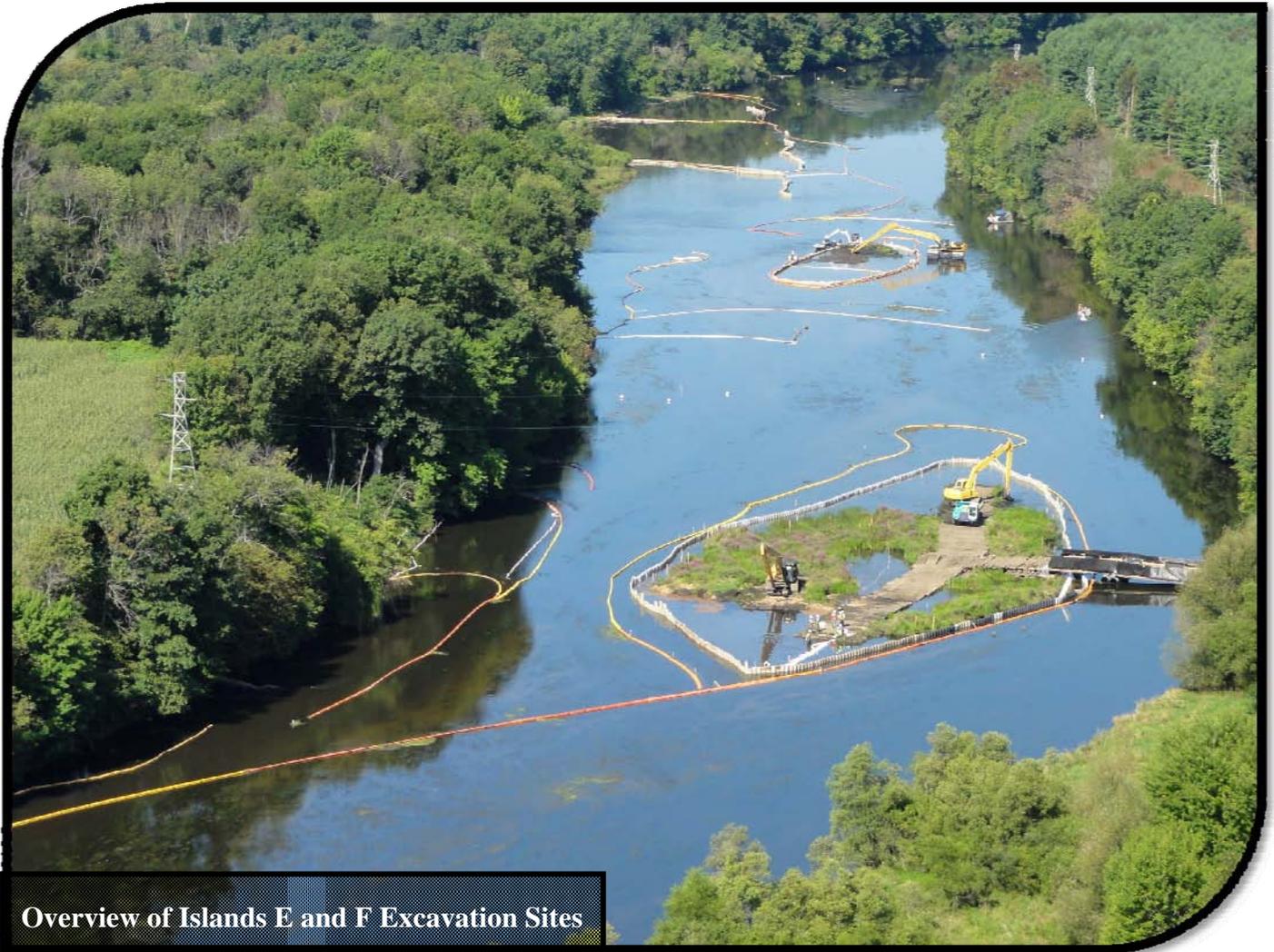


US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V  
POLLUTION/SITUATION REPORT #114**



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



Overview of Islands E and F Excavation Sites

**US EPA ARCHIVE DOCUMENT**

**To:** Lt. Paul Baker, Kalamazoo County Sheriff's Office  
James Rutherford, Calhoun County Public Health Department  
Durk Dunham, Calhoun County Emergency Management  
Lt. Barry Reber, Michigan State Police, Emergency Management  
Mark DuCharme, MDEQ  
Mike Alexander, MDEQ  
Mike McKenzie, City of Battle Creek  
Susan Hedman, U.S. EPA Regional Administrator  
James Sygo, MDEQ  
Cheryl Vosburg, City of Marshall  
Christine Kosmowski, City of Battle Creek  
Linda Buzas, Kalamazoo County

**From:** Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator

**Date:** 8/31/2011

**Reporting Period:** 0700 hours 8/22/2011 through 0700 hours 8/29/2011

### ***1. Site Data***

<b>Site Number:</b>	Z5JS	<b>Contract Number:</b>	
<b>D.O. Number:</b>		<b>Action Memo Date:</b>	
<b>Response Authority:</b>	OPA	<b>Response Type:</b>	Emergency
<b>Response Lead:</b>	PRP	<b>Incident Category:</b>	Removal Action
<b>NPL Status:</b>	Non-NPL	<b>Operable Unit:</b>	
<b>Mobilization Date:</b>	7/26/2010	<b>Start Date:</b>	7/26/2010
<b>Demobilization Date:</b>		<b>Completion Date:</b>	
<b>CERCLIS ID:</b>		<b>RCRIS ID:</b>	
<b>ERNS No.:</b>		<b>State Notification:</b>	
<b>FPN#:</b>	E10527	<b>Reimbursable Account:</b>	

### ***2. Previous Response Actions and Current Response Governance***

- Previous response actions performed to date may be found in SITREPs #1 through #113.
- 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 (MDEQ). The structure of the response is the Incident Command System (ICS), with the FOSC serving as the Incident Commander (IC).
- The Operational Periods covered in this report are: 0700 hours on 8/22/2011 through 0700 hours on 8/25/2011 and 0700 hours on 8/25/2011 through 0700 hours on 8/29/2011.

### ***3. Operations***

- This operational phase of the response consisted of: 1) Air Operations; 2) Waste Management; 3) Environmental Compliance including Control Point Management; 4) Response Action including Overbank Excavation, Overbank Surface Cleanup, and Submerged Oil Recovery in the Kalamazoo River; 5) Monitoring; 6) Wildlife Operations; and 7) River Reopening Coordination.

### **3.1 Air Operations Branch**

- During the operational periods, six overflights were conducted for situational awareness.

### **3.2 Waste Management Branch**

#### ***3.2.1 Decontamination Unit***

- Personnel focused on implementation of proper decontamination methods, focusing on spot decontamination of boats.
- Equipment and boom decontaminated during the operational periods are presented in Table 1.

#### ***3.2.2 Transportation and Disposal Unit***

- Waste management, characterization, and coordination of transportation and disposal continued according to approved plans. Quantities of oil and debris shipped off site during the reporting period are presented in Tables 2 through 5.
- EPA continued oversight of waste characterization, transportation, and disposal activities including composite sampling during live loading operations at the Mile Post (MP) 21.5 Oxbow, Island E, and Island F excavation sites.

### **3.3 Environmental Compliance Branch**

#### ***3.3.1 Operations and Maintenance (O&M)***

- During the operational periods, Enbridge continued inspections of control points, containment boom locations, and protective boom locations. Teams evaluated boom placement, boom effectiveness, and presence of accumulated visible oil or oil-saturated soils. Daily O&M activity and progress tracking information is presented in Table 6.
- O&M personnel continued to install and enhance surface and subsurface containment as necessary. Hard boom, X-TEX curtain, and absorbent boom were installed at existing and new locations throughout the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake. Teams also continued to perform sheen sweeps along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.
- Teams completed removal of hard boom and sediment curtain from MP 5.55 to MP 5.8 above Ceresco Dam. During removal, light to heavy sheen and oil globules were noted. Additionally, some small amounts of sediment were observed escaping containment. Removal of bank side absorbent boom was initiated.

### **3.4 Response Action Branch**

#### ***3.4.1 Overbank Surface Cleanup Group***

- During the operational periods, overbank surface cleanup work was conducted along the Kalamazoo River and select islands within the Kalamazoo River. Enbridge focused on oil recovery in overbank ponded areas at MP 11.78 and from MP 22 to MP 36, using stingers and tillers. Overbank surface cleanup progress information is presented in Table 7.

### **3.4.2 Overbank Excavation Group**

- Teams continued site preparation, mobilization, and excavation of the Islands E and F.
- Teams completed excavation of MP 21.50 Oxbow and began demobilization from the site.
- Teams continued demobilization from MP 4.50 excavation site.

### **3.4.3 Submerged Oil Recovery and Cleanup Group**

- Submerged oil recovery operations continued on the Kalamazoo River and Morrow Lake Delta including areas around the islands at the west end of Morrow Lake Delta. Recovery operations followed the approved submerged oil recovery tool box techniques including flushing and other mechanical agitation techniques.
- During the operational periods, teams conducted site preparation and recovery operations throughout the Kalamazoo River, focusing on the area above Ceresco, the Mill Pond, and MP 22 to MP 32. Teams also conducted bulk oil recovery and woody debris removal in the Morrow Lake Delta and the Morrow Lake fan area. Submerged oil recovery and cleanup progress information is presented in Table 8.
- Teams continued Late Summer 2011 Reassessment poling in areas where submerged oil recovery activities have been completed from the confluence of Talmadge Creek and the Kalamazoo River to Ceresco Dam, downstream of Ceresco dam, and downstream of the confluence of the Kalamazoo River and the Battle Creek River. Areas of light, moderate, and heavy submerged oil remain throughout these areas.
- Under direction of MDEQ, Enbridge continued to define the nature and extent of remaining impacts of the release of crude oil to the sediment and floodplain area of the Talmadge Creek. Teams collected soil cores from the banks of the Talmadge Creek, delineated floodplain areas, and collected ground water samples from temporary wells.

## **3.5 Monitoring Branch**

### **3.5.1 Surface Water and Sediment Sampling**

- Enbridge continued soil, sediment, and surface water sampling in accordance with the MDEQ Sampling and Analysis Plan (SAP). Samples collected as reported by Enbridge are provided in Table 9.
- Enbridge continued to conduct turbidity, dissolved oxygen, temperature, pH, and Oxidation Reduction Potential (ORP) monitoring throughout the Kalamazoo River; focusing on active submerged oil recovery work locations. Enbridge also continued qualitative analysis of submerged oil particulates using a gabion basket system.

### **3.5.2 Air Monitoring and Sampling**

- Enbridge continued to implement the 2011 Community Air Monitoring and Sampling Plan. Teams conducted air monitoring and sampling at work area locations for worker safety, and maintained an odor response team. EPA performed oversight of air monitoring and sampling plan implementation. Air sampling and monitoring information is provided in Tables 9 and 10.

## **3.6 Wildlife Branch**

- The Wildlife Branch continued to provide medical health assessment, treatment, and release of rehabilitated wildlife under US Fish and Wildlife Service (USFWS) direction.

- Throughout the operational periods, the Wildlife Branch conducted turtle trapping and release along the Kalamazoo River. Trapping information is presented in Table 11.
- The Wildlife Branch performed fish relocation from submerged oil recovery and excavation sites based on dissolved oxygen and turbidity monitoring results.

### **3.7 River Reopening Coordination Branch**

- Throughout the operational periods, EPA conducted O&M site assessments and conducted assessments of sites along the Kalamazoo River, including sheening bank sites.

## **4. Planning**

### **4.1 Situation Unit**

- Situation Unit personnel observed and documented progress in all operational areas, and continued to assess areas of interest including locations of oil sheen, oil removal, and decontamination activities. Significant observations during the operational periods include:
  - Remedial Investigation work continued along Talmadge Creek.
  - Enbridge removed all the sediment curtain and boom from above Ceresco Dam with the exception of two chevron booms immediately upstream of the dam.
  - Dewatering efforts for the area contained within the aqua dam below Ceresco Dam were unsuccessful and the aqua dam was removed.
  - Sheen and sediment were observed escaping containment at various locations between MP 15.0 and MP 16.0 and travelling downstream within the river channel.
  - Enbridge conducted site preparation and excavation of the Islands E and F excavation sites. Free-phase oil was observed within the sheet piling containment at the Island E excavation site.
  - Woody debris removal and submerged oil recovery work continued at the Morrow Lake Delta and the fan of Morrow Lake. Enbridge continued using low-grade pressure track-mounted excavators for work in the area. Throughout the operational period, sediment was frequently observed breaching containment.

### **4.2 Environmental Unit**

- The Recovery Task Force conducted coordination and review of oil recovery activities including overbank surface recovery and submerged oil recovery activities.
- U.S. EPA personnel continued directing Enbridge efforts to estimate the amount of submerged oil after the Spring 2011 reassessment.

### **4.3 Documentation Unit**

- Documentation Unit personnel continued organization and archiving of electronic and paper files.

### **4.4 GIS Support**

- During the operational periods, EPA GIS personnel continued to support operations with the generation of site maps.

## **5. Command**

### **5.1 Safety**

- Safety personnel continued to conduct work site safety inspections, focusing on coring, core logging, and water sampling activities associated with the Talmadge Creek Remedial Investigation.
- Throughout the operational periods, minor incidents occurred, including 3 bee stings, a shoulder injury, a fall into the river, 2 cuts, a pulled/strained muscle, 2 vehicle accidents, and a boat accident. All of the affected personnel returned to work.

### **5.2 Public Information**

- During these two operational periods, the Public Information Officer (PIO) coordinated media interviews and prepared for an upcoming availability session in Kalamazoo County.
- The number of public inquires reported by EPA and Enbridge for this period is presented in Table 12.

## **6. Landowner Environmental Issues**

- Landowner environmental issues reported by Enbridge for the operational periods are presented in Table 13.

## **7. Finance**

- The current National Pollution Funds Center (NPFC) ceiling is \$35.7 Million. Approximately 92.8% of the ceiling has been spent through August 28, 2011. As of August 21, 2011, the latest average 7-day burn rate was \$89,472 per day. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 14.
- At the current rate of expenditures, U.S. EPA funding for the project will be depleted in approximately 4 to 5 weeks.

## **8. Participating Entities**

- The Multi-Agency Coordination (MAC) Group continues to meet weekly to discuss 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 Public Health Department
  - 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).

## 9. Personnel On-Site

- Staffing numbers for the entities and agencies active in the response are presented in Table 14.

## 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/main.aspx?id=13168>.

## 11. Clean-up Progress Metrics

**Table 1 - Equipment Decontamination**

Location/Media	Total	August 2011						
		28	27	26	25	24	23	22
Frac Tanks	4	0	0	1	0	2	1	0
Vac Trucks-Tankers	1	0	0	1	0	0	0	0
Roll-Off Boxes	0	0	0	0	0	0	0	0
Yellow Iron (light)	1	0	0	0	0	0	1	0
Yellow Iron (heavy)	12	0	0	1	10	0	0	1
Jon Boats	3	0	0	1	0	0	0	2
Air Boats	4	0	0	2	0	0	0	2
Vehicles	1	0	1	0	0	0	0	0
Boom (feet)	2475	0	1375	400	0	0	600	100
Miscellaneous Items	174	0	2	113	50	0	5	4

**Table 2 - Soil and Debris Shipped Off Site (as of 8/28/2011)**

Waste Stream	Cumulative	Disposal Facility
<i>Haz Soil (yd<sup>3</sup>)</i>	19,644	<i>Envirosafe (Oregon, OH)</i>
Non-Haz Soil & Debris (yd <sup>3</sup> ) (Excluding Ceresco Dredge)	37,526	Terra/C&C
<i>Non-Haz Soil &amp; Debris (yd<sup>3</sup>) (Excluding Ceresco Dredge)</i>	64,815	<i>Westside Recycling (Three Rivers, MI)</i>
<i>Non-Haz Soil (yd<sup>3</sup>) (Ceresco Dredge Only)</i>	5,562	<i>EQ/Republic (Marshall, MI)</i>
<i>Haz Debris (yd<sup>3</sup>)</i>	12,075	<i>EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)</i>
Non-Haz Household Debris (ton)	958	EQ/Republic (Marshall, MI); C&C
Non-Haz Impacted Debris (ton)	4,014	

*Shaded and italicized* items are discontinued waste streams.

**Table 3 – Oil/Water Collected by Location (as of 8/28/2011)**

<b>Location</b>	<b>Cumulative (gallons)</b>
Division A	5,356,315
Division B	4,868,279
Division C	1,891,406
Division D	121,106
Division E	51,131
Decontamination	2,007,775
Site A	316,464
Other Locations*	1,346,725
<b>Subtotal</b>	<b>15,959,201</b>
<b>Sludge**</b>	<b>474,215</b>
<b>Total Oil/Water</b>	<b>15,484,986</b>

\* 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 4 - Liquid Shipped Off-Site (as of 8/28/2011)**

<b>Stream</b>	<b>Destination Company</b>	<b>Destination Location</b>	<b>Cumulative Volume (gallons) †</b>
Hazardous Water	Dynecol	Detroit, MI	3,594,579
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	893,980
Non-Haz Water	Dynecol	Detroit, MI	913,642
Non-Haz Water	Liquid Industrial Waste	Holland, MI	333,307
Non-Haz Water	Plummer	Kentwood, MI	90,000
<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<sup>a</sup></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>
<b>Total</b>			<b>15,463,886</b>

*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 5 - Oil/Water Remaining On-Site (as of 8/28/2011)**

<b>Item</b>	<b>Cumulative (gallons)</b>
Oil/Water Collected	15,484,986
Oil/Water Shipped Off-Site	15,463,886
<b>Total Oil/Water Remaining On-Site</b>	<b>21,100</b>

**Table 6 – Daily Activity/Progress**

	August 2011						
	28	27	26	25	24	23	22
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	127	127	127	126	125	120	117
Boom Locations							
Control Points	12	12	12	12	12	12	12
Protective Containment Sites	39	39	39	36	36	36	35
River Erosion Sites	26	26	26	26	26	26	26
Total Surface Hard Boom (ft)	45,375	45,375	45,025	43,725	46,425	47,125	47,125
[Control Point Surface Hard Boom]	[29,950]	[29,950]	[29,950]	[29,250]	[31,400]	[31,400]	[31,400]

**Table 7 – Overbank Surface Cleanup Progress (as of 8/28/2011)**

	Tar Patty Sites	Strike Sites
Sites Identified for Cleanup	237	57
Cleanup Complete and Completeness Check Form Signed	174	27
Percent Complete	<b>73.4%</b>	<b>47.4%</b>

**Table 8 – Submerged Oil Recovery and Cleanup Progress (as of 8/28/2011)**

Sites Identified for Cleanup	214
Cleanup Complete and Completeness Check Form Signed	103
Percent Complete	<b>48.1%</b>

**Table 9 – Samples Collected By Enbridge**

Sample Type	Total	August 2011						
		28	27	26	25	24	23	22
Surface Water	17	0	0	0	16	1	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	28	0	5	4	7	4	5	3
Sediment	0	0	0	0	0	0	0	0
Soil	140	0	7	33	16	28	25	31
Air (Community and Odor Complaint)	117	0	19	19	19	20	20	20

**Table 10 – Real Time Air Monitoring Counts By Enbridge**

Monitoring Location	Total	August 2011						
		28	27	26	25	24	23	22
Community	2069	120	350	380	329	288	265	337
Odor Response	4	0	0	0	0	0	0	4
Work Area	1130	0	148	169	216	223	183	191

**Table 11 – Wildlife**

Location/Media	Total	August 2011						
		28	27	26	25	24	23	22
Turtles in Captivity	74	74	72	70	72	79	75	68
Hatchlings in Captivity	3	3	3	0	19	29	39	52
Turtles Captured (Oiled) – Field Cleaned	128	14	23	22	17	22	12	18
Turtles Captured (Oiled) – Admitted to Wildlife Center	46	2	5	7	6	6	12	8
Turtles Captured (Un-oiled) – Field Released	260	46	47	37	32	51	11	36
Turtles Released from Captivity	33	0	3	5	13	0	3	9
Hatchlings Released from Captivity	72	0	0	19	10	13	17	13

**Table 12 – Public Inquiries Received by EPA and Enbridge**

Location/Media	Total	August 2011						
		28	27	26	25	24	23	22
Marshall Community Center	32	0	0	3	13	7	3	6
Oil Spill Public Information Hotline	12	0	0	1	5	3	1	2
Website	2	1	0	0	1	0	0	0
<b>Total Public Inquiries</b>	<b>46</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>19</b>	<b>10</b>	<b>4</b>	<b>8</b>

**Table 13 – Landowner Environmental Issues (as of 8/28/2011)\***

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
1	14	0

\*As reported by Enbridge. Additionally, EPA is in the process of addressing 2 landowner environmental issues.

**Table 14 - Financial Summary**

Item	Expended (Cumulative) as of 8/28/2011)
<b>ERRS Contractors</b>	
EQM (EPS50802) T057	\$ 1,199,522
T060	\$ 213,636
LATA (EPS50804) T019	\$ 1,161,082
ER LLC (EPS50905) T040	\$ 683,330
<b>Total ERRS Contractors</b>	<b>\$ 3,257,571</b>
<b>Other Contractors</b>	
Lockheed Martin (EPW09031) – TAGA Support	\$ 185,951
T&T Bisso (EPA:HS800008)	\$ 882,087
<b>Total Other Contractors</b>	<b>\$ 1,068,038</b>
<b>START Contractor – WESTON (EPS50604)</b>	
T030-Response	\$ 16,057,518
T032-Sampling	\$ 183,597
T037-Doc Support	\$ 952,356
<b>Total START Contractor</b>	<b>\$ 17,193,471</b>
<b>Response Contractor Sub-Totals</b>	<b>\$ 21,519,080</b>
<b>EPA Funded Costs: Total EPA Costs</b>	<b>\$ 5,207,107</b>
<b>Pollution Removal Funding Agreements – Total Other Agencies</b>	<b>\$ 1,823,682</b>
<b>Sub-Totals</b>	<b>\$ 28,549,869</b>
Indirect Cost (16.00%)	\$ 4,567,979
<b>Total Est. Oil Spill Cost</b>	<b>\$ 33,117,848</b>
<b>Oil Spill Ceiling Authorized by USCG</b>	<b>\$ 35,700,000</b>
<b>Oil Spill Ceiling Available Balance</b>	<b>\$ 2,582,152</b>

Shaded items are discontinued

**Table 15 - Personnel On-Site**

Agency/Entity	August 2011						
	28	27	26	25	24	23	22
U.S. EPA	0	2	5	5	5	6	6
START	3	49	51	53	51	53	49
MDEQ	0	0	4	5	4	4	3
MDEQ Contractors	0	6	9	8	8	7	7
Calhoun County Public Health	0	0	0	2	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	1	0	0	0
Kalamazoo Sheriff	0	0	0	1	0	0	0
MDCH	0	0	0	1	0	0	0
USGS	0	0	0	0	0	0	0
Michigan State Police EMD	0	0	0	0	0	0	0
Enbridge – Operations	40	108	184	193	196	193	193
Enbridge – Field	96	573	605	592	582	599	584
Enbridge – Security & Flaggers	7	7	7	7	7	7	7
Enbridge – Wildlife and Comm.	7	8	16	19	19	14	15
<b>Total</b>	<b>153</b>	<b>753</b>	<b>881</b>	<b>890</b>	<b>872</b>	<b>883</b>	<b>864</b>

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