U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #167

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

MP36.10 Sediment Trap Removal

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: 11/12/2012

Reporting/Operational Period: 0700 hours 10/25/2012 through 0700 hours 11/05/2012

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; and 4) Waste Management.

2.1 Submerged Oil Branch

2.1.1 Submerged Oil Science Group

- On October 12, 2012, U.S. EPA issued an Approval with Modifications letter for Enbridge's 2012 Morrow Lake and Morrow Lake Delta Monitoring and Management Work Plan. Enbridge's submittal of a revised plan incorporating the required modifications was due on October 24, 2012.
- Teams completed Round 10 of submerged oil monitoring (poling) in the Morrow Lake Delta and Round 26 in Morrow Lake, including step-out poling in the Morrow Lake fan of four moderates and one heavy. This work was conducted in accordance with the 2012 Morrow Lake and Morrow Lake Delta Monitoring and Management Work Plan (approved with modifications). Results will be used to monitor the potential movement of Line 6B submerged oil within the Morrow Lake Delta and Morrow Lake, and to evaluate the effectiveness of the E 4.0 Containment System.
- Teams collected monthly sediment samples from all installed walling tubes. Samples will be held for analysis, pending completion of the procedures for identification of Line 6B oil via chemical fingerprinting. Analytical results will be used for additional calibration of the hydrodynamic model and to further characterize submerged oil fate and transport. All walling tubes and associated anchor systems were subsequently removed for the winter.

2.1.2 Submerged Oil Compliance Group

- No activities were conducted during this operational period.

2.2 Containment Branch

2.2.1 Containment Compliance Group

- No activities were conducted during this operational period.

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 (when necessary) of each identified location of sheen and/or oil globules in the main channel and overbank areas. Observations of sheen and/or oil globules were reported back to Operations Section Chiefs for response, if appropriate. See Table 1 for information regarding the total number of sheen differentiation tests conducted, and the results of those tests.
- Management of oil sheen and/or globules continued with sweep boats conducting sweep responses as determined necessary. Enbridge continued routine sweep boat recovery activities at Ceresco Dam (MP 5.25 to Ceresco control point), MP 21.5 to MP 28.25, and the Morrow Lake Delta/Morrow Lake. See Table 2 for information regarding the total number of responses to oil sheen and/or globules by date.
- As of November 5, 2012, a total of 800 feet of surface hard boom is deployed at the Ceresco Control Point. Additionally, a total of 8,400 feet of surface hard boom and 5,350 feet of subsurface half curtain have been deployed at the E4 Containment system boom locations. Teams removed debris accumulated within the boomed areas and continued to monitor the E4 system half-curtain locations using an underwater camera. Adjustments to various half-curtains were made as necessary.
- On November 1 and 2, 2012, Enbridge removed the enhanced sediment trap structure and CSDs at MP 36.10, as required by the Enbridge's Access Agreement from the property owner. Containment boom was installed prior to removal and turbidity monitoring was conducted during structure removal.
- Teams performed weekly visual inspections of the 5 currently-installed Phase I and II enhanced sediment trap structure locations.

2.3 Kalamazoo River System Branch

2.3.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group

- Enbridge continued Kalamazoo River remedial investigation activities, including hydrocarbon fingerprint evaluation of overbank soils and collection of soil samples for background metals analyses.

2.3.2 Kalamazoo River Compliance Group

- No activities were conducted during this operational period.

2.3.3 Kalamazoo River Remedial Action Group

- No activities were conducted during this operational period.

2.3.4 Talmadge Creek/Kalamazoo River Monitoring Group

- Weekly SESC inspections of the source area were conducted on October 25 and 31, 2012.
- Monitoring of erosion control devices continued.
- Water level and flow rate information continued to be downloaded daily from three USGS gauging stations at Marshall, Battle Creek, and Comstock.
- Collection of daily water and sediment temperature readings continued at locations where operational tasks were being performed.
- Enbridge conducted weekly monitoring of buoys and signage along the Kalamazoo River.

2.5 Waste Management Branch

- No equipment or boom was decontaminated during this reporting period.
- Quantities of soil, debris, and liquid shipped off-site during the reporting period are presented in Tables 3 and 4.
- 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 5.

3. Planning

3.1 Situation Unit

- Situation Unit personnel observed and documented progress in operational areas, and documented locations of oil sheen and/or globules through field observations and weekly overflights. Personnel reported observations of oil sheen and/or 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.
- Specific observations during this period include the repeated observation of oil sheen and globules at Ceresco Dam from MP 4.5 to the Ceresco Control Point, the Mill Ponds, the north and south coves and the main channel of the Morrow Lake fan, and the Morrow Lake Delta. However, observations of oil sheen and globules decreased in relation to decreasing water and sediment temperatures.
- Situation Unit personnel began documenting occurrences of ice formation throughout the river system.
- Photographs were taken and distributed to project participants during the weekly ICS meeting and Multi-Agency Coordination (MAC) Group meetings.

3.2 Environmental Unit

- Enbridge, U.S. EPA, and MDEQ will continue to discuss further use of the Kalamazoo River Hydrodynamic Transport Model to support future Operational decisions.
- Review of analytical results from the chemical fingerprint analyses for the oil quantification pilot study continued. The analysis focused on identification of pyrogenic and petrogenic background concentrations within the pilot study core samples and evaluation of the possible presence of oil-mineral aggregate (OMA). Results of the pilot study will be used to validate the UV inspection process for evaluating sediment cores.

- Sediment cores collected during the agitation effects study and the submerged oil quantification program continue to be held in cold storage pending the results of the pilot study.
- Enbridge and MDEQ continued to review and track RI progress.

3.3 Documentation Unit

- The Documentation Unit continued organizing and archiving electronic and paper files for post-incident use.

3.4 Resource Unit

- The Resources Unit continued to support production of the Incident Action Plan (IAP), supported the planning efforts of operations, and provided 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 7.

5. Finance

- The current National Pollution Funds Center (NPFC) ceiling is $52.7 Million. Approximately 91.9% of the ceiling has been spent through November 5, 2012. The latest average 7-day burn rate was $49,238 per day. These cost summaries reflect only U.S. EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 8.

6. Scientific Support Coordination Group (SSCG)

- On October 24, 2012, U.S. EPA received the Centre for Offshore Oil, Gas and Energy Research (COOGER) report entitled "UV-Epifluorescence Microscopy Analysis of Sediments Recovered from the Kalamazoo River". The report is currently being reviewed by U.S. EPA and Enbridge.
- On October 26, 2012, U.S. EPA Emergency Response Team (ERT) submitted the Final Bench Scale/Screening Level Oil Biodegradation Study for the Enbridge Line 6B Release. The report is currently being reviewed by U.S. EPA and Enbridge.
- Recommendations regarding the Net Environmental Benefits Analysis (NEBA), agitation effects study and quantification of submerged oil are being reviewed by the FOSC.
- SSCG and Enbridge forensic chemists continued periodic conference calls to examine the oil fingerprinting results and compare procedures for applying oil fingerprinting results to measuring Line 6B oil remaining in the Kalamazoo River sediments.

7. 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).

8. Personnel On-Site

- Staffing numbers for the entities and agencies active in the response are presented in Table 9.

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/.

10. Clean-up Progress Metrics

Table 1 – Sheen Differentiation Test Results

Description	Total	November 2012				October 2012						
		4	3	2	1	31	30	29	28	27	26	25
Sheen Tests Performed	**4**	0	0	0	0	1	0	0	0	0	2	1
Results Indicated Petroleum Source	**1**	0	0	0	0	1	0	0	0	0	0	0
Results Indicated Biogenic Source	**0**	0	0	0	0	0	0	0	0	0	0	0
Inconclusive Test Results	**3**	0	0	0	0	0	0	0	0	0	2	1

Table 2 – Sheen Responses

Description	Total	November 2012				October 2012						
		4	3	2	1	31	30	29	28	27	26	25
Responses	**21**	0	0	0	0	0	0	1	0	4	9	7

Table 3 - Soil and Debris Shipped Off Site (as of 11/1/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd^3)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil (yd^3) (Excluding Ceresco Dredge)	78,109	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)	1,801	SET/C&C
Non-Haz Impacted Debris (ton)	7,123	

Shaded items are discontinued waste streams.

Table 4 - Liquid Shipped Off-Site (as of 11/1/2012)

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	476,726
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	**17,211,512**

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 5 – Estimated Recovered Oil (as of 11/5/2012)

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	14,032
	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	34,453
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	**1,149,120**

Shaded and *italicized* items represent discontinued waste streams.

Table 6 – Samples Collected By Enbridge

Sample Type	Total	November 2012				October 2012						
		4	3	2	1	31	30	29	28	27	26	25
Surface Water	**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
Groundwater	**4**	0	0	0	0	0	0	0	0	0	0	4
Sediment	**11**	0	0	2	4	2	0	1	0	0	2	0
Soil	**51**	0	0	6	7	7	4	11	0	0	6	10
Product	**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
Sheen	**0**	0	0	0	0	0	0	0	0	0	0	0

Table 7 – Public Inquiries Received by U.S. EPA and Enbridge

Location/Med	Total	November 2012				October 2012						
		4	3	2	1	31	30	29	28	27	26	25
Marshall Community Center	**0**	0	0	0	0	0	0	0	0	0	0	0
Oil Spill Public Information Hotline	**0**	0	0	0	0	0	0	0	0	0	0	0
Website	**1**	0	0	0	0	0	0	1	0	0	0	0
Total Public Inquiries	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**

Table 8 - Financial Summary (as of 10/21/2012)

Item		Expended (Cumulative)	
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			30,612
T&T Bisso (EPA:HS800008)		*$*	*882,087*
Total Other Contractors		*$*	***1,111,078***
START Contractor – WESTON (EPS50604)			
	T030-Response	$	28,339,979
	T032-Sampling	$	183,567
	T037-Doc Support	$	1,802,391
Total START Contractor		**$**	**30,325,937**
Response Contractor Sub-Totals		**$**	**34,694,586**
U.S. EPA Funded Costs: Total U.S. EPA Costs		$	**6,162,704**
Pollution Removal Funding Agreements			
Total Other Agencies		$	2,051,535
Indirect Cost (16.00%)		$	3,598,252
Indirect Cost (8.36%)-payments after 10/1/2011		$	1,310,859
Indirect Cost (10.15%)-payments after 10/1/2012		$	277,307
Cost Documentation/Billing Admin Fee (2.93%)*		$	313,851
Total Est. Oil Spill Cost		**$**	**48,409,093**
Oil Spill Ceiling Authorized by USCG		$	52,700,000
Oil Spill Ceiling Available Balance		$	**4,290,907**

Shaded and *italicized* items are discontinued

* Effective on EPA Enbridge costs billed to USCG for bills issued after 6/5/12.

Table 9 - Personnel On-Site

Agency/Entity	November 2012				October 2012						
	4	**3**	**2**	**1**	**31**	**30**	**29**	**28**	**27**	**26**	**25**
U.S. EPA	0	0	2	2	2	2	2	0	0	2	2
START	0	2	12	12	12	13	13	0	3	12	14
MDEQ	0	0	5	5	6	4	5	0	0	5	5
MDEQ Contractors	0	0	2	3	2	2	2	0	0	2	3
USGS	0	0	1	1	1	1	0	0	0	0	0
Calhoun County Public Health	0	0	0	0	0	0	0	0	0	0	1
Calhoun County (CC) EM	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	1
City of Marshall	0	0	0	0	0	0	0	0	0	0	1
Kalamazoo County Public Health	0	0	0	0	0	0	0	0	0	0	1
Kalamazoo Sheriff	0	0	0	0	0	0	0	0	0	0	1
MDCH	0	0	0	0	0	0	0	0	0	0	1
Michigan State Police EMD	0	0	0	0	0	0	0	0	0	0	0
Allegan County Emergency Mgmt.	0	0	0	0	0	0	0	0	0	0	0
MDNR	0	0	0	0	0	0	0	0	0	0	0
Enbridge – Operations Center	0	0	0	0	27	28	27	0	3	27	28
Enbridge – Kalamazoo River	0	0	5	7	6	3	7	0	0	5	8
Enbridge – Containment	0	4	14	14	8	10	10	0	4	9	11
Enbridge – Submerged Oil	0	0	4	4	6	2	5	0	0	5	5
Enbridge – Waste Management	0	0	1	1	1	1	1	0	0	3	1
Enbridge – Marshall Office	0	2	36	36	14	14	13	0	0	15	14
Total	**0**	**8**	**82**	**85**	**85**	**80**	**85**	**0**	**10**	**85**	**97**

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