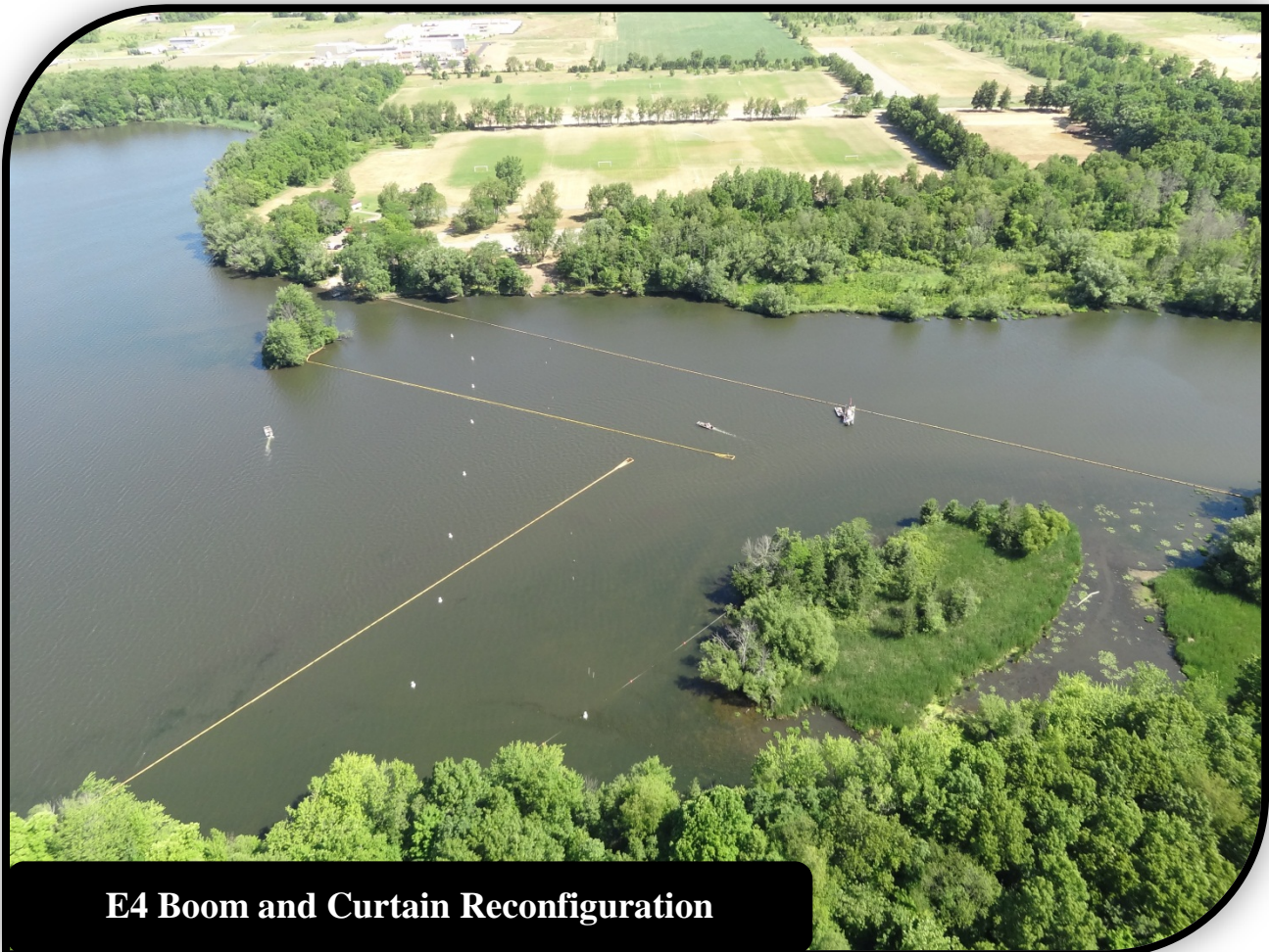


US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #151**



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



E4 Boom and Curtain Reconfiguration

To: Susan Hedman, U.S. EPA Regional Administrator
James Sygo, MDEQ
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: 7/10/2012

Reporting/Operational Period: 0700 hours 6/21/2012 through 0700 hours 6/28/2012

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 Opening; 5) Kalamazoo River System; 7) Air Operations; and 8) Waste Management.

2.1 Overbank Branch

2.1.1 OSCAR Group

- The OSCAR Group began review and evaluation of recent Source Area investigation results. The Group will continue its review of the data and assessment results and determine the necessary actions.

2.1.2 Overbank Recovery Group

- No activities were conducted during the reporting period.

2.2 Submerged Oil Branch

2.2.1 Submerged Oil Assessment Group

- Monitoring of submerged oil in Morrow Lake and the Morrow Lake Delta continued according to the Morrow Lake Monitoring, Assessment, and Management Plan. Monitoring Round 19 was completed for Morrow Lake and Monitoring Round 3 was commenced for the Morrow Lake Delta.

- 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 monitoring and response. See Table 1 for information regarding the total number of sheen differentiation tests conducted, and the results of those tests.
- USGS collected velocity profiling data from the Morrow Lake Delta. The data will be utilized for the development of containment strategies to prevent the continued migration of oil, oil sheen, submerged oil and oil containing sediments into the Morrow Lake fan, and for refinement of the hydrodynamic model. USGS additionally collected discharge measurements from select bridge locations along the Kalamazoo River.

2.2.2 Submerged Oil Science Group

- Walling Tube sample compilation and sample selection was completed. Samples were submitted for laboratory analysis following the new analytical protocol. Results from the laboratory analysis are pending. Thirty seven Walling Tube samplers remain in place. The next round of sampling will be conducted in July.
- Enbridge's Kalamazoo River Hydrodynamic Transport Model Report containing baseline model calibration results (e.g. riverine and floodplain grids) and various baseline scenario results, and its addendum are currently under review by U.S. EPA.
- U.S. EPA and Enbridge continued discussions regarding interpretation of oil fingerprinting data for samples collected from Morrow Lake and from below the Morrow Lake Dam.
- Enbridge collected sheen and glob samples from the following locations: the impacted portion of the Kalamazoo River, upstream of the confluence of the Kalamazoo River and Talmadge Creek, and the Battle Creek River upstream of the confluence of the Kalamazoo River and Battle Creek River. Samples were submitted to Alpha Laboratories for chemical fingerprinting analysis.

2.2.3 Submerged Oil Compliance Group

- No activities were conducted.

2.2.4 Submerged Oil Recovery Group

- Daily sheen management activities continued with sheen sweep boats conducting routine recovery activities at Ceresco Dam, Mill Ponds, MP 21.5 – MP 30.8, and the Morrow Lake Delta, along with other ongoing sheen sweep responses as sheen was identified. See Table 2 for information regarding the total number of sheen responses by date.

2.2.5 Submerged Oil Monitoring Group

- 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 3 and 4.

2.3 Containment Branch

2.3.1 *Containment Science Group*

- The Group continued to develop strategies for evaluating and enhancing the planned sediment trap locations. Alternate placement of structures is being evaluated through additional hydrodynamic model runs at 6 of the additional 14 sediment trap locations. Completed model results were reviewed by Enbridge, U.S. EPA and MDEQ. Two out of the six locations were selected to receive sediment trap structures. The remaining four locations will be monitored utilizing cylindrical sampling devices.
- U.S. EPA worked with Enbridge to develop an alternative to the installation of Control Point E4.5 to prevent the further migration of oil in Morrow Lake. On June 26, 2012, the 2012 Morrow Lake Delta Alternative Containment Strategy was accepted by the U.S. EPA as an alternative to the U.S. EPA Directive to install Control Point E4.5.

2.3.2 *Containment Compliance Group*

- Enbridge tracked an MDEQ permit application for enhancements (e.g. structures) and monitoring devices at 14 sediment trap locations, based on a review of existing hydrodynamic model data set forth by MDEQ. The permit application is currently under review pending the submittal of HEC RAS model results for one of the proposed site locations.

2.3.3 *Containment Recovery Group*

- Installation of the E4 Alternative Containment System began during this operational period. Teams continued to maintain 1,550 feet of surface hard boom at Control Point E4 during the installation. As of June 27, 2012, a total of 2,150 feet of surface hard boom and 1,650 of subsurface half curtain have been installed. Teams removed debris accumulated within the boomed areas and recorded observations and estimates of surface area of accumulated petroleum sheen at the 1 control point.
- Teams removed 100 feet of surface hard boom from MP 5.85 South. As of the close of this operational period, all boom had been removed from the protective containment sites throughout the system.

2.3.4 *Containment Monitoring Group*

- Teams continued implementation of the EOMP process. See Section 2.2.1 for additional details regarding the EOMP.
- Teams performed weekly inspection of the 6 currently-permitted sediment trap locations, including visual inspection and limited poling within the sediment traps. Teams performed monthly visual inspections of the sediment sampling devices and sample retrieval from selected samplers. Sample results will be used to evaluate and verify the effectiveness of the sediment traps.
- 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.
- Two crews tracked sheen observations in Talmadge Creek and the Kalamazoo River.

2.4 River Opening Branch

2.4.1 River Opening Media Group

- On June 21, 2012, US EPA held a press conference to announce the opening of the Kalamazoo River. During the press conference, the Calhoun and Kalamazoo County health agencies announced that an additional 34 miles of the Kalamazoo River, from Saylor's Landing to the Morrow Lake Delta, and Morrow Lake are open to the public for recreational use. Part of the Morrow Lake Delta remains closed for public and worker safety during the reconfiguration of the E4 boom and curtain. The closed portion will be identified by buoys.
- Media relations personnel ensured appropriate posting of kiosk materials and river signage.

2.4.2 River Opening Assessment Group

- No activities were conducted.

2.4.3 River Opening Implementation Group

- No activities were conducted.

2.4.4 River Opening Monitoring & Security Group

- Enbridge conducted routine monitoring of buoys and signage throughout the Kalamazoo River system and provided security at select kiosk locations.

2.5 Kalamazoo River System Branch

2.5.1 Talmadge Creek/Kalamazoo River Remedial Investigation Group

- Implementation of the Kalamazoo River Remedial Investigation (RI) Work Plan continued. As of June 25, 2012, the RI is in progress for 36.36% of the system.

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

- Quarterly potable water sampling was conducted.
- Monitoring of erosion control devices continued.

2.7 Air Operations Branch

- One overflight was conducted for situational awareness during this reporting period. Personnel reported observations of sheen to Operations for follow-up testing and or response consistent with the EOMP. See Section 2.2.1 for additional details regarding the EOMP.
- Photographs were taken during the over-flights for presentation during Operations, Command and General Staff, and Multi-Agency Coordination (MAC) Group meetings.

2.8 Waste Management Branch

- Contaminated soil, water, and debris continue to be transported to Frac Tank City. Samples are collected for oil recovery determination prior to off-site disposal. Waste management characterization, manifesting, and coordination of transportation and disposal continued according to approved plans.
- A summary of equipment and boom decontaminated during this reporting period is presented in Table 5.
- Quantities of soil, debris, and liquid shipped off-site during the reporting period are presented in Tables 6 and 7.
- 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.

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 oil globules and oil sheen consistent with the EOMP. See Section 2.2.1 for additional details regarding the EOMP.
- 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 conducting work-site safety inspections and implementing the plan for integration of public safety and worker safety on the Kalamazoo River.
- One safety incident occurred during the reporting period, resulting in 2 first aids and 1 near miss. A boat struck a rock and all 3 passengers were ejected from the boat. Two of the passengers were transported to the emergency room where they received first aid for minor injuries. A boating stand down was immediately enforced pending a complete investigation and implementation of corrective actions.

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 84.2% of the ceiling has been spent through June 24, 2012. The latest average 7-day burn rate was \$50,105. 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 recommendation document is near completion and will be submitted to the FOSC for review upon incorporation of Spring 2012 poling results.
- The U.S. EPA's Environmental Response Team (ERT) has submitted a report documenting studies with 14 and 28 day sample incubation periods that evaluate the potential biodegradability of submerged oil.

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

	Total	June 2012						
		27	26	25	24	23	22	21
Sheen Tests Performed	0	0	0	0	0	0	0	0
Results Indicated Petroleum Source	1	0	0	0	0	0	1	0
Results Indicated Biogenic Source	1	1	0	0	0	0	0	0
Inconclusive Test Results	0	0	0	0	0	0	0	0

Table 2 – Sheen Responses

Total	June 2012						
	27	26	25	24	23	22	21
8	0	1	1	0	0	5	1

Table 3 – Real Time Air Monitoring Counts Performed by Enbridge

Monitoring Location	Total	June 2012						
		27	26	25	24	23	22	21
Odor Response	0	0	0	0	0	0	0	0
Work Area	6	1	0	2	0	1	1	1

Table 4 – Samples Collected By Enbridge

Sample Type	Total	June 2012						
		27	26	25	24	23	22	21
Surface Water	0	0	0	0	0	0	0	0
Private Well	21	0	9	12	0	0	0	0
Groundwater	0	0	0	0	0	0	0	0
Sediment	1	0	0	0	0	0	0	1
Soil	44	7	9	8	0	0	9	11
Dewatering	0	0	0	0	0	0	0	0
Sheen	3	3	0	0	0	0	0	0

Table 5 - Equipment Decontamination

Location/Media	Total	June 2012						
		27	26	25	24	23	22	21
Frac Tanks	0	0	0	0	0	0	0	0
Vac Trucks-Tankers	0	0	0	0	0	0	0	0
Roll-Off Boxes	4	4	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	3	0	0	0	0	0	1	2
Air Boats	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0
Boom (linear ft)	650	100	0	200	0	0	200	150
Miscellaneous Items	1	0	0	0	0	0	0	1

Table 6 - Soil and Debris Shipped Off Site (as of 6/28/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	76,403	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)	1,711	SET/C&C
Non-Haz Impacted Debris (ton)	7,024	

Shaded items are discontinued waste streams.

Table 7 - Liquid Shipped Off-Site (as of 6/28/2012)

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	1,364,757
Non-Haz Water	Plummer	Kentwood, MI	392,526
<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			17,115,312

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.

* Treated Non-Haz Water no longer sent to this location.

Table 8 – Estimated Recovered Oil (as of 6/25/2012)

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	13,813
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	33,963*
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	
	Plumbers 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	-	-	1,148,410

* Not all analytical is available at the time of report generation.
Shaded items represent discontinued waste streams

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

Location/Media	Total	June 2012						
		27	26	25	24	23	22	21
Marshall Community Center	11	1	3	2	0	0	2	3
Oil Spill Public Information Hotline	5	0	1	2	0	0	1	1
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	16	1	4	4	0	0	3	4

Table 10 – Landowner Environmental Issues (as of 6/28/2012)

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

Table 11 - Financial Summary

Item	Expended (Cumulative) (as of 6/24/2012)
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	\$ 184,971
T&T Bisso (EPA:HS800008)	\$ <u>882,087</u>
Total Other Contractors	\$ 1,067,058
START Contractor – WESTON (EPS50604) T030-Response	\$ 25,684,678
T032-Sampling	\$ 183,567
T037-Doc Support	\$ <u>1,619,703</u>
Total START Contractor	\$ 27,487,948
Response Contractor Sub-Totals	\$ 31,812,577
U.S. EPA Funded Costs: Total U.S. EPA Costs	\$ 5,888,721
Pollution Removal Funding Agreements – Total Other Agencies	\$ 1,790,754
Indirect Cost (16.00%)	\$ 3,598,252
Indirect Cost (8.36%)	\$ 1,277,475
Total Est. Oil Spill Cost	\$ 44,367,778
Oil Spill Ceiling Authorized by USCG	\$ 52,700,000
Oil Spill Ceiling Available Balance	\$ 8,332,222

Shaded items are discontinued

Table 12 - Personnel On-Site

Agency/Entity	June 2012						
	27	26	25	24	23	22	21
U.S. EPA	1	1	1	0	1	1	2
START	25	24	21	0	21	22	25
MDEQ	6	6	6	0	0	6	6
MDEQ Contractors	7	7	7	0	0	7	7
USGS	1	1	1	0	1	0	2
Calhoun County Public Health	0	0	0	0	0	0	0
Calhoun County (CC) EM	0	0	0	0	0	0	0
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	0
Kalamazoo Sheriff	0	0	0	0	0	0	0
MDCH	0	0	0	0	0	0	0
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	51	48	48	1	4	46	54
Enbridge – Kalamazoo River	21	24	41	0	14	40	40
Enbridge – Containment	26	26	15	0	15	17	20
Enbridge – Submerged Oil	10	17	15	0	1	35	36
Enbridge – Overbank	5	5	4	0	1	4	4
Enbridge – River Opening	1	1	1	3	4	2	2
Enbridge – Waste Management	4	4	6	0	1	8	9
Enbridge – Security & Flaggers	5	5	5	5	5	5	5
Enbridge – Communications Center	3	3	3	0	0	3	4
Total	166	172	174	9	68	196	216

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