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**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #101**



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

US EPA ARCHIVE DOCUMENT



STRIKE Team Assessment at MP-11.25 R2

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Date: 05/31/2011

Reporting Period: 0700 hours 05/23/2011 through 0700 hours 05/30/2011

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

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 #100.

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 05/23/2011 through 0700 hours 05/30/2011.

3. Operations

This operations 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	45	Talmadge Creek; 2 (Sediment Trap); B5 (2.25 L2); 2.50 L1; 2.75 R1; 3.25 IA; 4.25 IE; 4.50 L1 C6; D3; E3; E4; 3.25 IA; 4.25 IE; 4.50 L1; 4.50 IF; 5.55 N; 6.00 R1; 6.00 R3; 6.00 R4; 7.00 L1; 7.00 R1; 8.50 L1; 8.50 L2; 9.00 I1; 9.00 I2; 9.00 L1; 9.75 R1; 10.5 R1; 10.5 L2; 10.5 RDB; 10.75 L2SO; 11.25 R1; 11.25 R2; 11.75 R1; 12.75 R1; 13.50 L1; 15.00 I1; 15.50 L1; 15.75; 17.00 L1; 19.25 L1; 21.50 R1; 28.25 R1; 37.5 S

A summary of daily activity at operational work sites as reported by Enbridge is summarized below.

Table 2 – Daily Activity/Progress

O&M Process	May 2011						
	29	28	27	26	25	24	23
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	108	108	108	108	105	105	105
Control Points	6	6	6	6	6	6	6
Protective Containment Sites	38	38	38	38	38	38	38
River Erosion Sites	26	26	26	26	26	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. Preparation of a revised inundation model continued. A summary of SORT progress for this period is presented below.

Table 3 – SORT Progress as of 5/29/2011

Quarter – mile Segments Completed	482 locations (92.4% 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 5/29/2011

Number of Locations	87
Approximate Total Area:	0.8 acres (32,700 sq ft)
Moderate (45 Locations)	0.2 acres (7,600 sq ft)
Heavy (53 Locations)	0.6 acres (25,100 sq ft)

Table 5 – Poling Progress on Kalamazoo River as of 5/29/2011

Number of locations:	166
Approximate Total Area:	63.3 acres (2,759,500 sq ft)
Moderate (45 Locations)	8.1 acres (353,500 sq ft)
Heavy (53 Locations)	55.2 acres (2,406,000 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.

3.4 Decontamination

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

Table 6 - Equipment Decontamination

Location/Media	Total	May						
		29	28	27	26	25	24	23
Frac Tanks	0	0	0	0	0	0	0	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 (feet)	0	0	0	0	0	0	0	0

3.5 Additional Operations

3.5.1 Air Operations

There were 5 over-flights for situational awareness during this operational. 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.

3.5.2 Environmental Compliance and Oversight

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

3.5.3 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 7 – Samples Collected By Enbridge

Sample Type	Total	May						
		29	28	27	26	25	24	23
Surface Water	31	0	0	0	15	1	10	5
Private Well Samples	0	0	0	0	0	0	0	0
Groundwater Samples	10	0	0	0	6	1	3	0
Sediment Samples	20	0	0	3	9	0	3	5
Soil Samples	2	0	0	0	0	0	0	2

3.5.4 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 was completed.

4. Landowner Environmental Issues

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

Table 8 – Landowner Environmental Issues

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	11	1

5. Progress Metrics

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

Table 9 - Boom and Aqua Dam Report

Metric	May						
	29	28	27	26	25	24	23
# Boom Locations	45	45	45	45	45	45	45
[# control points included]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Total Surface Boom Deployed (ft)	28,850	28,850	28,850	28,850	27,750	27,750	27,450
[ft of control point surface boom]	[9,750]	[9,750]	[9,750]	[9,750]	[8,950]	[8,950]	[8,750]
# 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 10 - Soil and Debris Shipped Off Site as of 5/29/2011

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)	9,495	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)	776	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	1,964	

Shaded and italicized items are discontinued waste streams.

Table 11 – Oil/Water Collected by Location (as of 5/29/2011)

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	1,679,755
Site A	246,212
Other Locations*	1,292,344
Subtotal	15,502,855
Sludge**	474,215
Total Oil/Water	15,028,640

* 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 12 – Oil/Water Separation at Enbridge Facility in Griffith, IN (as of 5/29/2011)

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

Table 13 - Liquid Shipped Off-Site (as of 5/29/2011)

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 ^a</i>		<i>825</i>
Non-Haz Water	Dynecol	Detroit, MI	827,914
Non-Haz Water	Liquid Industrial Waste	Holland, MI	59,301
<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	893,980
Total			15,014,152

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 14 - Oil/Water Remaining On-Site 5/29/2011

Item	Cumulative (gallons)
Oil/Water Collected	15,028,640
Oil/Water Shipped Off-Site	15,014,152
Total Oil/Water Remaining On-Site	14,488

6. Support Operations

6.1 Planning

The Planning Section 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 Linda Dykema, 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. As a result of the sewage release, in-water activities were immediately halted. The river was re-opened for response activities on Monday, May 23, 2011 at 11:35, after water quality sample results were evaluated by the Calhoun and Kalamazoo County Health Departments.

A significant rain and wind event (approaching a 50-year flood event) occurred on Sunday, May 29, 2011. As a result, water levels in the Kalamazoo River and Talmadge Creek rose substantially and rapidly. High winds also downed numerous trees and power lines. The resulting damage is hampering ongoing reassessment activities. Work is underway to clear trees and debris within the river.

Due to the changing of the seasons, an emphasis continues to be placed on spring weather awareness (heavy rain, fog, swift water, flood watch and rising of water levels) with the work crews. Heat stress and storm damage debris awareness are current focus items.

The safety staff continues to work with and monitor Enbridge Safety operations, provide field support for the reassessment teams and training to new reassessment staff.

6.3 Public Information

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

Table 15 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	May						
		29	28	27	26	25	24	23
Marshall Community Center	9	0	0	0	3	3	2	1
Oil Spill Public Information Hotline	0	0	0	0	0	0	0	0
Website	1	0	0	0	0	0	0	1
Total Public Inquiries	10	0	0	0	3	3	2	2

6.4 Finance

The current NPFC issued ceiling is \$31.2 Million. Approximately 89.3% of the ceiling has been spent through May 29, 2011. As of May 29, 2011, the latest average 7-day burn rate was \$32,967 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 16 - Financial Summary

Item	Expended (Cumulative) as of 5/29/2011
ERRS Contractors	
EQM (EPS50802) T057	\$ 1,250,065
T060	\$ 204,905
LATA (EPS50804) T019	\$ 1,451,396
ER LLC (EPS50905) T040	\$ 723,669
Total ERRS Contractors	\$ 3,630,035
Other Contractors	
Lockheed Martin (EPW09031) – TAGA Support	\$ 150,000
T&T Bisso (EPA:HS800008)	\$ 1,255,000
Total Other Contractors	\$ 1,405,000
START Contractor – WESTON (EPS50604)	
T030-Response	\$11,302,724
T032-Sampling	\$ 180,214
T037-Doc Support	\$ 788,501
Total START Contractor	\$12,271,439
Response Contractor Sub-Totals	\$17,306,474
EPA Funded Costs: Total EPA Costs	\$ 4,897,157
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,823,682
Sub-Totals	\$24,027,313
Indirect Cost (16.00%)	\$ 3,844,370
Total Est. Oil Spill Cost	\$27,871,683
Oil Spill Ceiling Authorized by USCG	\$31,200,000
Oil Spill Ceiling Available Balance	\$ 3,328,317

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 17 - Personnel On-Site

Agency/Entity	May						
	29	28	27	26	25	24	23
U.S. EPA	0	0	1	1	2	2	2
START	1	1	20	25	22	24	25
Calhoun County Public Health	0	0	0	3	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
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	0	0	0	0
Kalamazoo Sheriff	0	0	0	1	0	0	0
MDEQ	0	0	11	11	12	12	11
MDEQ Contractors	0	0	1	3	3	3	4
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	9	10	86	110	107	104	93
Enbridge – Field	4	19	139	136	145	151	142
Total	14	30	258	294	291	296	277

*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>.