

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Blacktail Creek Spill - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region VIII

Subject: POLREP #5
Progress
Blacktail Creek Spill

Marmon, ND
Latitude: 48.3872474 Longitude: -103.6560305

To:
From: Steven Way, On-Scene Coordinator
Date: 2/9/2015
Reporting Period:

1. Introduction

1.1 Background

Site Number:	Contract Number:
D.O. Number:	Action Memo Date:
Response Authority: OPA	Response Type: PRP Oversight
Response Lead: PRP	Incident Category: Removal Action
NPL Status: Non NPL	Operable Unit:
Mobilization Date: 1/23/2015	Start Date: 1/8/2015
Demob Date:	Completion Date:
CERCLIS ID:	RCRIS ID:
ERNS No.:	State Notification:
FPN#: E15805	Reimbursable Account #:

1.1.1 Incident Category

Emergency Response – OPA Removal and CERCLA Removal Assessment

1.1.2 Site Description

The response action underway by the RP follows a reported 70,000 barrel release of produced water including oil from a 4 inch pipeline that conveys produced water from a reported 37 (note corrected number) oil well pads to a disposal well. The release impacted a small creek (Blacktail Ck) a tributary to the Little Muddy River north of Williston, ND. Reportedly the potential line break was discovered on January 6, 2015, and the line was shut-down. No volume of discharge was reported in the original NRC report on January 7th.

1.1.2.1 Location

1.1.2.2 Description of Threat

Impacts to surface water quality observed as far as the Little Muddy River near the confluence with the Missouri River.

1.1.2.3 Site Evaluation Results

- Daily chloride measurements continue at several locations downstream of the spill approximately 3 miles. In general, concentrations within this reach have dropped to between 200-400 ppm. Some increasing trending (above 500 mg/l at station SW402) was seen on 2/8, which was assumed to be related to lower flows in the creek. Station 413, an isolated backwater area, continues to have elevated levels above the field chloride strip detection level (greater than 6,500 ppm). The state is requiring pumping down of the creek if concentrations exceed 1,000 ppm in the main channel.
- State taking weekly surface water samples at various locations in Blacktail and Little Muddy.
- Stantec installed three continuous conductivity meters in the creek; one has been installed at the confluence of Blacktail and Little Muddy; a second at station 116+00 (1.6 miles downstream spill); and a third upstream of the spill for background.

Trustees Meeting

- On 2/5/2015, OSC (Guy) attended a meeting with Kris Roberts (North Dakota Department of Health)

at the Corps of Engineers field office in Williston. In attendance were several Corps of Engineer personnel, including Todd Lindquest, Garrison Dam Operations Project Manager, and a contaminants specialist, Doug Simpleton, from the Omaha district. Jessica Johnson (US F&WS) was on the conference phone.

- OSC Guy provided an overview of the oil response operation to date and future objectives. Kris Roberts provided an overview of the overall response including the surface and subsurface brine monitoring and the groundwater investigation downgradient of the spill that is being overseen by the state.

Reporting Period 2-8, 2015

- 2/8 -2/9: Higher temperatures the last two days causing ice in river to thaw during the day. Weathered oil is mobilizing upstream of Hwy 85 (1.6 miles downstream of pipe break) and collecting at underflow dams (SCD1, SCD2, and SCD3) which are located 600, 3,200, and 6,800 feet downstream of the pipe break location respectively.
- Three additional recovery/intercept trenches were constructed during the reporting period. Trench #3 is located at the land bridge (2,200 feet downstream of break) and trenches #4 and #5 are located upgradient and north of the pipeline break. The new trenches have not revealed subsurface free phase oil. However, all trenches have significant brine concentrations.
- Stantec geophysical investigation to date shows produced water/brine alluvial impacts starting 600 feet upgradient (caused by surface flow) and downgradient approximately 1.5 mile (approximately 700 feet upstream of Hwy 85).
- SCAT (Shoreline Cleanup and Assessment Technique) recon continues on a daily basis. Ice and snow interfering with observations on bank and creek. Results to date indicate evidence of oil film on ice downstream approximately 3 miles (station 184+00). From there (station 184+00) downstream 4.8 miles (station 286+00) just before confluence with Little Muddy River, a rusty orange/ brown deposit (unknown substance)/iridescence was identified in previous reporting periods. No visual oil or suspect oil has been identified below confluence of Blacktail Creek with the Little Muddy River during this reporting period.
- Trenching to a depth of 10 feet ground surface on 1/28/15 down gradient of the pipeline break and up gradient of Blacktail Creek revealed both apparent brine (based on strong odors) and a layer of oil within the gravel layer at the water surface.
- The groundwater in the domestic drinking water well on the east side of Hwy 85 was sampled by both the state and RP. The drinking water data obtained by the RP was provided to the property owner on 1/30/15.
- The OSC (Way) and the RP representative met onsite with the property owners on 1/30/15 and toured the cleanup operations.
- NDDOH was on-site sampling water downstream in Blacktail Creek and downstream during the week of 1/26/15.
- Federal and state agency representatives toured the Site and the river system from Williston upstream to the Site on Tuesday, January 28, 2015.
- SCAT investigations including Stantec and USCG extended from about 1,000 feet downstream of Highway 2 on the Little Muddy River and back to the confluence of Little Muddy and Blacktail Creek.
- EPA also collected sediment samples from Blacktail Creek between the spill Site and Highway 85 and from the Little Muddy River below the crossing of Highway 2 (This was completed between 1/24 and 1/26).
- Exploratory test pits were completed 1/25 to determine if subsurface free-phase oil is migrating from the source area to Blacktail Creek. Investigations revealed that produced water/oil sheen exists on the alluvial groundwater adjacent to the creek. However, free-phase oil did not accumulate in the test pits. Groundwater tested by the RP using chloride test strips reportedly indicated high concentrations, i.e. greater than maximum range.
- Test Pits (1/30/15): An additional 6 test pits were excavated Friday to the east and south east and south east of the spill site, in between and outside of the recently installed monitoring well locations. Chloride test strips and conductivity were used to measure for potential brine contamination. Test pit locations were obtained with GPS coordinates by Stantec personnel. Field analysis was performed by both Stantec and NDDOH personnel. Results show the brine migrates to the southeast of the creek channel. However, it generally trends with the channel alignment. Additional characterization is required.
- The RP's contractor is performing geophysical surveys (EM-31) and push-probe monitoring and sampling to define the extent of the brine plume and soil contamination. A report of this effort is to be provided to the state by Wednesday, 2/4/15.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

Ice on Blacktail Creek continues to impede main oil recovery operations being conducted above Hwy 85. Removal of contaminated ice in front of two boom locations (600 and 1,200 feet downstream of pipe break) was initiated early in the week. Freeze/thaw weather patterns started on 2/7 continuing through 2/8. Freezing conditions resumed on 2/9. As ice melted during thawing conditions, oil was observed mobilizing on the surface of the creek. It is anticipated that freeze/thaw cycles may continue for the next few weeks. Active oil removal at the three underflow dams is anticipated during these thawing periods. Oil removal will be hampered by ice debris.

Daily chloride measurements continue at several locations downstream of the spill approximately 3 miles. In general, concentrations within this reach have dropped to between 200-400 ppm. Some increasing trending (above 500 mg/l at station SW402) was seen on 2/8, which was assumed to be related to lower flows in the creek. Station 413, an isolated backwater area, continues to have elevated levels above the field chloride strip detection level (greater than 6,500 ppm). The state is requiring pumping down of the

creek if concentrations exceed 1,000 ppm in the main channel.

State taking weekly surface water samples at various locations in Blacktail and Little Muddy.

Stantec installed three continuous conductivity meters in the creek; one has been installed at the confluence of Blacktail and Little Muddy; a second at station 116+00 (1.6 miles downstream spill); and a third upstream of the spill for background.

Reportedly, as of 2/9/15 more than 150,000 barrels of water (brine, oil and surface water) have been pumped and transported for disposal. Additional pumping has been performed as required to remove water with concentrations above 1,000 mg/L. Chloride levels in the creek were reported to be 100 and 300 mg/L on 2/1/15. This is a substantial reduction from the previous week.

Snow and ice continue to hamper access to oil in Blacktail Creek and along its banks. Short thawing conditions in the later part of this reporting period re-mobilized oil on the surface of the creek and revealed reaches of the creek banks within the first 3 miles.

A groundwater interceptor trench was installed to capture concentrated brine-contaminated water downgradient of the pipeline break point before reaching the creek.

2.1.2 Response Actions to Date

The RP has mobilized several contractors with vacuum trucks, oil containment boom, and various heavy equipment

- Oil Recovery
- Three additional recovery/intercept trenches were constructed during the reporting period. Trench #3 is located at the land bridge (2,200 feet downstream of break) and trenches #4 and #5 are located upgradient and north of the pipeline break. The new trenches have not revealed subsurface free phase oil. However, all trenches have significant brine concentrations.
- Estimated total oil removal to date stands at 100 to 130 barrels, with approximately 60-70 barrels removed by skimming and ice removal.
- The contractor has established three underflow dams designated as SCD1, SCD2, and SCD3 downstream of the pipe break at 600, 3,200, and 6,800 feet respectively. The contractor completed SCD1 on 2/7. On 2/8 the contractor was working to improve flows from SCD1, which may ultimately require re-installing the drain pipes at lower elevations. The contractor will work on SCD3 next to improve flows at that containment structure as well.
- Active recovery of oil from one rope skimmer and several oil boom containment locations was hampered early on in the week as temperatures dropped below freezing and Blacktail Creek iced over. Sub-zero temperatures continued through Friday (2/6).
- Ice removal was conducted at two reaches (500-600 feet and 1500-1550 feet downstream of the spill) where oil had been contained with boom prior to the creek freezing over. Over a three day period approximately 40 truckloads (approximately 20 cubic yards each) of contaminated ice were removed. Contaminated ice is being trucked to Secure Energy, where it is melted and sent through an oil/water separator. The water was sent for deep well injection.
- Absorbent pom poms were used to remove oil in the opened waters. As ice melted during the later part of the week, pom poms were used to remove oil within broken up ice along sections of the creek.
- Two lined containment cells are being constructed to replace the temporary cell to hold petroleum and brine contaminated soils.
- Approximately 300-400 cubic yards of petroleum contaminated soil are stockpiled in the temporary containment cell. The contractor has characterized the soils. NORM test results are pending. North Dakota DOH determined the stockpiled soil is not TENORM (Technically Enhanced Natural Occurring Radioactive Material), per email memo sent out 2/6/15.
- There are 2 roll-off containers full with used adsorbent boom with a 3rd roll-off started)
- Pumping of creek surface water was not required during this reporting period. Chloride levels in the creek have been below 1,000 mg/l limit set by the state for triggering pumping of the creek.
- Five recovery/interceptor trenches have been installed to date. Interceptor trenches 4 and 5 installed during this reporting period. Trenches 4 and 5 are located approximately 400 and 200 feet northeast of spill Site respectively. Pumping from trench 4 initiated on 2/7. Total of 5 interceptor trenches have been established; 4 just downgradient of the Site (1,2,4,5) and one at the "land bridge", station 52+00 (2,300 feet downstream of pipe break). Several hundred barrels (100-400 barrels per trench) of impacted water being pumped from the interceptor trenches daily.
- Snow and ice continue to hamper access to oil in Blacktail Creek and along its banks. Short thawing conditions in the later part of this reporting period re-mobilized oil on the surface of the creek and revealed reaches of the creek banks within the first 3 miles below the spill that may be significantly impacted.
- Reportedly, as of 1/28/15 more than 140,000 barrels of produced water/creek water/oil mixture have been pumped from the surface water and sent for injection well disposal. Creek water levels remained high through 1/31/15. Additional pumping to remove water has been performed intermittently based on the chloride values exceeding 1,000 mg/L..
- Removal of oil saturated ice began on 1/31/15. The oiled ice is being trucked off-site. This operation will continue until the bulk of the oiled ice is removed from Blacktail Creek.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

2.1.4 Progress Metrics

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>
Contaminated water		6.3 million gallons			deep well

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

- Weather conditions (extreme low temperatures) will largely influence the ability to recover oil. Continued monitoring of the oil removal operations is planned.
- Total fluids recovery / pumping will continue at the interception trench to remove brine and oil from the subsurface before it enters the surface water. Monitoring wells near the trench will be measured during this process.

2.2.1.2 Next Step

- EPA-OSC and USCG Strike Team personnel will continue overseeing the oil removal operations over the next several days and determine if continued oversight is necessary.

2.2.2 Issues

2.3 Logistics Section

2.3.1 Disposition of Wastes:

- Deep well injection for oil production waste water.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

3.1 Unified Command

Summit Midstream Partners LLC
 ND DOH
 EPA

3.2 Cooperating Agencies

USFWS
 DOI
 USACE

4. Personnel On Site

1 OSC on-scene (mobilized 1/23) - demob 1/31/15. Replacement to be on 2/2/15.
 2 START on-scene (demobilized 1/26/15)
 2 USCG onsite 1/26/15

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.