

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #195**



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



Morrow Lake Delta E4.0 Containment Removal (12/13/2013)

US EPA ARCHIVE DOCUMENT

To: Susan Hedman, U.S. EPA Regional Administrator
 James Sygo, MDEQ
 Michelle DeLong, MDEQ
 Dr. Linda Dykema, MDCH
 Deb Cardiff, Kalamazoo County Public Health
 Richard Fuller, Kalamazoo County Sheriff's Office
 James Rutherford, Calhoun County Public Health Department
 Durk Dunham, Calhoun County Emergency Management
 Scott Corbin, Allegan County Emergency Management
 Tiffany Eichorst, City of Battle Creek
 Cheryl Vosburg, City of Marshall
 Christine Kosmowski, Calhoun County Water Resources Commissioner

From: Jeffrey Kimble, U.S. EPA, Federal On-Scene Coordinator

Date: 01/21/2014

Operational Period: 0700 hours 12/02/2013 through 0700 hours 12/09/2013
 0700 hours 12/09/2013 through 0700 hours 12/16/2013

Reporting Period: 0700 hours 12/02/2013 through 0700 hours 12/16/2013

1. Site Data

| | | | |
|----------------------------|-----------|---------------------------|----------------|
| Site Number: | Z5JS | Response Type: | Emergency |
| Response Authority: | OPA | Incident Category: | Removal Action |
| Response Lead: | RP | 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) Environmental Field Teams; and 2) Dredge Operations.

2.1 Environmental Field Teams Branch

2.1.1 Science Division

- Sediment trap monitoring continued in accordance with the approved Sediment Trap Monitoring and Maintenance Plan (July 10, 2012). Samples were collected from Cylindrical Sampling Devices (CSDs) on December 9, 2013.

2.1.2 Water Operations Division

- As of the close of the reporting period 2,800 feet of surface hard boom and 500 feet of subsurface half-curtain remained in the Morrow Lake Delta at the E 4.0 Containment System.
- Management of oil sheen and/or globules continued throughout the period. No responses were conducted during this reporting period.

2.1.3 Compliance Division

- As of the close of the reporting period, Enbridge's MDEQ dredging permit application for the MP 28.25 sediment trap remained in review with MDEQ. The permit application will require a full review by MDEQ and a public notice period.
- U.S. EPA outlined in Section 47 of the March 14, 2013 Administrative Order and subsequently verbally communicated to Enbridge that it is Enbridge's responsibility to apply for MDEQ dredging permits and to modify existing permits to include dredging as the submerged oil recovery method, in a timeframe which allows for compliance with the U.S. EPA Order deadline of December 31, 2013. Enbridge has elected to wait for triggers to occur before applying for or modifying the existing MDEQ dredging permits.

2.2 Dredge Operations Branch

2.2.1 Ceresco, Mill Ponds, Morrow Lake and Sediment Trap Divisions

- Excavation of the newly exposed overbank soils in the "bowl" area immediately upstream of Ceresco Dam continued throughout the period. Sediment staging in cubic yard sacks and pumping of excavated sediment slurry across the river to the Ceresco dredge pad continued throughout the period.
- Dredging operations at the Mill Ponds impoundment were suspended on December 10, 2013 due to icing conditions.
- Material staging and slurry transfer station set-up continued throughout the period at the E-0.5 boat launch in preparation for sediment removal at the MP 26.0 RDB sediment trap.
- Dewatering of the MP 36.1 sediment trap began on December 3, 2013. Excavation began on December 4, 2013 and was suspended on December 11, 2013 due to flooding caused by a downstream ice jam. Temporary demobilization of equipment due to flooding conditions was completed on December 14, 2013.
- Pre-Dredge bathymetry was completed on December 6, 2013 in the Morrow Lake Delta, in preparation for sediment removal activities associated with removal of the E4.0 containment system silt curtains prior to winter months. Dredging operations were suspended on December 9, 2013 and additional removal of the E-4 containment system was suspended on December 16, 2013, due to icing conditions. Portions of the E-4 containment system silt curtain (along the E and F boom sections) were removed without dredging of accumulated sediment due to the early onset of icing conditions.
- During the reporting period, U.S. EPA met with Enbridge to discuss plans and status of options for continued sediment removal actions at Morrow Lake and Morrow Lake Delta as required by the March 14, 2013 Order.
- Table 1 presents the quantities of water treated at each dredge location during the reporting period. Table 2 presents the estimated dredge waste on-site in Geotube bags, the cumulative estimated dredge waste, and the cumulative waste shipped off-site for disposal.
- Work area air monitoring, dissolved oxygen water quality monitoring, and turbidity water quality monitoring were conducted during dredging activities.

2.2.2 Waste Management Division

- Cumulative quantities of soil, debris, and liquid shipped off-site during the response are presented in Tables 3 and 4.
- The cumulative quantity of recovered oil 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 Section

3.1 Situation Unit

- During the reporting period, overflights were conducted on December 3 and 13, 2013 to document all operational areas and locations of oil sheen and/or globules. Photographs were taken and distributed to project participants in a Situation Update photograph log and during the weekly Consolidated ICS Meetings.

3.2 Environmental Unit

- U.S. EPA, USGS, and the U.S. Army Corps of Engineers held weekly meetings to discuss Hydrodynamic Model (HDM) activities.
- U.S. EPA continued review of sediment sample analytical results from legacy cores collected by Enbridge.
- U.S. EPA continued review of oil fingerprinting analytical results from sheen and globule samples collected by Enbridge to determine the presence/absence of Line 6B oil.

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

- Enbridge safety personnel continued conducting work-site safety inspections and implementing the plan for integration of public safety and worker safety on the Kalamazoo River.
- The USCG is providing the U.S. EPA with on-site support by monitoring safety throughout all active work areas.

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 \$63.25 million. Approximately 93.3% of the ceiling has been spent through December 15, 2013. The latest average 14-day burn rate was \$24,508 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)

- No activities were conducted during this operational period.

7. Participating Entities

- U.S. EPA and MDEQ continued to meet bi-weekly with a group of stakeholders to discuss how to continue to effectively communicate, share information about site progress, and receive feedback about the communication needs of the local communities. During the reporting period, a Stakeholder meeting was held on December 12, 2013.
- 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 – Water Treated During Dredging Operations for the Reporting Period

| Dredge Location | Water Treated (gal) |
|-----------------|---------------------|
| Ceresco | 1,868,183 |
| Mill Ponds | 4,830,893 |
| Sediment Traps | 5,295,000 |
| Morrow Lake | 0 |

Table 2 – Dredging Waste (as of 12/16/2013)

| Waste Stream | Estimated Dredge Waste On-Site in Geotube bags (yd ³) | Waste Transferred to Ceresco Dredge Pad (yd ³) | Cumulative Estimated Dredge Waste (yd ³) | Cumulative Waste Shipped Off-Site for Disposal (tons) |
|-------------------------------|---|--|--|---|
| Ceresco Pad Total | 5,974* | 1,322 | 102,453 | 105,620 |
| Mill Ponds | 6,743 | 1,944 | 22,442 | 15,354 |
| Sediment Traps | 0 | 0 | 11,477 | 10,639 |
| Morrow Lake Delta | 0 | 2,708 | 2,793 | 13 |
| C0.4/Wildlife Center/C3.2/FTC | N/A | 0 | 849** | 182 |
| Total | 12,717 | 5,974* | 140,013 | 131,809 |

*Estimate of Ceresco Pad waste includes waste from multiple sites as indicated.

**Estimated dredge waste related to oily debris.

Table 3 - Soil and Debris Shipped Off Site (as of 12/15/2013)

| Waste Stream | Cumulative | Disposal Facility |
|---|---------------|---|
| <i>Haz Soil (yd³)</i> | <i>19,644</i> | <i>Envirosafe (Oregon, OH)</i> |
| Non-Haz Soil (yd ³) | 186,317 | SET/C&C |
| Non-Haz Soil (yd ³) | 4,436 | SET/Ottawa County Farms |
| Non-Haz Soil (yd ³) | 14,303 | SET/WM Westside |
| <i>Non-Haz Soil & Debris (yd³) (Excluding 2010 Ceresco Dredge)</i> | <i>64,815</i> | <i>Westside Recycling (Three Rivers, MI)</i> |
| <i>Non-Haz Soil (yd³) (2010 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) | 2,202 | SET/C&C |
| Non-Haz Impacted Debris (ton) | 13,174 | |

Shaded and italicized items are discontinued waste streams.

Table 4 - Liquid Shipped Off-Site (as of 12/15/2013)

| Stream | Destination Company | Destination Location | Cumulative Volume (gallons)† |
|------------------------------|---------------------------------|-----------------------------|-------------------------------------|
| Non-Haz Water | Liquid Industrial Waste | Holland, MI | 1,483,707 |
| Non-Haz Water | Plummer | Kentwood, MI | 754,614 |
| <i>Non-Haz Water</i> | <i>Dynecol</i> | <i>Detroit, MI</i> | 981,792 |
| <i>Non-Haz Water</i> | <i>Battle Creek POTW</i> | <i>Battle Creek, MI</i> | 1,143,280 |
| <i>Hazardous Water</i> | <i>Dynecol</i> | <i>Detroit, MI</i> | 3,594,579 |
| <i>Oil</i> | <i>Enbridge Facility</i> | <i>Griffith, IN</i> | 766,288 |
| <i>Other Material</i> | | | 1,405,525 |
| <i>Treated Non-Haz Water</i> | <i>Liquid Industrial Waste</i> | <i>Holland, MI</i> | 370,200 |
| <i>Treated Non-Haz Water</i> | <i>Plummer</i> | <i>Kentwood, MI</i> | 4,976,140 |
| <i>Hazardous Water</i> | <i>Safety Kleen^a</i> | | 825 |
| <i>Treated Non-Haz Water</i> | <i>Dynecol</i> | <i>Detroit, MI</i> | 150,700 |
| <i>Treated Non-Haz Water</i> | <i>Battle Creek POTW</i> | <i>Battle Creek, MI</i> | 1,968,700 |
| Total | | | 17,596,350 |

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 12/16/2013)

| 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 | 23,178* |
| | Envirosafe/ Westside RDF | Oregon, OH | 278,665 |
| <i>Geotube Sediment - (Impacted Sediment)</i> | <i>Envirosafe/ Westside RDF</i> | <i>Oregon, OH</i> | 1,298 |
| Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass) | EQ Michigan | Belleville, MI | 55,835* |
| <i>Frac Tank City - Influent to Carbon Filtration System</i> | <i>C&C Landfill</i> | <i>Marshall, MI</i> | 8,109 |
| Frac Tank City - Water | Dynecol | Detroit, MI | 46,181* |
| | Liquid Industrial Waste Services, Inc. | Kentwood, MI | |
| | Plummers Env. Inc. | Holland, MI | |
| | BC POTW | Battle Creek, MI | |
| <i>Ceresco Pretreatment System</i> | <i>C&C Landfill</i> | <i>Marshall, MI</i> | 90 |
| <i>A-1 Pretreatment System</i> | <i>C&C Landfill</i> | <i>Marshall, MI</i> | 9 |
| Oily Water - RPP | Enbridge Facility | Griffith, IN | 766,288 |
| Total | | | 1,179,653 |

Shaded and italicized items represent discontinued waste streams.

*Total updated for analytical received after report generation.

Table 6 – Samples Collected By Enbridge

| Sample Type | Total | December 2013 | | | | | | | | | | | | | |
|---------------|-------|---------------|----|----|----|----|---|---|---|----|----|---|---|---|---|
| | | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Surface Water | 9 | 0 | 0 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Private Well | 13 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Groundwater | 50 | 0 | 7 | 9 | 0 | 1 | 2 | 0 | 0 | 7 | 4 | 8 | 7 | 5 | 0 |
| Sediment | 11 | 0 | 0 | 0 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Soil | 57 | 0 | 0 | 0 | 12 | 7 | 3 | 0 | 0 | 11 | 12 | 7 | 5 | 0 | 0 |
| Product | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dewatering | 18 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 8 | 0 |
| Sheen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 7 – Public Inquiries Received by Enbridge

| Location/Med | November/December 2013 | | | | | | | | | | | | | | | |
|--------------------------------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---|--|
| | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 30 | | |
| Marshall Community Center | 0 | 0 | 0 | 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 | 1 | 0 | 0 | 0 | 0 | 0 | | |
| Website | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Total Public Inquiries | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | | |

Table 8 - Financial Summary (as of 12/15/2013)

| Item | Expended (Cumulative) |
|---|-----------------------|
| <i>ERRS Contractors</i> | |
| <i>EQM (EPS50802)</i> | |
| <i>T057</i> | \$ 1,199,522 |
| <i>T060</i> | \$ 213,636 |
| <i>LATA (EPS50804)</i> | |
| <i>T019</i> | \$ 1,161,082 |
| <i>ER LLC (EPS50905)</i> | |
| <i>T040</i> | \$ 683,330 |
| Total ERRS Contractors | \$ 3,257,571 |
| <i>Other Contractors</i> | |
| <i>Lockheed Martin (EPW09031) – TAGA Support</i> | \$ 198,379 |
| <i>Lockheed Martin (EPW09031) -Biodegradability Study</i> | 61,886 |
| <i>T&T Bisso (EPA:HS800008)</i> | \$ 882,087 |
| Total Other Contractors | \$ 1,142,352 |
| START Contractor – WESTON (EPS50604) | |
| T030-Response | \$ 36,449,561 |
| Community Relations | \$ 114,563 |
| T032-Sampling | \$ 161,045 |
| T037-Doc Support | 2,052,120 |
| Total START Contractor | \$ 38,777,289 |
| Response Contractor Sub-Totals | \$ 43,183,884 |
| U.S. EPA Funded Costs: Total U.S. EPA Costs | \$ 6,784,707 |
| Pollution Removal Funding Agreements | |
| Total Other Agencies | \$ 3,637,081 |
| Indirect Cost (16.00%) | \$ 3,520,519 |
| Indirect Cost (8.36%)-payments after 10/1/2011 | \$ 1,310,859 |
| Indirect Cost (10.15%)-payments after 10/1/2012 | \$ 1,202,104 |
| Cost Documentation/Billing Admin Fee (2.93%)* | \$ 580,812 |
| | |
| Total Est. Oil Spill Cost | \$ 59,000,844 |
| Oil Spill Ceiling Authorized by USCG | \$ 63,250,000 |
| Oil Spill Ceiling Available Balance** | \$ 4,249,156 |

Shaded and *italicized* items are discontinued

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

**USCG personnel may increase to compensate for EPA not having all available funds to fully staff the site to execute the OPA Project Plan as approved through 12/31/2013. USCG personnel will fill gaps in contractor/EPA staff planned resources as appropriate.

Table 9 - Personnel On-Site

| Agency/Entity | December 2013 | | | | | | | | | | | | | |
|---|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 |
| U.S. EPA | 0 | 0 | 2 | 2 | 3 | 3 | 2 | 0 | 0 | 3 | 4 | 4 | 4 | 3 |
| START | 3 | 5 | 12 | 12 | 14 | 15 | 14 | 4 | 5 | 16 | 18 | 18 | 17 | 13 |
| MDEQ | 0 | 0 | 1 | 7 | 4 | 4 | 4 | 0 | 0 | 7 | 4 | 4 | 4 | 4 |
| MDEQ Contractors | 0 | 0 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 1 | 2 | 2 | 2 | 2 |
| Other Agencies | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 5 | 6 | 5 |
| Enbridge – Environmental Field Teams – Science* | 3 | 6 | 25 | 29 | 29 | 34 | 32 | 6 | 14 | 30 | 31 | 32 | 31 | 34 |
| Enbridge – Environmental Field Teams – Water Ops* | 15 | 26 | 36 | 40 | 52 | 83 | 80 | 63 | 73 | 68 | 60 | 61 | 57 | 58 |
| Enbridge – Dredge Operations – Ceresco* | 81 | 94 | 101 | 107 | 97 | 102 | 97 | 79 | 106 | 97 | 100 | 101 | 109 | 88 |
| Enbridge – Dredge Operations – Mill Ponds* | 0 | 16 | 29 | 25 | 34 | 51 | 49 | 31 | 45 | 61 | 62 | 53 | 59 | 62 |
| Enbridge – Dredge Operations – Delta/Morrow Lake* | 27 | 34 | 43 | 44 | 34 | 40 | 44 | 46 | 45 | 49 | 53 | 55 | 44 | 41 |
| Enbridge – Dredge Operations – Sediment Traps* | 6 | 36 | 42 | 43 | 51 | 47 | 37 | 28 | 41 | 44 | 48 | 42 | 38 | 40 |
| Enbridge – Waste Management* | 59 | 129 | 146 | 125 | 139 | 143 | 162 | 129 | 157 | 162 | 166 | 169 | 163 | 135 |
| Enbridge – Office Support* | 13 | 33 | 44 | 50 | 49 | 53 | 54 | 24 | 34 | 51 | 52 | 50 | 57 | 40 |
| Total | 210 | 382 | 485 | 489 | 511 | 580 | 580 | 413 | 523 | 593 | 604 | 596 | 591 | 525 |

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