$81,876 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

- A Multi-Agency Coordination (MAC) Group continues to meet weekly regarding the progress of the response. Entities participating in the MAC include:
 - U.S. Environmental Protection Agency
 - Michigan Department of Environmental Quality
 - Michigan State Police Emergency Management Division
 - City of Battle Creek
 - City of Marshall
 - Calhoun County Public Health Department
 - Calhoun County Emergency Management
 - 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/main.aspx?id=13168>.

11. Clean-up Progress Metrics

Table 1 - Equipment Decontamination

Location/Media	Total	July 2011						
		24	23	22	21	20	19	18
Frac Tanks	0	0	0	0	0	0	0	0
Vac Trucks-Tankers	0	0	0	0	0	0	0	0
Roll-Off Boxes	1	0	0	1	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
Boats	14	3	7	4	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0
Boom (feet)	1100	400	600	100	0	0	0	0

Table 2 - Soil and Debris Shipped Off Site (as of 7/25/2011)

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)	14,499	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)	839	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	3,195	

Shaded and italicized items are discontinued waste streams.

Table 3 – Oil/Water Collected by Location (as of 7/25/2011)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	4,868,279
Division C	1,891,406
Division D	121,106
Division E	47,438
Decontamination	1,774,345
Site A	316,464
Other Locations*	1,299,559
Subtotal	15,674,912
Sludge**	474,215
Total Oil/Water	15,200,697

* 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 4 - Liquid Shipped Off-Site (as of 7/25/2011)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
Hazardous Water	Dynecol	Detroit, MI	3,594,579
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	893,980
Non-Haz Water	Dynecol	Detroit, MI	877,734
Non-Haz Water	Liquid Industrial Waste	Holland, MI	181,501
<i>Oil</i>	<i>Enbridge Facility</i>	<i>Griffith, IN</i>	766,288
<i>Other Material</i>			1,405,525
<i>Treated Non-Haz Water</i>	<i>Liquid Industrial Waste</i>	<i>Holland, MI</i>	370,200
<i>Treated Non-Haz Water</i>	<i>Plummer</i>	<i>Kentwood, MI</i>	4,976,140
<i>Hazardous Water</i>	<i>Safety Kleen^a</i>		825
<i>Treated Non-Haz Water*</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	150,700
<i>Treated Non-Haz Water*</i>	<i>Battle Creek POTW</i>	<i>Battle Creek, MI</i>	1,968,700
Total			15,186,172

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 5 - Oil/Water Remaining On-Site (as of 7/25/2011)

Item	Cumulative (gallons)
Oil/Water Collected	15,200,697
Oil/Water Shipped Off-Site	15,186,172
Total Oil/Water Remaining On-Site	14,525

Table 6 – Daily Activity/Progress

	July 2011						
	24	23	22	21	20	19	18
Parks Assessment Sites	3	3	3	3	3	3	3
Bridge Assessment Sites	21	21	21	21	21	21	21
High Use Access Points Assessment Sites	9	9	9	9	9	9	9
Operations & Maintenance Site	107	107	107	107	107	107	107
Boom Locations							
Control Points	11	11	11	11	11	10	10
Protective Containment Sites	36	36	36	36	36	37	37
River Erosion Sites	26	26	26	26	26	26	26
Total Surface Hard Boom (ft)	45,575	44,975	43,925	41,725	40,725	41,825	40,175
[Control Point Surface Hard Boom]	[29,150]	[28,550]	[26,750]	[25,500]	[24,500]	[24,500]	[22,250]

Table 7 – Overbank Surface Cleanup Progress (as of 7/25/2011)

Quarter – mile Segments Completed: 193	193 of 240 locations (80.4% of planned locations)
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Table 8 – Submerged Oil Recovery and Cleanup Progress (as of 7/25/2011)

Quarter – mile Segments Completed: 23	23 of 241 locations (9.5% of planned locations)
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Table 9 – Samples Collected By Enbridge

Sample Type	Total	July 2011						
		24	23	22	21	20	19	18
Surface Water	49	0	5	6	18	14	6	0
Private Well	23	0	0	0	0	5	9	9
Groundwater	1	0	0	0	0	1	0	0
Sediment	19	0	0	2	6	7	4	0
Soil	99	0	26	21	10	8	15	19
Dewatering	2	0	0	0	0	0	2	0
Air (Odor Complaint)	3	0	0	0	2	0	1	0

Table 10 – Wildlife

Location/Media	Total	July 2011						
		24	23	22	21	20	19	18
Turtles in Captivity	51	51	43	43	42	48	54	62
Turtles Captured - Oiled	36	14	0	1	3	7	4	7
Turtles Captured – Field Cleaned	19	8	0	0	0	5	2	4
Turtles Captured – Admitted to Wildlife Center	17	6	0	1	3	2	2	3
Turtles Captured – Un-oiled and Field Released	167	21	2	9	13	29	32	61
Turtles Released from Captivity	36	0	0	0	8	8	10	10

Table 11 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	July 2011						
		24	23	22	21	20	19	18
Marshall Community Center	28	0	0	5	8	9	4	2
Oil Spill Public Information Hotline	13	0	0	3	0	4	3	3
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	41	0	0	8	8	13	7	5

Table 12 – Landowner Environmental Issues (as of 7/25/2011)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
1	12	0

Table 13 - Financial Summary

Item	Expended (Cumulative) as of 7/25/2011)
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	\$ 13,767,493
T032-Sampling	\$ 180,214
T037-Doc Support	\$ 895,207
Total START Contractor	\$14,842,914
Response Contractor Sub-Totals	\$19,168,523
EPA Funded Costs: Total EPA Costs	\$ 5,021,217
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,823,682
Sub-Totals	\$26,013,422
Indirect Cost (16.00%)	\$ 4,162,147
Total Est. Oil Spill Cost	\$30,175,569
Oil Spill Ceiling Authorized by USCG	\$34,200,000
Oil Spill Ceiling Available Balance	\$ 4,024,431

Table 14 - Personnel On-Site

Agency/Entity	July 2011						
	24	23	22	21	20	19	18
U.S. EPA	0	2	2	4	4	4	3
START	7	41	43	47	49	48	47
MDEQ	0	0	4	6	4	4	4
MDEQ Contractors	0	5	9	10	10	9	8
Calhoun County Public Health	0	0	0	1	0	0	0
Calhoun County (CC) EM	0	0	0	1	0	0	0
City of Battle Creek	0	0	0	1	0	0	0
City of Marshall	0	0	0	1	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	2	0	0	0
USGS	0	0	0	0	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	0
Enbridge – Operations	30	70	146	147	151	147	139
Enbridge – Field	95	440	465	450	454	442	448
Total	132	558	669	670	672	654	649

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