



Weston Solutions, Inc.
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April 7, 2015

Mr. Steven Way
On-Scene Coordinator
United States Environmental Protection Agency, Region 8
Mail Code: 8EPR-ER
1595 Wynkoop Street
Denver, CO 80202

Re: Oil Analysis for Blacktail Creek Spill – Trip Report
Williston, Williams County, North Dakota
TDD: 0002/1502-01
DCN: W0210.1A.00406
WO#: 20408.012.002.0210.00

Dear Mr. Way:

The United States Environmental Protection Agency (U.S. EPA) tasked the Weston Solutions, Inc., (WESTON®) Superfund Technical Assessment and Response Team (START) under Technical Direction Document (TDD) 0002/1502-01 to support U.S. EPA emergency response at the Blacktail Creek Spill site (Site) in Williston, Williams County, North Dakota. The emergency response was initiated by a report to U.S. EPA from the National Response Center (NRC, Incident #1106269) and was conducted to assess the threat to human health and the environment due to a produced water and crude oil spill into Blacktail Creek (the Site) (Figure 1, Attachment A). **Attachment A** provides figures for this report. **Attachment B** provides a photograph of where the oil sample was collected by the USCG. **Attachment C** provides the START analytical data. **Attachment D** provides analytical data and a sample location map provided by the North Dakota Department of Health (NDDOH). **Attachment E** provides a description of the RPs analytical results.

SITE DESCRIPTION

The Site is located approximately 17 miles north of Williston, Williams County, North Dakota (8.3872474 N and 103.6560305 W) (Attachment A, Figures 1 and 2). The site was referred to EPA by the NRC on January 23, 2015 following a pipeline break which reportedly caused a spill of approximately 70,000 barrels (bbls) of produced water and condensate on January 6, 2015. The pipeline is operated by Summit Midstream Partners, LLC. The spill affected the Black Tail Creek, which is a tributary of the Little Muddy Creek (approximately 4.5 river miles downstream) and ultimately, the Missouri River (approximately 32.5 river miles downstream) (Figure 2).



Mr. Steven Way
U.S. EPA

-2-

Oil Analysis for Blacktail Creek Spill
April 7, 2015

SCOPE OF WORK

START was tasked to perform fingerprint analysis on a sample of oil related to the brine release north of Williston, Williams County, North Dakota, including the following scope of work as part of the Emergency Response.

- Provide shipping and analytical services for one oil sample collected by the U.S. Coast Guard.
- Post Oil Fingerprint analysis on EPAOSC.net as a private document.
- Manage Data in accordance with EPA R8 Response Unit's Best Management Practices.
- Determine the usability of data by comparing it to EPA R8 Geospatial Data Standards.

ACTIVITIES

START received direction from OSC Steven Way to provide the U.S. Coast Guard (USCG) with dangerous goods shipping procedures and laboratory services on January 27, 2015. The USCG representatives at the Site, who were assisting USEPA reported collecting a single sample of oil from the skimmer basin located at the Station #1 oil collection site (48.401306 N, 103.637461 W) as seen in Attachment B. START initiated dangerous goods shipping procedures and laboratory services through SGS Laboratories in Williston, ND on January 28, 2015. SGS Laboratories shipped the sample from Williston, ND to their facility in St. Rose, LA for a simulated distillation analysis (fingerprinting).

The laboratory utilized ASTM Method D7169 for analysis of the sample. START requested an Electronic Data Deliverable (EDD) and a standard environmental laboratory QC data package for the results (Level IV), however, the laboratory does not provide either one for this type of work. START did request and receive QC data for method requirements specified in ASTM D7169. START received results from the simulated distillation on February 2, 2015 (Attachment C) and posted them on epaosc.org, as a "private" post, on 2/11/2015.

START collected two produced water samples for analysis of VOCs, DRO, GRO, and Oil and Grease during the initial response. Both of the samples had hits for Benzene and Toluene, with Benzene being above both the EPA MCL and the North Dakota Class I and II Human Health Value (HHV) in both samples. DRO, GRO and Oil and Grease were detected in both produced water samples collected. Results are provided in the Final EPA Water Sampling Results table in Attachment C.

Summit Midstream contractor Stantec conducted groundwater, surface water and produced water sampling during the period of January 14 through February 11, 2015. START compiled surface water and groundwater detections for the following analyses: volatile organic compounds (VOCs) by SW8260B, semivolatile organic compounds (SVOCs) by SW8270, metals by SW6010/SW6020 and drinking water methods E200.7/E200.8 and total petroleum hydrocarbons (TPH) by SW8015. See Attachment E for a brief description and analytical tables.

START managed data in accordance with EPA R8 Response Unit's Best Management Practices. Deviations from the SAP include:

- A level IV data package could not be provided to START by SGS Laboratories; however START did receive the results of a reference sample and QC steps per ASTM method D7169.



Mr. Steven Way
U.S. EPA

-3-

Oil Analysis for Blacktail Creek Spill
April 7, 2015

- A Scribe EDD could not be provided to START by SGS Laboratories for ASTM method D7169. Per US EPA, the data from ASTM method D7169 was not entered into Scribe

CHARACTERIZATION ANALYSIS

Three oil samples were collected from a suspected spill of produced water and crude oil at the Blacktail Creek site, two by the State of North Dakota and one by the USCG. The samples collected by the ND DOH were collected from a surface ice scrape and the shavings from 0' - 1" below the surface of the ice. See Attachment D for a chromatogram and the location of the ice scrape samples provided by the ND DOH. The sample collected by the USCG was collected the basin of the rope skimmer and was submitted for a fingerprinting/characterization analyses at SGS labs in Saint Rose, LA. Chromatograms were produced using GC/MS and GC/PID, and High-Temperature Simulated Distillation (HT SIMDIS) analyses were also performed.

The GC/MS chromatograms reveal a hydrocarbon range of C10-C35) with the bulk of mass in the C10-C35 range; the boiling point distillation (HT SIMDIS) tests hint at smaller amounts of heavy hydrocarbons up to C64 ,giving us a total range of C10-C64. The lighter hydrocarbons found in produced water, such as C2-C10, evaporate quickly on exposure to atmosphere. The hydrocarbon range seen in the samples recovered from the spill (C10-C64) is consistent with unrefined product; refined products have a smaller range, for instance diesel fuel is C12-C20. These sample results, and more specifically this hydrocarbon range (C10-C64), is therefore consistent with what we would expect from hydrocarbons found in produced water (from oil wells) that had been allowed to weather by atmospheric exposure.

If there are any questions or comments regarding this report, please do not hesitate to contact me at eric.sandusky@westonsolutions.com or (303) 729-6132.

Sincerely,

WESTON SOLUTIONS, INC.

A handwritten signature in black ink, appearing to read "Eric Sandusky", is written over the printed name.

Eric Sandusky
Project Team Lead



Mr. Steven Way
U.S. EPA

-4-

Oil Analysis for Blacktail Creek Spill
April 7, 2015

Attachment:

A – Figures

B – Photographs of Sample Location

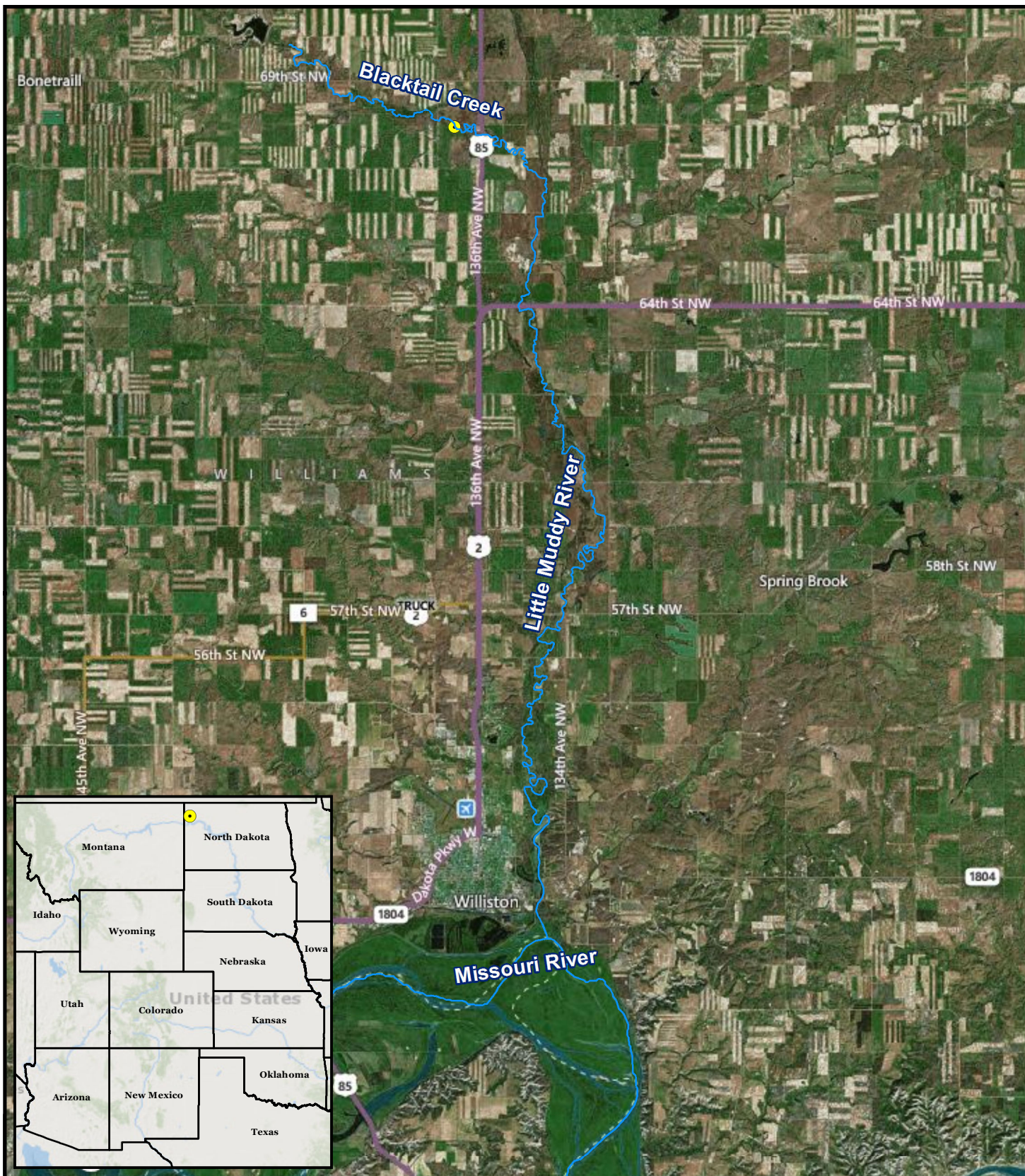
C – START Laboratory Analytical Data

D – NDDOH Laboratory Analytical Data and Sample Location Map

E – Description of RPs Analytical Data

cc: Dave Robinson, Project Manager
START DCN File

Attachment A



Legend

● Site Location

0 1.75 3.5 7 Miles



Prepared for:
U.S. EPA Region 8



Contract No.:
EP-S8-13-01

TDD:
1502-01

TO:
0002

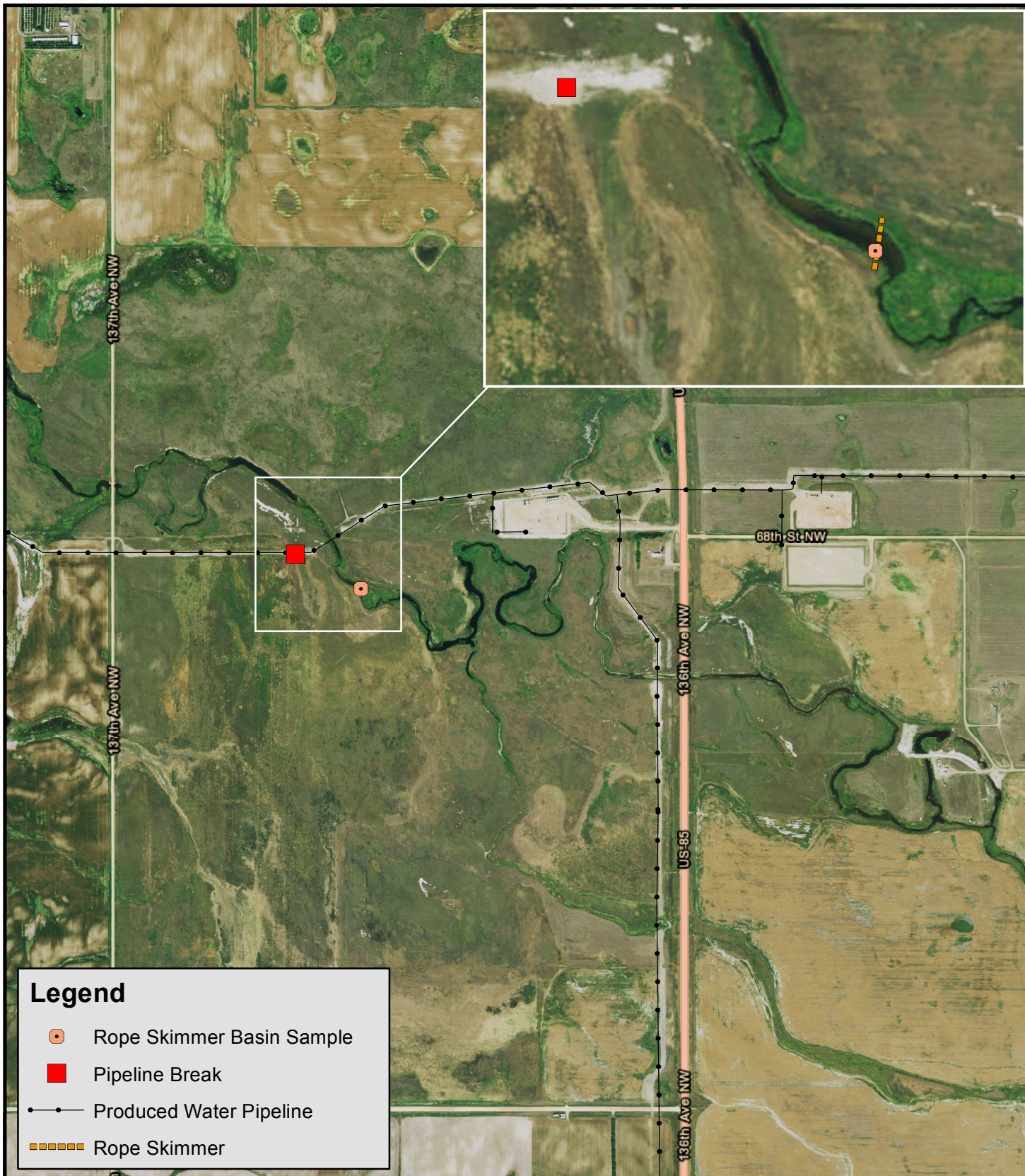


Prepared By:
Weston Solutions, Inc.
START IV

Suite 100
1435 Garrison Street
Lakewood, CO 80215



FIGURE 1 SITE FEATURES MAP BLACKTAIL CREEK SPILL WILLIAMS COUNTY, NORTH DAKOTA

Date: 2/25/2015



Legend

- Rope Skimmer Basin Sample
- Pipeline Break
- Produced Water Pipeline
- Rope Skimmer

<p>0 650 1,300 2,600 Feet</p>	<p>Prepared for: U.S. EPA Region 8</p> <p>Contract No.: EP-S8-13-01</p> <p>TDD: 1502-01</p> <p>TO: 0002</p> 	 <p>Prepared By: Weston Solutions, Inc. START IV</p> <p>Suite 100 1435 Garrison Street Lakewood, CO 80215</p>	<p>FIGURE 2 SITE VICINITY MAP BLACKTAIL CREEK SPILL WILLIAMS COUNTY, NORTH DAKOTA</p> <p>Date: 2/25/2015</p>
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Attachment B



Project Name: Blacktail Creek Spill		Site Location: Williston, ND	Project No. 20408.012.001.0208.00
Photo No. 1	Date: 1/24/2015		
Direction Photo Taken: Northwest			
Description: Location where oil sample was collected by USCG.			

Photo No. 2	Date: 1/25/2015	
Direction Photo Taken: West		
Description: Location where oil sample was collected by USCG.		

Project Name: Blacktail Creek Spill		Site Location: Williston, ND	Project No. 20408.012.001.0208.00
Photo No. 3	Date: 1/26/2015		
Direction Photo Taken: Southwest			
Description: USCG photo showing the container location where the oil sample was collected from.			

Attachment C

HT Simdis Simdis HT**1**

Sample name	: Williston	Vial	: 103
Acquired on	: 1/30/2015 2:01:49 PM	Injection	: 1
Processed on	: 2/1/2015 9:31:07 AM	Sample (g)	: 0.23710
Sample type	: opusoil	Solvent (g)	: 12.27080
Method name	: HT750C	ISTD (g)	: 0.00000
Operator	: SYSTEM		
Sequence name	: C:\CHEM32\1\SEQUENCE\013015.S		

Data File : 013015\103F0901.D\

General Variables-Hydrocarbon

Analysis Type	Sample analysis
Application Name	Simdis HT
Normalization method	
Found Recovery	100.0 (%)
Sample Type Name	opusoil
Used Blank	013015\101F0301.D\
Used BP Calibrant	012215\116F1301.D
Used Reference	013015\102F0701.D

CS - C34

BP Distribution table - Percent

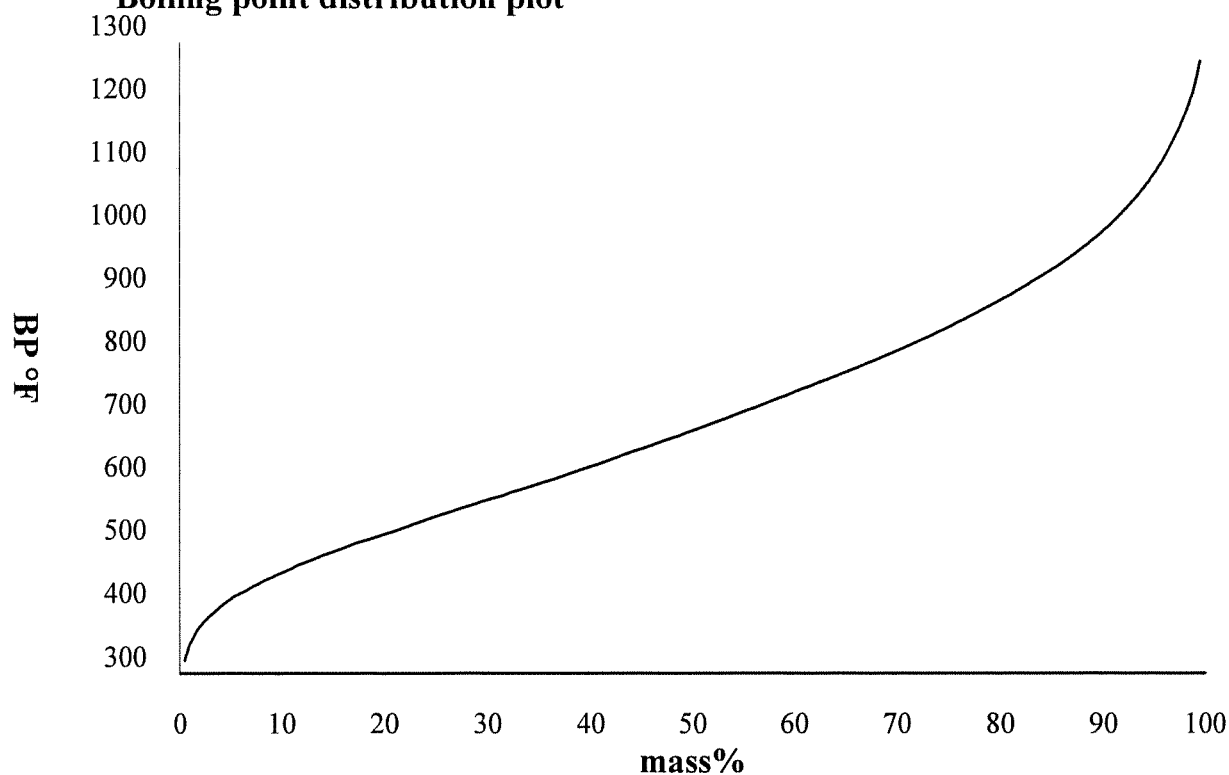
Recovered mass%	BP °F	Recovered mass%	BP °F	Recovered mass%	BP °F	Recovered mass%	BP °F
IBP	320.4	26.0	552.2	52.0	695.2	78.0	873.6
1.0	345.0	27.0	557.8	53.0	701.2	79.0	882.2
2.0	372.8	28.0	562.8	54.0	707.4	80.0	891.2
3.0	389.6	29.0	568.0	55.0	713.8	81.0	900.4
4.0	404.8	30.0	573.8	56.0	719.6	82.0	910.0
5.0	417.0	31.0	578.0	57.0	726.0	83.0	919.8
6.0	425.6	32.0	583.2	58.0	732.4	84.0	929.8
7.0	433.8	33.0	588.4	59.0	738.6	85.0	940.2
8.0	442.6	34.0	593.8	60.0	745.0	86.0	951.0
9.0	450.4	35.0	599.2	61.0	751.4	87.0	962.6
10.0	457.2	36.0	603.8	62.0	757.6	88.0	975.0
11.0	465.4	37.0	609.4	63.0	764.0	89.0	987.8
12.0	472.8	38.0	615.0	64.0	770.6	90.0	1002.0
13.0	478.8	39.0	621.0	65.0	777.0	91.0	1017.2
14.0	485.0	40.0	626.4	66.0	783.6	92.0	1034.0
15.0	491.0	41.0	631.6	67.0	790.2	93.0	1051.4
16.0	497.2	42.0	637.4	68.0	796.8	94.0	1071.4
17.0	503.6	43.0	643.6	69.0	803.8	95.0	1093.6
18.0	509.0	44.0	649.6	70.0	810.8	96.0	1119.2
19.0	513.8	45.0	654.8	71.0	817.8	97.0	1149.8
20.0	519.4	46.0	660.6	72.0	825.2	98.0	1186.6
21.0	524.0	47.0	666.4	73.0	832.8	99.0	1236.2
22.0	530.2	48.0	672.0	74.0	840.4	FBP	1274.2
23.0	536.2	49.0	677.6	75.0	848.4		
24.0	541.8	50.0	683.4	76.0	856.6		
25.0	547.8	51.0	689.6	77.0	865.0		

HT Simdis Simdis HT**2**

Sample name	: Williston	Vial	: 103
Acquired on	: 1/30/2015 2:01:49 PM	Injection	: 1
Processed on	: 2/1/2015 9:31:07 AM		
Data File	: 013015\103F0901.D\		

BP Distribution table - cut points

	BP °F	Recovered mass%	Residual mass%	Fraction mass%		BP °F	Recovered mass%	Residual mass%	Fraction mass%
C5	97.0	<IBP	100.0	0.0	C20	651.0	44.3	55.7	4.4
C6	156.0	<IBP	99.9	0.0	C21	674.0	48.4	51.6	4.1
C7	209.0	<IBP	99.9	0.0	C22	696.0	52.1	47.9	3.7
C8	258.0	<IBP	99.9	0.0	C23	716.0	55.4	44.6	3.3
C9	303.0	<IBP	99.7	0.2	C24	736.0	58.6	41.4	3.2
C10	345.0	1.0	99.0	0.7	C25	755.0	61.6	38.4	3.0
C11	385.0	2.6	97.4	1.6	C26	774.0	64.6	35.4	3.0
C12	421.0	5.4	94.6	2.8	C27	791.0	67.1	32.9	2.6
C13	456.0	9.8	90.2	4.3	C28	808.0	69.6	30.4	2.5
C14	488.0	14.3	85.7	4.6	C29	825.0	72.0	28.0	2.4
C15	519.0	19.9	80.1	5.6	C30	840.0	73.9	26.1	2.0
C16	548.0	25.1	74.9	5.1	C31	856.0	75.9	24.1	2.0
C17	576.0	30.5	69.5	5.4	C32	870.0	77.6	22.4	1.6
C18	601.0	35.4	64.6	4.9	C33	885.0	79.3	20.7	1.7
C19	626.0	39.9	60.1	4.5	C34	898.0	80.7	19.3	1.4

Boiling point distribution plot

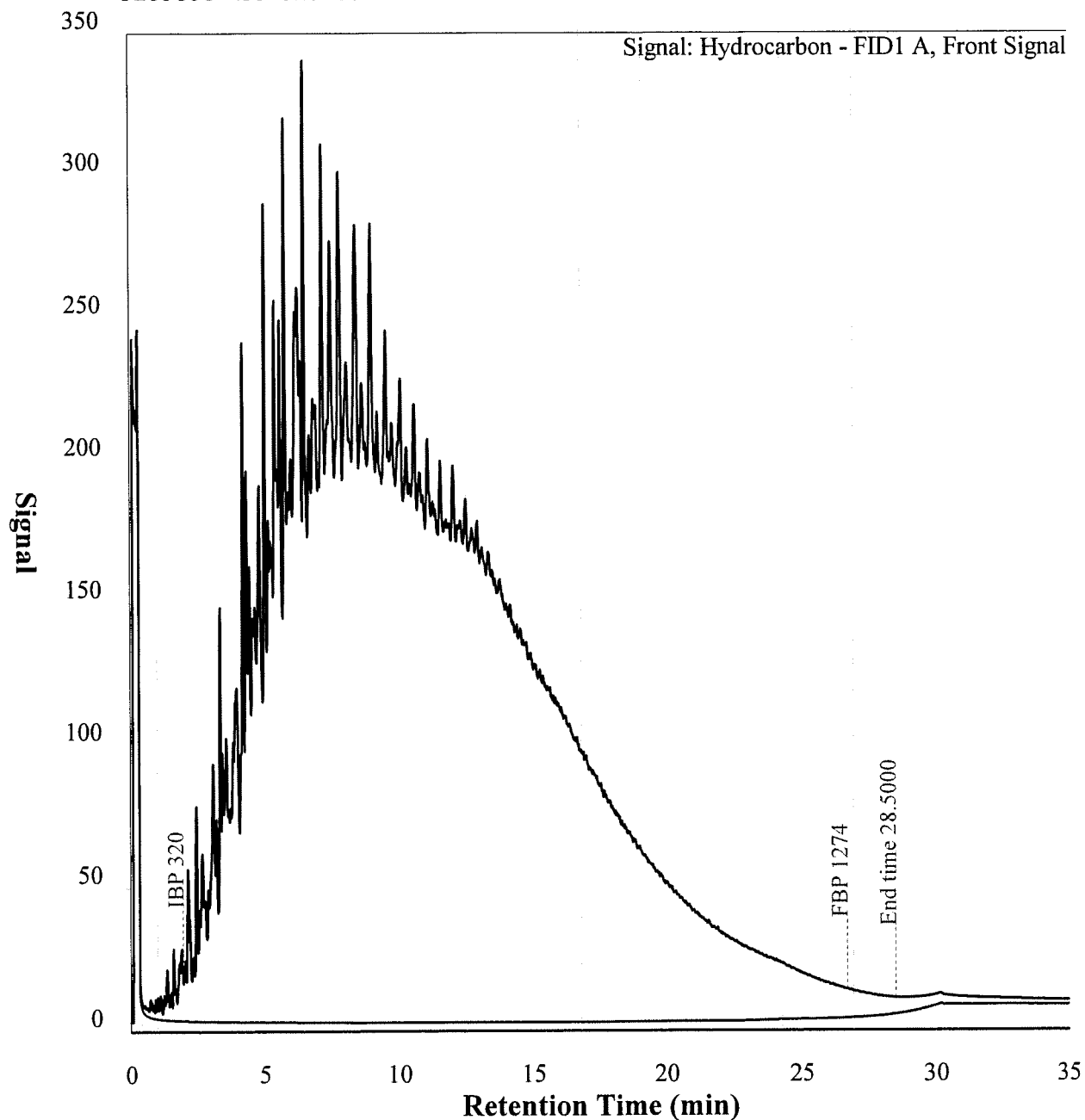
HT Simdis Simdis HT

3

Sample name : Williston
Acquired on : 1/30/2015 2:01:49 PM Vial : 103
Processed on : 2/1/2015 9:31:07 AM Injection : 1
Data File : 013015\103F0901.D\

Boiling Point (°F)

1266 351 435 520 604 689 774 858 943 1027 1112 1197 1281 1366



HT Simdis Simdis HT**1**

Sample name	: Williston	Vial	: 103
Acquired on	: 1/30/2015 2:01:49 PM	Injection	: 1
Processed on	: 2/1/2015 9:31:07 AM	Sample (g)	: 0.23710
Sample type	: opusoil	Solvent (g)	: 12.27080
Method name	: HT750C	ISTD (g)	: 0.00000
Operator	: SYSTEM		
Sequence name	: C:\CHEM32\1\SEQUENCE\013015.S		
Data File	: 013015\103F0901.D\		

General Variables-Hydrocarbon

Analysis Type	Sample analysis
Application Name	Simdis HT
Normalization method	
Found Recovery	100.0 (%)
Sample Type Name	opusoil
Used Blank	013015\101F0301.D\
Used BP Calibrant	012215\116F1301.D
Used Reference	013015\102F0701.D

C35 — C64

BP Distribution table - Percent

Recovered mass%	BP °F	Recovered mass%	BP °F	Recovered mass%	BP °F	Recovered mass%	BP °F
IBP	320.4	26.0	552.2	52.0	695.2	78.0	873.6
1.0	345.0	27.0	557.8	53.0	701.2	79.0	882.2
2.0	372.8	28.0	562.8	54.0	707.4	80.0	891.2
3.0	389.6	29.0	568.0	55.0	713.8	81.0	900.4
4.0	404.8	30.0	573.8	56.0	719.6	82.0	910.0
5.0	417.0	31.0	578.0	57.0	726.0	83.0	919.8
6.0	425.6	32.0	583.2	58.0	732.4	84.0	929.8
7.0	433.8	33.0	588.4	59.0	738.6	85.0	940.2
8.0	442.6	34.0	593.8	60.0	745.0	86.0	951.0
9.0	450.4	35.0	599.2	61.0	751.4	87.0	962.6
10.0	457.2	36.0	603.8	62.0	757.6	88.0	975.0
11.0	465.4	37.0	609.4	63.0	764.0	89.0	987.8
12.0	472.8	38.0	615.0	64.0	770.6	90.0	1002.0
13.0	478.8	39.0	621.0	65.0	777.0	91.0	1017.2
14.0	485.0	40.0	626.4	66.0	783.6	92.0	1034.0
15.0	491.0	41.0	631.6	67.0	790.2	93.0	1051.4
16.0	497.2	42.0	637.4	68.0	796.8	94.0	1071.4
17.0	503.6	43.0	643.6	69.0	803.8	95.0	1093.6
18.0	509.0	44.0	649.6	70.0	810.8	96.0	1119.2
19.0	513.8	45.0	654.8	71.0	817.8	97.0	1149.8
20.0	519.4	46.0	660.6	72.0	825.2	98.0	1186.6
21.0	524.0	47.0	666.4	73.0	832.8	99.0	1236.2
22.0	530.2	48.0	672.0	74.0	840.4	FBP	1274.2
23.0	536.2	49.0	677.6	75.0	848.4		
24.0	541.8	50.0	683.4	76.0	856.6		
25.0	547.8	51.0	689.6	77.0	865.0		

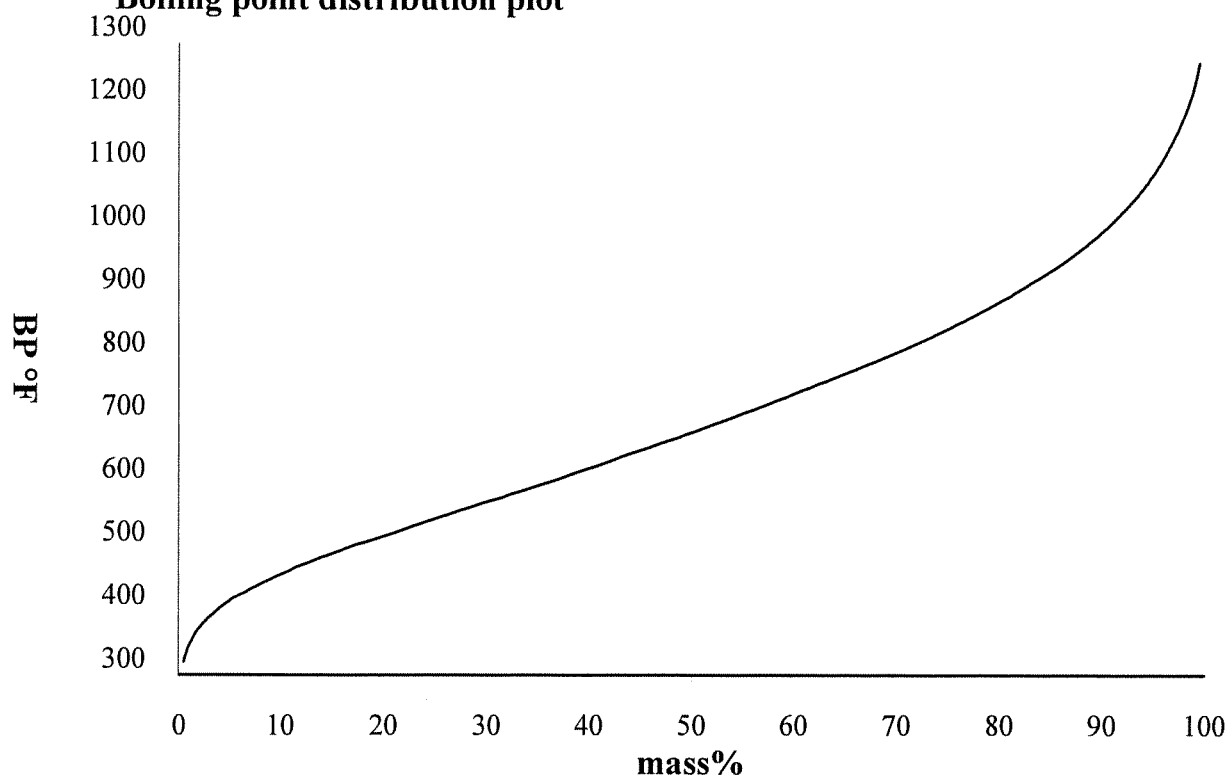
HT Simdis Simdis HT**2**

Sample name : Williston
 Acquired on : 1/30/2015 2:01:49 PM
 Processed on : 2/1/2015 9:31:07 AM
 Data File : 013015\103F0901.D\

Vial : 103
 Injection : 1

BP Distribution table - cut points

BP °F	Recovered mass%	Residual mass%	Fraction mass%	BP °F	Recovered mass%	Residual mass%	Fraction mass%
912.0	82.2	17.8	82.2	1067.0	93.8	6.2	0.5
925.0	83.5	16.5	1.3	1074.0	94.1	5.9	0.3
937.0	84.7	15.3	1.2	1083.0	94.5	5.5	0.4
948.0	85.7	14.3	1.0	1090.0	94.8	5.2	0.3
961.0	86.9	13.1	1.1	1098.0	95.2	4.8	0.3
972.0	87.8	12.2	0.9	1105.0	95.5	4.5	0.3
982.0	88.6	11.4	0.8	1112.0	95.7	4.3	0.3
993.0	89.4	10.6	0.8	1119.0	96.0	4.0	0.3
1004.0	90.1	9.9	0.8	1126.0	96.2	3.8	0.2
1013.0	90.7	9.3	0.6	1134.0	96.5	3.5	0.3
1022.0	91.3	8.7	0.6	1139.0	96.7	3.3	0.2
1033.0	91.9	8.1	0.6	1146.0	96.9	3.1	0.2
1042.0	92.5	7.5	0.5	1152.0	97.1	2.9	0.2
1051.0	93.0	7.0	0.5	1157.0	97.2	2.8	0.1
1058.0	93.3	6.7	0.4	1164.0	97.4	2.6	0.2

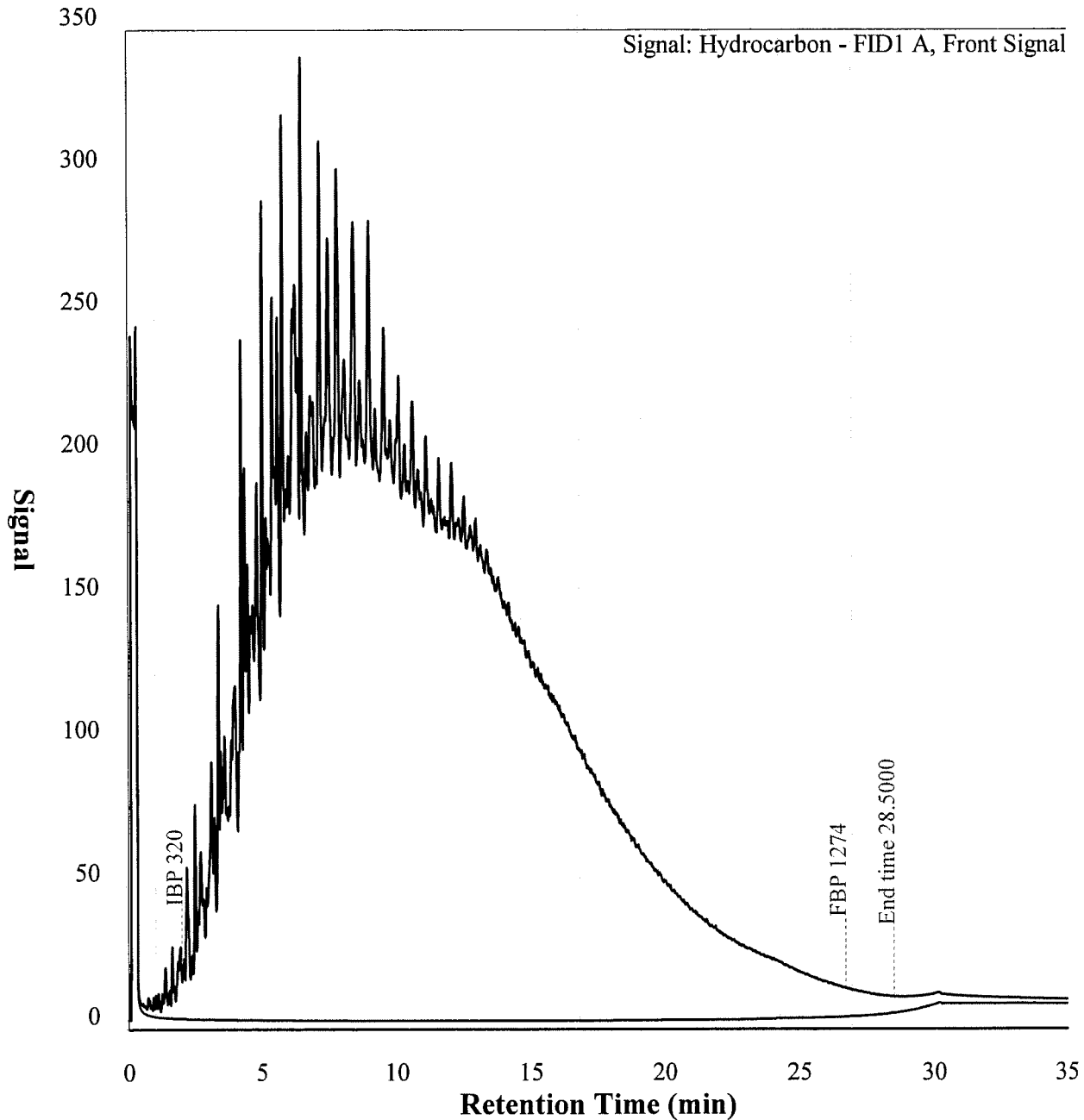
Boiling point distribution plot

HT Simdis Simdis HT**3**

Sample name : Williston
Acquired on : 1/30/2015 2:01:49 PM Vial : 103
Processed on : 2/1/2015 9:31:07 AM Injection : 1
Data File : 013015\103F0901.D\

Boiling Point (°F)

1266 351 435 520 604 689 774 858 943 1027 1112 1197 1281 1366



HT Simdis Simdis HT**1**

Sample name	: Williston	Vial	: 103
Acquired on	: 1/30/2015 2:01:49 PM	Injection	: 1
Processed on	: 2/1/2015 9:31:07 AM	Sample (g)	: 0.23710
Sample type	: opusoil	Solvent (g)	: 12.27080
Method name	: HT750C	ISTD (g)	: 0.00000
Operator	: SYSTEM		
Sequence name	: C:\CHEM32\1\SEQUENCE\013015.S		
Data File	: 013015\103F0901.D\		

General Variables-Hydrocarbon

Analysis Type	Sample analysis
Application Name	Simdis HT
Normalization method	
Found Recovery	100.0 (%)
Sample Type Name	opusoil
Used Blank	013015\101F0301.D\
Used BP Calibrant	012215\116F1301.D
Used Reference	013015\102F0701.D

CGS - CGS

BP Distribution table - Percent

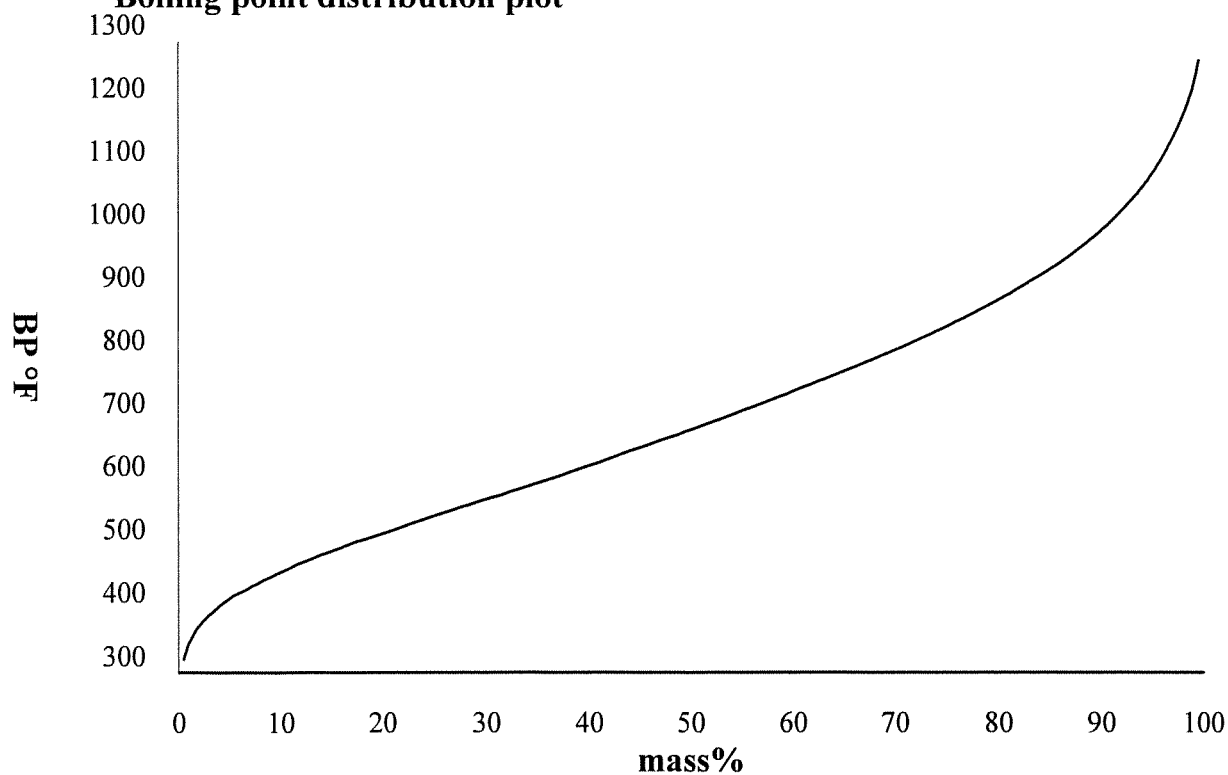
Recovered mass%	BP °F	Recovered mass%	BP °F	Recovered mass%	BP °F	Recovered mass%	BP °F
IBP	320.4	26.0	552.2	52.0	695.2	78.0	873.6
1.0	345.0	27.0	557.8	53.0	701.2	79.0	882.2
2.0	372.8	28.0	562.8	54.0	707.4	80.0	891.2
3.0	389.6	29.0	568.0	55.0	713.8	81.0	900.4
4.0	404.8	30.0	573.8	56.0	719.6	82.0	910.0
5.0	417.0	31.0	578.0	57.0	726.0	83.0	919.8
6.0	425.6	32.0	583.2	58.0	732.4	84.0	929.8
7.0	433.8	33.0	588.4	59.0	738.6	85.0	940.2
8.0	442.6	34.0	593.8	60.0	745.0	86.0	951.0
9.0	450.4	35.0	599.2	61.0	751.4	87.0	962.6
10.0	457.2	36.0	603.8	62.0	757.6	88.0	975.0
11.0	465.4	37.0	609.4	63.0	764.0	89.0	987.8
12.0	472.8	38.0	615.0	64.0	770.6	90.0	1002.0
13.0	478.8	39.0	621.0	65.0	777.0	91.0	1017.2
14.0	485.0	40.0	626.4	66.0	783.6	92.0	1034.0
15.0	491.0	41.0	631.6	67.0	790.2	93.0	1051.4
16.0	497.2	42.0	637.4	68.0	796.8	94.0	1071.4
17.0	503.6	43.0	643.6	69.0	803.8	95.0	1093.6
18.0	509.0	44.0	649.6	70.0	810.8	96.0	1119.2
19.0	513.8	45.0	654.8	71.0	817.8	97.0	1149.8
20.0	519.4	46.0	660.6	72.0	825.2	98.0	1186.6
21.0	524.0	47.0	666.4	73.0	832.8	99.0	1236.2
22.0	530.2	48.0	672.0	74.0	840.4	FBP	1274.2
23.0	536.2	49.0	677.6	75.0	848.4		
24.0	541.8	50.0	683.4	76.0	856.6		
25.0	547.8	51.0	689.6	77.0	865.0		

HT Simdis Simdis HT**2**

Sample name	: Williston	Vial	: 103
Acquired on	: 1/30/2015 2:01:49 PM	Injection	: 1
Processed on	: 2/1/2015 9:31:07 AM		
Data File	: 013015\103F0901.D\		

BP Distribution table - cut points

BP °F	Recovered mass%	Residual mass%	Fraction mass%	BP °F	Recovered mass%	Residual mass%	Fraction mass%
1170.0	97.6	2.4	97.6	1252.0	99.2	0.8	0.1
1175.0	97.7	2.3	0.1	1258.0	99.3	0.7	0.1
1180.0	97.8	2.2	0.1	1261.0	99.3	0.7	0.0
1186.0	98.0	2.0	0.2	1267.0	99.4	0.6	0.1
1191.0	98.1	1.9	0.1	1270.0	99.5	0.5	0.0
1197.0	98.3	1.7	0.1	1276.0	>FBP	0.5	0.1
1202.0	98.4	1.6	0.1	1279.0	>FBP	0.4	0.0
1211.0	98.5	1.5	0.2	1283.0	>FBP	0.4	0.0
1216.0	98.6	1.4	0.1	1287.0	>FBP	0.4	0.0
1222.0	98.8	1.2	0.1	1292.0	>FBP	0.3	0.1
1227.0	98.9	1.1	0.1	1296.0	>FBP	0.3	0.0
1233.0	98.9	1.1	0.1	1299.0	>FBP	0.2	0.0
1238.0	99.0	1.0	0.1	1303.0	>FBP	0.2	0.0
1243.0	99.1	0.9	0.1	1306.0	>FBP	0.2	0.0
1247.0	99.2	0.8	0.1	1310.0	>FBP	0.1	0.0

Boiling point distribution plot

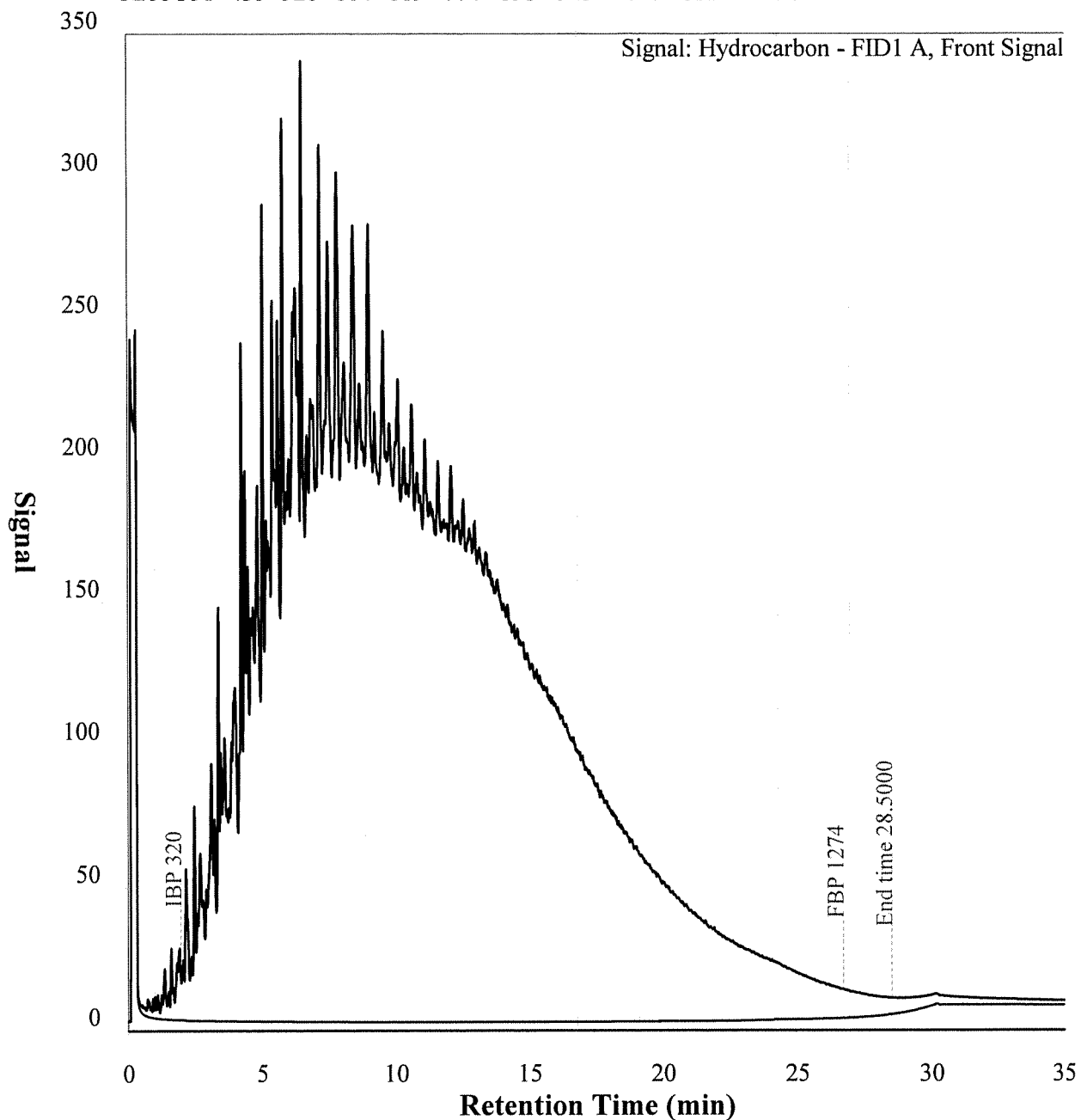
HT Simdis Simdis HT

3

Sample name : Williston
Acquired on : 1/30/2015 2:01:49 PM Vial : 103
Processed on : 2/1/2015 9:31:07 AM Injection : 1
Data File : 013015\103F0901.D\

Boiling Point (°F)

1266 351 435 520 604 689 774 858 943 1027 1112 1197 1281 1366



B7169 - Simulated distillation

SGS

CHAIN OF CUSTODY | CONVENTIONAL & SHALE

PROJECT INFO:

PROJECT: Black Tail Creek 7P.11

P.O. #

QUOTE #:

SITE REF:

TURN AROUND TIME:

REPORT LEVEL: (see reverse) ☐ Level I ☐ Level II ☐ Level IV

SPECIAL DELIVERABLES: ☐ State of Origin:

☐ EDD:**INVOICE TO:** (☐ CHECK IF SAME)

COMPANY:

ADDRESS:

PHONE:

EMAIL:

SEND DOCUMENTATION / RESULTS TO:

COMPANY:

CONTACT:

ADDRESS:

PHONE:

EMAIL:

INVOICE TO: (☐ CHECK IF SAME)

COMPANY: _____

CONTACT: _____

ADDRESS:

PHONE:

EMAIL:

SPECIAL INSTRUCTIONS / COMMENTS:

[illegible]

Blacktail Creek Spill Final EPA Water Sampling Results

						SampID:	BT-PW-01	BT-PW-02
						SampDate:	1/24/2015	1/25/2015
						SampTime:	14:20	10:20
Analyte	CAS_NO	Units	EPA MCL	ND Stream Class I and II HHV	ND WQS Acute Standard ¹	ND WQS Chronic Standard ²	Produced Water ⁷ : Moline 2H and Moline 3H Well Pad	Produced Water ⁷ : State 1H Well Pad
Metals								
Aluminum	7429-90-5	mg/L					1 U	1 U
Antimony	7440-36-0	mg/L	0.006	0.0056			0.4 U	0.4 U
Arsenic	7440-38-2	mg/L	0.010	0.01			0.1 U	0.1 U
Barium	7440-39-3	mg/L	2.0				14.4	15.3
Beryllium	7440-41-7	mg/L	0.004	0.004			0.2 U	0.2 U
Cadmium	7440-43-9	mg/L	0.005	0.005			0.05 U	0.05 U
Calcium	7440-70-2	mg/L					20500	19700
Chromium	7440-47-3	mg/L	0.10				0.275	0.1 U
Cobalt	7440-48-4	mg/L					0.1 U	0.1 U
Copper	7440-50-8	mg/L	1.3	1			0.1 U	0.1 U
Iron	7439-89-6	mg/L					120	164
Lead	7439-92-1	mg/L	0.015	0.015			0.1 U	0.1 U
Magnesium	7439-95-4	mg/L					1830	1750
Manganese	7439-96-5	mg/L					9.08	64
Mercury	7439-97-6	mg/L					0.00015 U	0.00015 U
Nickel	7440-02-0	mg/L		0.1			0.1 U	0.1 U
Potassium	9/7/7440	mg/L					13900	17200
Selenium	7782-49-2	mg/L	0.05	0.05			0.2 U	0.2 U
Silver	7440-22-4	mg/L					0.1 U	0.1 U
Sodium	7440-23-5	mg/L					223000	209000
Thallium	7440-28-0	mg/L	0.002	0.00024			0.254	0.22
Vanadium	7440-62-2	mg/L					0.5 U	0.5 U
Zinc	7440-66-6	mg/L		7.4			0.529	0.201

General Chemistry	
1	1.1
2	2.1
3	3.1
4	4.1
5	5.1
6	6.1
7	7.1
8	8.1
9	9.1
10	10.1
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87	87.1
88	88.1
89	89.1
90	90.1
91	91.1
92	92.1
93	93.1
94	94.1
95	95.1
96	96.1
97	97.1
98	98.1
99	99.1
100	100.1

**Blacktail Creek Spill
Final EPA Water Sampling Results**

						SampID:	BT-PW-01	BT-PW-02
						SampDate:	1/24/2015	1/25/2015
						SampTime:	14:20	10:20
Analyte	CAS_NO	Units	EPA MCL	ND Stream Class I and II HHV	ND WQS Acute Standard¹	ND WQS Chronic Standard²	Produced Water⁷: Moline 2H and Moline 3H Well Pad	Produced Water⁷: State 1H Well Pad
Bicarbonate Alkalinity	T-005-B	mg/L					104	87.7
Carbonate Alkalinity	T-005-C	mg/L					25 U	25 U
Hydroxide Alkalinity	WET-015	mg/L					25 U	25 U
Phenolphthalein Alkalinity	WET-026	mg/L					25 U	25 U
Total Alkalinity	000000-00-5	mg/L					104	87.7
Sulfate	14808-79-8	mg/L				450 ³	500	377
Chloride	16887-00-6	mg/L				250 ⁴	214000	174000
Ammonia as N	7664-41-7	mg/L			4.71 - 10.13 ⁵	1.43 - 2.73 ⁶	96.2 J	99.7 J
Total Petroleum Hydrocarbons								
Diesel Range Organics (DRO)	GCSV-00-4	mg/L					3.28	3.67
Gasoline Range Organics (GRO)	Gas	mg/L					1.98	4.15
HEM-Oil & Grease	C-007	mg/L					6.86	26.7
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	630-20-6	ug/L					40 U	50 U
1,1,1-Trichloroethane	71-55-6	ug/L	200	200			40 U	50 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L		0.17			40 U	50 U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.59			40 U	50 U
1,1-Dichloroethane	75-34-3	ug/L					40 U	50 U
1,1-Dichloroethene	75-35-4	ug/L	7	7			40 U	50 U
1,1-Dichloropropene	563-58-6	ug/L					40 U	50 U
1,2,3-Trichlorobenzene	87-61-6	ug/L					40 U	50 U
1,2,3-Trichloropropane	96-18-4	ug/L					40 U	50 U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70				40 U	50 U

**Blacktail Creek Spill
Final EPA Water Sampling Results**

						SampID:	BT-PW-01	BT-PW-02
						SampDate:	1/24/2015	1/25/2015
						SampTime:	14:20	10:20
Analyte	CAS_NO	Units	EPA MCL	ND Stream Class I and II HHV	ND WQS Acute Standard¹	ND WQS Chronic Standard²	Produced Water⁷: Moline 2H and Moline 3H Well Pad	Produced Water⁷: State 1H Well Pad
1,2,4-Trimethylbenzene	95-63-6	ug/L					40 U	50 U
1,2-Dibromo-3-chloropropane	96-12-8	ug/L	0.2				200 U	250 U
1,2-Dibromoethane	106-93-4	ug/L	0.05				40 U	50 U
1,2-Dichlorobenzene	95-50-1	ug/L		420			40 U	50 U
1,2-Dichloroethane	107-06-2	ug/L	5	0.38			40 U	50 U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5			40 U	50 U
1,3,5-Trimethylbenzene	108-67-8	ug/L					40 U	50 U
1,3-Dichlorobenzene	541-73-1	ug/L		320			40 U	50 U
1,3-Dichloropropane	142-28-9	ug/L					40 U	50 U
1,4-Dichlorobenzene	106-46-7	ug/L		63			40 U	50 U
2,2-Dichloropropane	594-20-7	ug/L					40 U	50 U
2-Butanone	78-93-3	ug/L					1000 U	1250 U
2-Chlorotoluene	95-49-8	ug/L					40 U	50 U
2-Hexanone	591-78-6	ug/L					200 U	250 U
4-Chlorotoluene	106-43-4	ug/L					40 U	50 U
4-Isopropyltoluene	99-87-6	ug/L					40 U	50 U
4-Methyl-2-pentanone	108-10-1	ug/L					200 U	250 U
Acetone	67-64-1	ug/L					1000 U	1250 U
Benzene	71-43-2	ug/L	5	2.2			446	989
Bromobenzene	108-86-1	ug/L					40 U	50 U
Bromochloromethane	74-97-5	ug/L					40 U	50 U
Bromodichloromethane	75-27-4	ug/L	80				40 U	50 U
Bromoform	75-25-2	ug/L	80	4.3			40 U	50 U
Bromomethane	74-83-9	ug/L					40 U	50 U
Carbon disulfide	75-15-0	ug/L					40 U	50 U

**Blacktail Creek Spill
Final EPA Water Sampling Results**

						SampID:	BT-PW-01	BT-PW-02
						SampDate:	1/24/2015	1/25/2015
						SampTime:	14:20	10:20
Analyte	CAS_NO	Units	EPA MCL	ND Stream Class I and II HHV	ND WQS Acute Standard¹	ND WQS Chronic Standard²	Produced Water⁷: Moline 2H and Moline 3H Well Pad	Produced Water⁷: State 1H Well Pad
Carbon tetrachloride	56-23-5	ug/L	5	0.23			40 U	50 U
Chlorobenzene	108-90-7	ug/L	100	100			40 U	50 U
Chloroethane	75-00-3	ug/L					40 U	50 U
Chloroform	67-66-3	ug/L	80	5.7			40 U	50 U
Chloromethane	74-87-3	ug/L					40 U	50 U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	70			40 U	50 U
cis-1,3-Dichloropropene	10061-01-5	ug/L					40 U	50 U
Dibromochloromethane	124-48-1	ug/L	80				40 U	50 U
Dibromomethane	74-95-3	ug/L					40 U	50 U
Dichlorodifluoromethane	75-71-8	ug/L					200 U	250 U
Diisopropyl Ether	108-20-3	ug/L					40 U	50 U
Ethyl Benzene	100-41-4	ug/L	700	530			40 U	50 U
Hexachlorobutadiene	87-68-3	ug/L		0.44			40 U	50 U
Isopropylbenzene (Cumene)	98-82-8	ug/L					40 U	50 U
m,p-Xylene	136777-61-2	ug/L					80 U	100 U
Methyl iodide	74-88-4	ug/L					40 U	50 U
Methylene chloride	75-09-2	ug/L	5	4.6			200 U	250 U
Naphthalene	91-20-3	ug/L					40 U	50 U
n-Butylbenzene	104-51-8	ug/L					40 U	50 U
n-Propylbenzene	103-65-1	ug/L					40 U	50 U
o-Xylene	95-47-6	ug/L					40 U	59.5
sec-Butylbenzene	135-98-8	ug/L					40 U	50 U
Styrene	100-42-5	ug/L	100	100			40 U	50 U
tert-Butyl methyl ether (MTBE)	1634-04-4	ug/L					40 U	50 U
tert-Butylbenzene	98-06-6	ug/L					40 U	50 U

Blacktail Creek Spill Final EPA Water Sampling Results								
						SampID:	BT-PW-01	BT-PW-02
						SampDate:	1/24/2015	1/25/2015
						SampTime:	14:20	10:20
Analyte	CAS_NO	Units	EPA MCL	ND Stream Class I and II HHV	ND WQS Acute Standard¹	ND WQS Chronic Standard²	Produced Water⁷: Moline 2H and Moline 3H Well Pad	Produced Water⁷: State 1H Well Pad
Tetrachloroethene	127-18-4	ug/L	5	0.69			40 U	50 U
Toluene	108-88-3	ug/L	1000	1000			208	566
trans-1,2-Dichloroethene	156-60-5	ug/L	100				40 U	50 U
trans-1,3-Dichloropropene	10061-02-6	ug/L					40 U	50 U
trans-1,4-Dichloro-2-butene	110-57-6	ug/L					200 U	250 U
Trichloroethene	79-01-6	ug/L	5	2.5			40 U	50 U
Trichlorofluoromethane	75-69-4	ug/L					40 U	50 U
Vinyl chloride	75-01-4	ug/L	2	0.025			40 U	50 U
Xylene (total)	1330-20-7	ug/L	10000	10000			80 U	149

U: analyte not detected at or above Method Detection Limit

J: result is estimated due to analysis outside of method holding time

Bold: result exceeds one or more benchmarks

1: one-hour average standard set at value which results should not exceed more than once every 3 years

2: 30-day average standard set at value which result should not exceed more than once every 3 years

3: standard for Class I and II Streams (Little Muddy = Class II), Class III Stream standard is 750 mg/L

4: standard for Class II and III Streams (Little Muddy = Class II), Class I Stream standard is 175 mg/L

5: standard range displayed was calculated using the ND Acute standard formula for ammonia at a pH values between 4.7 and 10.13

6: standard range displayed was calculated using the ND Chronic standard formula for ammonia at a pH values between 7.9 and 8.3

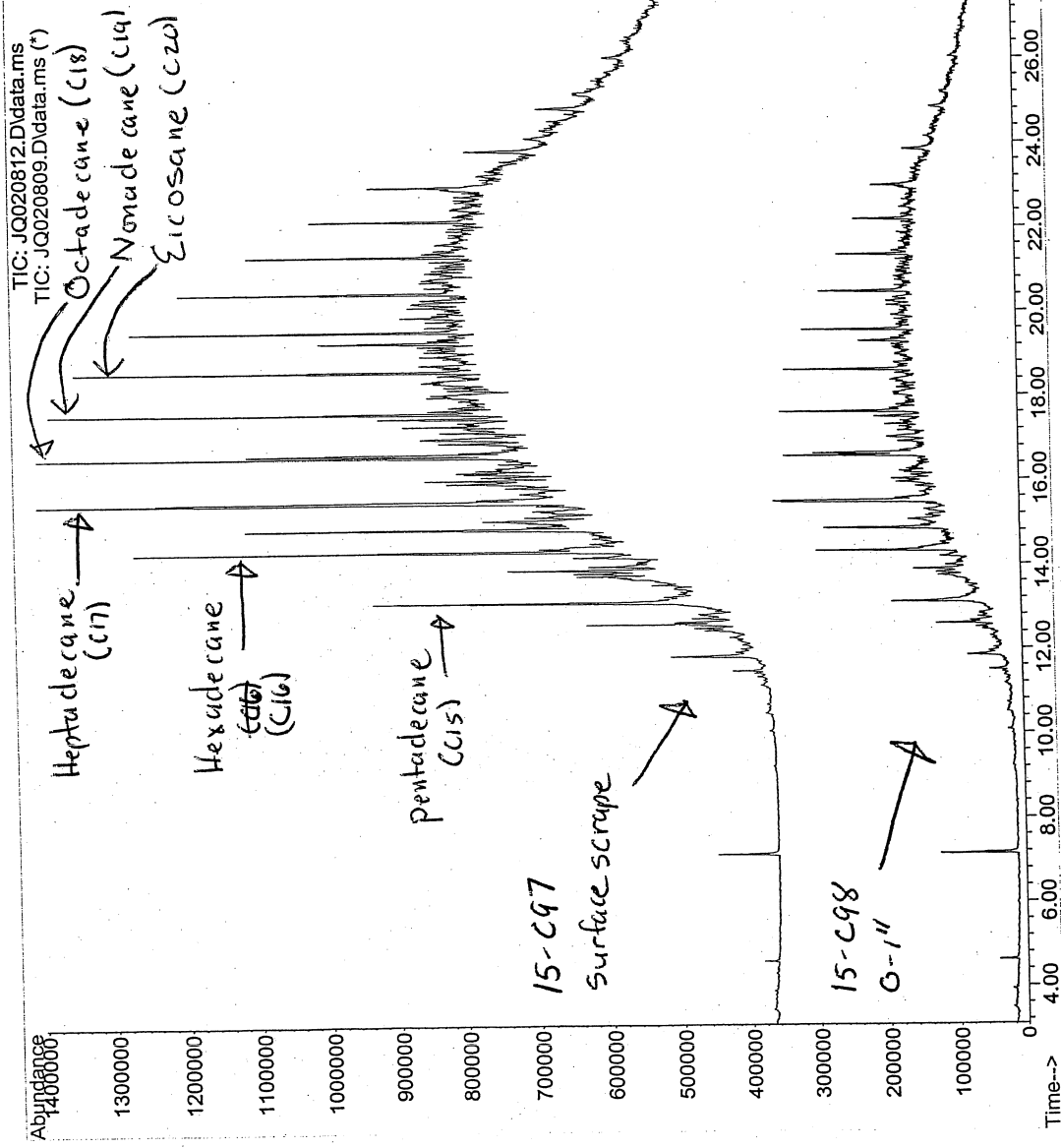
7: produced water well samples pulled from 2 out of 37 wells that are manifolded with the produced water line

Note: all results have undergone a Level II Data Validation

Attachment D

File : E:\JQ150208\JQ020812.D

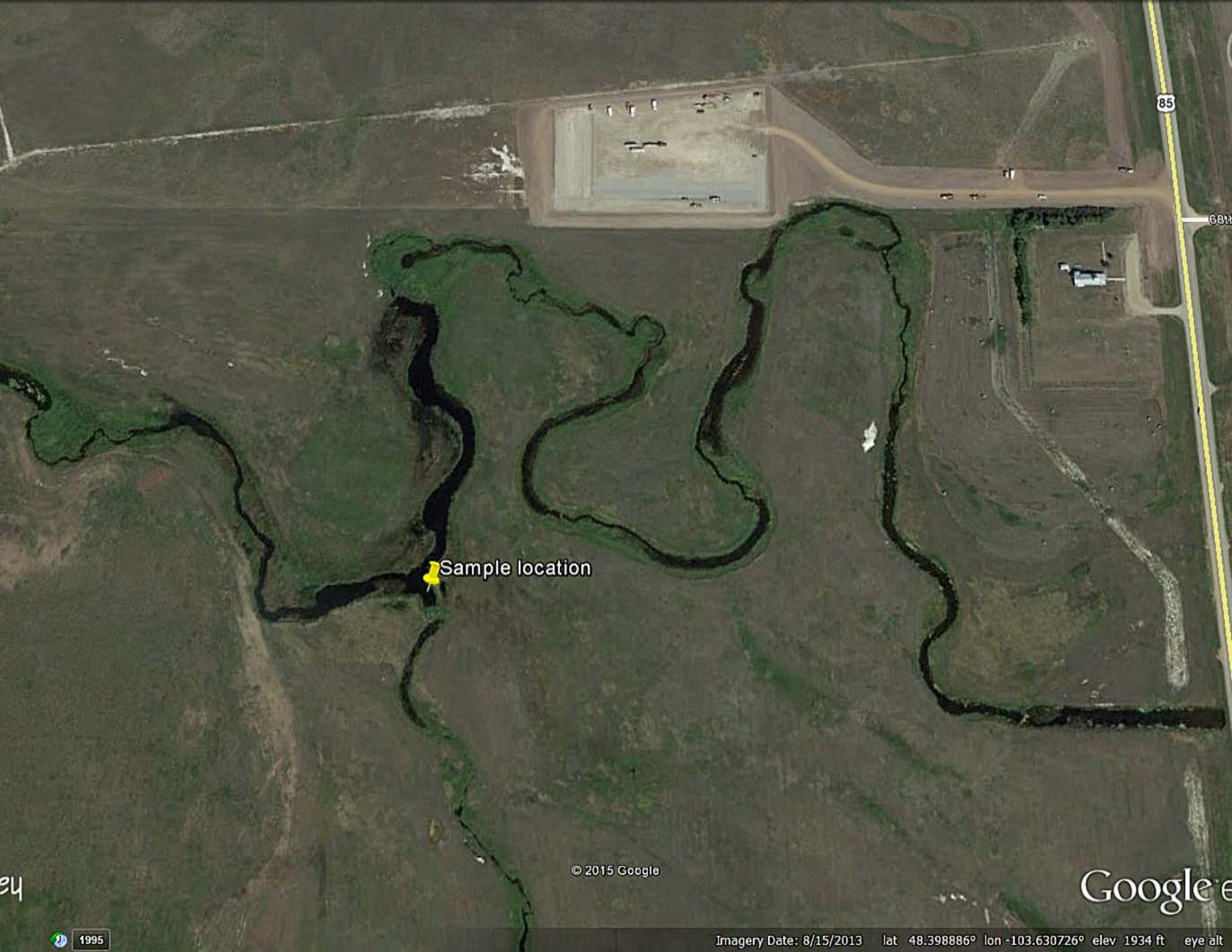
Operator :
Acquired : 8 Feb 2015 7:48 pm using AcqMethod JQ150208.M
Instrument : GCMS#3
Sample Name : 15/C98
Misc Info :
Vial Number : 12



C97 and C98 preparation

Samples arrived partially frozen. They were allowed to thaw overnight. 5 grams added to vial, then 5 mL methylene chloride added to each vial. A portion of the methylene chloride layer was injected to get chromatograms below

Jim Quamston



Sample location

© 2015 Google

Google e



1995

Imagery Date: 8/15/2013 lat 48.398886° lon -103.630726° elev 1934 ft eye alt

Attachment E

Stantec Sampling Results Analytical Discussion:

Summit Midstream contractor Stantec conducted groundwater, surface water and produced water sampling during the period of January 14 through February 11, 2015. Per OSC discretion, START compiled surface water and groundwater detections for the following analyses: volatile organic compounds (VOCs) by SW8260B, semivolatile organic compounds (SVOCs) by SW8270, metals by SW6010/SW6020 and drinking water methods E200.7/E200.8 and total petroleum hydrocarbons (TPH) by SW8015. Additional analyses/monitoring performed but not compiled for START reporting included: alkalinity, sodium adsorption ratio, Total Kjeldahl Nitrogen, nitrate and nitrite as N, total phosphorus, hardness, total dissolved solids, ammonia as N, silica, pH, chloride, fluoride, bromide and sulfate. Additionally, Stantec performed soil and sediment sampling, but these results were not included in the START data compilation per OSC direction.

Surface Water/Produced Water Sampling Results

Benzene

Benzene was detected in a number of both surface water and produced water samples above the North Dakota Stream Class I and II Human Health Value of 5 ug/L. Detections of benzene in surface water ranged from 1.01 ug/L to 49.4 ug/L. Detections of benzene in produced water samples collected by Stantec ranged from 338 J ug/L to 541 ug/L.

Hydrocarbons

Diesel range organics (DRO) (C10-C28) were detected in a number of both surface water and produced water samples. Multiple detections exceeded the Wyoming water cleanup level for DRO of 1,100 ug/L, utilized for reference because no North Dakota or federal benchmark was available. Detections of DRO in surface water ranged from 105 ug/L to 5510 J ug/L. Detections of DRO in produced water ranged from 1220 J ug/L to 5200 J ug/L.

Gasoline range organics (GRO) (C6-C10) were detected in both produced water samples collected and in one surface water sample, but not at values which exceed the Wyoming water cleanup level for GRO of 6,600 ug/L.

Metals

A number of metals were detected in both produced water and surface water samples collected. Results were compared against the applicable North Dakota Stream Class I and II Human Health Values, EPA Maximum Contaminant Levels (MCLs) and/or EPA Secondary Maximum Contaminants Levels (MCLs). Analytes that exceeded one or more benchmarks in surface water samples included arsenic, barium, iron, manganese, thallium and total chromium. Analytes that exceeded one or more benchmarks in produced water samples included arsenic, barium, iron, manganese and total chromium.

SVOCs

A number of compounds containing cresol, phenol and naphthalene were detected in surface water and produced water samples. No ND HHV or EPA MCL is set for the detected analytes.

VOCs

A number of benzene containing compounds were detected in both surface water and produced water samples. No ND HHV or EPA MCL is set for the detected analytes.

Acetone was detected in a number of both surface water and produced water samples. No ND HHV or EPA MCL is set for acetone.

Groundwater Sampling Results

Benzene

Benzene was detected in a number of groundwater samples above the North Dakota Stream Class I and II Human Health Value of 5 ug/L, ranging from 5.03 ug/L to 16.8 ug/L.

Metals

A number of metals were detected in groundwater samples collected. Results were compared against the applicable North Dakota Stream Class I and II Human Health Values, EPA Maximum Contaminant Levels (MCLs) and/or EPA Secondary Maximum Contaminants Levels (MCLs). Analytes that exceeded one or more benchmarks in groundwater samples included arsenic, barium, iron, magnesium and manganese.

SVOCs

SVOC analytes detected in groundwater samples included phenol and cresol (all isomers). No ND HHV or EPA MCL is set for the detected analytes.

VOCs

VOC analytes detected in groundwater samples included acetone, methyl ethyl ketone and carbon disulfide, all of which are common laboratory contaminants. No ND HHV or EPA MCL is set for the detected analytes.

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date Time	Location	Analytical Group	Chemical Name	Result	Result Unit
BCST_DUP001-012815	1/28/15 0:01	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.37	ug/l
BCST_DUP002-012915	1/29/15 0:01	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.47	ug/l
BCST_DUP003-020415	2/4/15 0:01	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.43	ug/l
BCST_SS3FP-012415	1/24/15 11:10	Free Product	SW8260B	Acetone	201	ug/l
BCST_SW100-012515	1/25/15 11:45	BC_100	SW8260B	Acetone	36.2	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Acetone	360	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Butylbenzene, n-	1.63	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Butylbenzene, sec- (2-Phenylbutane)	1.28	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Carbon Disulfide	1.86	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Isopropylbenzene	2.87	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Isopropyltoluene, p- (Cymene)	1.61	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Naphthalene	6.67	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Propylbenzene, n-	2.88	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Trimethylbenzene, 1,2,4-	26.1	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Trimethylbenzene, 1,3,5-	5.81	ug/l
BCST_SW103_012315	1/23/15 9:25	BC_103	SW8260B	Acetone	326	ug/l
BCST_SW103-012115	1/21/15 9:30	BC_103	SW8260B	Acetone	269	ug/l
BCST_SW103-012215	1/22/15 10:00	BC_103	SW8260B	Acetone	281	ug/l
BCST_SW103-012215	1/22/15 10:00	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.19	ug/l
BCST_SW103-012415	1/24/15 12:00	BC_103	SW8260B	Acetone	115	ug/l
BCST_SW103-012515	1/25/15 9:10	BC_103	SW8260B	Acetone	84.6	ug/l
BCST_SW103-012515	1/25/15 9:10	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.16	ug/l
BCST_SW103-012615	1/26/15 10:30	BC_103	SW8260B	Acetone	142	ug/l
BCST_SW103-012715	1/27/15 10:00	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	2.28	ug/l
BCST_SW103-012815	1/28/15 9:35	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.26	ug/l
BCST_SW103-012915	1/29/15 9:50	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.34	ug/l
BCST_SW103-020415	2/4/15 8:45	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.26	ug/l
BCST_SW103-020515	2/5/15 8:40	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.44	ug/l
BCST_SW103-02062015	2/6/15 8:30	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	1.48	ug/l
BCST_SW106-012715	1/27/15 11:45	BC_106	SW8260B	Acetone	65	ug/l
BCST_SW106-012715	1/27/15 11:45	BC_106	SW8260B	Trimethylbenzene, 1,2,4-	6.43	ug/l

Blacktail Creek Spill Final Stantec Surface Water Sampling Results* (Sampling Period: 1/14/15-2/11/15)						
BCST_SW106-012715	1/27/15 11:45	BC_106	SW8260B	Trimethylbenzene, 1,3,5-	1.55	ug/l
BCST_SW106-012815	1/28/15 11:10	BC_106	SW8260B	Trimethylbenzene, 1,2,4-	3.25	ug/l
BCST_SW106-012915	1/29/15 11:00	BC_106	SW8260B	Trimethylbenzene, 1,2,4-	1.82	ug/l
BCST_SW106-013015	1/30/15 10:30	BC_106	SW8260B	Trimethylbenzene, 1,2,4-	1.1	ug/l
BCST_SW106-02062015	2/6/15 9:30	BC_106	SW8260B	Trimethylbenzene, 1,2,4-	1.18	ug/l
BCST_SW200-012315	1/23/15 10:00	BC_200	SW8260B	Acetone	232	ug/l
BCST_SW200-011815	1/18/15 10:30	BC_200	SW8260B	Acetone	320	ug/l
BCST_SW200-011815	1/18/15 10:30	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	2.18	ug/l
BCST_SW200-012115	1/21/15 9:50	BC_200	SW8260B	Acetone	270	ug/l
BCST_SW200-012115	1/21/15 9:50	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.06	ug/l
BCST_SW200-012215	1/22/15 10:30	BC_200	SW8260B	Acetone	313	ug/l
BCST_SW200-012215	1/22/15 10:30	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.57	ug/l
BCST_SW200-012415	1/24/15 12:20	BC_200	SW8260B	Acetone	148	ug/l
BCST_SW200-012515	1/25/15 9:25	BC_200	SW8260B	Acetone	68.4	ug/l
BCST_SW200-012615	1/26/15 10:50	BC_200	SW8260B	Acetone	141	ug/l
BCST_SW200-012715	1/27/15 10:45	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	2.22	ug/l
BCST_SW200-012815	1/28/15 10:05	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.42	ug/l
BCST_SW200-012915	1/29/15 10:05	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.41	ug/l
BCST_SW200-020415	2/4/15 9:05	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.36	ug/l
BCST_SW200-020515	2/5/15 9:10	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	2.2	ug/l
BCST_SW200-02062015	2/6/15 8:50	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	1.68	ug/l
BCST_SW301-011615	1/16/15 11:15	BC_301	SW8260B	Acetone	34.7	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Acetone	29.1	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Butylbenzene, n-	1.77	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Butylbenzene, sec- (2-Phenylbutane)	1.03	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Isopropylbenzene	1.12	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Isopropyltoluene, p- (Cymene)	1.85	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Naphthalene	14.5	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Propylbenzene, n-	1.17	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Trimethylbenzene, 1,2,4-	29.6	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Trimethylbenzene, 1,3,5-	5.08	ug/l
BCST-DW001-012815	1/28/15 14:10	BC_DW001	SW8260B	Isopropylbenzene	4.75	ug/l
BCST-DW001-012815	1/28/15 14:10	BC_DW001	SW8260B	Propylbenzene, n-	1.76	ug/l

Blacktail Creek Spill Final Stantec Surface Water Sampling Results* (Sampling Period: 1/14/15-2/11/15)						
BT-SW-04/BC111	1/25/15 17:15	BC_111	SW8260B	Acetone	40.1	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Acetone	1570	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Isopropylbenzene	1.41 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Isopropyltoluene, p- (Cymene)	1 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Methyl Ethyl Ketone (MEK)	106 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Naphthalene	9.33 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Propylbenzene, n-	1.58 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Trimethylbenzene, 1,2,4-	13.7 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Trimethylbenzene, 1,3,5-	2.76 J	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Acetone	2150	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Isopropylbenzene	1.51	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Methyl Ethyl Ketone (MEK)	130	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Naphthalene	5.85	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Trimethylbenzene, 1,2,4-	7.23	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Trimethylbenzene, 1,3,5-	1.47	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Acetone	1060	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Isopropylbenzene	2.47	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Isopropyltoluene, p- (Cymene)	1.07	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Methyl Ethyl Ketone (MEK)	424	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Methyl Isobutyl Ketone (MIBK)	12.6	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Naphthalene	18.1	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Propylbenzene, n-	2.85	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Trimethylbenzene, 1,2,4-	27.5	ug/l
State Produced	1/25/15 10:20	State Produced	SW8260B	Trimethylbenzene, 1,3,5-	5.3	ug/l
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW8260B	Acetone	554	ug/l
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW8260B	Trimethylbenzene, 1,2,4-	2.31	ug/l
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW8260B	Acetone	31.7	ug/l
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8260B	Acetone	648	ug/l
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8260B	Trimethylbenzene, 1,2,4-	3.52	ug/l

J: estimated value

Note: no ND Stream HHV or EPA MCL set for these analytes

* results presented are limited to detections; analysis included all analytes on method list

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date Time	Location	Analytical Group	Chemical Name	Result	Result Unit
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8270	Cresol (All Isomers)	12.1	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8270	Methylnaphthalene, 1-	7.96	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8270	Methylnaphthalene, 2-	8.16	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8270	Naphthalene	3.08	ug/l
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8270	Phenol	10.7	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8270	Methylnaphthalene, 1-	16.1	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8270	Methylnaphthalene, 2-	17.4	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8270	Naphthalene	4.37	ug/l
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8270	Phenanthrene	2.51	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Cresol (All Isomers)	68.9 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Cresol, m & p- (Methylphenol, 3&4-)	34.1 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Cresol, o- (Methylphenol, 2-)	34.7	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Dimethylphenol, 2,4-	15.6	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Methylnaphthalene, 1-	24.5 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Methylnaphthalene, 2-	28.1 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Naphthalene	8.3 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Phenanthrene	5.85 J	ug/l
Moling Produced	1/24/15 14:30	Moling Produced	SW8270	Phenol	102 J	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8270	Cresol (All Isomers)	84.1	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8270	Cresol, m & p- (Methylphenol, 3&4-)	42.5	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8270	Cresol, o- (Methylphenol, 2-)	41.6	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8270	Dimethylphenol, 2,4-	19.9	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8270	Naphthalene	2.28	ug/l
South Valve Set	1/15/15 10:30	South Valve Set	SW8270	Phenol	78.7 J	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Cresol (All Isomers)	91.4 J	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Cresol, m & p- (Methylphenol, 3&4-)	44.7 J	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Cresol, o- (Methylphenol, 2-)	46.7	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Dimethylphenol, 2,4-	30.5	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Methylnaphthalene, 1-	4.48	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Methylnaphthalene, 2-	4.66	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Naphthalene	7.47	ug/l
State Produced	1/25/15 10:20	State Produced	SW8270	Phenol	79.9 J	ug/l

Blacktail Creek Spill Final Stantec Surface Water Sampling Results* (Sampling Period: 1/14/15-2/11/15)						
Sample Name	Sample Date Time	Location	Analytical Group	Chemical Name	Result	Result Unit
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8270	Cresol (All Isomers)	15.3 J	ug/l
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8270	Phenol	11 J	ug/l

J: estimated value

Note: no ND Stream HHV or EPA MCL set for these analytes

* results presented are limited to detections; analysis included all analytes on method list

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST OW001 020115	2/1/15 15:55	OW001	SW6020	Arsenic	0.0252	mg/l	0.01	0.01	
BCST OW001 020115	2/1/15 15:55	OW001	SW6020	Barium	0.0659	mg/l		2	
BCST OW001 020115	2/1/15 15:55	OW001	SW6010	Calcium	417	mg/l			
BCST OW001 020115	2/1/15 15:55	OW001	SW6020	Chromium (Total)	0.0316	mg/l		0.1	
BCST OW001 020115	2/1/15 15:55	OW001	SW6010	Iron	17.6	mg/l			0.03
BCST OW001 020115	2/1/15 15:55	OW001	SW6010	Magnesium	280	mg/l			
BCST OW001 020115	2/1/15 15:55	OW001	SW6010	Manganese	1.39	mg/l			0.05
BCST OW001 020115	2/1/15 15:55	OW001	SW6010	Potassium	21	mg/l			
BCST OW001 020115	2/1/15 15:55	OW001	SW6010	Sodium	931	mg/l			
BCST_DUP 403-013115	1/31/15 0:01	SW_403	SW6020	Barium	0.0586	mg/l		2	
BCST_DUP 404-020115	2/1/15 0:01	SW_403	SW6020	Barium	0.0578 J	mg/l		2	
BCST_DUP 405-020115	2/1/15 0:01	SW_402	SW6020	Barium	0.101 J	mg/l		2	
BCST_DUP 406-020215	2/2/15 0:01	SW_405	SW6020	Barium	0.0659 J	mg/l		2	
BCST_DUP 407-020215	2/2/15 0:01	SCD3	SW6020	Barium	0.104	mg/l		2	
BCST_DUP 408-0203-15	2/3/15 0:01	SW_404	SW6020	Barium	0.179	mg/l		2	
BCST_DWFLC-012215	1/22/15 14:40	BC_FLC	SW6010	Calcium	17.1	mg/l			
BCST_DWFLC-012215	1/22/15 14:40	BC_FLC	SW6010	Iron	3.66	mg/l			0.03
BCST_DWFLC-012215	1/22/15 14:40	BC_FLC	SW6010	Sodium	748	mg/l			
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.8	Arsenic	0.0309	mg/l	0.01	0.01	
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.8	Barium	0.0147	mg/l		2	
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.8	Cadmium	0.000165	mg/l		5	
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.7	Calcium	95.4	mg/l			
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.8	Copper	0.00196	mg/l	1	1.3	
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.7	Iron	3.61	mg/l			0.03
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.7	Magnesium	49.8	mg/l			
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.7	Manganese	0.104	mg/l			0.05
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.7	Sodium	266	mg/l			
BCST_GWNH1-011915	1/19/15 16:45	BC_NH1	E200.7	Zinc	0.0393	mg/l	7.4		
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.8	Arsenic	0.00289	mg/l	0.01	0.01	
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.8	Barium	0.0128	mg/l		2	
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.8	Cadmium	0.000103	mg/l		5	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.7	Calcium	223	mg/l			
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.8	Copper	0.00218	mg/l	1	1.3	
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.7	Iron	9.18	mg/l			0.03
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.8	Lead	0.00112	mg/l		15	
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.7	Magnesium	107	mg/l			
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.7	Manganese	0.524	mg/l			0.05
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.7	Sodium	210	mg/l			
BCST_GWNH2-011915	1/19/15 16:17	BC_NH2	E200.7	Zinc	0.0643	mg/l	7.4		
BCST_SCD002-013115	1/31/15 12:15	SCD2	SW6020	Barium	0.0435	mg/l		2	
BCST_SCD002-020115	2/1/15 13:10	SCD2	SW6020	Barium	0.093	mg/l		2	
BCST_SCD002-020215	2/2/15 11:45	SCD2	SW6020	Barium	0.157	mg/l		2	
BCST_SCD002-0203-15	2/3/15 11:55	SCD2	SW6020	Barium	0.0877	mg/l		2	
BCST_SCD003-013115	1/31/15 10:40	SCD3	SW6020	Barium	0.0691	mg/l		2	
BCST_SCD003-020115	2/1/15 11:00	SCD3	SW6020	Barium	0.161	mg/l		2	
BCST_SCD003-020215	2/2/15 10:45	SCD3	SW6020	Barium	0.114	mg/l		2	
BCST_SCD003-0203-15	2/3/15 13:00	SCD3	SW6020	Barium	0.157	mg/l		2	
BCST_SW 400-013115	1/31/15 13:35	SW_400	SW6020	Barium	0.0933	mg/l		2	
BCST_SW 400-020115	2/1/15 8:55	SW_400	SW6020	Barium	0.0423	mg/l		2	
BCST_SW 400-020215	2/2/15 8:45	SW_400	SW6020	Barium	0.0887	mg/l		2	
BCST_SW 400-0203-15	2/3/15 8:40	SW_400	SW6020	Barium	0.0627	mg/l		2	
BCST_SW 401-013115	1/31/15 13:05	SW_401	SW6020	Barium	0.181	mg/l		2	
BCST_SW 401-020115	2/1/15 13:20	SW_401	SW6020	Barium	0.422	mg/l		2	
BCST_SW 401-020215	2/2/15 12:15	SW_401	SW6020	Barium	0.115	mg/l		2	
BCST_SW 401-0203-15	2/3/15 11:15	SW_401	SW6020	Barium	0.345	mg/l		2	
BCST_SW 402-013115	1/31/15 11:40	SW_402	SW6020	Barium	0.0684	mg/l		2	
BCST_SW 402-020115	2/1/15 13:00	SW_402	SW6020	Barium	0.0549	mg/l		2	
BCST_SW 402-020215	2/2/15 9:10	SW_402	SW6020	Barium	0.0822	mg/l		2	
BCST_SW 402-0203-15	2/3/15 9:00	SW_402	SW6020	Barium	0.343	mg/l		2	
BCST_SW 403-013115	1/31/15 11:20	SW_403	SW6020	Barium	0.0538	mg/l		2	
BCST_SW 403-020115	2/1/15 11:50	SW_403	SW6020	Barium	0.0578	mg/l		2	
BCST_SW 403-020215	2/2/15 11:30	SW_403	SW6020	Barium	0.0478	mg/l		2	
BCST_SW 403-0203-15	2/3/15 12:30	SW_403	SW6020	Barium	0.0616	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST_SW 404-013115	1/31/15 11:05	SW_404	SW6020	Barium	2.51	mg/l		2	
BCST_SW 404-020115	2/1/15 11:20	SW_404	SW6020	Barium	5.45 J	mg/l		2	
BCST_SW 404-020215	2/2/15 10:58	SW_404	SW6020	Barium	0.204	mg/l		2	
BCST_SW 404-0203-15	2/3/15 12:43	SW_404	SW6020	Barium	0.205	mg/l		2	
BCST_SW 405-013115	1/31/15 9:30	SW_405	SW6020	Barium	0.0468	mg/l		2	
BCST_SW 405-020115	2/1/15 9:20	SW_405	SW6020	Barium	0.0414 J	mg/l		2	
BCST_SW 405-020215	2/2/15 9:25	SW_405	SW6020	Barium	0.0469	mg/l		2	
BCST_SW 405-0203-15	2/3/15 9:15	SW_405	SW6020	Barium	0.0685	mg/l		2	
BCST_SW 406-013115	1/31/15 14:25	SW_406	SW6020	Barium	0.519	mg/l		2	
BCST_SW 406-020115	2/1/15 16:25	SW_406	SW6020	Barium	0.203	mg/l		2	
BCST_SW 406-020215	2/2/15 14:25	SW_406	SW6020	Barium	0.0483 J	mg/l		2	
BCST_SW 406-0203-15	2/3/15 14:15	SW_406	SW6020	Barium	0.0923	mg/l		2	
BCST_SW 407-013115	1/31/15 14:55	SW_407	SW6020	Barium	1.36	mg/l		2	
BCST_SW 407-020115	2/1/15 14:40	SW_407	SW6020	Barium	0.0631	mg/l		2	
BCST_SW 407-020215	2/2/15 14:35	SW_407	SW6020	Barium	0.101	mg/l		2	
BCST_SW 407-0203-15	2/3/15 14:00	SW_407	SW6020	Barium	0.159	mg/l		2	
BCST_SW 408-013115	1/31/15 13:15	SW_408	SW6020	Barium	2.09	mg/l		2	
BCST_SW 408-020115	2/1/15 13:30	SW_408	SW6020	Barium	4.35	mg/l		2	
BCST_SW 408-020215	2/2/15 12:30	SW_408	SW6020	Barium	2.43	mg/l		2	
BCST_SW 408-0203-15	2/3/15 10:55	SW_408	SW6020	Barium	2.91	mg/l		2	
BCST_SW 409-013115	1/31/15 11:05	SW_409	SW6020	Barium	0.0664	mg/l		2	
BCST_SW 409-020115	2/1/15 15:30	SW_409	SW6020	Barium	0.449	mg/l		2	
BCST_SW 409-020215	2/2/15 8:25	SW_409	SW6020	Barium	1.59	mg/l		2	
BCST_SW 409-0203-15	2/3/15 8:15	SW_409	SW6020	Barium	0.168	mg/l		2	
BCST_SW 410-013115	1/31/15 8:50	SW_410	SW6020	Barium	0.1	mg/l		2	
BCST_SW 410-020115	2/1/15 15:15	SW_410	SW6020	Barium	0.0775	mg/l		2	
BCST_SW 410-020215	2/2/15 15:20	SW_410	SW6020	Barium	0.0688	mg/l		2	
BCST_SW 410-0203-15	2/3/15 10:23	SW_410	SW6020	Barium	0.0699	mg/l		2	
BCST_SW 411-013115	1/31/15 15:33	SW_411	SW6020	Barium	0.79	mg/l		2	
BCST_SW 411-020115	2/1/15 15:00	SW_411	SW6020	Barium	0.276	mg/l		2	
BCST_SW 411-020215	2/2/15 15:00	SW_411	SW6020	Barium	0.317	mg/l		2	
BCST_SW 411-0203-15	2/3/15 10:10	SW_411	SW6020	Barium	0.111	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST_SW100-012515	1/25/15 11:45	BC_100	SW6020	Arsenic	0.073	mg/l	0.01	0.01	
BCST_SW100-012515	1/25/15 11:45	BC_100	SW6020	Barium	0.032	mg/l		2	
BCST_SW100-012515	1/25/15 11:45	BC_100	SW6010	Sodium	978	mg/l			
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6020	Barium	0.187	mg/l		2	
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6010	Boron	6.61	mg/l			
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6010	Calcium	337	mg/l			
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6010	Iron	0.677	mg/l			0.03
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6010	Magnesium	50.9	mg/l			
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6010	Manganese	0.369	mg/l			0.05
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6010	Potassium	118	mg/l			
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6010	Sodium	1820	mg/l			
BCST_SW102-011715	1/17/15 11:15	BC_102	SW6020	Thallium	0.00218	mg/l	0.00024	0.002	
BCST_SW106-012915	1/29/15 11:00	BC_106	SW6020	Barium	0.00998	mg/l		2	
BCST_SW107-011815	1/18/15 16:30	BC_107	SW6020	Barium	0.00384	mg/l		2	
BCST_SW107-011815	1/18/15 16:30	BC_107	SW6010	Calcium	14.4	mg/l			
BCST_SW107-011815	1/18/15 16:30	BC_107	SW6010	Magnesium	7.59	mg/l			
BCST_SW107-011815	1/18/15 16:30	BC_107	SW6010	Manganese	0.0359	mg/l			0.05
BCST_SW107-011815	1/18/15 16:30	BC_107	SW6010	Sodium	26.9	mg/l			
BCST_SW109-011615	1/16/15 14:00	BC_109	SW6020	Barium	0.03	mg/l		2	
BCST_SW109-011615	1/16/15 14:00	BC_109	SW6010	Calcium	134	mg/l			
BCST_SW109-011615	1/16/15 14:00	BC_109	SW6010	Iron	1.24	mg/l			0.03
BCST_SW109-011615	1/16/15 14:00	BC_109	SW6010	Magnesium	73.2	mg/l			
BCST_SW109-011615	1/16/15 14:00	BC_109	SW6010	Manganese	0.336	mg/l			0.05
BCST_SW109-011615	1/16/15 14:00	BC_109	SW6010	Sodium	305	mg/l			
BCST_SW110-011815	1/18/15 12:00	BC_110	SW6020	Barium	0.00382	mg/l		2	
BCST_SW110-011815	1/18/15 12:00	BC_110	SW6010	Calcium	17.1 J	mg/l			
BCST_SW110-011815	1/18/15 12:00	BC_110	SW6010	Iron	0.149	mg/l			0.03
BCST_SW110-011815	1/18/15 12:00	BC_110	SW6010	Magnesium	9.4 J	mg/l			
BCST_SW110-011815	1/18/15 12:00	BC_110	SW6010	Manganese	0.0455	mg/l			0.05
BCST_SW110-011815	1/18/15 12:00	BC_110	SW6010	Potassium	1.24	mg/l			
BCST_SW110-011815	1/18/15 12:00	BC_110	SW6010	Sodium	43.2	mg/l			
BCST_SW111-011715	1/17/15 13:40	BC_111	SW6020	Barium	0.00376	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST_SW111-011715	1/17/15 13:40	BC_111	SW6010	Calcium	15.4	mg/l			
BCST_SW111-011715	1/17/15 13:40	BC_111	SW6010	Iron	0.103	mg/l			0.03
BCST_SW111-011715	1/17/15 13:40	BC_111	SW6010	Magnesium	8.62	mg/l			
BCST_SW111-011715	1/17/15 13:40	BC_111	SW6010	Manganese	0.0453	mg/l			0.05
BCST_SW111-011715	1/17/15 13:40	BC_111	SW6010	Potassium	1.15	mg/l			
BCST_SW111-011715	1/17/15 13:40	BC_111	SW6010	Sodium	43.6	mg/l			
BCST_SW112-011815	1/18/15 13:45	BC_112	SW6020	Barium	0.00511	mg/l		2	
BCST_SW112-011815	1/18/15 13:45	BC_112	SW6010	Boron	0.0603	mg/l			
BCST_SW112-011815	1/18/15 13:45	BC_112	SW6010	Calcium	20.5	mg/l			
BCST_SW112-011815	1/18/15 13:45	BC_112	SW6010	Magnesium	11.8	mg/l			
BCST_SW112-011815	1/18/15 13:45	BC_112	SW6010	Manganese	0.0608	mg/l			0.05
BCST_SW112-011815	1/18/15 13:45	BC_112	SW6010	Potassium	1.96	mg/l			
BCST_SW112-011815	1/18/15 13:45	BC_112	SW6010	Sodium	61.4	mg/l			
BCST_SW113-020215	2/2/15 15:10	BC_113	SW6020	Barium	0.039	mg/l		2	
BCST_SW113-020215	2/2/15 15:10	BC_113	SW6010	Calcium	160 J	mg/l			
BCST_SW113-020215	2/2/15 15:10	BC_113	SW6020	Chromium (Total)	0.0527	mg/l		0.1	
BCST_SW113-020215	2/2/15 15:10	BC_113	SW6010	Magnesium	127	mg/l			
BCST_SW113-020215	2/2/15 15:10	BC_113	SW6010	Manganese	0.191	mg/l			0.05
BCST_SW113-020215	2/2/15 15:10	BC_113	SW6010	Potassium	29.4	mg/l			
BCST_SW113-020215	2/2/15 15:10	BC_113	SW6010	Sodium	217	mg/l			
BCST_SW114-011815	1/18/15 14:35	BC_114	SW6020	Barium	0.00365	mg/l		2	
BCST_SW114-011815	1/18/15 14:35	BC_114	SW6010	Calcium	13.6	mg/l			
BCST_SW114-011815	1/18/15 14:35	BC_114	SW6010	Magnesium	7.89	mg/l			
BCST_SW114-011815	1/18/15 14:35	BC_114	SW6010	Manganese	0.0395	mg/l			0.05
BCST_SW114-011815	1/18/15 14:35	BC_114	SW6010	Potassium	1.23	mg/l			
BCST_SW114-011815	1/18/15 14:35	BC_114	SW6010	Sodium	41	mg/l			
BCST_SW115-011815	1/18/15 15:00	BC_115	SW6020	Barium	0.00602	mg/l		2	
BCST_SW115-011815	1/18/15 15:00	BC_115	SW6010	Boron	0.0839	mg/l			
BCST_SW115-011815	1/18/15 15:00	BC_115	SW6010	Calcium	20	mg/l			
BCST_SW115-011815	1/18/15 15:00	BC_115	SW6010	Magnesium	11.7	mg/l			
BCST_SW115-011815	1/18/15 15:00	BC_115	SW6010	Manganese	0.0459	mg/l			0.05

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST_SW115-011815	1/18/15 15:00	BC_115	SW6010	Potassium	2.09	mg/l			
BCST_SW115-011815	1/18/15 15:00	BC_115	SW6010	Sodium	67.4	mg/l			
BCST_SW116-011715	1/17/15 16:40	BC_116	SW6020	Barium	0.00639	mg/l		2	
BCST_SW116-011715	1/17/15 16:40	BC_116	SW6010	Boron	0.106	mg/l			
BCST_SW116-011715	1/17/15 16:40	BC_116	SW6010	Calcium	20.3	mg/l			
BCST_SW116-011715	1/17/15 16:40	BC_116	SW6010	Magnesium	11.7	mg/l			
BCST_SW116-011715	1/17/15 16:40	BC_116	SW6010	Manganese	0.0385	mg/l			0.05
BCST_SW116-011715	1/17/15 16:40	BC_116	SW6010	Potassium	2.42	mg/l			
BCST_SW116-011715	1/17/15 16:40	BC_116	SW6010	Sodium	71.3	mg/l			
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6020	Barium	0.00882	mg/l		2	
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6010	Boron	0.0636	mg/l			
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6010	Calcium	13.1	mg/l			
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6010	Iron	0.131	mg/l			0.03
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6010	Magnesium	10.3	mg/l			
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6010	Manganese	0.0618	mg/l			0.05
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6010	Potassium	1.72	mg/l			
BCST_SW117-011815	1/18/15 13:25	BC_117	SW6010	Sodium	71.3	mg/l			
BCST_SW118-011815	1/18/15 11:00	BC_118	SW6020	Barium	0.00813	mg/l		2	
BCST_SW118-011815	1/18/15 11:00	BC_118	SW6010	Boron	0.125	mg/l			
BCST_SW118-011815	1/18/15 11:00	BC_118	SW6010	Calcium	20	mg/l			
BCST_SW118-011815	1/18/15 11:00	BC_118	SW6010	Magnesium	11.6	mg/l			
BCST_SW118-011815	1/18/15 11:00	BC_118	SW6010	Manganese	0.0357	mg/l			0.05
BCST_SW118-011815	1/18/15 11:00	BC_118	SW6010	Potassium	2.71	mg/l			
BCST_SW118-011815	1/18/15 11:00	BC_118	SW6010	Sodium	70.7	mg/l			
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6020	Barium	0.0156	mg/l		2	
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6010	Boron	0.212	mg/l			
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6010	Calcium	27.7	mg/l			
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6010	Iron	0.11	mg/l			0.03
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6010	Magnesium	15.1	mg/l			
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6010	Manganese	0.109	mg/l			0.05
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6010	Potassium	4.86	mg/l			
BCST_SW119-011815	1/18/15 12:30	BC_119	SW6010	Sodium	116	mg/l			

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST_SW300-011615	1/16/15 10:15	BC_300	SW6020	Barium	0.0304	mg/l		2	
BCST_SW300-011615	1/16/15 10:15	BC_300	SW6010	Calcium	133 J	mg/l			
BCST_SW300-011615	1/16/15 10:15	BC_300	SW6010	Magnesium	74.4 J	mg/l			
BCST_SW300-011615	1/16/15 10:15	BC_300	SW6010	Manganese	0.391	mg/l			0.05
BCST_SW300-011615	1/16/15 10:15	BC_300	SW6010	Potassium	11	mg/l			
BCST_SW300-011615	1/16/15 10:15	BC_300	SW6010	Sodium	370 J	mg/l			
BCST_SW301-011615	1/16/15 11:15	BC_301	SW6020	Barium	0.0341	mg/l		2	
BCST_SW301-011615	1/16/15 11:15	BC_301	SW6010	Calcium	138	mg/l			
BCST_SW301-011615	1/16/15 11:15	BC_301	SW6010	Magnesium	76.7	mg/l			
BCST_SW301-011615	1/16/15 11:15	BC_301	SW6010	Manganese	0.394	mg/l			0.05
BCST_SW301-011615	1/16/15 11:15	BC_301	SW6010	Potassium	11	mg/l			
BCST_SW301-011615	1/16/15 11:15	BC_301	SW6010	Sodium	388	mg/l			
BCST_SW309-012415	1/24/15 13:30	BC_309	SW6020	Arsenic	0.0784	mg/l	0.01	0.01	
BCST_SW309-012415	1/24/15 13:30	BC_309	SW6020	Barium	0.0648	mg/l		2	
BCST_SW309-012415	1/24/15 13:30	BC_309	SW6010	Calcium	277	mg/l			
BCST_SW309-012415	1/24/15 13:30	BC_309	SW6010	Magnesium	229	mg/l			
BCST_SW309-012415	1/24/15 13:30	BC_309	SW6010	Sodium	1290	mg/l			
BCST_SW400-012415	1/24/15 13:05	SW_400	SW6020	Barium	0.0681	mg/l		2	
BCST_SW401-012415	1/24/15 12:50	SW_401	SW6020	Barium	0.162	mg/l		2	
BCST_SW401-012615	1/26/15 18:20	SW_401	SW6020	Barium	0.0677	mg/l		2	
BCST_SW402-012415	1/24/15 13:25	SW_402	SW6020	Barium	0.707	mg/l		2	
BCST_SW403-012415	1/24/15 12:00	SW_403	SW6020	Barium	0.728	mg/l		2	
BCST_SW404-012415	1/24/15 11:45	SW_404	SW6020	Barium	0.792	mg/l		2	
BCST_SW405-012415	1/24/15 11:30	SW_405	SW6020	Barium	2	mg/l		2	
BCST_SW406-012415	1/24/15 11:15	SW_406	SW6020	Barium	0.778	mg/l		2	
BCST_SW407-012415	1/24/15 11:00	SW_407	SW6020	Barium	0.646	mg/l		2	
BCST_WSF01_012315	1/23/15 12:50	BC_WSF01	SW6020	Barium	0.0407	mg/l		2	
BCST_WSF01_012315	1/23/15 12:50	BC_WSF01	SW6010	Boron	1.02	mg/l			
BCST_WSF01_012315	1/23/15 12:50	BC_WSF01	SW6010	Calcium	250	mg/l			
BCST_WSF01_012315	1/23/15 12:50	BC_WSF01	SW6010	Magnesium	221	mg/l			
BCST_WSF01_012315	1/23/15 12:50	BC_WSF01	SW6010	Potassium	16.9	mg/l			
BCST_WSF01_012315	1/23/15 12:50	BC_WSF01	SW6010	Sodium	636 J	mg/l			

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST_WSF02_012315	1/23/15 13:35	BC_WSF02	SW6020	Barium	0.0302	mg/l		2	
BCST_WSF02_012315	1/23/15 13:35	BC_WSF02	SW6010	Boron	0.852	mg/l			
BCST_WSF02_012315	1/23/15 13:35	BC_WSF02	SW6010	Calcium	192	mg/l			
BCST_WSF02_012315	1/23/15 13:35	BC_WSF02	SW6010	Magnesium	172	mg/l			
BCST_WSF02_012315	1/23/15 13:35	BC_WSF02	SW6010	Potassium	12.9	mg/l			
BCST_WSF02_012315	1/23/15 13:35	BC_WSF02	SW6010	Sodium	493	mg/l			
BCST-DUP 402-013015	1/30/15 0:01	SW_409	SW6020	Barium	0.242 J	mg/l		2	
BCST-DUP 409-020415	2/4/15 0:01	SW_408	SW6020	Barium	3.2 J	mg/l		2	
BCST-DUP 410-020415	2/4/15 0:01	SW_407	SW6020	Barium	0.165 J	mg/l		2	
BCST-DUP 411-020515	2/5/15 0:01	SCD2	SW6020	Barium	0.0814	mg/l		2	
BCST-DUP400-012815	1/28/15 0:01	SW_411	SW6020	Barium	0.0554 J	mg/l		2	
BCST-DUP401-012915	1/29/15 0:01	SW_406	SW6020	Barium	0.00493	mg/l		2	
BCST-DUP412-020615	2/6/15 0:01	SW_402	SW6020	Barium	0.0414	mg/l		2	
BCST-DUP413-020615	2/6/15 0:01	SW_410	SW6020	Barium	0.555 J	mg/l		2	
BCST-DUP414-020715	2/7/15 0:01	SW_401	SW6020	Barium	0.104 J	mg/l		2	
BCST-DUP415-020815	2/8/15 0:01	SW_405	SW6020	Barium	0.0785	mg/l		2	
BCST-DUP416-020915	2/9/15 0:01	SW_408	SW6020	Barium	3.85 J	mg/l		2	
BCST-DW001-012815	1/28/15 14:10	BC_DW001	SW6020	Arsenic	0.0686	mg/l	0.01	0.01	
BCST-DW001-012815	1/28/15 14:10	BC_DW001	SW6010	Sodium	364 J	mg/l			
BCST-DW002-012815	1/28/15 14:15	BC_DW002	SW6020	Arsenic	0.0714	mg/l	0.01	0.01	
BCST-DW002-012815	1/28/15 14:15	BC_DW002	SW6020	Barium	0.0891	mg/l		2	
BCST-DW002-012815	1/28/15 14:15	BC_DW002	SW6010	Calcium	104	mg/l			
BCST-DW002-012815	1/28/15 14:15	BC_DW002	SW6010	Magnesium	89.4	mg/l			
BCST-DW002-012815	1/28/15 14:15	BC_DW002	SW6010	Manganese	0.384	mg/l			0.05
BCST-DW002-012815	1/28/15 14:15	BC_DW002	SW6010	Sodium	195 J	mg/l			
BCST-DW003-012815	1/28/15 14:44	BC_DW003	SW6020	Arsenic	0.0653	mg/l	0.01	0.01	
BCST-DW003-012815	1/28/15 14:44	BC_DW003	SW6020	Barium	0.0246	mg/l		2	
BCST-DW003-012815	1/28/15 14:44	BC_DW003	SW6010	Calcium	124	mg/l			
BCST-DW003-012815	1/28/15 14:44	BC_DW003	SW6010	Iron	2.69	mg/l			0.03
BCST-DW003-012815	1/28/15 14:44	BC_DW003	SW6010	Magnesium	92.4	mg/l			
BCST-DW003-012815	1/28/15 14:44	BC_DW003	SW6010	Potassium	11.2	mg/l			
BCST-DW003-012815	1/28/15 14:44	BC_DW003	SW6010	Sodium	670 J	mg/l			

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-SCD 002-020515	2/5/15 11:35	SCD2	SW6020	Barium	0.0817	mg/l		2	
BCST-SCD 003-020515	2/5/15 10:45	SCD3	SW6020	Barium	0.116	mg/l		2	
BCST-SCD002-012815	1/28/15 12:35	SCD2	SW6020	Barium	0.00965	mg/l		2	
BCST-SCD002-012915	1/29/15 13:50	SCD2	SW6020	Barium	0.00586	mg/l		2	
BCST-SCD002-013015	1/30/15 15:20	SCD2	SW6020	Barium	0.107	mg/l		2	
BCST-SCD002-020415	2/4/15 12:05	SCD2	SW6020	Barium	0.12	mg/l		2	
BCST-SCD002-020615	2/6/15 11:06	SCD2	SW6020	Barium	0.105	mg/l		2	
BCST-SCD002-020715	2/7/15 10:40	SCD2	SW6020	Barium	0.0652	mg/l		2	
BCST-SCD002-020815	2/8/15 11:37	SCD2	SW6020	Barium	0.348	mg/l		2	
BCST-SCD003-012815	1/28/15 11:18	SCD3	SW6020	Barium	0.00665	mg/l		2	
BCST-SCD003-012915	1/29/15 12:45	SCD3	SW6020	Barium	0.00648	mg/l		2	
BCST-SCD003-013015	1/30/15 13:58	SCD3	SW6020	Barium	0.0642	mg/l		2	
BCST-SCD003-020415	2/4/15 10:15	SCD3	SW6020	Barium	0.0655	mg/l		2	
BCST-SCD003-020615	2/6/15 9:50	SCD3	SW6020	Barium	0.0626	mg/l		2	
BCST-SCD003-020715	2/7/15 9:17	SCD3	SW6020	Barium	0.0779	mg/l		2	
BCST-SCD003-020815	2/8/15 9:51	SCD3	SW6020	Barium	0.0556	mg/l		2	
BCST-SW 400-012915	1/29/15 15:25	SW_400	SW6020	Barium	0.00518	mg/l		2	
BCST-SW- 400-013015	1/30/15 16:15	SW_400	SW6020	Barium	0.037	mg/l		2	
BCST-SW 400-020415	2/4/15 8:50	SW_400	SW6020	Barium	0.0507	mg/l		2	
BCST-SW 400-020515	2/5/15 9:10	SW_400	SW6020	Barium	0.175	mg/l		2	
BCST-SW 401-012915	1/29/15 14:55	SW_401	SW6020	Barium	0.00519	mg/l		2	
BCST-SW- 401-013015	1/30/15 15:55	SW_401	SW6020	Barium	0.0791	mg/l		2	
BCST-SW 401-020415	2/4/15 12:20	SW_401	SW6020	Barium	0.18	mg/l		2	
BCST-SW 401-020515	2/5/15 11:55	SW_401	SW6020	Barium	0.0918	mg/l		2	
BCST-SW 402-012915	1/29/15 14:00	SW_402	SW6020	Barium	0.00989	mg/l		2	
BCST-SW- 402-013015	1/30/15 15:10	SW_402	SW6020	Barium	0.0866 J	mg/l		2	
BCST-SW 402-020415	2/4/15 9:10	SW_402	SW6020	Barium	0.583	mg/l		2	
BCST-SW 402-020515	2/5/15 9:23	SW_402	SW6020	Barium	3.43	mg/l		2	
BCST-SW 403-012915	1/29/15 13:25	SW_403	SW6020	Barium	0.00696	mg/l		2	
BCST-SW- 403-013015	1/30/15 14:50	SW_403	SW6020	Barium	0.0548	mg/l		2	
BCST-SW 403-020415	2/4/15 11:37	SW_403	SW6020	Barium	0.0526	mg/l		2	
BCST-SW 403-020515	2/5/15 11:20	SW_403	SW6020	Barium	0.0671	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-SW 404-012915	1/29/15 13:05	SW_404	SW6020	Barium	0.105	mg/l		2	
BCST-SW- 404-013015	1/30/15 14:35	SW_404	SW6020	Barium	1.14	mg/l		2	
BCST-SW 404-020415	2/4/15 11:00	SW_404	SW6020	Barium	0.178	mg/l		2	
BCST-SW 404-020515	2/5/15 11:05	SW_404	SW6020	Barium	0.651	mg/l		2	
BCST-SW 405-012915	1/29/15 12:35	SW_405	SW6020	Barium	0.00677	mg/l		2	
BCST-SW- 405-013015	1/30/15 14:45	SW_405	SW6020	Barium	0.0536	mg/l		2	
BCST-SW 405-020415	2/4/15 9:20	SW_405	SW6020	Barium	0.066	mg/l		2	
BCST-SW 405-020515	2/5/15 9:40	SW_405	SW6020	Barium	0.0567	mg/l		2	
BCST-SW 406-012915	1/29/15 12:15	SW_406	SW6020	Barium	0.00455	mg/l		2	
BCST-SW- 406-013015	1/30/15 13:26	SW_406	SW6020	Barium	0.0524	mg/l		2	
BCST-SW 406-020415	2/4/15 13:20	SW_406	SW6020	Barium	0.0763	mg/l		2	
BCST-SW 406-020515	2/5/15 13:00	SW_406	SW6020	Barium	0.0609	mg/l		2	
BCST-SW 407-012915	1/29/15 11:43	SW_407	SW6020	Barium	0.00681	mg/l		2	
BCST-SW- 407-013015	1/30/15 13:10	SW_407	SW6020	Barium	0.105	mg/l		2	
BCST-SW 407-020415	2/4/15 13:35	SW_407	SW6020	Barium	0.102	mg/l		2	
BCST-SW 407-020515	2/5/15 13:15	SW_407	SW6020	Barium	0.405	mg/l		2	
BCST-SW 408-012915	1/29/15 14:40	SW_408	SW6020	Barium	0.653	mg/l		2	
BCST-SW- 408-013015	1/30/15 15:45	SW_408	SW6020	Barium	2.06	mg/l		2	
BCST-SW 408-020415	2/4/15 12:30	SW_408	SW6020	Barium	3.53	mg/l		2	
BCST-SW 408-020515	2/5/15 12:05	SW_408	SW6020	Barium	4.38	mg/l		2	
BCST-SW 409-012915	1/29/15 10:30	SW_409	SW6020	Barium	0.00926	mg/l		2	
BCST-SW- 409-013015	1/30/15 11:45	SW_409	SW6020	Barium	0.244	mg/l		2	
BCST-SW 409-020415	2/4/15 8:12	SW_409	SW6020	Barium	0.227	mg/l		2	
BCST-SW 409-020515	2/5/15 8:50	SW_409	SW6020	Barium	1.91	mg/l		2	
BCST-SW 410-012915	1/29/15 10:50	SW_410	SW6020	Barium	0.00743	mg/l		2	
BCST-SW- 410-013015	1/30/15 12:25	SW_410	SW6020	Barium	0.0914	mg/l		2	
BCST-SW 410-020415	2/4/15 14:35	SW_410	SW6020	Barium	0.106	mg/l		2	
BCST-SW 410-020515	2/5/15 14:10	SW_410	SW6020	Barium	2.06	mg/l		2	
BCST-SW 411-012915	1/29/15 11:10	SW_411	SW6020	Barium	0.066	mg/l		2	
BCST-SW- 411-013015	1/30/15 12:45	SW_411	SW6020	Barium	0.152	mg/l		2	
BCST-SW 411-020415	2/4/15 14:15	SW_411	SW6020	Barium	0.0835	mg/l		2	
BCST-SW 411-020515	2/5/15 14:00	SW_411	SW6020	Barium	0.0963	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Aluminum	2.63	mg/l			
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6020	Barium	0.115	mg/l		2	
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Boron	1.73	mg/l			
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Calcium	241	mg/l			
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6020	Chromium (Total)	0.11	mg/l		0.1	
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Iron	3.59	mg/l			0.03
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Magnesium	134	mg/l			
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Manganese	0.615	mg/l			0.05
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Potassium	35.6	mg/l			
BCST-SW303-013115	1/31/15 14:00	BC_303	SW6010	Sodium	823	mg/l			
BCST-SW400-012815	1/28/15 14:45	SW_400	SW6020	Barium	0.033	mg/l		2	
BCST-SW400-020615	2/6/15 9:18	SW_400	SW6020	Barium	0.0287	mg/l		2	
BCST-SW400-020715	2/7/15 8:40	SW_400	SW6020	Barium	0.0398	mg/l		2	
BCST-SW401-012715	1/27/15 14:30	SW_401	SW6020	Barium	0.0953	mg/l		2	
BCST-SW401-012815	1/28/15 13:30	SW_401	SW6020	Barium	0.0051	mg/l		2	
BCST-SW401-020615	2/6/15 11:22	SW_401	SW6020	Barium	0.277	mg/l		2	
BCST-SW401-020715	2/7/15 11:00	SW_401	SW6020	Barium	0.158 J	mg/l		2	
BCST-SW402-012615	1/26/15 13:35	SW_402	SW6020	Barium	0.0997	mg/l		2	
BCST-SW402-012715	1/27/15 13:15	SW_402	SW6020	Barium	0.0702	mg/l		2	
BCST-SW402-012815	1/28/15 12:25	SW_402	SW6020	Barium	0.00515	mg/l		2	
BCST-SW402-020615	2/6/15 9:35	SW_402	SW6020	Barium	0.0402	mg/l		2	
BCST-SW402-020715	2/7/15 8:55	SW_402	SW6020	Barium	0.048	mg/l		2	
BCST-SW403-012615	1/26/15 13:15	SW_403	SW6020	Barium	0.175	mg/l		2	
BCST-SW403-012715	1/27/15 12:55	SW_403	SW6020	Barium	0.19	mg/l		2	
BCST-SW403-012815	1/28/15 12:00	SW_403	SW6020	Barium	0.00634	mg/l		2	
BCST-SW403-020615	2/6/15 10:55	SW_403	SW6020	Barium	0.0456	mg/l		2	
BCST-SW403-020715	2/7/15 10:25	SW_403	SW6020	Barium	0.101	mg/l		2	
BCST-SW404-012615	1/26/15 12:40	SW_404	SW6020	Barium	1.83	mg/l		2	
BCST-SW404-012715	1/27/15 12:30	SW_404	SW6020	Barium	0.18	mg/l		2	
BCST-SW404-012815	1/28/15 11:38	SW_404	SW6020	Barium	0.022	mg/l		2	
BCST-SW404-020615	2/6/15 10:28	SW_404	SW6020	Barium	0.497	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-SW404-020715	2/7/15 9:55	SW_404	SW6020	Barium	0.125	mg/l		2	
BCST-SW405-012615	1/26/15 12:25	SW_405	SW6020	Barium	0.687	mg/l		2	
BCST-SW405-012715	1/27/15 11:50	SW_405	SW6020	Barium	0.109	mg/l		2	
BCST-SW405-012815	1/28/15 11:05	SW_405	SW6020	Barium	0.00774	mg/l		2	
BCST-SW405-020615	2/6/15 10:10	SW_405	SW6020	Barium	0.0567	mg/l		2	
BCST-SW405-020715	2/7/15 9:30	SW_405	SW6020	Barium	0.0764	mg/l		2	
BCST-SW406-012615	1/26/15 11:55	SW_406	SW6020	Barium	0.388	mg/l		2	
BCST-SW406-012715	1/27/15 11:00	SW_406	SW6020	Barium	0.144	mg/l		2	
BCST-SW406-012815	1/28/15 10:45	SW_406	SW6020	Barium	0.00585	mg/l		2	
BCST-SW406-020615	2/6/15 12:53	SW_406	SW6020	Barium	0.0487	mg/l		2	
BCST-SW406-020715	2/7/15 11:43	SW_406	SW6020	Barium	0.078	mg/l		2	
BCST-SW407-012615	1/26/15 11:15	SW_407	SW6020	Barium	0.556	mg/l		2	
BCST-SW407-012715	1/27/15 10:25	SW_407	SW6020	Barium	0.262	mg/l		2	
BCST-SW407-012815	1/28/15 10:05	SW_407	SW6020	Barium	0.0239	mg/l		2	
BCST-SW407-020615	2/6/15 13:15	SW_407	SW6020	Barium	2.6	mg/l		2	
BCST-SW407-020715	2/7/15 12:03	SW_407	SW6020	Barium	0.11	mg/l		2	
BCST-SW408-012715	1/27/15 15:30	SW_408	SW6020	Barium	5.12	mg/l		2	
BCST-SW408-012815	1/28/15 13:45	SW_408	SW6020	Barium	0.518	mg/l		2	
BCST-SW408-020615	2/6/15 11:30	SW_408	SW6020	Barium	4.71	mg/l		2	
BCST-SW408-020715	2/7/15 11:20	SW_408	SW6020	Barium	3.79	mg/l		2	
BCST-SW409-012715	1/27/15 15:55	SW_409	SW6020	Barium	0.261	mg/l		2	
BCST-SW409-012815	1/28/15 16:20	SW_409	SW6020	Barium	0.0143	mg/l		2	
BCST-SW409-020615	2/6/15 8:36	SW_409	SW6020	Barium	2.55	mg/l		2	
BCST-SW409-020715	2/7/15 8:15	SW_409	SW6020	Barium	0.9	mg/l		2	
BCST-SW410-012715	1/27/15 16:02	SW_410	SW6020	Barium	0.319	mg/l		2	
BCST-SW410-012815	1/28/15 16:00	SW_410	SW6020	Barium	0.0469	mg/l		2	
BCST-SW410-020615	2/6/15 13:55	SW_410	SW6020	Barium	0.424 J	mg/l		2	
BCST-SW410-020715	2/7/15 14:58	SW_410	SW6020	Barium	0.22	mg/l		2	
BCST-SW411-012715	1/27/15 16:14	SW_411	SW6020	Barium	0.295	mg/l		2	
BCST-SW411-012815	1/28/15 15:20	SW_411	SW6020	Barium	0.0723 J	mg/l		2	
BCST-SW411-020615	2/6/15 13:29	SW_411	SW6020	Barium	0.125	mg/l		2	
BCST-SW411-020715	2/7/15 14:45	SW_411	SW6020	Barium	0.118	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-SW412-012815	1/28/15 16:30	SW_412	SW6020	Barium	0.0213	mg/l		2	
BCST-SWSW400-020815	2/8/15 9:30	SW_400	SW6020	Barium	0.0411	mg/l		2	
BCST-SWSW401-020815	2/8/15 11:47	SW_401	SW6020	Barium	0.103	mg/l		2	
BCST-SWSW402-020815	2/8/15 9:43	SW_402	SW6020	Barium	5.2	mg/l		2	
BCST-SWSW403-020815	2/8/15 11:20	SW_403	SW6020	Barium	0.0957	mg/l		2	
BCST-SWSW404-020815	2/8/15 11:06	SW_404	SW6020	Barium	1.23	mg/l		2	
BCST-SWSW405-020815	2/8/15 10:37	SW_405	SW6020	Barium	0.0814	mg/l		2	
BCST-SWSW406-020815	2/8/15 12:19	SW_406	SW6020	Barium	0.071	mg/l		2	
BCST-SWSW407-020815	2/8/15 13:30	SW_407	SW6020	Barium	0.0729	mg/l		2	
BCST-SWSW408-020815	2/8/15 11:58	SW_408	SW6020	Barium	2.9	mg/l		2	
BCST-SWSW408-020915	2/9/15 9:55	SW_408	SW6020	Barium	2.89 J	mg/l		2	
BCST-SWSW408-021015	2/10/15 10:50	SW_408	SW6020	Barium	3.89 J	mg/l		2	
BCST-SWSW408-021115	2/11/15 10:33	SW_408	SW6020	Barium	4.77 J	mg/l		2	
BCST-SWSW409-020815	2/8/15 8:47	SW_409	SW6020	Barium	0.587	mg/l		2	
BCST-SWSW410-020815	2/8/15 14:25	SW_410	SW6020	Barium	0.106	mg/l		2	
BCST-SWSW411-020815	2/8/15 13:52	SW_411	SW6020	Barium	0.12	mg/l		2	
BCST-SWSW413-020915	2/9/15 8:27	SW_413	SW6020	Barium	1.62	mg/l		2	
BCST-SWSW413-021015	2/10/15 8:28	SW_413	SW6020	Barium	1.1	mg/l		2	
BCST-SWSW413-021115	2/11/15 8:03	SW_413	SW6020	Barium	1.02	mg/l		2	
BT-SW-04/BC111	1/25/15 17:15	BC_111	SW6020	Barium	0.0279	mg/l		2	
BT-SW-04/BC111	1/25/15 17:15	BC_111	SW6010	Calcium	105 J	mg/l			
BT-SW-04/BC111	1/25/15 17:15	BC_111	SW6010	Magnesium	68.5 J	mg/l			
BT-SW-04/BC111	1/25/15 17:15	BC_111	SW6010	Manganese	0.204	mg/l			0.05
BT-SW-04/BC111	1/25/15 17:15	BC_111	SW6010	Sodium	290 J	mg/l			
BT-SW-05/BC111	1/26/15 9:10	BC_111	SW6020	Barium	0.0274	mg/l		2	
BT-SW-05/BC111	1/26/15 9:10	BC_111	SW6010	Calcium	108	mg/l			
BT-SW-05/BC111	1/26/15 9:10	BC_111	SW6010	Iron	1.03	mg/l			0.03
BT-SW-05/BC111	1/26/15 9:10	BC_111	SW6010	Magnesium	71.2	mg/l			
BT-SW-05/BC111	1/26/15 9:10	BC_111	SW6010	Manganese	0.238	mg/l			0.05
BT-SW-05/BC111	1/26/15 9:10	BC_111	SW6010	Potassium	10	mg/l			
BT-SW-05/BC111	1/26/15 9:10	BC_111	SW6010	Sodium	300	mg/l			
BT-SW-06/1804 Bridge	1/26/15 11:45	SW-06/1804 Bridge	SW6020	Barium	0.0617	mg/l		2	

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BT-SW-06/1804 Bridge	1/26/15 11:45	SW-06/1804 Bridge	SW6010	Calcium	85.1	mg/l			
BT-SW-06/1804 Bridge	1/26/15 11:45	SW-06/1804 Bridge	SW6010	Magnesium	43.4	mg/l			
BT-SW-06/1804 Bridge	1/26/15 11:45	SW-06/1804 Bridge	SW6010	Manganese	0.226	mg/l			0.05
BT-SW-06/1804 Bridge	1/26/15 11:45	SW-06/1804 Bridge	SW6010	Sodium	193	mg/l			
LMRST-SW121-020715	2/7/15 14:05	LMRST_SW_121	SW6020	Barium	0.0487	mg/l		2	
LMRST-SW122-020715	2/7/15 16:05	LMRST_SW_122	SW6020	Barium	0.0555	mg/l		2	
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6020	Barium	0.0611	mg/l		2	
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6010	Boron	0.606	mg/l			
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6010	Calcium	143	mg/l			
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6010	Iron	1.04	mg/l			0.03
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6010	Magnesium	98.4	mg/l			
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6010	Manganese	0.226	mg/l			0.05
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6010	Potassium	27.2	mg/l			
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6020	Silver	0.0224	mg/l			
LMST-SW303-020715	2/7/15 9:30	BC_303	SW6010	Sodium	312	mg/l			
LMST-SW304-020715	2/7/15 10:30	BC_304	SW6010	Aluminum	1.27	mg/l			
LMST-SW304-020715	2/7/15 10:30	BC_304	SW6020	Barium	0.0655	mg/l		2	
LMST-SW304-020715	2/7/15 10:30	BC_304	SW6010	Calcium	68.4	mg/l			
LMST-SW304-020715	2/7/15 10:30	BC_304	SW6010	Iron	1.15	mg/l			0.03
LMST-SW304-020715	2/7/15 10:30	BC_304	SW6010	Magnesium	34	mg/l			
LMST-SW304-020715	2/7/15 10:30	BC_304	SW6010	Sodium	99.6	mg/l			
LMST-SW305-020715	2/7/15 11:15	BC_305	SW6020	Barium	0.046	mg/l		2	
LMST-SW305-020715	2/7/15 11:15	BC_305	SW6010	Calcium	71.5	mg/l			
LMST-SW305-020715	2/7/15 11:15	BC_305	SW6010	Magnesium	47.2	mg/l			
LMST-SW305-020715	2/7/15 11:15	BC_305	SW6010	Potassium	11.2	mg/l			
LMST-SW305-020715	2/7/15 11:15	BC_305	SW6010	Sodium	146	mg/l			
LMST-SW306-020715	2/7/15 13:30	BC_306	SW6020	Barium	0.0575	mg/l		2	
LMST-SW306-020715	2/7/15 13:30	BC_306	SW6010	Calcium	59.7	mg/l			
LMST-SW306-020715	2/7/15 13:30	BC_306	SW6010	Magnesium	29	mg/l			
LMST-SW306-020715	2/7/15 13:30	BC_306	SW6010	Sodium	81	mg/l			
LMST-SW307-020715	2/7/15 12:15	BC_307	SW6020	Barium	0.05	mg/l		2	
LMST-SW307-020715	2/7/15 12:15	BC_307	SW6010	Calcium	82	mg/l			

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
LMST-SW307-020715	2/7/15 12:15	BC_307	SW6010	Magnesium	52.6	mg/l			
LMST-SW307-020715	2/7/15 12:15	BC_307	SW6010	Potassium	13.4	mg/l			
LMST-SW307-020715	2/7/15 12:15	BC_307	SW6010	Sodium	165	mg/l			
Moling Produced	1/24/15 14:30	Moling Produced	SW6020	Barium	23.4	mg/l		2	
Moling Produced	1/24/15 14:30	Moling Produced	SW6010	Boron	452	mg/l			
Moling Produced	1/24/15 14:30	Moling Produced	SW6010	Calcium	21400	mg/l			
Moling Produced	1/24/15 14:30	Moling Produced	SW6020	Chromium (Total)	0.436	mg/l		0.1	
Moling Produced	1/24/15 14:30	Moling Produced	SW6010	Iron	125	mg/l			0.03
Moling Produced	1/24/15 14:30	Moling Produced	SW6010	Magnesium	1660	mg/l			
Moling Produced	1/24/15 14:30	Moling Produced	SW6010	Manganese	12.5	mg/l			0.05
Moling Produced	1/24/15 14:30	Moling Produced	SW6010	Potassium	8320	mg/l			
Moling Produced	1/24/15 14:30	Moling Produced	SW6010	Sodium	116000	mg/l			
SCD-002-012515	1/25/15 16:15	SCD2	SW6020	Barium	0.0373	mg/l		2	
SCD-002-012615	1/26/15 13:50	SCD2	SW6020	Barium	0.126	mg/l		2	
SCD-002-012715	1/27/15 13:30	SCD2	SW6020	Barium	0.105	mg/l		2	
SCD-003-012515	1/25/15 15:36	SCD3	SW6020	Barium	0.495	mg/l		2	
SCD-003-012615	1/26/15 12:15	SCD3	SW6020	Barium	0.686	mg/l		2	
SCD-003-012715	1/27/15 11:58	SCD3	SW6020	Barium	0.137	mg/l		2	
South Valve Set	1/15/15 10:30	South Valve Set	SW6020	Barium	13.8	mg/l		2	
South Valve Set	1/15/15 10:30	South Valve Set	SW6010	Boron	379	mg/l			
South Valve Set	1/15/15 10:30	South Valve Set	SW6010	Calcium	16200	mg/l			
South Valve Set	1/15/15 10:30	South Valve Set	SW6010	Iron	62.4	mg/l			0.03
South Valve Set	1/15/15 10:30	South Valve Set	SW6010	Magnesium	1310	mg/l			
South Valve Set	1/15/15 10:30	South Valve Set	SW6010	Manganese	7.82	mg/l			0.05
South Valve Set	1/15/15 10:30	South Valve Set	SW6010	Potassium	6400	mg/l			
South Valve Set	1/15/15 10:30	South Valve Set	SW6010	Sodium	67600	mg/l			
State Produced	1/25/15 10:20	State Produced	SW6020	Arsenic	0.183	mg/l	0.01	0.01	
State Produced	1/25/15 10:20	State Produced	SW6020	Barium	20.8	mg/l		2	
State Produced	1/25/15 10:20	State Produced	SW6010	Boron	372	mg/l			
State Produced	1/25/15 10:20	State Produced	SW6010	Calcium	18100	mg/l			
State Produced	1/25/15 10:20	State Produced	SW6010	Iron	140	mg/l			0.03

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
State Produced	1/25/15 10:20	State Produced	SW6010	Magnesium	1340	mg/l			
State Produced	1/25/15 10:20	State Produced	SW6010	Manganese	57.3	mg/l			0.05
State Produced	1/25/15 10:20	State Produced	SW6010	Potassium	6900	mg/l			
State Produced	1/25/15 10:20	State Produced	SW6010	Sodium	93100	mg/l			
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6020	Barium	1.51	mg/l		2	
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6010	Boron	89.9	mg/l			
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6010	Calcium	6870 J	mg/l			
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6010	Iron	27.4	mg/l			0.03
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6010	Magnesium	1020	mg/l			
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6010	Manganese	15.1	mg/l			0.05
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6010	Potassium	2260 J	mg/l			
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW6010	Sodium	28300	mg/l			
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6010	Aluminum	0.506	mg/l			
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6020	Barium	0.145	mg/l		2	
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6010	Boron	5.62	mg/l			
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6010	Calcium	483	mg/l			
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6010	Magnesium	185	mg/l			
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6010	Manganese	0.825	mg/l			0.05
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6010	Potassium	113	mg/l			
SWST_106-G-01142015	1/14/15 15:45	BC_106	SW6010	Sodium	2130	mg/l			
SWST_108-F-01142015	1/14/15 16:00	BC_108	SW6020	Barium	0.0402	mg/l		2	
SWST_108-F-01142015	1/14/15 16:00	BC_108	SW6010	Calcium	148	mg/l			
SWST_108-F-01142015	1/14/15 16:00	BC_108	SW6010	Magnesium	81.7	mg/l			
SWST_108-F-01142015	1/14/15 16:00	BC_108	SW6010	Manganese	0.35	mg/l			0.05
SWST_108-F-01142015	1/14/15 16:00	BC_108	SW6010	Potassium	9.66	mg/l			
SWST_108-F-01142015	1/14/15 16:00	BC_108	SW6010	Sodium	390	mg/l			
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6020	Barium	2.11	mg/l		2	
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6010	Boron	134	mg/l			
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6010	Calcium	6870	mg/l			
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6010	Iron	17.5	mg/l			0.03
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6010	Magnesium	1070	mg/l			
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6010	Manganese	15.7	mg/l			0.05

Blacktail Creek Spill Final Stantec Surface Water Sampling Results* (Sampling Period: 1/14/15-2/11/15)									
Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6010	Potassium	2180	mg/l			
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW6010	Sodium	39100	mg/l			
SYLTE-FRAC TANK 01-012415	1/24/15 14:40	SYLTE-FRAC TANK 1	SW6020	Barium	0.295	mg/l		2	
SYLTE-FRAC TANK 01-012515	1/25/15 17:40	SYLTE-FRAC TANK 1	SW6020	Barium	0.12	mg/l		2	
SYLTE-FRAC TANK 01-012615	1/26/15 15:40	SYLTE-FRAC TANK 1	SW6020	Barium	0.147	mg/l		2	
SYLTE-FRAC TANK 02-012415	1/24/15 14:50	SYLTE-FRAC TANK 2	SW6020	Barium	0.27	mg/l		2	
SYLTE-FRAC TANK 03-012415	1/24/15 15:00	SYLTE-FRAC TANK 3	SW6020	Barium	0.314	mg/l		2	
SYLTE-FRAC TANK 03-012515	1/25/15 17:50	SYLTE-FRAC TANK 3	SW6020	Barium	0.131	mg/l		2	
SYLTE-FRAC TANK 03-012615	1/26/15 15:45	SYLTE-FRAC TANK 3	SW6020	Barium	0.126	mg/l		2	
SYLTE-FRAC TANK 05-012515	1/25/15 18:05	SYLTE-FRAC TANK 5	SW6020	Barium	0.206	mg/l		2	
SYLTE-FRAC TANK 05-012615	1/26/15 15:50	SYLTE-FRAC TANK 5	SW6020	Barium	0.128	mg/l		2	
SYLTE-FRAC TANK 07-012515	1/25/15 18:20	SYLTE-FRAC TANK 7	SW6020	Barium	0.206	mg/l		2	
SYLTE-FRAC TANK 07-012615	1/26/15 15:55	SYLTE-FRAC TANK 7	SW6020	Barium	0.111	mg/l		2	

J: estimated value

Bold: result exceeds one or more benchmarks

* results presented are limited to detections; analysis included all analytes on method list

Blacktail Creek Spill Final Stantec Surface Water Sampling Results* (Sampling Period: 1/14/15-2/11/15)							
Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	WY Water Cleanup Level ¹
BCST_SW100-012515	1/25/15 11:45	BC_100	SW8015	ORO C24-C40	116	ug/l	
BCST_SW100-012515	1/25/15 11:45	BC_100	SW8015	PHC - diesel (C10-C28)	158	ug/l	1,100
BCST_SW118-012015	1/20/15 14:00	BC_118	SW8015	PHC - diesel (C10-C28)	139 J	ug/l	1,100
BCST_SW119-012015	1/20/15 13:15	BC_119	SW8015	PHC - diesel (C10-C28)	199 J	ug/l	1,100
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8015	ORO C24-C40	2960 J	ug/l	
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8015	PHC - diesel (C10-C28)	5510 J	ug/l	1,100
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8015	PHC - Gasoline (C6-C10)	271	ug/l	6,600
BT-SW-06/1804 Bridge	1/26/15 11:45	SW-06/1804 Bridge	SW8015	PHC - diesel (C10-C28)	105	ug/l	1,100
Moling Produced	1/24/15 14:30	Moling Produced	SW8015	ORO C24-C40	2180 J	ug/l	
Moling Produced	1/24/15 14:30	Moling Produced	SW8015	PHC - diesel (C10-C28)	5200 J	ug/l	1,100
Moling Produced	1/24/15 14:30	Moling Produced	SW8015	PHC - Gasoline (C6-C10)	1570	ug/l	6,600
State Produced	1/25/15 10:20	State Produced	SW8015	PHC - diesel (C10-C28)	1220 J	ug/l	1,100
State Produced	1/25/15 10:20	State Produced	SW8015	PHC - Gasoline (C6-C10)	3490	ug/l	6,600

J: estimated value

Note: no ND Stream HHV or EPA MCL set for these analytes

* results presented are limited to detections; analysis included all analytes on method list

¹: Wyoming Water cleanup level used for reference because no federal benchmark is available

Bold: result exceeds one or more benchmarks

Blacktail Creek Spill
Final Stantec Surface Water Sampling Results*

(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV
BCST_SS3FP-012415	1/24/15 11:10	Free Product	SW8260B	Benzene	5.13	ug/l	5
BCST_SS3FP-012415	1/24/15 11:10	Free Product	SW8260B	Toluene	2.17	ug/l	1000
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Benzene	49.4	ug/l	5
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Ethylbenzene	7.08	ug/l	530
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Toluene	37.4	ug/l	1000
BCST_SW102-011715	1/17/15 11:15	BC_102	SW8260B	Xylenes, Total	44.2	ug/l	10,000
BCST_SW103_012315	1/23/15 9:25	BC_103	SW8260B	Benzene	6.53	ug/l	5
BCST_SW103_012315	1/23/15 9:25	BC_103	SW8260B	Toluene	1.85	ug/l	1000
BCST_SW103-012115	1/21/15 9:30	BC_103	SW8260B	Benzene	6.8	ug/l	5
BCST_SW103-012115	1/21/15 9:30	BC_103	SW8260B	Toluene	1.78	ug/l	1000
BCST_SW103-012215	1/22/15 10:00	BC_103	SW8260B	Benzene	7.3	ug/l	5
BCST_SW103-012215	1/22/15 10:00	BC_103	SW8260B	Toluene	2.27	ug/l	1000
BCST_SW103-012415	1/24/15 12:00	BC_103	SW8260B	Benzene	4.82	ug/l	5
BCST_SW103-012415	1/24/15 12:00	BC_103	SW8260B	Toluene	1.57	ug/l	1000
BCST_SW103-012515	1/25/15 9:10	BC_103	SW8260B	Benzene	6.06	ug/l	5
BCST_SW103-012515	1/25/15 9:10	BC_103	SW8260B	Toluene	2.59	ug/l	1000
BCST_SW103-012615	1/26/15 10:30	BC_103	SW8260B	Benzene	4.94	ug/l	5
BCST_SW103-012615	1/26/15 10:30	BC_103	SW8260B	Toluene	1.49	ug/l	1000
BCST_SW103-012715	1/27/15 10:00	BC_103	SW8260B	Benzene	1.44	ug/l	5
BCST_SW103-012715	1/27/15 10:00	BC_103	SW8260B	Toluene	1.19	ug/l	1000
BCST_SW106-012715	1/27/15 11:45	BC_106	SW8260B	Benzene	4.86	ug/l	5
BCST_SW106-012715	1/27/15 11:45	BC_106	SW8260B	Toluene	3.87	ug/l	1000
BCST_SW106-012715	1/27/15 11:45	BC_106	SW8260B	Xylenes, Total	6.29	ug/l	10,000
BCST_SW200_012315	1/23/15 10:00	BC_200	SW8260B	Benzene	3.59	ug/l	5
BCST_SW200_012315	1/23/15 10:00	BC_200	SW8260B	Toluene	1.59	ug/l	1000
BCST_SW200-011815	1/18/15 10:30	BC_200	SW8260B	Benzene	8.16	ug/l	5
BCST_SW200-011815	1/18/15 10:30	BC_200	SW8260B	Toluene	3.95	ug/l	1000

Blacktail Creek Spill Final Stantec Surface Water Sampling Results* (Sampling Period: 1/14/15-2/11/15)							
Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV
BCST_SW200-011815	1/18/15 10:30	BC_200	SW8260B	Xylenes, Total	3.52	ug/l	10,000
BCST_SW200-011915	1/19/15 12:45	BC_200	SW8260B	Benzene	5.37	ug/l	5
BCST_SW200-011915	1/19/15 12:45	BC_200	SW8260B	Toluene	2.44	ug/l	1000
BCST_SW200-012115	1/21/15 9:50	BC_200	SW8260B	Benzene	5.4	ug/l	5
BCST_SW200-012115	1/21/15 9:50	BC_200	SW8260B	Toluene	2.28	ug/l	1000
BCST_SW200-012215	1/22/15 10:30	BC_200	SW8260B	Benzene	6.23	ug/l	5
BCST_SW200-012215	1/22/15 10:30	BC_200	SW8260B	Toluene	3.31	ug/l	1000
BCST_SW200-012415	1/24/15 12:20	BC_200	SW8260B	Benzene	3.8	ug/l	5
BCST_SW200-012415	1/24/15 12:20	BC_200	SW8260B	Toluene	1.61	ug/l	1000
BCST_SW200-012515	1/25/15 9:25	BC_200	SW8260B	Benzene	2.68	ug/l	5
BCST_SW200-012515	1/25/15 9:25	BC_200	SW8260B	Toluene	1.16	ug/l	1000
BCST_SW200-012615	1/26/15 10:50	BC_200	SW8260B	Benzene	3.4	ug/l	5
BCST_SW200-012615	1/26/15 10:50	BC_200	SW8260B	Toluene	1.85	ug/l	1000
BCST_SW200-012715	1/27/15 10:45	BC_200	SW8260B	Benzene	1.29	ug/l	5
BCST_SW200-012715	1/27/15 10:45	BC_200	SW8260B	Toluene	1.16	ug/l	1000
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Ethylbenzene	1.45	ug/l	530
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Toluene	3.54	ug/l	1000
BCST_SW309-012415	1/24/15 13:30	BC_309	SW8260B	Xylenes, Total	12.6	ug/l	10,000
BCST_SWBCDUP06-021015	2/10/15 0:01	BC_103	SW8260B	Benzene	1.01	ug/l	5
BCST-DW001-012815	1/28/15 14:10	BC_DW001	SW8260B	Ethylbenzene	1.66	ug/l	530
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Benzene	338 J	ug/l	5
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Ethylbenzene	11.9 J	ug/l	530
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Toluene	198 J	ug/l	1000

Blacktail Creek Spill Final Stantec Surface Water Sampling Results* (Sampling Period: 1/14/15-2/11/15)							
Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV
Moling Produced	1/24/15 14:30	Moling Produced	SW8260B	Xylenes, Total	70.2 J	ug/l	10,000
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Benzene	541	ug/l	5
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Ethylbenzene	14.2	ug/l	530
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Toluene	294	ug/l	1000
South Valve Set	1/15/15 10:30	South Valve Set	SW8260B	Xylenes, Total	72.5	ug/l	10,000
State Produced	1/25/15 10:20	State Produced	SW8260B	Benzene	431	ug/l	5
State Produced	1/25/15 10:20	State Produced	SW8260B	Ethylbenzene	25.6	ug/l	530
State Produced	1/25/15 10:20	State Produced	SW8260B	Toluene	390	ug/l	1000
State Produced	1/25/15 10:20	State Produced	SW8260B	Xylenes, Total	144	ug/l	10,000
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW8260B	Benzene	18.8	ug/l	5
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW8260B	Toluene	6.17	ug/l	1000
SWST_103-C-01142015	1/14/15 12:30	BC_103	SW8260B	Xylenes, Total	4.87	ug/l	10,000
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8260B	Benzene	20.8	ug/l	5
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8260B	Ethylbenzene	1.35	ug/l	530
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8260B	Toluene	9.48	ug/l	1000
SWST_200-D-01142015	1/14/15 13:55	BC_200	SW8260B	Xylenes, Total	8.38	ug/l	10,000

J: estimated value

Bold: result exceeds one or more benchmarks

* results presented are limited to detections; analysis included all analytes on method list

Blacktail Creek Spill Final Stantec Groundwater Sampling Results* (Sampling Period: 1/14/15-2/11/15)						
Sample Name	Sample Date Time	Location	Analytical Group	Chemical Name	Result	Result Unit
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW8260B	Acetone	302	ug/l
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW8260B	Acetone	1420	ug/l
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW8260B	Acetone	1200	ug/l
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW8260B	Methyl Ethyl Ketone (MEK)	51.7	ug/l
BCST-MW006-012915	1/29/15 14:20	MW006	SW8260B	Acetone	188	ug/l
BCST-MW007-012915	1/29/15 10:50	MW007	SW8260B	Acetone	47.6	ug/l
BCST-MW009-013015	1/30/15 15:50	MW009	SW8260B	Acetone	96.9	ug/l
BCST-MW011-012915	1/29/15 12:00	MW011	SW8260B	Acetone	1300	ug/l
BCST-MW011-012915	1/29/15 12:00	MW011	SW8260B	Carbon Disulfide	2.93	ug/l
BCST-MW011-012915	1/29/15 12:00	MW011	SW8260B	Methyl Ethyl Ketone (MEK)	55.6	ug/l

* results presented are limited to detections; analysis included all analytes on method list

Note: no ND Stream HHV or EPA MCL set for these analytes

Blacktail Creek Spill Final Stantec Groundwater Sampling Results* (Sampling Period: 1/14/15-2/11/15)							
Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW8270	Phenol	10.5 J	ug/l	10,000
BCST-MW011-012915	1/29/15 12:00	MW011	SW8270	Cresol (All Isomers)	10.8 J	ug/l	
BCST-MW011-012915	1/29/15 12:00	MW011	SW8270	Phenol	25.4 J	ug/l	10,000

* results presented are limited to detections; analysis included all analytes on method list

J: estimated value

Blacktail Creek Spill
Final Stantec Groundwater Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6020	Arsenic	0.0677	mg/l	0.01	10	
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6020	Barium	0.0598	mg/l		2	
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6010	Calcium	110	mg/l			
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6010	Iron	1.29	mg/l			0.03
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6010	Magnesium	112	mg/l	125		
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6010	Manganese	0.604	mg/l			0.05
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6010	Potassium	10.8	mg/l			
BCGW-MW001-012615	1/26/15 13:00	MW001	SW6010	Sodium	829	mg/l			
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6020	Arsenic	0.0705	mg/l	0.01	10	
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6020	Barium	0.0866	mg/l		2	
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6010	Boron	0.614	mg/l			
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6010	Calcium	204	mg/l			
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6010	Magnesium	260	mg/l	125		
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6010	Manganese	1.11	mg/l			0.05
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6010	Potassium	21.4	mg/l			
BCGW-MW003-012615	1/26/15 16:00	MW003	SW6010	Sodium	1720	mg/l			
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Aluminum	2.7	mg/l			
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6020	Arsenic	0.119	mg/l	0.01	10	
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6020	Barium	0.68	mg/l		2	
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Boron	58.9	mg/l			
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Calcium	3150	mg/l			
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Iron	39.5	mg/l			0.03
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Magnesium	771	mg/l	125		

Blacktail Creek Spill
Final Stantec Groundwater Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Manganese	11.1	mg/l			0.05
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Potassium	747	mg/l			
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW6010	Sodium	19900	mg/l			
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6020	Arsenic	0.0809	mg/l	0.01	10	
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6020	Barium	0.102	mg/l		2	
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6010	Boron	0.549	mg/l			
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6010	Calcium	186	mg/l			
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6010	Magnesium	258	mg/l	125		
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6010	Manganese	4.43	mg/l			0.05
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6020	Nickel	0.0399	mg/l			
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6010	Potassium	19.5	mg/l			
BCGW-MW-012-012715	1/27/15 11:10	MW012	SW6010	Sodium	1710	mg/l			
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Aluminum	83.4	mg/l			
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6020	Barium	11.4	mg/l		2	
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Boron	259	mg/l			

Blacktail Creek Spill Final Stantec Groundwater Sampling Results* (Sampling Period: 1/14/15-2/11/15)									
Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Calcium	13800	mg/l			
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Iron	176	mg/l			0.03
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Magnesium	1540	mg/l	125		
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Manganese	37	mg/l			0.05
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Potassium	4420	mg/l			
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW6010	Sodium	74700	mg/l			
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Aluminum	18	mg/l			
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6020	Barium	9.33	mg/l		2	
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Boron	261	mg/l			
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Calcium	13700	mg/l			
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Iron	28.2	mg/l			0.03
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Magnesium	1390	mg/l	125		
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Manganese	31	mg/l			0.05
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Potassium	4660	mg/l			
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW6010	Sodium	78700	mg/l			

Blacktail Creek Spill
Final Stantec Groundwater Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-MW004-013015	1/30/15 13:50	MW004	SW6010	Boron	0.73	mg/l			
BCST-MW004-013015	1/30/15 13:50	MW004	SW6010	Calcium	187	mg/l			
BCST-MW004-013015	1/30/15 13:50	MW004	SW6010	Magnesium	267	mg/l	125		
BCST-MW004-013015	1/30/15 13:50	MW004	SW6010	Manganese	0.679	mg/l			0.05
BCST-MW004-013015	1/30/15 13:50	MW004	SW6010	Potassium	21.3	mg/l			
BCST-MW004-013015	1/30/15 13:50	MW004	SW6010	Sodium	1740	mg/l			
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Aluminum	4.01	mg/l			
BCST-MW006-012915	1/29/15 14:20	MW006	SW6020	Arsenic	0.144	mg/l	0.01	10	
BCST-MW006-012915	1/29/15 14:20	MW006	SW6020	Barium	1.37	mg/l		2	
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Boron	70.1	mg/l			
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Calcium	8140	mg/l			
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Iron	3.02	mg/l			0.03
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Magnesium	2580	mg/l	125		
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Manganese	9.11	mg/l			0.05
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Potassium	748	mg/l			
BCST-MW006-012915	1/29/15 14:20	MW006	SW6010	Sodium	39300 J	mg/l			
BCST-MW007-012915	1/29/15 10:50	MW007	SW6020	Arsenic	0.109	mg/l	0.01	10	
BCST-MW007-012915	1/29/15 10:50	MW007	SW6020	Barium	0.231	mg/l		2	
BCST-MW007-012915	1/29/15 10:50	MW007	SW6010	Boron	8.91 J	mg/l			
BCST-MW007-012915	1/29/15 10:50	MW007	SW6010	Calcium	908 J	mg/l			
BCST-MW007-012915	1/29/15 10:50	MW007	SW6010	Magnesium	613	mg/l	125		
BCST-MW007-012915	1/29/15 10:50	MW007	SW6010	Manganese	3.53	mg/l			0.05
BCST-MW007-012915	1/29/15 10:50	MW007	SW6010	Potassium	152 J	mg/l			
BCST-MW007-012915	1/29/15 10:50	MW007	SW6010	Sodium	7540 J	mg/l			
BCST-MW008-013015	1/30/15 12:30	MW008	SW6020	Arsenic	0.0766	mg/l	0.01	10	
BCST-MW008-013015	1/30/15 12:30	MW008	SW6020	Barium	0.0482	mg/l		2	
BCST-MW008-013015	1/30/15 12:30	MW008	SW6010	Boron	0.834	mg/l			
BCST-MW008-013015	1/30/15 12:30	MW008	SW6010	Calcium	88.7	mg/l			
BCST-MW008-013015	1/30/15 12:30	MW008	SW6010	Magnesium	145	mg/l	125		
BCST-MW008-013015	1/30/15 12:30	MW008	SW6010	Manganese	0.372	mg/l			0.05

Blacktail Creek Spill Final Stantec Groundwater Sampling Results* (Sampling Period: 1/14/15-2/11/15)									
Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL	EPA Secondary MCL
BCST-MW008-013015	1/30/15 12:30	MW008	SW6010	Potassium	14	mg/l			
BCST-MW008-013015	1/30/15 12:30	MW008	SW6010	Sodium	1090	mg/l			
BCST-MW009-013015	1/30/15 15:50	MW009	SW6020	Barium	0.164	mg/l		2	
BCST-MW009-013015	1/30/15 15:50	MW009	SW6010	Boron	3.2	mg/l			
BCST-MW009-013015	1/30/15 15:50	MW009	SW6010	Calcium	347	mg/l			
BCST-MW009-013015	1/30/15 15:50	MW009	SW6010	Iron	3.33	mg/l			0.03
BCST-MW009-013015	1/30/15 15:50	MW009	SW6010	Magnesium	231	mg/l	125		
BCST-MW009-013015	1/30/15 15:50	MW009	SW6010	Manganese	1.64	mg/l			0.05
BCST-MW009-013015	1/30/15 15:50	MW009	SW6010	Potassium	37.2	mg/l			
BCST-MW009-013015	1/30/15 15:50	MW009	SW6010	Sodium	2300	mg/l			
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Aluminum	2.68	mg/l			
BCST-MW011-012915	1/29/15 12:00	MW011	SW6020	Barium	5.12	mg/l		2	
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Boron	423	mg/l			
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Calcium	20700	mg/l			
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Iron	3.9	mg/l			0.03
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Magnesium	1740	mg/l	125		
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Manganese	48.3	mg/l			0.05
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Potassium	7510	mg/l			
BCST-MW011-012915	1/29/15 12:00	MW011	SW6010	Sodium	104000 J	mg/l			

* results presented are limited to detections; analysis included all analytes on method list

Bold: result exceeds benchmark

J: estimated value

Blacktail Creek Spill
Final Stantec Groundwater Sampling Results*
(Sampling Period: 1/14/15-2/11/15)

Sample Name	Sample Date_Time	Location	Analytical Group	Chemical Name	Result	Result Unit	ND Stream Class I and II HHV	EPA MCL
BCGW-MW-010-012715	1/27/15 12:30	MW010	SW8260B	Benzene	7.39	ug/l	5	5
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW8260B	Benzene	8.65	ug/l	5	5
BCST-ITS001-012915	1/29/15 16:44	BC_ITS001	SW8260B	Toluene	1.53	ug/l	1000	1000
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW8260B	Benzene	5.03	ug/l	5	5
BCST-ITS002-012915	1/29/15 17:52	BC_ITS002	SW8260B	Toluene	1.04	ug/l	1000	1000
BCST-MW011-012915	1/29/15 12:00	MW011	SW8260B	Benzene	16.8	ug/l	5	5
BCST-MW011-012915	1/29/15 12:00	MW011	SW8260B	Toluene	1.21	ug/l	1000	

* results presented are limited to detections; analysis included all analytes on method list

Bold: result exceeds benchmark