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U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #155

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

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To: Susan Hedman, U.S. EPA Regional Administrator
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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: 8/8/2012

Reporting/Operational Period: 0700 hours 7/26/2012 through 0700 hours 8/2/2012

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) Submerged Oil; 2) Containment; 3) Kalamazoo River System; 4) Air Operations; and 5) Waste Management.
- The Submerged Oil Recovery Group, Submerged Oil Monitoring Group, Containment Science Group, Containment Monitoring Group, and the Air Operations Branch were not active during this operational period

2.1 Submerged Oil Branch

2.1.1 OSCAR Group

- No activities were conducted during this operational period.

2.1.2 Submerged Oil Science Group

- The amount of oil globules observed (visually and/or by ultra violet light-UV) in some of the sediment cores being collected was less than anticipated based on the poling results (i.e., heavy, moderate) and less than historical observations at similar locations.
    - A review of and revision to the sediment core processing was performed.

- Enbridge commenced a pilot test on select sediment core locations to validate the UV inspection process. This pilot testing also includes chemical analyses to confirm the visual and UV observations.
- Results of the pilot testing will be used to refine, if appropriate, the core processing and inspection process on sediment cores.

- Enbridge continued implementation of the Agitation Effects Study through July 27, 2012. Based on the observations of initial activities during the study, the protocol was revised slightly for future study sites to be completed. Agitation Effects Study field activities were temporarily suspended at the conclusion of July 27, 2012, pending revisions to the core processing/sampling procedures.
- U.S. EPA and Enbridge continued implementation of a sediment coring program through July 27, 2012, to quantify the amount of submerged oil remaining in the system. The sediment coring program was temporarily suspended at the conclusion of July 27, 2012, pending revisions to the core processing/sampling procedures.
- Monitoring of submerged oil in Morrow Lake and the Morrow Lake Delta continued according to the Morrow Lake Monitoring, Assessment, and Management Plan.

2.1.3 Submerged Oil Compliance Group

- No activities were performed during this operational period.

2.2 Containment Branch

2.2.1 Containment Compliance Group

- Enbridge tracked an MDEQ permit application for installation of enhancements (e.g. structures) and cylindrical sampling devices at 14 sediment trap locations. The MDEQ issued a permit on July 30, 2012.

2.2.2 Containment Recovery Group

- Pursuant to the Emerging Oil Management Program (EOMP), Enbridge, U.S. EPA, and MDEQ continued to track the location, response, and sheen differentiation test results of each identified location of sheen. Teams recorded and documented sheen observations in the main channel and overbank areas, and conducted sheen testing as necessary. Sheen observations were reported back to Operations Section Chiefs for response and/or monitoring. See Table 1 for information regarding the total number of sheen differentiation tests conducted, and the results of those tests.
- On July 24, 2012, U.S. EPA, MDEQ, and Enbridge implemented a new procedure for response to observations of oil sheen. The new procedure utilizes a decision matrix for determining whether a response is necessary.
- Daily sheen management activities continued with sheen sweep boats conducting routine recovery activities at Ceresco Dam, Mill Ponds, and the Morrow Lake Delta/Morrow Lake, along with other ongoing sheen sweep responses as determined necessary. See Table 2 for information regarding the total number of sheen responses by date.
- As of August 2, 2012, a total of 800 feet of surface hard boom has been deployed at the Ceresco Control Point. Additionally, a total of 8,400 feet of surface hard boom and 4,550 feet of subsurface half curtain has been deployed at the E4 Containment system boom locations. Teams removed debris accumulated within the boomed areas. Inspection of subsurface curtain was performed using an underwater camera.
- Teams performed weekly visual inspections of the 6 currently-permitted sediment trap locations.

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2.3 Kalamazoo River System Branch

2.3.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group

- Supplemental RI activities were performed by Enbridge in the Source Area. This included soil boring implementation and temporary monitoring well installation.

2.3.2 Kalamazoo River Compliance Group

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) sites.
- Restoration planting of the Talmadge Creek corridor between MP 0.0 and MP 0.50 was completed.

2.3.3 Kalamazoo River Remedial Action Group

- No activities were conducted during the reporting period.

2.3.4 Talmadge Creek/Kalamazoo River Monitoring Group

- Monitoring of erosion control devices continued.
- Water level gauges were monitored at multiple locations along the Kalamazoo River, Morrow Lake Delta, and Morrow Lake. In addition, daily water and sediment temperature readings were collected at 10 locations.
- Enbridge conducted weekly monitoring of buoys and signage along the Kalamazoo River.

2.5 Waste Management Branch

- A summary of equipment and boom decontaminated during this reporting period is presented in Table 3.
- Quantities of soil, debris, and liquid shipped off-site during the reporting period are presented in Tables 4 and 5.
- 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 6.

3. Planning

3.1 Situation Unit

- Situation Unit personnel observed and documented progress in operational areas, assessed locations of oil globules and oil sheen through field observations and weekly over-flights. Personnel reported observations of sheen/product (globules) to Operations for follow-up testing and/or response, consistent with the EOMP. See Section 2.2.2 for additional details regarding the EOMP.
- Photographs were taken and distributed to project participants during Operations, Command and General Staff, and Multi-Agency Coordination (MAC) Group meetings.
- Enbridge continued to maintain an odor response team; however, no odor complaints were received during the operational period. Air monitoring and sampling information is included in Tables 7 and 8.

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3.2 Environmental Unit

- Enbridge's Kalamazoo River Hydrodynamic Transport Model Report containing baseline model calibration results (e.g. riverine and floodplain grids) and various baseline scenario results, sensitivity analysis results, and the Report addendum are currently under review by U.S. EPA.
- Activities in support of estimating the quantity of submerged oil remaining as of Summer 2012 continued.
- A plan was prepared for validation of the UV inspection process for sediment cores. This also includes evaluating the sediment cores for the possible presence of oil-mineral aggregate (OMA), which may not be visible using current core inspection/UV processes.
- Enbridge and MDEQ continued to review and track RI progress.

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 $52.7 Million. Approximately 87.2% of the ceiling has been spent through July 29, 2012. The latest average 7-day burn rate was $33,059. 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)

- Individuals in the Eco-Toxicity Subgroup continue to use the interim version of a Net Environmental Benefits Analysis (NEBA) to assess the harm and benefits accompanying oil recovery efforts. The draft

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recommendation document is near completion and will be submitted to the FOSC for review upon incorporation of Spring 2012 poling results.

- SSCG and Enbridge forensic chemists held a conference call to examine the oil fingerprinting results and compare procedures for applying oil fingerprinting results to the task of measuring Line 6B oil remaining in the Kalamazoo River sediments.

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, 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 – Sheen Differentiation Test Results

		July/August 2012						
	Total	**8/1**	**7/31**	**7/30**	**7/29**	**7/28**	**7/27**	**7/26**
Sheen Tests Performed	0	0	0	0	0	0	0	0
Results Indicated Petroleum Source	0	0	0	0	0	0	0	0
Results Indicated Biogenic Source	0	0	0	0	0	0	0	0
Inconclusive Test Results	0	0	0	0	0	0	0	0

Table 2 – Sheen Responses

	July/August 2012						
Total	**8/1**	**7/31**	**7/30**	**7/29**	**7/28**	**7/27**	**7/26**
54	8	7	7	0	7	12	13

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Table 3 - Equipment Decontamination

Location/Media	Total	July/August 2012						
		8/1	7/31	7/30	7/29	7/28	7/27	7/26
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 (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 8/2/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd^3)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd^3) (Excluding Ceresco Dredge)	76,443	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)	1,718	SET/C&C
Non-Haz Impacted Debris (ton)	7,045	

Shaded items are discontinued waste streams.

Table 5 - Liquid Shipped Off-Site (as of 8/2/2012)

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	1,376,757
Non-Haz Water	Plummer	Kentwood, MI	392,526
Hazardous Water	*Dynecol*	*Detroit, MI*	*3,594,579*
Oil *Other Material*	*Enbridge Facility*	*Griffith, IN*	*766,288* *1,405,525*
Treated Non-Haz Water	*Liquid Industrial Waste*	*Holland, MI*	*370,200*
Treated Non-Haz Water	*Plummer*	*Kentwood, MI*	*4,976,140*
Hazardous Water	*Safety Kleen* [a]		*825*
Treated Non-Haz Water	*Dynecol*	*Detroit, MI*	*150,700*
Treated Non-Haz Water	*Battle Creek POTW*	*Battle Creek, MI*	*1,968,700*
		Total	**17,127,312**

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.

Table 6 – Estimated Recovered Oil (as of 7/30/2012)

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	13,814
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	33,965
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,176
	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	**1,148,413**

Shaded items represent discontinued waste streams

Table 7 – Real Time Air Monitoring Counts Performed by Enbridge

Monitoring Location	Total	July/August 2012						
		8/1	7/31	7/30	7/29	7/28	7/27	7/26
Odor Response	**0**	0	0	0	0	0	0	0
Work Area	**53**	6	5	9	0	4	9	20

Table 8 – Samples Collected By Enbridge

Sample Type	Total	July/August 2012						
		1	31	30	29	28	27	26
Surface Water	**0**	0	0	0	0	0	0	0
Private Well	**0**	0	0	0	0	0	0	0
Groundwater	**0**	0	0	0	0	0	0	0
Sediment	**222**	0	0	0	0	0	118	104
Soil	**17**	11	6	0	0	0	0	0
Product	**12**	0	0	0	0	0	7	5
Dewatering	**0**	0	0	0	0	0	0	0
Sheen	**1**	0	0	0	0	0	0	1

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

Location/Media	Total	July/August 2012						
		8/1	7/31	7/30	7/29	7/28	7/27	7/26
Marshall Community Center	**4**	2	0	1	0	0	0	1
Oil Spill Public Information Hotline	**6**	1	0	2	1	1	1	0
Website	**0**	0	0	0	0	0	0	0
Total Public Inquiries	**10**	**3**	**0**	**3**	**1**	**1**	**1**	**1**

Table 10 – Landowner Environmental Issues (as of 8/2/2012)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	4	1

Table 11 - Financial Summary

Item		Expended (Cumulative) (as of 7/29/2012)	
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		$	198,379
Lockheed Martin (EPW09031) -Biodegradability Study			28,356
T&T Bisso (EPA:HS800008)		$	882,087
	Total Other Contractors	$	**1,108,822**
START Contractor – WESTON (EPS50604)	T030-Response	$	26,516,714
	T032-Sampling	$	183,567
	T037-Doc Support	$	1,665,395
	Total START Contractor	**$**	**28,365,676**
	Response Contractor Sub-Totals	**$**	**32,703,713**
U.S. EPA Funded Costs: Total U.S. EPA Costs		$	**6,059,681**
Pollution Removal Funding Agreements – Total Other Agencies		$	**1,973,239**
Indirect Cost (16.00%)		$	3,598,252
Indirect Cost (8.36%)		$	1,366,266
	Total Est. Oil Spill Cost	**$**	**43,980,411**
Oil Spill Ceiling Authorized by USCG		$	52,700,000
Oil Spill Ceiling Available Balance		$	**6,746,349**

Shaded items are discontinued

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Table 12 - Personnel On-Site

Agency/Entity	July/August 2012						
	8/1	**7/31**	**7/30**	**7/29**	**7/28**	**7/27**	**7/26**
U.S. EPA	1	1	0	0	0	1	1
START	18	10	15	1	15	23	23
MDEQ	5	6	5	6	6	6	6
MDEQ Contractors	3	2	2	2	2	2	2
USGS	0	0	0	0	0	0	1
Calhoun County Public Health	0	0	0	0	0	0	2
Calhoun County (CC) EM	0	0	0	0	0	0	1
City of Battle Creek	0	0	0	0	0	0	0
City of Marshall	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	0
MDCH	0	0	0	0	0	0	1
Michigan State Police EMD	0	0	0	0	0	0	0
Allegan County Emergency Management	0	0	0	0	0	0	0
MDNR	0	0	0	0	0	0	0
Enbridge – Operations Center	45	49	45	0	5	42	51
Enbridge – Kalamazoo River	24	21	11	0	0	9	13
Enbridge – Containment	13	13	14	0	12	10	10
Enbridge – Submerged Oil	6	3	12	0	1	31	32
Enbridge – Waste Management	1	1	1	0	1	1	1
Enbridge – Security & Flaggers	4	4	4	4	4	4	4
Enbridge – Communications Center	4	4	4	0	0	3	5
Total	**124**	**114**	**113**	**13**	**46**	**132**	**154**

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

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