

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #100**



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



**Submerged Oil Reassessment Team Poling**

**US EPA ARCHIVE DOCUMENT**

**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 McKenzie, City of Battle Creek  
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 Cheryl Vosburg, City of Marshall  
 Christine Kosmowski, City of Battle Creek

**From:** Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator  
 Tricia Edwards, U.S. EPA, On-Scene Coordinator  
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**Date:** 05/24/2011

**Reporting Period:** 0700 hours 05/16/2011 through 0700 hours 05/23/2011

**1. Site Data**

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

**2. Previous Response Actions and Current Response Governance**

See Situation Report (SITREP) #51 for a comprehensive description of preliminary operations. Previous response actions performed to date may be found in SITREPs #1 through #99.

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. The structure of the response is the Incident Command System (ICS), with the FOSC serving as the Incident Commander (IC).

The Operational Period covered in this report is: 0700 hours 05/16/2011 through 0700 hours 05/23/2011.

**3. Operations**

This current operational phase of the response consists of: 1) Shoreline and Overbank Re-assessment Technique (SORT); 2) Poling; 3) Operations and Maintenance (O&M); 4) Decontamination; and 5) Other Operations.

Sheen and/or oil were observed at the following locations inspected by the environmental inspectors at O&M points identified below.

**Table 1 – Oil/Sheen Observations**

Activity	Number of Locations	Location (MP)
Sheen and/or Product Observation	42	Talmadge Creek; 2.25 L1; B5 (2.25 L2); 2.50 L1; 2.75 R1; 3.00 IUNL; 3.00 IUNR; 3.25 IA; C 0.5; 4.25 IE; 4.50 L1 C6; D3; E3; E4; 3.25 IA; 3.75 LIC/RIC; 4.25 IE; 4.50 L1; 4.50 IF; 5.55 N; 6.00 R1; 6.00 R3; 6.00 R4; 7.00 R1; 8.50 L1; 8.50 L2; 9.00 I1; 9.00 L1; 10.5 L2; 10.5 RDB; 10.75 L2SO; 11.25 R1; 11.25 R2; 11.75 R1; 12.75 R1; 15.00 L1; 15.25; 15.75; 21.5 R1; 28.25 R1; 37.5 S

A summary of the daily activity at various types of sites as reported by Enbridge is summarized below.

**Table 2 – Daily Activity/Progress**

O&M Process	May 2011						
	22	21	20	19	18	17	16
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	97	97	97	97	97	97	97
Control Points	6	6	6	6	6	6	6
Protective Containment Sites	38	38	38	38	38	38	37
River Erosion Sites	19	19	19	19	19	19	19
Monitoring Well Installation Sites	3	3	3	3	3	3	3

**3.1 Shoreline and Overbank Re-assessment Technique (SORT)**

SORT Teams continued reassessment of the shoreline and overbank areas within the floodplain as defined by the inundation model along the Talmadge Creek and Kalamazoo River. A summary of SORT progress for this period is presented below.

**Table 3 – SORT Progress as of 5/22/2011**

Quarter – mile Segments Completed	248 locations (77.5% of planned locations)
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**3.2 Poling Re-assessment for submerged oil**

Poling teams continued reassessment of the creek and river beds for submerged oil deposition. A summary of poling progress for this period is presented below.

**Table 4 – Poling Progress on Talmadge Creek as of 5/22/2011**

Number of Locations	81
Approximate Total Area:	0.7 acres (31,400 sq ft)
Moderate (45 Locations)	0.2 acres (8,100 sq ft)
Heavy (53 Locations)	0.5 acres (23,300 sq ft)

**Table 5 – Poling Progress on Kalamazoo River as of 5/22/2011**

Number of locations:	114
Approximate Total Area:	44.2 acres (1,924,900 sq ft)
Moderate (45 Locations)	5.1 acres (223,900 sq ft)
Heavy (53 Locations)	39.1 acres (1,701,000 sq ft)

**3.3 Strike Team (ST)**

Strike Teams (ST) continued to perform focus assessments of areas requiring further assessment, as designated by SORT and poling teams.

**3.4 Operations and Maintenance (O&M)**

Teams inspected O&M locations. In general, team activities included an inspection of containment boom to ensure proper placement and effectiveness and inspection for readily visible oil or oil-saturated soils.

**3.5 Decontamination**

Equipment and boom that were decontaminated during this operational period as reported by Enbridge are presented below.

**Table 6 - Equipment Decontamination**

Location/Media	Total	May						
		22	21	20	19	18	17	16
Frac Tanks	1	0	0	0	0	0	1	0
Vac Trucks-Tankers	0	0	0	0	0	0	0	0
Roll-Off Boxes	3	0	0	3	0	0	0	0
Yellow Iron (light)	0	0	0	0	0	0	0	0
Yellow Iron (heavy)	2	0	0	0	2	0	0	0
Jon Boats	0	0	0	0	0	0	0	0
Air Boats	1	0	1	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0
Boom (feet)	0	0	0	0	0	0	0	0

**3.6 Additional Operations****3.6.1 Air Operations**

There were 3 over-flights for situational awareness during this operational period. Air Operations personnel observed and documented progress in all operational areas and continued to assess areas of interest such as oil mobilization and decontamination activities.

A summary of the status of additional aerial imagery tasks being performed by Enbridge related to reassessment activities is presented below.

**Table 7 – Aerial Imagery for Reassessment**

<b>Technology</b>	<b>Overflight</b>	<b>Ground Controls</b>	<b>Data Compilation</b>	<b>Final Data Package</b>
LIDAR	Completed	Completed	Completed	Complete
FLS-AM	Completed	N/A	Completed	Complete
Polarimetric Imagery	Completed	N/A	Completed	Complete
Aerial Photography	Completed	Completed	Completed	Complete

N/A = Not Applicable

**3.6.2 Environmental Compliance and Oversight**

Continued waste management characterization, documentation and coordination. Coordination with the MDEQ continues, particularly with regards to MDEQ concurrence of work contemplated by Enbridge in ecologically sensitive areas during operations and state-required permitting.

**3.6.3 Monitoring Branch**

Under MDEQ direction, potable water, groundwater, soil, sediment and surface water sampling were performed in accordance with the existing U.S. EPA-approved Sampling and Analysis Plan (SAP) (adopted by MDEQ) and a reduced sampling frequency as approved by the MDEQ. Samples reported by Enbridge are provided below.

**Table 8 – Samples Collected By Enbridge**

<b>Sample Type</b>	<b>Total</b>	<b>May</b>						
		<b>22</b>	<b>21</b>	<b>20</b>	<b>19</b>	<b>18</b>	<b>17</b>	<b>16</b>
Surface Water	<b>31</b>	0	0	0	0	5	10	16
Private Well Samples	<b>0</b>	0	0	0	0	0	0	0
Groundwater Samples	<b>0</b>	0	0	0	0	0	0	0
Sediment Samples	<b>1</b>	0	0	0	0	0	0	1
Soil Samples	<b>61</b>	0	0	28	24	0	9	0

**3.6.4 Wildlife Branch**

Under Michigan Department of Natural Resources (MDNR) direction, release of rehabilitated wildlife nursed over the winter continued. Relocation of the wildlife care center to control point C 3.2 continued.

**4. Landowner Environmental Issues**

Landowner environmental issues, as reported by Enbridge for this period are represented below.

**Table 9 – Landowner Environmental Issues**

<b>Issues this Period</b>	<b>Issues Undergoing Evaluation</b>	<b>Issues Considered Addressed</b>
0	12	0

**5. Progress Metrics**

Progress metrics reported in this section are as reported by Enbridge.

**Table 10 - Boom and Aqua Dam Report**

Metric	May						
	22	21	20	19	18	17	16
# Boom Locations	45	45	45	45	45	47	46
[# control points included]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Total Surface Boom Deployed (ft)	27,500	27,500	27,500	27,500	27,200	27,350	27,350
[ft of control point surface boom]	[8,450]	[8,450]	[8,450]	[8,450]	[8,450]	[8,400]	[8,400]
# Aqua Dam Locations	5	5	5	5	5	5	5
Aqua Dam Deployed (ft)	510	510	510	510	510	510	510
Sand-Super Sacks	39	39	39	39	39	39	39
[Sand Bags]	[1,288]	[1,288]	[1,288]	[1,288]	[1,288]	[1,288]	[1,288]

NR = Not Reported by Enbridge

**Table 11 - Soil and Debris Shipped Off Site as of 5/22/2011**

Waste Stream	Cumulative	Disposal Facility
<i>Haz Soil (yd<sup>3</sup>)</i>	<i>19,644</i>	<i>Envirosafe (Oregon, OH)</i>
Non-Haz Soil & Debris (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	9,355	Terra/C&C
<i>Non-Haz Soil &amp; Debris (yd<sup>3</sup>) (Excluding Ceresco Dredge)</i>	<i>64,815</i>	<i>Westside Recycling (Three Rivers, MI)</i>
<i>Non-Haz Soil (yd<sup>3</sup>) (Ceresco Dredge Only)</i>	<i>5,562</i>	<i>EQ/Republic (Marshall, MI)</i>
<i>Haz Debris (yd<sup>3</sup>)</i>	<i>12,075</i>	<i>EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)</i>
Non-Haz Household Debris (ton)	758	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	1,951	

*Shaded and italicized* items are discontinued waste streams.

**Table 12 – Oil/Water Collected by Location (as of 5/22/2011)**

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	1,580,373
Site A	228,212
Other Locations*	1,255,089
Subtotal	<b>15,348,218</b>
Sludge**	<b>474,215</b>
<b>Total Oil/Water</b>	<b>14,874,003</b>

\* Decontamination Operations, 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 13 – Oil/Water Separation at Enbridge Facility in Griffith, IN (as of 5/22/2011)**

Item	Cumulative (gallons)
Oil	766,288
Other Material	1,405,525
<b>Total</b>	<b>2,171,813</b>

**Table 14 - Liquid Shipped Off-Site (as of 5/22/2011)**

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
<i>Hazardous Water</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	<i>3,594,579</i>
<i>Oil/Water</i>	<i>Enbridge Facility</i>	<i>Griffith, IN</i>	<i>2,171,813</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<sup>a</sup></i>		<i>825</i>
Non-Haz Water	Dynecol	Detroit, MI	772,116
<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>
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	866,980
<b>Total</b>			<b>14,872,053</b>

*Shaded and italicized* items are discontinued waste streams.

\* Treated Non-Haz Water no longer sent to this location.

† Cumulative quantities may not reconcile with previous reports (due to auditing).

a. New Age lab water and methanol mix generated by mobile laboratory.

**Table 15 - Oil/Water Remaining On-Site 5/22/2011**

Item	Cumulative (gallons)
Oil/Water Collected	14,874,003
Oil/Water Shipped Off-Site	14,872,053
<b>Total Oil/Water Remaining On-Site</b>	<b>1,950</b>

## **6. Support Operations**

### **6.1 Planning**

The Planning Department coordinated with Enbridge Planning in the ICS planning cycle.

#### **6.1.1 Environmental Unit**

The Public Health Group under the environmental unit is being lead by the Michigan Department of Community Health. The Public Health Group continues to review report submittals received from Enbridge and evaluate a path forward for the reopening of public parks, bridge and public access points along the river, the Kalamazoo River and Morrow Lake.

The re-assessment task force continues to provide coordination of reassessment activities including SORT, poling, and aerial imagery.

### 6.1.2 Data Management Unit

Continued importing preliminary and validated analytical results into Scribe, exporting daily briefings; and processing and printing maps as requested. Database management is being done in Vernon Hills, IL and/or Houston, TX.

### 6.1.3 Documentation Unit

Continued organization and archiving of electronic and paper files.

### 6.2 Safety

A release of untreated sewage from the City of Battle Creek wastewater plant occurred to the Kalamazoo River on Friday, May 20, 2011. All response personnel were immediately notified and removed from the river. Safety personnel continue to coordinate with health departments regarding the status of water quality in the river as a result of the release of untreated sewage. The river was reopened on May 23, 2011 at 11:35, after analytical results were evaluated by the county health departments.

Due to the continued changing of the seasons, an emphasis continues to be placed on spring weather awareness (heavy rain, fog, snow, swift water, flood watch and rising of water levels) with the work crews.

The safety staff continued to provide field support for the reassessment teams and training to new reassessment staff. Minor boating safety issues were raised and addressed during the operational period to ensure the safety of individuals working in and on the Kalamazoo River.

### 6.3 Public Information

The quantity of public inquires reported by Enbridge for this period is presented below.

**Table 16 – Public Inquiries Received by EPA and Enbridge**

Location/Media	Total	May						
		22	21	20	19	18	17	16
Marshall Community Center	16	0	0	3	3	3	6	1
Oil Spill Public Information Hotline	8	0	0	2	2	2	1	1
Website	0	0	0	0	0	0	0	0
<b>Total Public Inquiries</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>2</b>

### 6.4 Finance

The current NPFC issued ceiling is \$31.2 Million. Approximately 88.6% of the ceiling has been spent through May 22, 2011. As of May 22, 2011, the latest average 7-day burn rate was \$46,817 per day. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented on the following page.

**Table 17 - Financial Summary**

<b>Item</b>	<b>Expended (Cumulative) as of 5/22/2011</b>
<b>ERRS Contractors</b>	
EQM (EPS50802) <span style="float:right">T057</span>	\$ 1,250,065
<span style="float:right">T060</span>	\$ 204,905
LATA (EPS50804) <span style="float:right">T019</span>	\$ 1,451,396
ER LLC (EPS50905) <span style="float:right">T040</span>	\$ 723,669
<b>Total ERRS Contractors</b>	<b>\$ 3,630,035</b>
<b>Other Contractors</b>	
Lockheed Martin (EPW09031) – TAGA Support	\$ 150,000
T&T Bisso (EPA:HS800008)	\$ 1,255,000
<b>Total Other Contractors</b>	<b>\$ 1,405,000</b>
<b>START Contractor – WESTON (EPS50604)</b>	
<span style="float:right">T030-Response</span>	\$11,143,359
<span style="float:right">T032-Sampling</span>	\$ 180,214
<span style="float:right">T037-Doc Support</span>	\$ 776,148
<b>Total START Contractor</b>	<b>\$12,099,721</b>
<b>Response Contractor Sub-Totals</b>	<b>\$17,134,756</b>
<b>EPA Funded Costs: Total EPA Costs</b>	\$ 4,883,570
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	\$ 1,823,682
<b>Sub-Totals</b>	<b>\$23,842,008</b>
Indirect Cost (16.00%)	\$ 3,814,721
<b>Total Est. Oil Spill Cost</b>	<b>\$27,656,729</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	\$31,200,000
<b>Oil Spill Ceiling Available Balance</b>	\$ 3,543,271

**7. Participating Entities**

A Multi-Agency Coordination (MAC) Group meets 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).

## 8. Personnel On-Site

Staffing numbers for the entities and agencies active in the response are presented below.

**Table 18 - Personnel On-Site**

Agency/Entity	May						
	22	21	20	19	18	17	16
U.S. EPA	1	1	2	4	3	2	2
START	14	16	25	27	23	26	23
Calhoun County Public Health	0	0	0	3	1	0	0
Calhoun County (CC) EM	0	0	0	2	1	0	0
City of Battle Creek	0	0	0	2	1	0	0
City of Marshall	0	0	0	1	1	0	0
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	1	1	0	0
Kalamazoo Sheriff	0	0	0	2	0	0	0
MDEQ	4	4	11	13	16	11	12
MDEQ Contractors	0	0	2	2	2	4	3
Michigan State Police EMD	0	0	0	1	0	0	0
NOAA – National Weather	0	0	0	0	0	0	0
USFWS	0	0	0	0	0	0	0
Enbridge – Operations	11	40	94	101	111	106	101
Enbridge – Field	61	79	142	139	136	128	146
<b>Total</b>	<b>91</b>	<b>140</b>	<b>276</b>	<b>298</b>	<b>296</b>	<b>277</b>	<b>287</b>

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

## 9. 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>.