

US EPA ARCHIVE DOCUMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #141



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



US EPA ARCHIVE DOCUMENT

To: Susan Hedman, U.S. EPA Regional Administrator
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 Christine Kosmowski, City of Battle Creek

From: Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator
Date: 04/20/2012
Reporting/Operational Period: 0700 hours 3/29/2012 through 0700 hours 04/12/2012

1. Site Data

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

- No activities were conducted during this reporting period, as the Group awaited the results of the Spring 2012 Shoreline and Overbank Reassessment Technique (SORT) data.

2.1.2 Overbank Science Group

- Preparation 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

- Shoreline and Overbank Reassessment Technique (SORT) teams continued 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. Approximately 98% of the 426 targeted sites were completed during this period, with numerous inundated sites being transferred to the Submerged Oil Assessment Group for reassessment.

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 minimum water temperature for reassessment activities is currently under review by the U.S. EPA.
- U.S. EPA submitted comments to Enbridge regarding the Sediment Trap Monitoring and Maintenance Plan and the Morrow Lake Monitoring, Assessment, and Management Plan.
- On April 6, 2012, Enbridge submitted the Sensitivity Analysis Deliverable for the Hydrodynamic Model to U.S. EPA.
- Dakota Technologies conducted field pilot testing to determine the effectiveness of optical screening techniques for detecting submerged oil.
- Enbridge continued off-site centrifuge testing to supplement submerged oil quantification efforts.
- Enbridge began the 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 and sediment removal.

2.2.4 Submerged Oil Recovery Group

- No activities were conducted during the reporting period.

2.2.5 Submerged Oil Monitoring Group

- No activities were conducted during the reporting period.

2.3 Containment Branch

2.3.1 Containment Science Group

- Under the Group's guidance, Enbridge continued to prepare a modified permit application to include 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 using the numerical Hydrodynamic Model in response to a request for supplemental information by the MDEQ.
- A report containing complete model calibration results (e.g. riverine and floodplain grids) and various baseline scenario results, from the Hydrodynamic Model, is being prepared by Enbridge for submittal on April 13, 2012.

2.3.2 Containment Compliance Group

- Enbridge coordinated with MDEQ regarding the information requirements for the permit application for 6 proposed active sediment collection structures along the Kalamazoo River.

2.3.3 Containment Recovery Group

- Enbridge modified the boom configuration immediately upstream of Ceresco Dam to simplify boom maintenance and address landowner concerns.
- Enbridge installed sediment curtain on the E4 control point.
- Teams continued to maintain 1,750 feet of surface hard boom at 10 protective containment sites, and 3,200 feet of surface hard boom at 3 control points. Teams removed debris accumulated within the boomed areas.
- The control point boom located at the confluence was removed on April 4, 2012. It was replaced by a section of hard boom and curtain, and a sediment control structure across the mouth of Talmadge Creek.

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. A third crew resumed poling of the Morrow Lake Fan on April 10, 2012 for monitoring potential submerged oil movement.

2.4 River Reopening Branch

2.4.1 River Reopening Media Group

- Media relations personnel continued coordination regarding the river reopening, including preparation of kiosk materials, river signage, newspaper advertisements, and radio spots.
- The Group also made preparations for the upcoming public meeting to be held at Marshall High School on April 17, 2012.

2.4.2 River Reopening Assessment Group

- Overbank review continued for River Reopening Segment 1, from the confluence of Talmadge Creek and the Kalamazoo River to Saylor's Landing, to determine potential remaining impacts.
- Overbank review of River Reopening Segments 3 – 8 and 10 began.

2.4.3 River Reopening Implementation Group

- Development of MDNR and MDEQ buoy permit applications for Calhoun County was completed and buoys were installed in River Reopening Segment 1.
- Acquisition and staging of buoys continued.

2.4.4 River Reopening Monitoring & Security Group

- Development of a Site Specific Safety Plan for use of the river by both site personnel and the public was completed and the plan was approved by U.S. EPA.
- Training was conducted for river reopening security personnel.
- Teams initiated daily monitoring of river conditions and recording observations of sheen or oil, by river reopening segment.

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.
- U.S. EPA submitted comments to Enbridge 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 will be 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) 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

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 to conduct work-site safety inspections, with a focus on safe implementation of assessment and overbank activities.
- One safety related incident occurred during the operational period. A worker suffered a forehead laceration while unloading a roll off with debris. First aid was administered immediately and the employee received stitches on their forehead.

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 83.6% of the ceiling has been spent through April 8, 2012. The latest average 7-day burn rate was \$27,526. 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 second SSCG workshop was held on March 29-30. Presentations of all oil fingerprinting chemical analysis and aquatic toxicity results were made and discussed in detail. Action items were compiled to address remaining data gaps.
- 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).
- The MAC did not meet during this reporting period.

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											March 2012			
		11	10	9	8	7	6	5	4	3	2	1	31	30	29	
Odor Response	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Work Area	39	0	2	0	0	0	6	5	3	6	5	0	0	4	8	

Table 2 – Samples Collected By Enbridge

Sample Type	Total	April 2012											March 2012		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Surface Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundwater	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Sediment	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil	22	16	6	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air (Odor Complaint)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air (Work Area)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3 - Equipment Decontamination

Location/Media	Total	April 2012											March 2012		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Frac Tanks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vac Trucks-Tankers	0	0	0	0	0	0	0	0	0	0	0	0	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)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jon Boats	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Air Boats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boom (linear ft)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Items	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5

Table 4 - Soil and Debris Shipped Off Site (as of 4/12/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	75,883	SET/C&C
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	64,815	Westside Recycling (Three Rivers, MI)
Non-Haz Soil (yd ³) (Ceresco Dredge Only)	5,562	EQ/Republic (Marshall, MI)
Haz Debris (yd ³)	12,075	EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)
Non-Haz Household Debris (ton)	1,615	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 4/12/2012)

Location	Cumulative (gallons)
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*	2,026,739
Subtotal	17,459,161
Sludge**	474,215
Total Oil/Water	16,984,946

* 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 4/12/2012)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
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	1,282,157
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^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			16,984,911

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 4/12/2012)

Item	Cumulative (gallons)
Oil/Water Collected	16,984,946
Oil/Water Shipped Off-Site	16,984,911
Total Oil/Water Remaining On-Site	35

Table 8 – Estimated Recovered Oil (as of 4/10/2012)

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	33,779*
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
Total	-	-	1,148,009

Shaded items represent discontinued waste streams

*Totals updated for analytical received after report generation.

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

Location/Media	Total	April 2012											March 2012		
		11	10	9	8	7	6	5	4	3	2	1	31	30	29
Marshall Community Center	57	2	4	0	0	0	5	5	3	1	2	0	0	0	35
Oil Spill Public Information Hotline	11	2	1	0	0	0	1	3	2	0	1	1	0	0	0
Website	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Public Inquiries	69	4	5	0	0	0	6	8	5	1	3	1	0	0	36

Table 10 – Landowner Environmental Issues (as of 4/12/2012)

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

Table 11 - Financial Summary

Item	Expended (Cumulative) (as of 4/9/2012)
ERRS Contractors	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ <u>683,330</u>
Total ERRS Contractors	\$ 3,257,571
Other Contractors	
Lockheed Martin (EPW09031) – TAGA Support	\$ 185,951
T&T Bisso (EPA:HS800008)	\$ <u>882,087</u>
Total Other Contractors	\$ 1,068,038
START Contractor – WESTON (EPS50604)	
T030-Response	\$ 23,429,071
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,479,059</u>
Total START Contractor	\$ 25,091,697
Response Contractor Sub-Totals	\$ 29,417,306
U.S. EPA Funded Costs: Total U.S. EPA Costs	\$ 5,850,465
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,622,624
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,074,032
Total Est. Oil Spill Cost	\$ 41,562,679
Oil Spill Ceiling Authorized by USCG	\$ 49,700,000
Oil Spill Ceiling Available Balance	\$ 8,137,321

Shaded items are discontinued

Table 12 - Personnel On-Site

Agency/Entity	April 2012											March 2012		
	11	10	9	8	7	6	5	4	3	2	1	31	30	29
U.S. EPA	4	4	1	0	0	2	3	3	3	1	0	1	5	6
START	23	19	3	0	1	10	14	21	20	22	1	20	36	36
MDEQ	6	6	4	0	0	3	5	7	9	8	0	5	9	10
MDEQ Contractors	5	5	0	0	0	3	7	6	6	6	0	0	6	7
Calhoun County Public Health	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calhoun County (CC) EM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Battle Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Marshall	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Village of Augusta	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalamazoo Sheriff	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDCH	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USGS	1	0	0	0	0	0	0	1	1	1	0	1	4	4
USFWS	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Michigan State Police EMD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Allegan County Emergency Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Enbridge – Operations Center	57	52	2	0	2	29	46	51	45	43	0	21	53	57
Enbridge – Talmadge Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Enbridge – Kalamazoo River	29	23	0	0	0	11	15	16	15	17	0	8	6	7
Enbridge – Containment	12	13	0	0	0	13	11	12	12	12	0	18	17	21
Enbridge – Submerged Oil	7	7	0	0	0	2	6	6	6	5	0	0	2	2
Enbridge – Overbank	9	11	0	0	0	18	22	22	31	48	1	18	31	36
Enbridge – River Reopening	1	1	0	0	0	1	1	1	1	0	0	0	0	0
Enbridge – Waste Management	14	15	0	0	0	12	11	10	10	7	0	10	10	13
Enbridge – Security & Flaggers	5	5	5	5	5	5	5	5	9	9	8	9	9	10
Enbridge – Communications Center	9	3	6	0	0	1	10	9	9	9	1	2	9	9
Total	182	164	21	5	8	110	156	170	177	188	11	113	201	224

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