

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #142



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

US EPA ARCHIVE DOCUMENT



**River Opening Segment 1 in Use on March 18, 2012**

**To:** Susan Hedman, U.S. EPA Regional Administrator  
 James Sygo, MDEQ  
 Mark DuCharme, MDEQ  
 Michelle DeLong, MDEQ  
 Dr. Linda Dykema, MDCH  
 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  
 Scott Corbin, Allegan 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:** 04/25/2012  
**Reporting/Operational Period:** 0700 hours 04/12/2012 through 0700 hours 04/19/2012

**1. Site Data**

<b>Site Number:</b>	Z5JS	<b>Response Type:</b>	Emergency
<b>Response Authority:</b>	OPA	<b>Incident Category:</b>	Removal Action
<b>Response Lead:</b>	PRP	<b>NPL Status:</b>	Non-NPL
<b>Mobilization Date:</b>	7/26/2010	<b>Start Date:</b>	7/26/2010
<b>FPN#:</b>	E10527		

**2. Operations Section**

- The organizational response structure consisted of the following Branches: 1) Overbank; 2) Submerged Oil; 3) Containment; 4) River Reopening; 5) Kalamazoo River System; 7) Air Operations; and 8) Waste Management.

**2.1 Overbank Branch**

**2.1.1 OSCAR Group**

- The OSCAR Group began reviewing Spring 2012 Shoreline and Overbank Reassessment Technique (SORT) results with focus on sites where oil sheen observations were noted to determine future course of action.

**2.1.2 Overbank Science Group**

- Preparation and review of close out reports for OB 13.40 RDB, OB 8.97 Island, OB 9.10 Island, and OB 10.37 RDB continued.

### ***2.1.3 Overbank Compliance Group***

- Spring 2012 SORT teams completed the assessment of 426 sites from the confluence of Talmadge Creek and the Kalamazoo River to the Morrow Lake Dam, in accordance with the Consolidated Work Plan for Fall 2011-2012. 95 inundated sites were transferred to the Submerged Oil Science Group for reassessment. 98 sites with observations of sheen or oil were transferred to the OSCAR Group to determine what, if any, additional follow action is necessary.

### ***2.1.4 Overbank Recovery Group***

- No activities were conducted during the reporting period.

### ***2.1.5 Overbank Monitoring Group***

- Enbridge continued to maintain an odor response team; however, no odor complaints were received during this operational period.
- Air monitoring and sampling information is included in Tables 1 and 2.

## **2.2 Submerged Oil Branch**

### ***2.2.1 Submerged Oil Assessment Group***

- Refinement of the 2012 Submerged Oil Recovery Tactical Plan continued.

### ***2.2.2 Submerged Oil Science Group***

- Enbridge's revised Quantification of Submerged Oil Report is currently under review by the U.S. EPA.
- Enbridge's request for a minimum water temperature for submerged oil reassessment activities is currently under review by the U.S. EPA.
- Enbridge continued to address U.S. EPA comments regarding the Sediment Trap Monitoring and Maintenance Plan and the Morrow Lake Monitoring, Assessment, and Management Plan.
- Enbridge collected oil sheen and globules from stored sediment samples for chemical fingerprinting analysis, at the request of the Scientific Support Coordination Group (SSCG).
- Enbridge continued preparation of the Hydrodynamic Model Report, containing baseline model calibration results (e.g. riverine and floodplain grids) and various baseline scenario results, for submittal to U.S. EPA on April 20, 2012.
- Enbridge completed installation of the Walling Tube Structures for characterization of suspended sediment load throughout the system, pursuant to the Consolidated Work Plan for activities through 2012.

### ***2.2.3 Submerged Oil Compliance Group***

- Enbridge developed permit applications for the Tool Box recovery techniques.

#### ***2.2.4 Submerged Oil Recovery Group***

- No activities were conducted during the reporting period.

#### ***2.2.5 Submerged Oil Monitoring Group***

- One crew continued daily submerged oil poling in the Morrow Lake Fan to monitoring potential submerged oil movement.

### **2.3 Containment Branch**

#### ***2.3.1 Containment Science Group***

- Enbridge continued preparation of a permit application for sediment trap structure placement at six active locations based on HEC-RAS modeling requirements set forth by the MDEQ.
- Under the Group's guidance, Enbridge continued to prepare a modified permit application for 16 additional active sediment trap locations. Enbridge is evaluating information and data requirements for permitting of the additional active trap locations.
- The Group continued to develop strategies for evaluating the hydrodynamic characteristics of the 22 active sediment traps in addition to numerical Hydrodynamic Modeling of structures in response to a request for supplemental HEC-RAS modeling by the MDEQ.

#### ***2.3.2 Containment Compliance Group***

- Enbridge coordinated with MDEQ regarding the information requirements for the permit applications for the 22 proposed active sediment collection structures in depositional areas of the Kalamazoo River.
- Enbridge prepared a permit application for installation of additional control point boom should it become necessary based on oil sheen observations in the Kalamazoo River system.

#### ***2.3.3 Containment Recovery Group***

- Enbridge installed protective containment boom at MP 30.8 in response to observations of oil and sheen at the location.
- Enbridge removed boom, sediment curtain, and associated buoys from the confluence of Talmadge Creek and the Kalamazoo River, in preparation for opening River Segment 1 for public use, based on post-precipitation monitoring results along Talmadge Creek.
- Teams continued to maintain 1,900 feet of surface hard boom at 11 protective containment sites, and 3,275 feet of surface hard boom at 3 control points. Teams removed debris accumulated within the boomed areas.

#### ***2.3.4 Containment Monitoring Group***

- Water level gauges were monitored at multiple locations along the Kalamazoo River, Morrow Lake Delta, and Morrow Lake.

- Two crews monitored control points, protective containment points, and tracked sheen observations in Talmadge Creek and the Kalamazoo River.

## **2.4 River Reopening Branch**

### ***2.4.1 River Reopening Media Group***

- Media relations personnel continued coordination regarding the river reopening of River Segment 1 (Perrin Dam to Saylor's Landing), including preparation of kiosk materials, river signage, newspaper advertisements, and radio spots.
- On April 17, 2012, a public meeting was held by the U.S. EPA at Marshall High School. During the meeting, the Calhoun County Health Department announced the reopening of River Reopening Segment 1. The segment was opened for public use on April 18, 2012.

### ***2.4.2 River Reopening Assessment Group***

- The Group conducted review of SORT data to determine potential remaining impacts for Segments 3 – 8 and 10.

### ***2.4.3 River Reopening Implementation Group***

- Maintenance activities, acquisition, and staging of materials continued. The Group deployed river buoys and signage within River Segment 1 in preparation for the river reopening on April 18, 2012. In addition, the Group placed public information kiosk materials, wash stations, and garbage receptacles at the Perrin Dam and Saylor's Landing access locations.

### ***2.4.4 River Reopening Monitoring & Security Group***

- Enbridge provided and trained security personnel to be stationed at the Perrin Dam and Saylor's Landing access locations for 12 hours per day for a minimum of two weeks beginning on the April 18, 2012. Enbridge conducted routine monitoring of buoys and signage in River Reopening Segment 1.

## **2.5 Kalamazoo River System Branch**

### ***2.5.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group***

- Implementation of the Kalamazoo River RI Work Plan for Enbridge-owned properties between MP 5.8 to Morrow Lake Dam continued.

### ***2.5.2 Kalamazoo River Compliance Group***

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) Sites.

### ***2.5.3 Kalamazoo River Remedial Action Group***

- No activities were conducted during the reporting period.

#### ***2.5.4 Talmadge Creek/Kalamazoo River Monitoring Group***

- Monitoring of erosion control devices continued.
- Enbridge continued addressing U.S. EPA's comments regarding the Spring 2012 Talmadge Creek Monitoring and Maintenance Plan.
- Monitoring of the confluence continued using a remote web-based camera and remote turbidity monitors. Additional monitoring was conducted according to the Spring 2012 Talmadge Creek Monitoring and Maintenance Plan.

#### **2.7 Air Operations Branch**

- Two over-flights were conducted for situational awareness during this reporting period.
- Photographs were taken during the over-flights for presentation during Operations, Command and General Staff, and Multi-Agency Coordination (MAC) Group meetings.

#### **2.8 Waste Management Branch**

##### ***2.8.1 Decontamination Group***

- A summary of equipment and boom decontaminated during this reporting period is presented in Table 3.

##### ***2.8.2 Transportation and Disposal Group***

- Contaminated soil, water, and debris continue to be removed to staging areas. Samples are collected for oil recovery determination prior to off-site disposal.
- The total amount of recovered oil from the inception of the response has been estimated using actual waste stream volumes, analytical data, and physical parameters of oil-containing media. A summary of the estimated volume of recovered oil is presented in Table 8.
- Quantities of oil and debris shipped off-site during the reporting period are presented in Tables 4 through 7.

##### ***2.8.3 Waste Management Characterization Group***

- Waste management characterization, manifesting, and coordination of transportation and disposal continued according to approved plans.

### ***3. Planning***

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#### **3.1 Situation Unit**

- Situation Unit personnel observed and documented progress in operational areas, and continued to assess areas of interest including locations of tar flecks, oil globules, oil sheen, and turbidity.
- Daily situation photo logs were prepared and distributed to project participants.

### **3.1.1 GIS Specialists**

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

### **3.2 Environmental Unit**

- U.S. EPA continued coordination with United States Geological Survey (USGS) regarding the Kalamazoo River geomorphology evaluation and the impact on strategy and tactics for future oil recovery efforts.

### **3.3 Documentation Unit**

- Documentation Unit personnel continued organizing and archiving electronic and paper files.

### **3.4 Resource Unit**

- Personnel continued to produce Incident Action Plans (IAPs), support the planning efforts of operations, and provide information to Logistics personnel in order to properly prepare and procure resources.

## **4. Command**

### **4.1 Safety Officers**

- Safety personnel continued conducting work-site safety inspections and implementing the plan for integration of public safety and worker safety on the Kalamazoo River.

### **4.2 Public Information**

- The number of public inquires reported by Enbridge for this period is presented in Table 9.

## **5. Landowner Environmental Issues**

- Landowner environmental issues, as reported by Enbridge, are presented in Table 10.

## **6. Finance**

- The current National Pollution Funds Center (NPFC) ceiling is \$49.7 Million. Approximately 84.1% of the ceiling has been spent through April 15, 2012. The latest average 7-day burn rate was \$32,313. These cost summaries reflect only U.S. EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 11.

## **7. Scientific Support Coordination Group (SSCG)**

- The Eco-Toxicity Subgroup is near completion of a Net Environmental Benefits Analysis (NEBA) to assess the harm and benefits accompanying oil recovery efforts. This effort will be integrated with the 2012 Tactical Plan for submerged oil recovery.

- The U.S. EPA's Environmental Response Team (ERT) completed studies with 14 and 28 day sample incubation periods that provide evidence of biodegradation of submerged oil. A report summarizing the findings has been prepared.
- Interpretation of data from the oil fingerprinting samples analyzed by the off-site laboratory continues.

### ***8. Participating Entities***

- Entities participating in the MAC include:
  - U.S. Environmental Protection Agency
  - Michigan Department of Environmental Quality
  - Michigan Department of Community Health
  - City of Battle Creek
  - City of Marshall
  - Allegan County Emergency Management
  - 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 12.

### ***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 – Real Time Air Monitoring Counts Performed by Enbridge**

Monitoring Location	Total	April 2012						
		18	17	16	15	14	13	12
Odor Response	0	0	0	0	0	0	0	0
Work Area	25	12	4	1	0	1	5	2

**Table 2 – Samples Collected By Enbridge**

Sample Type	Total	April 2012						
		18	17	16	15	14	13	12
Surface Water	29	0	16	11	0	0	2	0
Private Well	2	0	2	0	0	0	0	0
Groundwater	4	0	2	1	0	0	1	0
Sediment	3	1	0	0	0	0	1	1
Soil	76	13	14	13	0	0	18	18
Dewatering	0	0	0	0	0	0	0	0
Air (Odor Complaint)	0	0	0	0	0	0	0	0
Air (Work Area)	0	0	0	0	0	0	0	0

**Table 3 - Equipment Decontamination**

Location/Media	Total	April 2012						
		18	17	16	15	14	13	12
Frac Tanks	1	0	0	0	0	0	1	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)	0	0	0	0	0	0	0	0
Jon Boats	0	0	0	0	0	0	0	0
Air Boats	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0
Boom (linear ft)	0	0	0	0	0	0	0	0
Miscellaneous Items	0	0	0	0	0	0	0	0

**Table 4 - Soil and Debris Shipped Off Site (as of 4/19/2012)**

<b>Waste Stream</b>	<b>Cumulative</b>	<b>Disposal Facility</b>
Haz Soil (yd <sup>3</sup> )	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	75,883	SET/C&C
Non-Haz Soil & Debris (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	64,815	Westside Recycling (Three Rivers, MI)
Non-Haz Soil (yd <sup>3</sup> ) (Ceresco Dredge Only)	5,562	EQ/Republic (Marshall, MI)
Haz Debris (yd <sup>3</sup> )	12,075	EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)
Non-Haz Household Debris (ton)	1,627	SET/C&C
Non-Haz Impacted Debris (ton)	6,744	

Shaded items are discontinued waste streams.

**Table 5 – Oil/Water Collected by Location (as of 4/19/2012)**

<b>Location</b>	<b>Cumulative (gallons)</b>
Division A	5,356,315
Division B	5,111,479
Division C	2,096,998
Division D	121,106
Division E	52,631
Decontamination	2,370,969
Site A	322,924
Other Locations*	2,050,704
Subtotal	<b>17,483,126</b>
<b>Sludge**</b>	<b>474,215</b>
<b>Total Oil/Water</b>	<b>17,008,911</b>

\* 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 6 - Liquid Shipped Off-Site (as of 4/19/2012)**

<b>Stream</b>	<b>Destination Company</b>	<b>Destination Location</b>	<b>Cumulative Volume (gallons) †</b>
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	1,143,280
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,306,157
Non-Haz Water	Plummer	Kentwood, MI	344,725
<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<sup>a</sup></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>
<b>Total</b>			<b>17,008,911</b>

*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 7 - Oil/Water Remaining On-Site (as of 4/19/2012)**

<b>Item</b>	<b>Cumulative (gallons)</b>
Oil/Water Collected	17,008,911
Oil/Water Shipped Off-Site	17,008,911
<b>Total Oil/Water Remaining On-Site</b>	<b>0</b>

**Table 8 – Estimated Recovered Oil (as of 4/16/2012)**

Waste Stream Containing Recovered Oil	Destination Company	Destination Location	Estimated Oil Volume in Waste Stream (gallons)
Soil - (Impacted Soil & Debris)	C&C Landfill	Marshall, MI	13,597
Soil - (Impacted Soil & Debris)	Envirosafe/ Westside RDF	Oregon, OH	278,665
Geotube Sediment - (Impacted Sediment)	Envirosafe/ Westside RDF	Oregon, OH	1,298
Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)	EQ Michigan	Belleville, MI	33,781
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,175
	Liquid Industrial Waste Services, Inc.	Kentwood, MI	
	Plummers Env Inc.	Holland, MI	
	BC POTW	Battle Creek, MI	
Ceresco Pretreatment System	C&C Landfill	Marshall, MI	90
A-1 Pretreatment System	C&C Landfill	Marshall, MI	9
Oily Water - RPP	Enbridge Facility	Griffith, IN	766,288
<b>Total</b>	-	-	<b>1,148,012</b>

Shaded items represent discontinued waste streams

**Table 9 – Public Inquiries Received by U.S. EPA and Enbridge**

Location/Media	Total	April 2012						
		18	17	16	15	14	13	12
Marshall Community Center	16	4	4	4	0	0	1	3
Oil Spill Public Information Hotline	8	2	1	1	0	0	2	2
Website	0	0	0	0	0	0	0	0
<b>Total Public Inquiries</b>	<b>24</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>5</b>

**Table 10 – Landowner Environmental Issues (as of 4/19/2012)**

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	5	0

**Table 11 - Financial Summary**

Item	Expended (Cumulative) (as of 4/17/2012)
<b>ERRS Contractors</b>	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ <u>683,330</u>
<b>Total ERRS Contractors</b>	<b>\$ 3,257,571</b>
<b>Other Contractors</b>	
Lockheed Martin (EPW09031) – TAGA Support	\$ 185,951
T&T Bisso (EPA:HS800008)	\$ <u>882,087</u>
<b>Total Other Contractors</b>	<b>\$ 1,068,038</b>
<b>START Contractor – WESTON (EPS50604)</b>	
T030-Response	\$ 23,602,589
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,499,474</u>
<b>Total START Contractor</b>	<b>\$ 25,285,630</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 29,611,239</b>
<b>U.S. EPA Funded Costs: Total U.S. EPA Costs</b>	<b>\$ 5,855,430</b>
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	<b>\$ 1,622,624</b>
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,090,660
<b>Total Est. Oil Spill Cost</b>	<b>\$ 41,778,204</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	<b>\$ 49,700,000</b>
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 7,921,796</b>

Shaded items are discontinued

**Table 12 - Personnel On-Site**

Agency/Entity	April 2012						
	18	17	16	15	14	13	12
U.S. EPA	5	5	4	0	3	4	4
START	23	23	22	2	17	21	21
MDEQ	6	6	5	0	0	6	6
MDEQ Contractors	6	6	6	0	0	5	5
Calhoun County Public Health	0	0	0	0	0	0	3
Calhoun County (CC) EM	0	0	0	0	0	0	1
City of Battle Creek	0	0	0	0	0	0	1
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	0	0	0	1
Kalamazoo Sheriff	0	0	0	0	0	0	1
MDCH	0	0	0	0	0	0	2
USGS	2	2	0	0	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	1
Allegan County Emergency Management	0	0	0	0	0	0	1
Michigan Department of Natural Resources	0	0	0	0	0	0	2
Enbridge – Operations Center	50	51	44	0	1	53	56
Enbridge – Kalamazoo River	38	40	36	1	1	28	30
Enbridge – Containment	12	12	13	2	8	11	11
Enbridge – Submerged Oil	2	2	2	0	0	7	7
Enbridge – Overbank	4	4	4	0	0	10	9
Enbridge – River Reopening	1	1	1	0	0	1	1
Enbridge – Waste Management	19	20	17	0	2	19	14
Enbridge – Security & Flaggers	5	5	5	5	5	5	5
Enbridge – Communications Center	5	5	4	0	0	4	4
<b>Total</b>	<b>178</b>	<b>182</b>	<b>163</b>	<b>10</b>	<b>37</b>	<b>174</b>	<b>186</b>

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