

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #115**



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



Talmadge Creek RI Coring Operations – Geoprobe Mounted on a Marsh Buggy

To: Lt. Paul Baker, Kalamazoo County Sheriff's Office
 James Rutherford, Calhoun County Public Health Department
 Durk Dunham, Calhoun County Emergency Management
 Lt. Barry Reber, Michigan State Police, Emergency Management
 Mark DuCharme, MDEQ
 Mike Alexander, MDEQ
 Mike McKenzie, City of Battle Creek
 Susan Hedman, U.S. EPA Regional Administrator
 James Sygo, MDEQ
 Cheryl Vosburg, City of Marshall
 Christine Kosmowski, City of Battle Creek
 Linda Buzas, Kalamazoo County

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

Date: 9/16/2011

Reporting Period: 0700 hours 8/29/2011 through 0700 hours 9/12/2011

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 #114.
- 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 8/29/2011 through 0700 hours on 9/1/2011
 - 0700 hours on 9/1/2011 through 0700 hours on 9/8/2011
 - 0700 hours on 9/8/2011 through 0700 hours on 9/12/2011.

3. Operations Section

- This operational phase of the response consisted of the following Branches: 1) Air Operations; 2) Waste Management; 3) Environmental Compliance; 4) Response Action 5) Monitoring; 6) Wildlife; 7) River Reopening Coordination; 8) Talmadge Creek Remediation; and 9) Control Point Management.
- The majority of operations from September 3 through September 6, 2011 were suspended during the Labor Day holiday break.

3.1 Air Operations Branch

- During the operational periods, eight overflights were conducted for situational awareness.
- An overflight was not conducted on September 2, 2011 due to inclement weather.
- Overflights were not conducted from September 3 through September 6, 2011, during the Labor Day holiday break.

3.2 Waste Management Branch

3.2.1 Decontamination Group

- Equipment and boom decontaminated during the operational periods are presented in Table 1.
- Personnel continued to ensure the implementation of proper decontamination methods and focused on decontamination activities at the Talmadge Creek Remedial Investigation (RI) site.

3.2.2 Transportation and Disposal Group

- 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.

3.2.3 Waste Management Characterization Group

- EPA continued oversight of waste characterization, including composite sampling during live loading operations at the Island E excavation site.

3.3 Environmental Compliance Branch

3.3.1 Operations and Maintenance (O&M) Inspections Group

- During the operational periods, 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 activities were not conducted on September 4 or 5, 2011, during the Labor Day holiday break.

3.3.2 Site Characterization Group

- Teams conducted post-excavation sampling at the MP 21.5 Oxbow excavation site.
- Teams conducted fish and macro-invertebrate community assessments using electro-fishing equipment and nets in various locations throughout the Talmadge Creek and Kalamazoo River.

3.3.3 Oil Recovery Effectiveness Evaluation Group

- Teams continued to perform post-recovery poling at recovery locations and post-recovery coring at select locations.

3.4 Response Action Branch

3.4.1 Overbank Surface Cleanup Group

- During the operational periods, overbank surface cleanup work was conducted along the Kalamazoo River. Enbridge focused on oil recovery in overbank ponded areas from MP 22 to MP 37, using marsh buggies, stingers, and tillers. Overbank surface cleanup progress information is presented in Table 7.

3.4.2 Overbank Excavation Group

- Teams completed excavation of Islands E and F, continued restoration activities, and began demobilization from the sites.

3.4.3 Submerged Oil Kalamazoo River and Delta/Morrow Lake Groups

- Submerged oil recovery operations continued on the Kalamazoo River and Morrow Lake Delta including areas around the islands at the west end of Morrow Lake Delta. Recovery operations followed the approved submerged oil recovery tool box techniques.
- Teams conducted site preparation and recovery operations throughout the Kalamazoo River, focusing on the area above Ceresco, the Mill Pond, and MP 21.5 to MP 37.75. Teams also conducted bulk oil recovery and woody debris removal in the Morrow Lake Delta and the Morrow Lake fan area. Submerged oil recovery and cleanup progress information is presented in Table 8.

3.5 Monitoring Branch

3.5.1 Water Quality Monitoring Group

- Enbridge continued soil, sediment, and surface water sampling in accordance with the MDEQ Sampling and Analysis Plan (SAP). Samples collected as reported by Enbridge are provided in Table 9.
- Enbridge continued to conduct turbidity, dissolved oxygen, and temperature monitoring throughout the Kalamazoo River, focusing on active submerged oil recovery work locations. Enbridge also continued qualitative analysis of submerged oil particulates using a gabion basket system.

3.5.2 Air Monitoring and Sampling

- Enbridge continued to implement the 2011 Community Air Monitoring and Sampling Plan. Teams 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. Air sampling and monitoring information is provided in Tables 9 and 10.
- Based upon the incident duration, the site-specific Human Health Screening Levels were updated from intermediate values to chronic values.
- An exceedence of the Toluene Chronic Human Health Screening Level was observed for an air sample collected on September 1, 2011. Review of field sample collection notes did not indicate odor or other conditions indicating a source. Work conducted near the sample location included poling reassessment activities. Subsequent sampling results were non-detect for toluene.

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 operational periods, the Wildlife Branch conducted turtle trapping and release along the Kalamazoo River. Trapping information is presented in Table 11.
- The Wildlife Branch performed fish relocation from submerged oil recovery and excavation sites based on dissolved oxygen and turbidity monitoring results.

3.7 River Reopening Coordination Branch

3.7.1 Outstanding Sites Characterization and Reconciliation 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, EPA conducted O&M site assessments and conducted assessments of sites along the Kalamazoo River, including sheening bank sites.

3.7.2 River Poling Reassessment Group

- Teams continued Late Summer 2011 Reassessment poling in areas where submerged oil recovery activities have been completed from the confluence of Talmadge Creek and the Kalamazoo River to Ceresco Dam, downstream of Ceresco dam, and downstream of the confluence of the Kalamazoo River and the Battle Creek River. Areas of light, moderate, and heavy submerged oil remain throughout these areas.

3.8 Talmadge Creek Remediation Branch

- Under direction of MDEQ, Enbridge continued defining the nature and extent of remaining crude oil impacts to the sediment and floodplain area of the Talmadge Creek. Teams conducted visual observations, conducted poling, collected soil cores from the banks of the Talmadge Creek, delineated floodplain areas, and collected ground water samples from temporary wells.

3.9 Control Point Management Branch

- Team 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.
- On September 2, 2011, no maintenance work or installation was completed due to inclement weather.

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. Significant observations during the operational periods include:
 - Remedial Investigation (RI) work continued along Talmadge Creek. Enbridge focused on increasing resources for the RI. Crews conducted coring activities utilizing increasingly mechanized techniques.
 - Enbridge completed excavation of the Islands E and F sites.
 - Woody debris removal and submerged oil recovery work continued at the Morrow Lake Delta and the fan of Morrow Lake. Enbridge continued using low-ground pressure track-mounted excavators for work in the area.
 - Public river access legacy work continued at the McCormick Street and MP 2.25 sites. Enbridge began mobilizing equipment to the Historic Bridge Park for legacy improvements.

4.2 Environmental Unit

- EPA personnel continued directing Enbridge efforts to estimate the amount of submerged oil, utilizing the Spring 2011 reassessment data.
- EPA continued coordination with USGS regarding the hydrogeomorphology of the Kalamazoo River.

4.3 Documentation Unit

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

4.4 GIS Unit

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

4.5 Public Health Unit

- On August 31, 2011, the Public Health Unit met to continue coordination of project related issues involving monitoring and sampling.

4.6 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

- Safety personnel continued to conduct work site safety inspections, focusing on awareness of heavy equipment.

- Throughout the operational periods, minor incidents occurred, including a scrape, 3 slips/trips/falls, 3 cuts, heat stress, a finger injury, and a back injury. All of the affected personnel returned to work.

5.2 Public Information

- The Public Information Officer (PIO) coordinated media interviews and prepared for the upcoming availability session in Kalamazoo County.
- The number of public inquiries 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 \$39.7 Million. Approximately 85.5% of the ceiling has been spent through September 11, 2011. The latest average 7-day burn rate was \$58,264 per day. This burn rate reflects reduced EPA staffing during the Labor Day Holiday Break. 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 Public Health 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/main.aspx?id=13168>.

11. Clean-up Progress Metrics

Table 1 - Equipment Decontamination

Location/Media	Total	September 2011											August 2011		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Frac Tanks	3	0	0	0	0	0	0	0 0 0	0 1 0 1 1						
Vac Trucks-Tankers	1	0	0	0	0	0	0	0 0 0	0 1 0 0 0						
Roll-Off Boxes	0	0	0	0	0	0	0	0 0 0	0 0 0 0 0						
Yellow Iron (light)	0	0	0	0	0	0	0	0 0 0	0 0 0 0 0						
Yellow Iron (heavy)	19	0	0	10	0	0	0	0 0 0	0 0 9 0 0						
Jon Boats	1	0	0	0	0	0	0	0 0 0	1 0 0 0 0						
Air Boats	3	0	0	0	1	0	0	0 0 0	0 2 0 0 0						
Vehicles	8	0	1	0	0	0	0	0 0 0	2 0 0 2 3						
Boom (feet)	12,550 0		600	1275	1400	800	0	0	0	0	300	1300 2	575 2200	2100	
Miscellaneous Items	376	0	5	68	27	223	0	0 0 0	0 5 5					39	4

Table 2 - Soil and Debris Shipped Off Site (as of 9/11/2011)

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)	42,306	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)	983	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	4,365	

Shaded and italicized items are discontinued waste streams.

Table 3 – Oil/Water Collected by Location (as of 9/11/2011)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	4,868,279
Division C	1,891,406
Division D	121,106
Division E	51,131
Decontamination	2,041,033
Site A	316,464
Other Locations*	1,349,500
Subtotal	15,995,234
Sludge**	474,215
Total Oil/Water	15,521,019

* 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 9/11/2011)

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	905,480
Non-Haz Water	Dynecol	Detroit, MI	913,642
Non-Haz Water	Liquid Industrial Waste	Holland, MI	366,307
Non-Haz Water	Plummer	Kentwood, MI	90,000
<i>Oil Other Material</i>	<i>Enbridge Facility</i>	<i>Griffith, IN</i>	<i>766,288 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			15,508,386

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 5 - Oil/Water Remaining On-Site (as of 9/11/2011)

Item	Cumulative (gallons)
Oil/Water Collected	15,521,019
Oil/Water Shipped Off-Site	15,508,386
Total Oil/Water Remaining On-Site	12,633

Table 6 – Daily Activity/Progress

	September 2011						
	11	10	9	8	7	6	5
Operations & Maintenance Site	138	138	138	138	138	138	138
Boom Locations							
Control Points	12	12	12	12	12	12	12
Protective Containment Sites	43	43	43	43	43	43	43
River Erosion Sites	26	26	26	26	26	26	26
Total Surface Hard Boom (ft)	45,475	45,475	45,475	45,375	45,225	45,225	45,175
[Control Point Surface Hard Boom]	[30,100]	[30,100]	[30,100]	[30,100]	[30,100]	[30,100]	[30,050]

	September 2011				August 2011		
	4	3	2	1	31	30	29
Operations & Maintenance Site	138	138	138	138	137	27	127
Boom Locations							
Control Points	12	12	12	12	12	12	12
Protective Containment Sites	43	43	43	43	39	39	39
River Erosion Sites	26	26	26	26	26	26	26
Total Surface Hard Boom (ft)	45,175	45,175	46,875	46,875	46,575	46,575	45,475
[Control Point Surface Hard Boom]	[30,050]	[30,050]	[30,050]	[30,050]	[30,050]	[30,050]	[30,050]

Table 7 – Overbank Surface Cleanup Progress (as of 9/11/2011)

	Tar Patty Sites	Strike Sites
Sites Identified for Cleanup	237	59
Cleanup Complete and Completeness Check Form Signed	174	27
Percent Complete	73.4%	45.8%

Table 8 – Submerged Oil Recovery and Cleanup Progress (as of 9/11/2011)

Sites Identified for Cleanup	216
Cleanup Complete and Completeness Check Form Signed	131
Percent Complete	60.6%

Table 9 – Samples Collected By Enbridge

Sample Type	Total	September 2011											August 2011		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Surface Water	14	0	0	0	0	0	0	0	0	0	0	11	0	0	3
Private Well	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundwater	91	0	17	12	7	11	0	0	0	0	5	12	12	10	5
Sediment	23	0	20	3	0	0	0	0	0	0	0	0	0	0	0
Soil	141	0	25	6	0	0	0	0	0	0	12	23	23	29	23
Air (Community and Odor Complaint)	177	19	19	19	19	19	1	1	1	2	1	19	19	19	19

Table 10 – Real Time Air Monitoring Counts By Enbridge

Monitoring Location	Total	September 2011											August 2011		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Community	3,127	360	338	316	331	302	0	0	0	0	84	346	339	361	350
Odor Response	40	0	0	0	0	0	8	8	8	8	0	0	0	0	0
Work Area	1,509	187	196	132	108	160	0	0	0	0	16	166	197	179	168

Table 11 – Wildlife

Location/Media	Total	September 2011											August 2011		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Turtles in Captivity	62	62	57	49	50	50	51			61	61	61	61	77	67
Hatchlings in Captivity	0	0	0	0	8	8				8	8	8	15	11	8
Turtles Captured (Oiled) – Field Cleaned	150	23	18	19	3	7	0	0	0	0	7		35	14	5
Turtles Captured (Oiled) – Admitted to Wildlife Center	54	5	9	4	3	1	0			0	0	0	2	14	4
Turtles Captured (Un-oiled) – Field Released	311	36	44	16	9	6	0	0	0	0	6		75	39	39
Turtles Released from Captivity	67	0	0	5	3	2			10	0	0	0	13	4	11
Hatchlings Released from Captivity	15	0	0	0	7	0	0			0	0	8	0	0	0

Table 12 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	September 2011											August 2011		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Marshall Community Center	27	0	0	1	3	10	0	0	0	0	0	6	4	2	1
Oil Spill Public Information Hotline	23	0	0	4	2	2			4	0	0	1	2	2	3
Website	5	0	0	0	0	0			0	0	0	1	0	2	1
Total Public Inquiries	55	0	0	5	5	12	4	0	0	1	3	9	5	6	5

Table 13 – Landowner Environmental Issues (as of 9/11/2011)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
1	14	0

Table 14 - Financial Summary

Item	Expend (Cumulative) (as of 9/11/2011)
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	\$ 16,698,012
T032-Sampling	\$ 183,597
T037-Doc Support	\$ 966,756
Total START Contractor	\$ 17,848,365
Response Contractor Sub-Totals	\$ 22,173,974
EPA Funded Costs: Total EPA Costs	\$ 5,260,923
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,823,682
Sub-Totals	\$ 29,258,579
Indirect Cost (16.00%)	\$ 4,681,373
Total Est. Oil Spill Cost	\$ 33,939,952
Oil Spill Ceiling Authorized by USCG	\$ 39,700,000
Oil Spill Ceiling Available Balance	\$ 5,760,048

Shaded items are discontinued

Table 15 - Personnel On-Site

Agency/Entity	September 2011											August 2011		
	11	10	9	8	7	6	5	4	3	2	1	31	30	29
U.S. EPA	0	3	4	5	5	1	0					0	0	7
START	3		36	39	39	34			2	0	0	2	38	48
MDEQ	0	1	4	4	4	0	0					0	4	4
MDEQ Contractors	0	7	9	9	7	0	0					0	8	8
Calhoun County Public Health	0	0	0	2	0	0	0					0	0	0
Calhoun County (CC) EM	0		0		0	0	0	0	0	0	0	0	0	0
City of Battle Creek	0		0		0	1	0	0	0	0	0	0	0	0
City of Marshall	0	0	0	1	0	0	0					0	0	0
Village of Augusta	0	0	0	0	0	0	0					0	0	0
Kalamazoo County Public Health	0	0	0	1	0	0	0					0	0	0
Kalamazoo Sheriff	0	0	0	0	0	0	0					0	0	0
MDCH	0	0	0	1	0	0	0					0	0	0
USGS	0	0	1	1	1	0	0					0	0	0
Michigan State Police EMD	0		0		0	0	0	0	0	0	0	0	0	0
Enbridge – Operations	29		80		146	149	149	22	5	3	5	127	182	190
Enbridge – Field	63		582	593	587	525		27	0	2	26	633	599	573
Enbridge – Security & Flaggers	7	7	7	7	7	7						7	7	7
Enbridge – Wildlife and Comm.	7		7		14	14	14	10	0	4	4	11	11	13
Total	109	723	817	821	746	69	12	16	44	818	867	870	865	853

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