EAGLE
ENVIRONMENTAL
CONSULTING, INC.

4101 Inca Street, Denver, CO 80211 • Phone: 303-433-0479 • Fax: 303-325-5449 • www.eagle-enviro.com

March 18, 2016

Ms. Tarah Garza
Encana Oil & Gas (USA) Inc.
10188 E I-25 Frontage Rd
Firestone, CO 80504

RE: Site Assessment Report – February 2016
Billings 2G-18H
NW ¼ NW ¼ SEC.18 T3N R68W 6PM
LAT./LONG.: 40.22923/-105.05413
Weld County, Colorado

Dear Ms. Garza,

Eagle Environmental Consulting, Inc. (EAGLE) is pleased to present this Site Assessment Report – February 2016 to Encana Oil & Gas (USA) (Encana) for the above referenced site.

1.0 SITE BACKGROUND

On August 28, 2015, a surface release was discovered approximately 140 feet southeast of the Billings 2G-18H well pad due to a flow line release. From November 30, 2015 through February 2016, Encana sub-contractors completed excavation activities at the location to remove the source and replace the flow lines. A site location map is presented in Figure 1.

During source removal excavation activities, an Encana representative collected a soil sample (Billings 3G-18H) at approximately 0.5 feet below ground surface (bgs) from the release location on August 31, 2015. On October 12, 2015, an Encana representative collected an additional soil sample (Billings 3G) at approximately 9 feet bgs from the release location excavation. The excavation was completed to a total depth of approximately 12 feet bgs. Approximately 55.21 tons of petroleum hydrocarbon impacted soil was removed from the site and disposed of at the Erie Landfill.

Soil samples Billings 3G-18H@0.5' and Billings 3G@9' were submitted to ESC Lab Sciences (ESC) located in Mt. Juliet, Tennessee, for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX) and total petroleum hydrocarbons- gasoline range organics (TPH-GRO) following Environmental Protection Agency (EPA) Methods 8021/8015, and total petroleum hydrocarbons – diesel range organics (TPH-DRO) following modified EPA Method 3546. In addition, soil samples Billings 3G-18H@0.5' and Billings 3G@9' were also analyzed for the metals and the 13 polycyclic aromatic hydrocarbons (PAHs) listed in Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 following EPA Methods 6010B and 3060A/7196A, and 8270C-SIM, respectively, as well as pH following EPA Method 9045D, and specific conductance following EPA Method 9050AMod. Sodium adsorption ratio (SAR) was also calculated by the laboratory.

Based on laboratory analytical results, soil samples Billings 3G-18H@0.5' and Billings 3G@9' contained concentrations of benzene exceeding the COGCC Table 910-1 regulatory limit of 0.17 milligrams per kilogram (mg/kg) with concentrations of 8.42 mg/kg and 5.41 mg/kg, respectively. In addition, soil samples Billings 3G-18H@0.5' and Billings 3G@9' also contained concentrations of TPH exceeding the

COGCC Table 910-1 regulatory limit of 500 mg/kg with concentrations of 2,300 mg/kg and 5,360 mg/kg, respectively. Soil samples Billings 3G-18H@0.5' and Billings 3G@9' also contained concentrations of arsenic exceeding the COGCC Table 910-1 regulatory limit of 0.39 mg/kg with concentrations of 2.90 mg/kg and 3.97 mg/kg, respectively.

On February 24, 2016, five soil borings (SB-01 through SB-05) were advanced around the release location to assess petroleum hydrocarbon impacts following source removal and flow line replacement activities.

2.0 SITE DESCRIPTION

The Billings 2G-18H site is located within the Northwest Quarter of the Northwest Quarter of Section 18, Township 3 North, Range 68 West of the 6th Prime Meridian. The site contains eight production wells: Billings 2H-18H, Billings 2D-18H, Billings 2E-18H, Billings 2B-18H, Billings 2F-18H, Billings 2C-18H, Billings 2A-18H, and Billings 2G-18H. The release location is located at latitude: 40.228796031 and longitude -105.053880956 in Weld County, Colorado. A site map is included as Figure 2.

2.1 Site Hydrogeology

Based on field observations, the site lithology beneath the site is a silty sandy clay from the surface to approximately 8 feet bgs. The silty sandy clay is underlain by a fine-grained sandy silt to approximately 10-10.5 feet bgs. Direct push refusal was encountered at approximately 10-10.5 feet bgs where a dense sandy silt was observed. Groundwater was not observed within soil borings SB-01 through SB-05.

3.0 SITE ASSESSMENT ACTIVITIES

3.1 Field Work Preparation and Planning

The Utility Notification Center of Colorado (UNCC) was called at least 48 hours in advance of soil boring activities to confirm no unmarked utilities or other obstacles were present within the proposed boring locations. Tier II facility owners were also contacted to confirm the necessary buried utility notifications were completed. Each boring location was also cleared to a depth of approximately 5 feet bgs, prior to the advancement of any proposed soil boring, with a pothole or "daylighting" rig, to ensure no unmarked utilities were present beneath the boring location. Prior to any subsurface work, a Ground Disturbance Form was completed by Encana and EAGLE.

3.2 Soil Sampling Procedures

On February 24, 2016, EAGLE advanced five soil borings (SB-01 through SB-05) to assess petroleum hydrocarbon impacts at the site following source removal and flow line replacement activities. EAGLE utilized a Geoprobe 7730DT direct push track rig to advance soil borings, SB-01 through SB-05, to approximate total depths ranging from 10 feet bgs (SB-01, SB-03, SB-04, and SB-05) to 10.5 feet bgs (SB-02). Boring logs for SB-01 through SB-05 are included in Attachment A.

Soil samples were collected continuously within 5-foot, plastic sample liners. The samples were separated in 2.5 foot intervals for soil identification and analysis. A portion from each interval was placed in a sealable plastic bag, for volatile organic compound (VOC) headspace analysis utilizing a field calibrated photoionization detector (PID). Each bag was sealed, labeled, and allowed to volatilize for approximately five to ten minutes. Another portion of each sample from the same interval was collected in a laboratory supplied, 4-ounce, glass jar, sealed, and placed in an iced cooler for laboratory analysis. After volatilization, each bagged sample was perforated with the probe of a field portable PID, using a

10.6 electron volt (eV) lamp, to measure the organic vapor concentration within the headspace. Organic vapor concentrations were recorded in parts per million by volume (ppm-v) for each sample.

Observed PID values ranged from 0.0 ppm-v (SB-02@10-10.5') to 2.1 ppm-v (SB-03@7.5-10'). Based on PID readings and sample location, soil samples SB-01@7.5-10', SB-02@7.5-10', SB-03@7.5-10', SB-04@7.5-10', and SB-05@7.5-10' were submitted to Accutest Mountain States laboratory located in Wheat Ridge, Colorado. The soil samples were analyzed for BTEX and TPH-GRO following EPA Methods 8260B/8015B, and TPH-DRO following modified EPA Method 3546. Soil sample SB-01@7.5-10' was also analyzed for the 13 PAHs following EPA Method 8270C-SIM, metals following EPA Methods 6020A/6010C, 3050B/7471B and 3060A/7196A, pH following EPA Method 9045D, specific conductance following EPA Method 2510B-2011Mod., and SAR.

Spatial locations of soil borings SB-01 through SB-05 were recorded using a Trimble GeoXT 6000 series instrument and their locations were updated on the current site map.

3.3 Soil Analytical Results

Based on laboratory analytical results:

- The soil samples collected from SB-01 through SB-05 did not contain concentrations of BTEX, TPH-GRO, or TPH-DRO exceeding their applicable COGCC Table 910-1 regulatory limits.

- Soil sample SB-01@7.5-10' contained a concentration of arsenic exceeding the COGCC Table 910-1 regulatory limit of 0.39 mg/kg with a concentration of 4.9 mg/kg.

- Soil sample SB-01@7.5-10' contained a pH value exceeding the COGCC Table 910-1 regulatory range of 6-9 with a value of 9.8.

- Soil sample SB-01@7.5-10' did not contain PAH, specific conductance, or SAR concentrations/values exceeding their applicable COGCC Table 910-1 regulatory limits.

Arsenic concentrations were observed in soil samples, Billings 3G-18H@0.5', Billings 3G@9', and SB-01@7.5-12.5' exceeding the COGCC Table 910-1 regulatory limit of 0.39 mg/kg. Arsenic is naturally occurring in some geologic environments within Colorado due to the weathering and erosion of bedrock and soil. The Colorado Department of Public Health and Environment (CDPHE) has developed a Risk Management Guidance Document for Evaluating Arsenic Concentrations in Soil, which was recently revised in July 2014. During the study conducted by the EPA, the average concentration of arsenic observed in Colorado soils was 11 mg/kg. Based on the average concentration of arsenic listed in the guidance document provided by the CDPHE and the arsenic concentrations observed in the soil samples, Billings 3G-18H@0.5', Billings 3G@9', and SB-01@7.5-10', arsenic is not a chemical of concern at this time.

Soil sample SB-01@7.5-10' contained a value of pH exceeding the COGCC Table 910-1 regulatory range of 6-9 with a value of 9.8. However, based on the high pH values observed within soil samples Billings 3G-18H@0.5' (8.84) and Billings 3G@9' (8.37), the pH value observed within SB-01@7.5-10' (9.8) appears to be consistent with site conditions.

Excavation and soil boring analytical results are summarized in Table 1, Table 1A, and Table 1B. Soil analytical results are presented in Figure 3. Soil laboratory analytical reports are included in Attachment B.

4.0 CONCLUSIONS

Based on the information presented above, EAGLE concludes the following:

- Soil samples, Billings 3G-18H@0.5'and Billings 3G@9', collected during source removal excavation activities contained concentrations of benzene and TPH exceeding their applicable COGCC Table 910-1 regulatory limits.

- Approximately 55.21 tons of petroleum hydrocarbon impacted soil was removed from the site during source removal excavation activities and disposed of at the Erie Landfill.

- The soil samples collected from SB-01 through SB-05 at 7.5-10' bgs did not contain concentrations of BTEX, TPH-GRO, or TPH-DRO exceeding their applicable COGCC Table 910-1 regulatory limits.

- Based on the CDPHE Risk Management Guidance Document for Evaluating Arsenic Concentrations in Soil, the arsenic concentrations observed within soil samples, Billings 3G-18H@0.5', Billings 3G@9', and SB-01@7.5-10' are not a chemical of concern to the site at this time.

- Soil sample SB-01@7.5-10' contained a pH value exceeding the COGCC Table 910-1 regulatory range of 6-9 with a value of 9.8.

- Soil sample SB-01@7.5-10' did not contain PAH, specific conductance, or SAR concentrations/values exceeding their applicable COGCC Table 910-1 regulatory limits.

5.0 RECOMMENDATIONS

- Based on the soil analytical results from soil borings SB-01 through SB-05 and groundwater not being encountered during site assessment activities, additional assessment activities do not appear warranted at the site at this time.

EAGLE sincerely appreciates the opportunity to provide our services. If you have any questions or require further information, please contact me at (303) 433-0479.

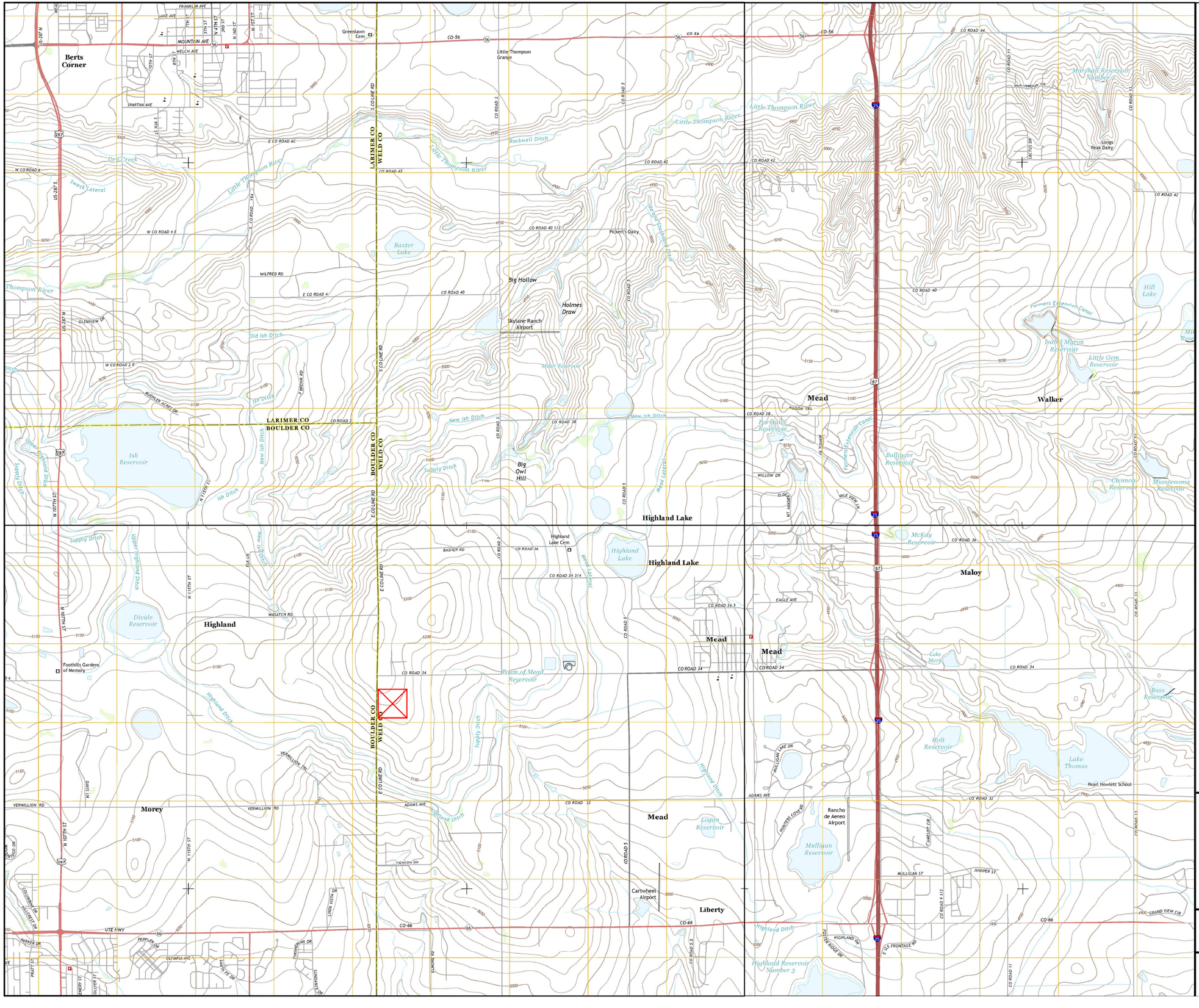
Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Daniel Coloccia
Project Scientist

Martin Eckert III
Senior Project Manager

FIGURES



LEGEND

APPROXIMATE SITE LOCATION

NOTE: TOPOGRAPHIC MAP OBTAINED FROM U.S. DEPARTMENT OF THE INTERIOR – U.S. GEOLOGICAL SURVEY, BERTHOUD, JOHNSTOWN, LONGMONT, AND GOWANDA QUADRANGLES, COLORADO – WELD CO., 7.5 MINUTE–SERIES.

N

0 3,850'

APPROXIMATE SCALE IN FEET

SITE LOCATION MAP

BILLINGS 2G –18H
NW 1/4 NW 1/4 SEC.18 T3N R68W 6PM
LAT./LONG.: 40.22923/–105.05413
WELD, COLORADO

DATE:	
03/07/16	
FIG. NO.	DRAWN BY:
1	DC

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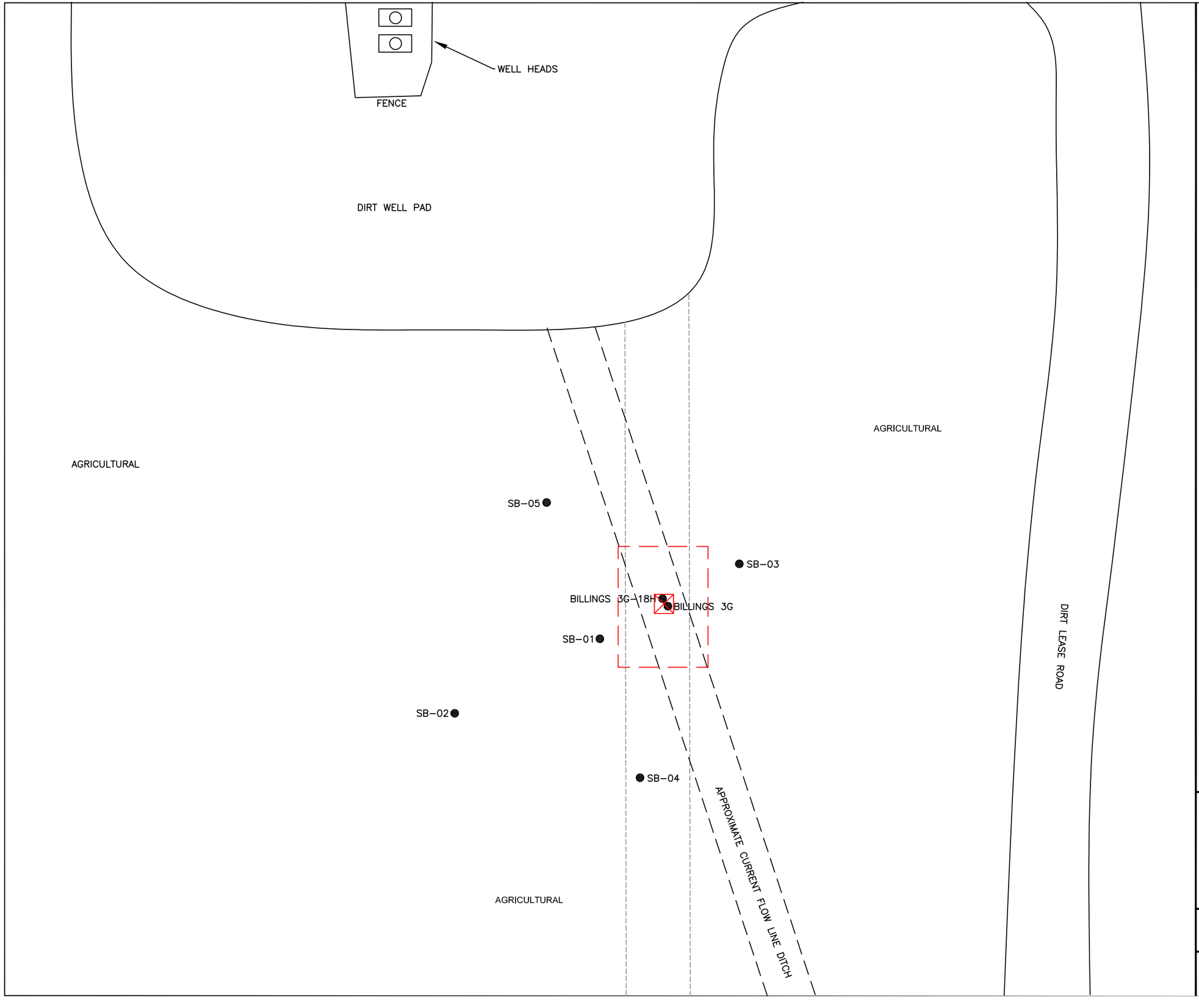

LEGEND

- APPROXIMATE SOIL SAMPLE LOCATION
- APPROXIMATE FORMER FLOW LINE DITCH LOCATION
- APPROXIMATE CURRENT FLOW LINE DITCH LOCATION
- APPROXIMATE FLOW LINE RELEASE LOCATION
- APPROXIMATE SOURCE REMOVAL EXCAVATION EXTENTS

N

0 20'

APPROXIMATE SCALE IN FEET

SITE MAP
BILLINGS 2G-18H
NW 1/4 NW 1/4 SEC.18 T3N R68W 6PM
LAT./LONG.: 40.22923/-105.05413
WELD, COLORADO

DATE:	
03/07/16	
FIG.NO.	DRAWN BY:
2	DC

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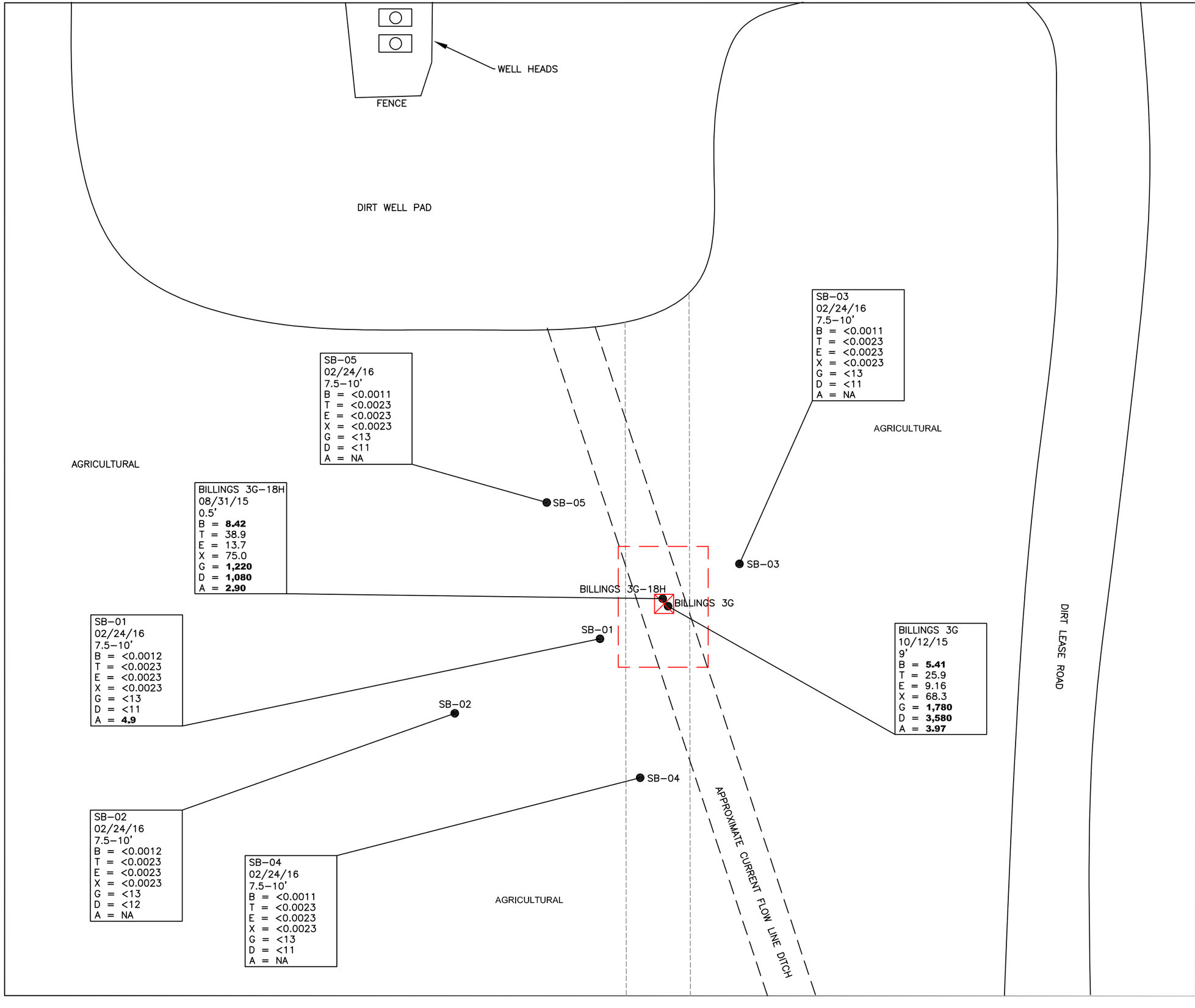

LEGEND

- APPROXIMATE SOIL SAMPLE LOCATION
- APPROXIMATE FORMER FLOW LINE DITCH LOCATION
- APPROXIMATE CURRENT FLOW LINE DITCH LOCATION
- APPROXIMATE FLOW LINE RELEASE LOCATION
- APPROXIMATE SOURCE REMOVAL EXCAVATION EXTENTS

PARAMETERS

SAMPLE LOCATION
DATE
SAMPLE DEPTH (FEET)
B = BENZENE (mg/kg)
T = TOLUENE (mg/kg)
E = ETHYLBENZENE (mg/kg)
X = TOTAL XYLENES (mg/kg)
G = TPH-GRO (mg/kg)
D = TPH-DRO (mg/kg)
A = ARSENIC (mg/kg)

mg/kg = MILLIGRAMS PER KILOGRAM
TPH = TOTAL PETROLEUM HYDROCARBON
GRO = GASOLINE RANGE ORGANICS
DRO = DIESEL RANGE ORGANICS
NA = NOT ANALYZED

NOTE: VALUES PRESENTED IN **BOLD** TYPEFACE EXCEED THE COGCC CONCENTRATION LEVELS PRESENTED IN TABLE 910-1.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION.

VALUES PRESENTED WITH A LESS THAN SYMBOL (<) INDICATE CONCENTRATIONS WERE NOT OBSERVED AT OR ABOVE THE LABORATORY REPORTING LIMIT.

N

0 20'

APPROXIMATE SCALE IN FEET

SOIL SAMPLE LOCATION MAP
BILLINGS 2G-18H
NW 1/4 NW 1/4 SEC.18 T3N R68W 6PM
LAT./LONG.: 40.22923/-105.05413
WELD, COLORADO

DATE:	
03/07/16	
FIG.NO.	DRAWN BY:
3 4	DC

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TABLES

Table 1: Soil Analytical Results Summary

Table 1A: Soil Analytical Results Summary – Semi Volatile Organics

Table 1B: Soil Analytical Results Summary – Metals & Inorganics

TABLE 1
SOIL ANALYTICAL RESULTS SUMMARY
BILLINGS 2G-18H
NW 1/4 NW 1/4 SEC.18 T3N R68W 6PM
LAT./LONG.: 40.22923/-105.05413
WELD, COLORADO

Sample Location (Latitude/Longitude)	Date Sample Collected	Approximate Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
COGCC Table 910-1 Regulatory Limit (mg/kg)			**0.17**	**85**	**100**	**175**	**500**	
Billings 3G-18H (Excavation)	08/31/15	0.5	**8.42**	38.9	13.7	75.0	**1,220**	**1,080**
Billing 3G (Excavation)	10/12/15	9.0	**5.41**	25.9	9.16	68.3	**1,780**	**3,580**
SB-01 (40.228776832/-105.053929373)	02/24/16	7.5-10	<0.0012	<0.0023	<0.0023	<0.0023	<13	<11
SB-02 (40.228721788/ -105.054055274)	02/24/16	7.5-10	<0.0012	<0.0023	<0.0023	<0.0023	<13	<12
SB-03 (40.228825266/ -105.053913451)	02/24/16	7.5-10	<0.0011	<0.0023	<0.0023	<0.0023	<13	<11
SB-04 (40.228674524/-105.053910188)	02/24/16	7.5-10	<0.0011	<0.0023	<0.0023	<0.0023	<13	<11
SB-05 (40.228861181/-105.053989315)	02/24/16	7.5-10	<0.0011	<0.0023	<0.0023	<0.0023	<13	<11

COGCC = Colorado Oil and Gas Conservation Commission
mg/kg = milligrams per kilogram
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics
TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics
< = indicates result is less than the stated laboratory reporting limit
Note: Values presented in bold typeface exceed their respective COGCC Table 910-1 Regulatory Limit.

TABLE 1A
SOIL ANALYTICAL RESULTS SUMMARY - SEMI VOLATILE ORGANICS
BILLINGS 2G-18H
NW 1/4 NW 1/4 SEC.18 T3N R68W 6PM
LAT./LONG.: 40.22923/-105.05413
WELD, COLORADO

Sample Location	Date	Approximate Depth (feet)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo(A) anthracene (mg/kg)	Benzo(B) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(A) pyrene (mg/kg)	Chrysene (mg/kg)	Dibenzo(A,H) anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3,C,D) pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
COGCC Table 910-1 Regulatory Limit (mg/kg)			**1,000**	**1,000**	**0.22**	**0.22**	**2.2**	**0.022**	**22**	**0.022**	**1,000**	**1,000**	**0.22**	**23**	**1,000**
Billings 3G-18H	08/31/15	0.5	0.424	0.395	0.0102	0.00917	0.0108	0.0108	0.114	<0.00600	0.0302	1.10	<0.00600	4.02	0.193
Billing 3G	10/12/15	9.0	0.235	0.218	0.00769	<0.00600	0.00777	0.00623	0.0949	<0.00600	<0.120	0.619	<0.00600	2.42	0.122
SB-01	02/24/16	7.5-10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0024	<0.0050	<0.0050	<0.0050	<0.0050

COGCC = Colorado Oil and Gas Conservation Commission
mg/kg = milligrams per kilogram
< = indicates result is less than the stated laboratory reporting limit
Note: Values presented in bold typeface exceed their respective COGCC Table 910-1 Regulatory Limit.

TABLE 1B
SOIL ANALYTICAL RESULTS SUMMARY - METALS & INORGANICS
BILLINGS 2G-18H
NW 1/4 NW 1/4 SEC.18 T3N R68W 6PM
LAT./LONG.: 40.22923/-105.05413
WELD, COLORADO

			Metals												Inorganics		
Sample Location (Latitude/Longitude)	**Depth (feet)**	**Date**	**Arsenic** (mg/kg)	**Barium** (mg/kg)	**Cadmium** (mg/kg)	**Chromium (III)** (mg/kg)	**Chromium (VI)** (mg/kg)	**Copper** (mg/kg)	**Lead** (mg/kg)	**Mercury** (mg/kg)	**Nickel** (mg/kg)	**Selenium** (mg/kg)	**Silver** (mg/kg)	**Zinc** (mg/kg)	**Electrical Conductivity (EC)**	**Sodium Adsorption Ratio (SAR)**	**pH**
COGCC Table 910-1 Regulatory Limit (mg/kg)			**0.39**	**15,000**	**70**	**120,000**	**23**	**3,100**	**400**	**23**	**1,600**	**390**	**390**	**23,000**	**<4mmhos/cm or 2x background**	**<12^5**	**6-9**
Billings 3G-18H (Excavation)	0.5	08/31/15	**2.90**	87.8	<0.500	5.54	<2.00	6.17	7.45	<0.0200	8.68	<2.00	<1.00	25.9	0.878	6.63	8.84
Billing 3G (Excavation)	9.0	10/12/15	**3.97**	50.2	<0.500	10.2	<2.00	4.19	8.25	<0.0200	8.01	<2.00	<1.00	36.8	1.010	4.44	8.37
SB-01 (40.228776832/-105.053929373)	7.5-10	02/24/16	**4.9**	18.5	<1.1	9.7	<1.0	3.8	9.6	<0.092	8.6	<5.6	<3.3	35.3	0.409	5.94	**9.8**

COGCC = Colorado Oil and Gas Conservation Commission
mg/kg = milligrams per kilogram
mmhos/cm = millimhos per centimeter
< = indicates result is less than the stated laboratory reporting limit
Note: Values presented in bold typeface exceed their respective COGCC Table 910-1 Regulatory Limit.
* Arsenic is naturally occurring in some geologic environments within Colorado due to the weathering and erosion of bedrock and soil. The Colorado Department of Public Health and Environment (CDPHE) developed a Risk Management Guidance Document for Evaluating Arsenic Concentrations in Soil, which was revised in July 2014. During the study conducted by the EPA, the average concentration of arsenic observed in Colorado soils was 11 mg/kg. Based on the average concentration of arsenic listed in the guidance document provided by the CDPHE and the arsenic concentrations observed within the soil samples collected at the site, arsenic is not a chemical of concern to the site at this time.

ATTACHMENT A

Boring Logs

Boring Log/Well Completion Diagram: SB-01

DEPTH (FT)	LITHOLOGY DESCRIPTION	SAMPLE GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY %	OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
0	(0-5') Pothole									
5	(5-8') sandy SILT - brown, dry, loose, poorly sorted, w/ ~10-15% fine grained sand N/O N/S	ML	GP	1	70	0.5	N/A	5		
	(8-9.5') clayey SILT - brown, dry, dense, poorly sorted, w/ 10% clay N/O N/S					1.3				
10	(9.5-10') sandy SILT - very dense BoB = 10'							10		refusal @ 10' bgs.
15								15		
20								20		
25								25		HC - Hydrocarbon BoB - Bottom of Boring N/O - no odor N/S - no staining TOC - top of casing bgs - below ground surface
30										

START/COMPLETION DATE: 02/24/16

PROJECT: BILLINGS 2G–18H

LOGGED BY: D. COLOCCIA

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

BORING DEPTH (FEET): 10 WELL DEPTH (FEET): N/A

PID INSTRUMENT: MiniRAE 3000

TIME STARTED/COMPLETED: 1030/1045

SAMPLE COLLECTION DEPTH (FEET)/TIME: 7.5–10'/1041

SAND PACK INTERVAL (FEET): N/A

BENTONITE/GROUT INTERVAL (FEET): N/A

WELL SCREEN INTERVAL (FEET): N/A

WELL DIAMETER (INCHES): N/A

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Boring Log/Well Completion Diagram: SB-02

DEPTH (FT)	LITHOLOGY DESCRIPTION	SAMPLE GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY %	OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
0	(0-5') Pothole							0		
5	(5-8') silty sandy CLAY - dark brown, moist, soft, moderate plasticity, poorly sorted w/ 10% fine grained sand, 20% silt N/O N/S	CL	GP	1	90	0.6	N/A	5		
	(8-10') sandy SILT - brown, dry, moderately dense, poorly sorted, w/ 10% fine grained sand N/O N/S	ML				1.1				
10	(10-10.5') sandy SILT - very dense		GP	2	5	0.0	N/A	10		refusal @ 10.5' bgs.
	BoB = 10.5'									
15								15		
20								20		
25								25		HC - Hydrocarbon BoB - Bottom of Boring N/O - no odor N/S - no staining TOC - top of casing bgs - below ground surface
30										

START/COMPLETION DATE: 02/24/16

PROJECT: BILLINGS 2G–18H

LOGGED BY: D. COLOCCIA

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

BORING DEPTH (FEET): 10.5' | WELL DEPTH (FEET): N/A

PID INSTRUMENT: MiniRAE 3000

TIME STARTED/COMPLETED: 1000/1030

SAMPLE COLLECTION DEPTH (FEET)/TIME: 7.5–10'/1019

SAND PACK INTERVAL (FEET): N/A

BENTONITE/GROUT INTERVAL (FEET): N/A

WELL SCREEN INTERVAL (FEET): N/A

WELL DIAMETER (INCHES): N/A

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Boring Log/Well Completion Diagram: SB-03

DEPTH (FT)	LITHOLOGY DESCRIPTION	SAMPLE GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY %	OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
0	(0-5') Pothole									
5	(5-7.5') silty CLAY - dark brown, dry, soft, moderate plasticity, poorly sorted w/ 20% silt N/O N/S	CL	GP	1	100	1.1	N/A	5		
	(7.5-9.5') sandy SILT - brown, dry, moderately dense, w/ 15% fine grained sand N/O N/S	ML				2.1				
10	(9.5-10') sandy SILT - very dense BoB = 10'							10		refusal @ 10' bgs.
15								15		
20								20		
25								25		HC - Hydrocarbon BoB - Bottom of Boring N/O - no odor N/S - no staining TOC - top of casing bgs - below ground surface
30										

START/COMPLETION DATE: 02/24/16

PROJECT: BILLINGS 2G–18H

LOGGED BY: D. COLOCCIA

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

BORING DEPTH (FEET): 10' | WELL DEPTH (FEET): N/A

PID INSTRUMENT: MiniRAE 3000

TIME STARTED/COMPLETED: 1045/1100

SAMPLE COLLECTION DEPTH (FEET)/TIME: 7.5–10'/1058

SAND PACK INTERVAL (FEET): N/A

BENTONITE/GROUT INTERVAL (FEET): N/A

WELL SCREEN INTERVAL (FEET): N/A

WELL DIAMETER (INCHES): N/A

EAGLE ENVIRONMENTAL CONSULTING, INC.
4101 INCA STREET, DENVER, CO 80211
Ph: 303-433-0479 • F: 303-325-5449

Boring Log/Well Completion Diagram: SB-04

DEPTH (FT)	LITHOLOGY DESCRIPTION	SAMPLE GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY %	OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
0	(0-5') Pothole									
5	(5-7.5') silty CLAY - dark brown, dry, soft, moderate plasticity, poorly sorted w/ 20% silt N/O N/S	CL	GP	1	100	1.7	N/A	5		
	(7.5-9.5') sandy SILT - brown, dry, moderately dense, w/ 15% fine grained sand N/O N/S	ML				2.0				
10	(9.5-10') sandy SILT - very dense BoB = 10'							10		refusal @ 10' bgs.
15								15		
20								20		
25								25		HC - Hydrocarbon BoB - Bottom of Boring N/O - no odor N/S - no staining TOC - top of casing bgs - below ground surface
30										

START/COMPLETION DATE: 02/24/16

PROJECT: BILLINGS 2G–18H

LOGGED BY: D. COLOCCIA

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

BORING DEPTH (FEET): 10' | WELL DEPTH (FEET): N/A

PID INSTRUMENT: MiniRAE 3000

TIME STARTED/COMPLETED: 1100/1115

SAMPLE COLLECTION DEPTH (FEET)/TIME: 7.5–10'/1112

SAND PACK INTERVAL (FEET): N/A

BENTONITE/GROUT INTERVAL (FEET): N/A

WELL SCREEN INTERVAL (FEET): N/A

WELL DIAMETER (INCHES): N/A

EAGLE ENVIRONMENTAL CONSULTING, INC.
4101 INCA STREET, DENVER, CO 80211
Ph: 303-433-0479 • F: 303-325-5449

Boring Log/Well Completion Diagram: SB-05

DEPTH (FT)	LITHOLOGY DESCRIPTION	SAMPLE GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY %	OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
0	(0-5') Pothole									
5	(5-7.5') silty CLAY - dark brown, dry, soft, moderate plasticity, poorly sorted w/ 20% silt N/O N/S	CL	GP	1	100	1.0	N/A	5		
	(7.5-9.5') sandy SILT - brown, dry, moderately dense, w/ 15% fine grained sand N/O N/S	ML				2.0				
10	(9.5-10') sandy SILT - very dense BoB = 10'							10		refusal @ 10' bgs.
15								15		
20								20		
25								25		HC - Hydrocarbon BoB - Bottom of Boring N/O - no odor N/S - no staining TOC - top of casing bgs - below ground surface
30										

START/COMPLETION DATE: 02/24/16

PROJECT: BILLINGS 2G–18H

LOGGED BY: D. COLOCCIA

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

BORING DEPTH (FEET): 10' | WELL DEPTH (FEET): N/A

PID INSTRUMENT: MiniRAE 3000

TIME STARTED/COMPLETED: 1130/1145

SAMPLE COLLECTION DEPTH (FEET)/TIME: 7.5–10'/1141

SAND PACK INTERVAL (FEET): N/A

BENTONITE/GROUT INTERVAL (FEET): N/A

WELL SCREEN INTERVAL (FEET): N/A

WELL DIAMETER (INCHES): N/A

EAGLE ENVIRONMENTAL CONSULTING, INC.
4101 INCA STREET, DENVER, CO 80211
Ph: 303-433-0479 • F: 303-325-5449

ATTACHMENT B

Laboratory Analytical Reports

ANALYTICAL REPORT

September 03, 2015

EnCana Oil & Gas - Longmont, CO

Sample Delivery Group:	L786128
Samples Received:	09/01/2015
Project Number:	
Description:	Billings 3G-18H

Report To:

Blake Ford
10188 East I-25 Frontage Rd
Firestone, CO 80504

Entire Report Reviewed By:

Jarred Willis
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

BILLINGS 3G-18H - 6IN L786128-01 Solid

Collected by	Collected date/time	Received date/time
	08/31/15 08:35	09/01/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG812800	1	09/01/15 18:39	09/02/15 23:27	ST
Calculated Results	WG812895	1	09/01/15 17:45	09/03/15 18:57	JDG
Mercury by Method 7471A	WG812699	1	09/01/15 14:47	09/02/15 15:24	TRB
Metals (ICP) by Method 6010B	WG812895	1	09/01/15 17:45	09/02/15 10:26	JDG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG812618	1	09/02/15 08:56	09/03/15 02:49	KMP
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG812618	20	09/02/15 08:56	09/03/15 11:27	KMP
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	WG812598	10	09/01/15 20:55	09/02/15 11:45	CLG
Volatile Organic Compounds (GC) by Method 8021/8015	WG812870	250	09/01/15 15:30	09/02/15 10:41	MCB
Wet Chemistry by Method 2580 B-2011	WG813085	1	09/03/15 09:58	09/03/15 10:30	AS
Wet Chemistry by Method 3060A/7196A	WG812918	1	09/03/15 08:24	09/03/15 12:57	SJM
Wet Chemistry by Method 9045D	WG812874	1	09/02/15 12:49	09/02/15 12:49	CM
Wet Chemistry by Method 9050AMod	WG812849	1	09/02/15 02:27	09/02/15 02:27	TOF

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the

Jarred Willis
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.63		1	09/02/2015 23:27	WG812800

Calculated Results

Analyte	Result mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Chromium,Trivalent	5.54		1	09/03/2015 18:57	WG812895

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	188		1	09/03/2015 10:30	WG813085

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	J6	2.00	1	09/03/2015 12:57	WG812918

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.84		1	09/02/2015 12:49	WG812874

Sample Narrative:

9045D L786128-01 WG812874: 8.84 at 22.5c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	878		1	09/02/2015 02:27	WG812849

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	09/02/2015 15:24	WG812699

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.90		2.00	1	09/02/2015 10:26	WG812895
Barium	87.8		0.500	1	09/02/2015 10:26	WG812895
Cadmium	ND		0.500	1	09/02/2015 10:26	WG812895
Chromium	5.54		1.00	1	09/02/2015 10:26	WG812895
Copper	6.17		2.00	1	09/02/2015 10:26	WG812895
Lead	7.45		0.500	1	09/02/2015 10:26	WG812895
Nickel	8.68		2.00	1	09/02/2015 10:26	WG812895
Selenium	ND		2.00	1	09/02/2015 10:26	WG812895
Silver	ND		1.00	1	09/02/2015 10:26	WG812895
Zinc	25.9		5.00	1	09/02/2015 10:26	WG812895

Volatile Organic Compounds (GC) by Method 8021/8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	8.42		0.125	250	09/02/2015 10:41	WG812870
Toluene	38.9		1.25	250	09/02/2015 10:41	WG812870
Ethylbenzene	13.7		0.125	250	09/02/2015 10:41	WG812870
Total Xylene	75.0		0.375	250	09/02/2015 10:41	WG812870
TPH (GC/FID) Low Fraction	1220	J3 J6	25.0	250	09/02/2015 10:41	WG812870
(S) a,a,a-Trifluorotoluene(FID)	*63.6*		*59.0-128*		*09/02/2015 10:41*	WG812870
(S) a,a,a-Trifluorotoluene(PID)	*99.3*		*54.0-144*		*09/02/2015 10:41*	WG812870

Semi-Volatile Organic Compounds (GC) by Method 3546/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1080		40.0	10	09/02/2015 11:45	WG812598
(S) o-Terphenyl	*13.8*	J2	*50.0-150*		*09/02/2015 11:45*	WG812598

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.395		0.00600	1	09/03/2015 02:49	WG812618
Acenaphthene	0.424		0.120	20	09/03/2015 11:27	WG812618
Acenaphthylene	ND		0.120	20	09/03/2015 11:27	WG812618
Benzo(a)anthracene	0.0102		0.00600	1	09/03/2015 02:49	WG812618
Benzo(a)pyrene	0.0108		0.00600	1	09/03/2015 02:49	WG812618
Benzo(b)fluoranthene	0.00917		0.00600	1	09/03/2015 02:49	WG812618
Benzo(g,h,i)perylene	ND		0.00600	1	09/03/2015 02:49	WG812618
Benzo(k)fluoranthene	0.0108		0.00600	1	09/03/2015 02:49	WG812618
Chrysene	0.114		0.00600	1	09/03/2015 02:49	WG812618
Dibenz(a,h)anthracene	ND		0.00600	1	09/03/2015 02:49	WG812618
Fluoranthene	0.0302		0.00600	1	09/03/2015 02:49	WG812618
Fluorene	1.10		0.120	20	09/03/2015 11:27	WG812618
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/03/2015 02:49	WG812618
Naphthalene	4.02		0.400	20	09/03/2015 11:27	WG812618
Phenanthrene	1.47		0.00600	1	09/03/2015 02:49	WG812618
Pyrene	0.193		0.00600	1	09/03/2015 02:49	WG812618
1-Methylnaphthalene	7.70		0.400	20	09/03/2015 11:27	WG812618
2-Methylnaphthalene	10.7		0.400	20	09/03/2015 11:27	WG812618
2-Chloronaphthalene	ND		0.400	20	09/03/2015 11:27	WG812618
(S) Nitrobenzene-d5	*1160*	J7	*22.1-146*		*09/03/2015 11:27*	WG812618
(S) 2-Fluorobiphenyl	*50.0*	J7	*40.6-122*		*09/03/2015 11:27*	WG812618
(S) p-Terphenyl-d14	*47.9*		*32.2-131*		*09/03/2015 02:49*	WG812618

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

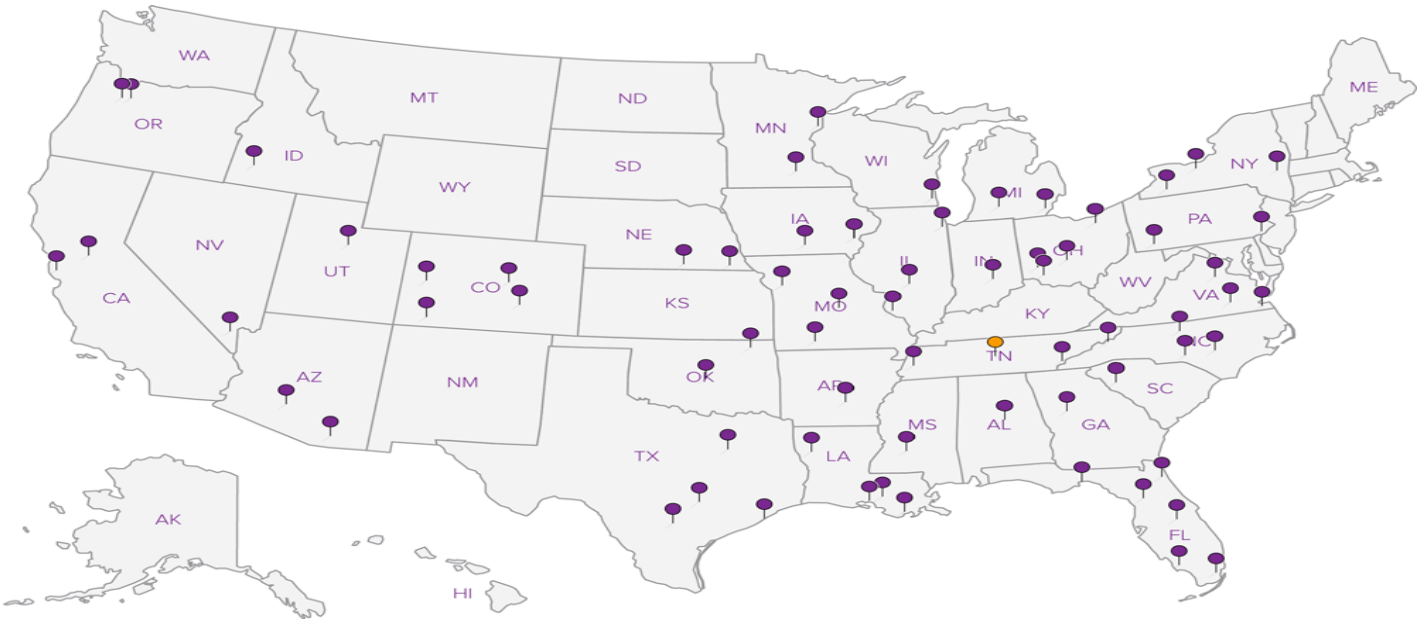
[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Chain of Custody
Page___of___

Company Name/Address

ENCANLCO

Encana Oil and Gas- Longmont, CO
3601 Stagecoach Rd
Longmont, CO 80504
303-774-3900

Billing Address:

Encana Oil and Gas- Longmont, CO

Attn: Tarah Garza
Longmont, CO 80504

Report to: T. Garza

E-mail: tarah.garza@encana.com

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: Billings 3G-18H

ENCANLCO

PHONE: 720.402.9543 FAX:

Lab Project #

Collected by: Tarah

Site/Facility ID#

P.O.#

Collected by(signature):

Immediately Packed on Ice N___ Y___

Rush? (Lab MUST be Notified)
_____Same Day.....200%
_____Next Day.....100%
__X__Two Day.....50%

Date Results Needed

Email?___No_X_Yes
FAX?____No___Yes

CoCode (lab use only)
ENCANLCO
Template/Prelogin A085
Shipped Via: 6786128

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BTEX	SV8270PAHSIM - 8270SIM	SPCON - 9050AMod	SAR - Calc.	RCRA8 Metals + Cu, Ni, and Zn - 6010/7470	CR6SS - 3060A/7196	CR3 - Calc.	GRO/DRO	Remarks/contaminant	Sample # (lab only)
Billings 3G-18H	3	SS	6"	08/31/2015	8:35	3	x	x	x	x	x	x	x	x		-01

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other - Drill Cuttings

pH_____ Temp_____

Flow_____ Other_____

Remarks: 6144 4948 6966

	Date:	Time:			
Relinquisher by:(Signature)	8/31/15	1145	Received by:(Signature)	Samples returned via: FedEx__ UPS__Other__	Condition (lab use only)
Relinquisher by:(Signature)	8-31-15	1930	Received by: (Signature)	Temp: 4.1 / Bottles Received: 3	COC Seals Intact ___Y ___N ___NA
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/1/15 / Time: 0900	pH Checked: NCF:

ANALYTICAL REPORT

October 16, 2015

EnCana Oil & Gas - Longmont, CO

Sample Delivery Group:	L794017
Samples Received:	10/13/2015
Project Number:	
Description:	Bilongs 3G

Report To:

Tarah Garza
10188 East I-25 Frontage Rd
Firestone, CO 80504

Entire Report Reviewed By:

Jarred Willis
Technical Service Representative

TABLE OF CONTENTS

BILLING 3G L794017-01 Solid

Collected by	Collected date/time	Received date/time
	10/12/15 10:15	10/13/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG821644	1	10/14/15 08:16	10/15/15 18:59	CCE
Calculated Results	WG821787	1	10/14/15 08:35	10/15/15 06:35	LTB
Mercury by Method 7471A	WG821658	1	10/13/15 16:48	10/14/15 07:54	BRJ
Metals (ICP) by Method 6010B	WG821644	1	10/14/15 08:16	10/14/15 11:33	CCE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG821711	1	10/13/15 21:46	10/15/15 08:12	FMB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG821711	20	10/13/15 21:46	10/15/15 09:27	KMP
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	WG821806	10	10/13/15 16:23	10/13/15 23:59	CLG
Volatile Organic Compounds (GC) by Method 8015/8021	WG820968	1000	10/13/15 12:12	10/14/15 13:07	MCB
Wet Chemistry by Method 2580 B-2011	WG821984	1	10/15/15 09:40	10/15/15 10:20	JER
Wet Chemistry by Method 3060A/7196A	WG821442	1	10/14/15 09:44	10/15/15 10:29	
Wet Chemistry by Method 9045D	WG822418	1	10/16/15 07:15	10/16/15 07:15	SJM
Wet Chemistry by Method 9050AMod	WG821995	1	10/15/15 14:00	10/15/15 14:00	AS

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jarred Willis
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.44		1	10/15/2015 06:35	WG821787

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	10.2		2.00	1	10/15/2015 18:59	WG821644

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	-8		1	10/15/2015 10:20	WG821984

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	10/15/2015 10:29	WG821442

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.37		1	10/16/2015 07:15	WG822418

Sample Narrative:

9045D L794017-01 WG822418: 8.37 @ 21.9c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	1010		1	10/15/2015 14:00	WG821995

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	10/14/2015 07:54	WG821658

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.97		2.00	1	10/14/2015 11:33	WG821644
Barium	50.2		0.500	1	10/14/2015 11:33	WG821644
Cadmium	ND		0.500	1	10/14/2015 11:33	WG821644
Chromium	10.2		1.00	1	10/14/2015 11:33	WG821644
Copper	4.19		2.00	1	10/14/2015 11:33	WG821644
Lead	8.25		0.500	1	10/14/2015 11:33	WG821644
Nickel	8.01		2.00	1	10/14/2015 11:33	WG821644
Selenium	ND		2.00	1	10/14/2015 11:33	WG821644
Silver	ND		1.00	1	10/14/2015 11:33	WG821644
Zinc	36.8		5.00	1	10/14/2015 11:33	WG821644

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	5.41		0.500	1000	10/14/2015 13:07	WG820968
Toluene	25.9		5.00	1000	10/14/2015 13:07	WG820968
Ethylbenzene	9.16		0.500	1000	10/14/2015 13:07	WG820968
Total Xylene	68.3		1.50	1000	10/14/2015 13:07	WG820968
TPH (GC/FID) Low Fraction	1780		100	1000	10/14/2015 13:07	WG820968
(S) a,a,a-Trifluorotoluene(FID)	*98.9*		*59.0-128*		*10/14/2015 13:07*	WG820968
(S) a,a,a-Trifluorotoluene(PID)	*105*		*54.0-144*		*10/14/2015 13:07*	WG820968

Semi-Volatile Organic Compounds (GC) by Method 3546/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	3580		40.0	10	10/13/2015 23:59	WG821806
(S) o-Terphenyl	*131*		*50.0-150*		*10/13/2015 23:59*	WG821806

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.218		0.120	20	10/15/2015 09:27	WG821711
Acenaphthene	0.235		0.120	20	10/15/2015 09:27	WG821711
Acenaphthylene	ND		0.120	20	10/15/2015 09:27	WG821711
Benzo(a)anthracene	0.00769		0.00600	1	10/15/2015 08:12	WG821711
Benzo(a)pyrene	0.00623		0.00600	1	10/15/2015 08:12	WG821711
Benzo(b)fluoranthene	ND		0.00600	1	10/15/2015 08:12	WG821711
Benzo(g,h,i)perylene	ND		0.00600	1	10/15/2015 08:12	WG821711
Benzo(k)fluoranthene	0.00777		0.00600	1	10/15/2015 08:12	WG821711
Chrysene	0.0949		0.00600	1	10/15/2015 08:12	WG821711
Dibenz(a,h)anthracene	ND		0.00600	1	10/15/2015 08:12	WG821711
Fluoranthene	ND		0.120	20	10/15/2015 09:27	WG821711
Fluorene	0.619		0.120	20	10/15/2015 09:27	WG821711
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/15/2015 08:12	WG821711
Naphthalene	2.42		0.400	20	10/15/2015 09:27	WG821711
Phenanthrene	0.849		0.120	20	10/15/2015 09:27	WG821711
Pyrene	0.122		0.00600	1	10/15/2015 08:12	WG821711
1-Methylnaphthalene	4.86		0.400	20	10/15/2015 09:27	WG821711
2-Methylnaphthalene	6.77		0.400	20	10/15/2015 09:27	WG821711
2-Chloronaphthalene	ND		0.400	20	10/15/2015 09:27	WG821711
(S) Nitrobenzene-d5	*295*	J7	*22.1-146*		*10/15/2015 09:27*	WG821711
(S) 2-Fluorobiphenyl	*73.9*	J7	*40.6-122*		*10/15/2015 09:27*	WG821711
(S) p-Terphenyl-d14	*81.3*		*32.2-131*		*10/15/2015 08:12*	WG821711

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ACCREDITATIONS & LOCATIONS

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

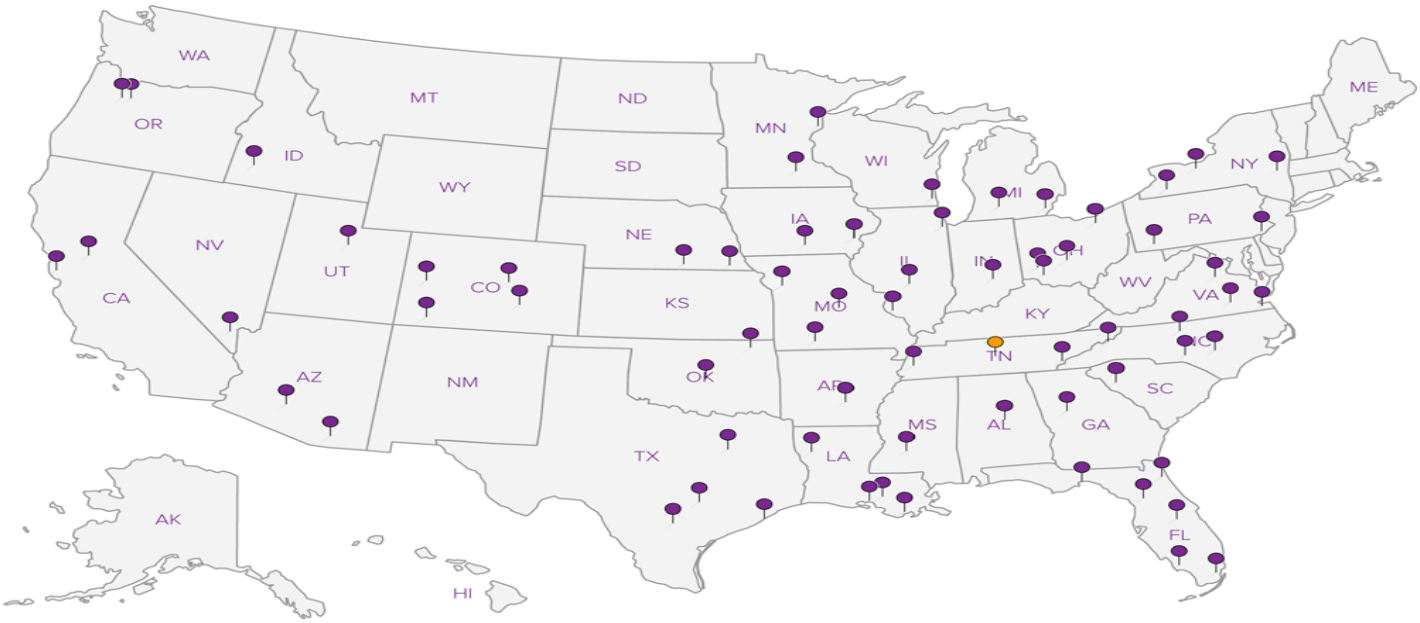
[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Company Name/Address

ENCANLCO

Encana Oil and Gas- Longmont, CO
3601 Stagecoach Rd
Longmont, CO 80504
303-774-3900

Billing Address:

Encana Oil and Gas- Longmont, CO

Attn: Tarah Garza
Longmont, CO 80504

Report to: T. Garza

E-mail: tarah.garza@encana.com

Project Description: Billings 3G

ENCANLCO

PHONE: 720.402.9543 FAX:

Lab Project #

Collected by:

Site/Facility ID#

P.O.#

Collected by(signature):

Immediately Packed on Ice N__ Y X

Rush? (Lab MUST be Notified)
_____Same Day.....200%
_____Next Day.....100%
___X__Two Day.....50%

Date Results Needed

Email?___No_X_Yes
FAX?_X_No___Yes

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BTEX	SV8270PAHSIM - 8270SIM	SPCON - 9050AMod	SAR - Calc.	RCRA8 Metals + Cu, Ni, and Zn - 6010/7470	CR6SS - 3060A/7196	CR3 - Calc.	GRO/DRO	Remarks/contaminant	Sample # (lab only)
Billings 3G		SS	9'	10/12/2015	10:15a	3	x	x	x	x	x	x	x	x		794017-01

Analysis/Container/Preservative

Chain of Custody
Page___of_1

Prepared by:

ENVIRONMENTAL
Science corp

12065 Lebanon Road

Mt. Juliet TN 37122

Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

CoCode (lab use only)
ENCANLCO A005
Template/Prelogin

Shipped Via:

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other - Drill Cuttings

pH_____ Temp_____

Remarks: 6503 7150 4939 Flow_____ Other_____

	Date:	Time:		
Relinquisher by:(Signature)	10/12/15	1235	Received by:(Signature)	
Relinquisher by:(Signature)	10/12/15	1932	Received by: (Signature)	
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	

Samples returned via: FedEx / UPS__Other__

Temp: 3.2 Bottles Received: 3

Date: 10/13/15 Time: 0900

Condition (lab use only)

COC Seals Intact ___Y ___N ___NA

pH Checked: NCF:

e-Hardcopy 2.0
Automated Report

Technical Report for

EnCana

Billings 2G-18H Flowline Spill

SGS Accutest Job Number: D80213

Sampling Date: 02/24/16

Report to:

dcoloccia@eagle-enviro.com

Total number of pages in report: 82

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Lewis 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY
CO (CO00049), EPA 515.4 Provisional

Sections: 1 2 3 4 5 6 7 8 9 10

Table of Contents

Sample Summary

EnCana

Job No: D80213

Billings 2G-18H Flowline Spill

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D80213-1	02/24/16	10:41	DD	02/24/16	SO	Soil	SB01 7.5-10 FEET
D80213-1A	02/24/16	10:41	DD	02/24/16	SO	Soil	SB01 7.5-10 FEET
D80213-2	02/24/16	10:19	DD	02/24/16	SO	Soil	SB02 7.5-10 FEET
D80213-3	02/24/16	10:58	DD	02/24/16	SO	Soil	SB03 7.5-10 FEET
D80213-4	02/24/16	11:12	DD	02/24/16	SO	Soil	SB04 7.5-10 FEET
D80213-5	02/24/16	11:41	DD	02/24/16	SO	Soil	SB05 7.5-10 FEET

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: EnCana **Job No** D80213

Site: Billings 2G-18H Flowline Spill **Report Date** 3/2/2016 4:07:22 PM

On 02/24/2016, 5 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D80213 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: SO **Batch ID:** V5V2106

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D80098-2MS, D80098-2MSD have surrogates outside control limits. Dilution required due to matrix interference (surrogate standard failure).
- D80098-2MS and D80098-2MSD: Dilution required due to matrix interference (surrogate standard failure).
- D80098-2MSD for 4-Bromofluorobenzene: Outside control limits due to possible matrix interference. Confirmed by reanalysis.
- D80098-2MS for 4-Bromofluorobenzene: Outside control limits due to possible matrix interference. Confirmed by reanalysis.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix: SO **Batch ID:** OP13179

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D80213-1MS, D80213-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Volatiles by GC By Method SW846 8015B

Matrix: SO **Batch ID:** GGA1658

- All samples were analyzed within the recommended method holding time.
- Sample(s) D80098-1MS, D80098-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix: SO **Batch ID:** OP13184

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D80269-1MS, D80269-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix: AQ **Batch ID:** MP18145

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D80111-1AMS, D80111-1AMSD, D80111-1ASDL were used as the QC samples for the metals analysis.

Matrix: SO **Batch ID:** MP18146

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D80213-1MS, D80213-1MSD, D80213-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Copper, Lead, Barium, Nickel, Zinc are outside control limits for sample MP18146-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP18146-SD1 for Barium,Nickel, Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix: SO **Batch ID:** MP18147

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D80213-1MS, D80213-1MSD, D80213-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP18147-SD1. Probable cause due to sample homogeneity.
- MP18147-SD1 for Arsenic: Serial dilution indicates possible matrix interference.

Metals By Method SW846 7471B

Matrix: SO **Batch ID:** MP18148

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D80213-1MS, D80213-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN33597

- Sample(s) D80213-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM2540G-2011 M

Matrix: SO **Batch ID:** GN33574

- The data for SM2540G-2011 M meets quality control requirements.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP17381

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D80213-1DUP, D80213-1MS, D80213-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix:	SO	Batch ID:	R32321

- The data for SW846 3060A/7196A M meets quality control requirements.
- D80213-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method USDA HANDBOOK 60

Matrix:	SO	Batch ID:	MP18145

- D80213-1A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8260B	**Percent Solids:**	87.3
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V36197.D	1	02/25/16	AJ	n/a	n/a	V5V2106
Run #2							

	Initial Weight
Run #1	4.95 g
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.2	0.44	ug/kg	
108-88-3	Toluene	ND	2.3	1.2	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	0.58	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
2037-26-5	Toluene-D8	103%		64-130%
460-00-4	4-Bromofluorobenzene	100%		62-131%
17060-07-0	1,2-Dichloroethane-D4	98%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	87.3
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G26885.D	1	02/29/16	DC	02/26/16	OP13179	E3G1353
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	5.0	2.4	ug/kg	
120-12-7	Anthracene	ND	5.0	2.4	ug/kg	
56-55-3	Benzo(a)anthracene	ND	5.0	2.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	5.0	2.4	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	5.0	2.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	5.0	2.4	ug/kg	
218-01-9	Chrysene	ND	5.0	2.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.4	ug/kg	
206-44-0	Fluoranthene	2.4	5.0	2.4	ug/kg	J
86-73-7	Fluorene	ND	5.0	2.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	3.8	ug/kg	
91-20-3	Naphthalene	ND	5.0	3.0	ug/kg	
129-00-0	Pyrene	ND	5.0	2.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		11-164%
321-60-8	2-Fluorobiphenyl	62%		14-138%
1718-51-0	Terphenyl-d14	73%		35-139%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8015B	**Percent Solids:**	87.3
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA31902.D	1	02/25/16	AK	n/a	n/a	GGA1658
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	95%		60-140%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846-8015B SW846 3546	**Percent Solids:**	87.3
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI34814.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	11	11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	52%		20-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
		Percent Solids:	87.3
Project:	Billings 2G-18H Flowline Spill		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	4.9	0.11	mg/kg	5	02/29/16	03/02/16	NT	SW846 6020A [4]	SW846 3050B [6]
Barium	18.5	1.1	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]
Cadmium	< 1.1	1.1	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]
Chromium	9.7	1.1	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]
Copper	3.8	1.1	mg/kg	1	02/29/16	03/01/16	LH	SW846 6010C [3]	SW846 3050B [5]
Lead	9.6	5.6	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]
Mercury	< 0.092	0.092	mg/kg	1	03/01/16	03/01/16	LH	SW846 7471B [2]	SW846 7471B [7]
Nickel	8.6	3.3	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]
Selenium	< 5.6	5.6	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]
Silver	< 3.3	3.3	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]
Zinc	35.3	3.3	mg/kg	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3050B [5]

(1) Instrument QC Batch: MA7076
(2) Instrument QC Batch: MA7080
(3) Instrument QC Batch: MA7083
(4) Instrument QC Batch: MA7085
(5) Prep QC Batch: MP18146
(6) Prep QC Batch: MP18147
(7) Prep QC Batch: MP18148

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
		Percent Solids:	87.3
Project:	Billings 2G-18H Flowline Spill		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	87.3		%	1	02/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	409	1.0	umhos/cm	1	02/26/16	TJ	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	03/02/16 08:00	MR	SW846 3060A/7196A
Chromium, Trivalent [a]	9.7	2.1	mg/kg	1	03/02/16 08:00	MR	SW846 3060A/7196A M
Redox Potential Vs H2	140		mv	1	02/26/16	JD	ASTM D1498-76M
pH	9.80		su	1	02/25/16 12:10	JD	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1A	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
		Percent Solids:	87.3
Project:	Billings 2G-18H Flowline Spill		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	6.51	2.0	mg/l	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	4.72	1.0	mg/l	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	81.6	2.0	mg/l	1	02/29/16	02/29/16	LH	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA7076
(2) Prep QC Batch: MP18145

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB01 7.5-10 FEET		
Lab Sample ID:	D80213-1A	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
		Percent Solids:	87.3
Project:	Billings 2G-18H Flowline Spill		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	5.94		ratio	1	02/29/16 17:11	LH	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB02 7.5-10 FEET		
Lab Sample ID:	D80213-2	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8260B	**Percent Solids:**	86.7
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V36198.D	1	02/25/16	AJ	n/a	n/a	V5V2106
Run #2							

	Initial Weight
Run #1	4.96 g
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.2	0.44	ug/kg	
108-88-3	Toluene	ND	2.3	1.2	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	0.58	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
2037-26-5	Toluene-D8	103%		64-130%
460-00-4	4-Bromofluorobenzene	101%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02 7.5-10 FEET		
Lab Sample ID:	D80213-2	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8015B	**Percent Solids:**	86.7
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA31903.D	1	02/25/16	AK	n/a	n/a	GGA1658
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.6	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	94%		60-140%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02 7.5-10 FEET		
Lab Sample ID:	D80213-2	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846-8015B SW846 3546	**Percent Solids:**	86.7
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI34816.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	12	11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	65%		20-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03 7.5-10 FEET		
Lab Sample ID:	D80213-3	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8260B	**Percent Solids:**	87.8
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V36199.D	1	02/25/16	AJ	n/a	n/a	V5V2106
Run #2							

	Initial Weight
Run #1	5.02 g
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.43	ug/kg	
108-88-3	Toluene	ND	2.3	1.1	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	0.57	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-130%
2037-26-5	Toluene-D8	101%		64-130%
460-00-4	4-Bromofluorobenzene	101%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03 7.5-10 FEET		
Lab Sample ID:	D80213-3	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8015B	**Percent Solids:**	87.8
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA31906.D	1	02/26/16	AK	n/a	n/a	GGA1658
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	96%		60-140%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03 7.5-10 FEET		
Lab Sample ID:	D80213-3	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846-8015B SW846 3546	**Percent Solids:**	87.8
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI34818.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	11	11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		20-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB04 7.5-10 FEET		
Lab Sample ID:	D80213-4	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8260B	**Percent Solids:**	87.8
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V36200.D	1	02/25/16	AJ	n/a	n/a	V5V2106
Run #2							

	Initial Weight
Run #1	4.98 g
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.43	ug/kg	
108-88-3	Toluene	ND	2.3	1.1	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	0.57	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		70-130%
2037-26-5	Toluene-D8	103%		64-130%
460-00-4	4-Bromofluorobenzene	102%		62-131%
17060-07-0	1,2-Dichloroethane-D4	96%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB04 7.5-10 FEET		
Lab Sample ID:	D80213-4	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8015B	**Percent Solids:**	87.8
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA31907.D	1	02/26/16	AK	n/a	n/a	GGA1658
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	98%		60-140%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB04 7.5-10 FEET		
Lab Sample ID:	D80213-4	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846-8015B SW846 3546	**Percent Solids:**	87.8
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI34820.D	1	03/01/16	GN	02/27/16	OP13184	GFI1640
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	11	11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	58%		20-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05 7.5-10 FEET		
Lab Sample ID:	D80213-5	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8260B	**Percent Solids:**	88.2
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V36201.D	1	02/25/16	AJ	n/a	n/a	V5V2106
Run #2							

	Initial Weight
Run #1	4.95 g
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.44	ug/kg	
108-88-3	Toluene	ND	2.3	1.1	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	0.57	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
2037-26-5	Toluene-D8	103%		64-130%
460-00-4	4-Bromofluorobenzene	100%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05 7.5-10 FEET		
Lab Sample ID:	D80213-5	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846 8015B	**Percent Solids:**	88.2
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA31908.D	1	02/26/16	AK	n/a	n/a	GGA1658
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.3	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	95%		60-140%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05 7.5-10 FEET		
Lab Sample ID:	D80213-5	**Date Sampled:**	02/24/16
Matrix:	SO - Soil	**Date Received:**	02/24/16
Method:	SW846-8015B SW846 3546	**Percent Solids:**	88.2
Project:	Billings 2G-18H Flowline Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI34822.D	1	03/01/16	GN	02/27/16	OP13184	GFI1640
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	11	11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	67%		20-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST

CHAIN OF CUSTODY

PAGE 1 OF

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL. 303-425-6021 FAX: 303-425-6854
www.accutest.com

FED-EX Tracking #: | Bottle Order Control #:
SGS Accutest Quote #: | SGS Accutest Job #: D80213

Client / Reporting Information

Company Name: Encana
Street Address:
City:
Project Contact: Nathan Fons
Phone #: 303 513 7504
Sampler(s) Name(s): Deloccia N. Fons (onsite)

Project Information

Project Name: Billings 2G-18H Flowline Spill
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager: N. Fons

Billing Information (if different from Report to)

Company Name:
Street Address:
City:
Attention:

Requested Analysis (see TEST CODE sheet)

GOGC 9/10 Table
BTEX, GRO/DRO

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB-Rinse Blank
TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	LAB USE ONLY
	SB01 7.5-10 Feet		2/24/16	1041	DD	Soil	4									01
	SB02 7.5-10 Feet			1019			2									02
	SB03 7.5-10 Feet			1058			2									03
	SB04 7.5-10 Feet			1112			2									04
	SB05 7.5-10 Feet			1141			2									05

Turnaround Time (Business days)

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day Emergency
- [ ] 2 Day Emergency
- [ ] 1 Day Emergency
- [ ]

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] COMMBN
- [ ] COMMBN+
- [ ]
- [ ] State Forms Required
- [ ] Send Forms to State
- [ ] Report by Fax
- [ ] Report by PDF
- [ ] EDD Format

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial BN = Results/QC/Narrative (+ = chromatograms)

Comments / Special Instructions

email results to
nathan.fons@encana.com
deloccia@eagle-enviro.com

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		2/24/16 1725	1	2		2
3			3	4		4
5						

Custody Seal # ABD [x] Intact [ ] Not Intact | Preserved where applicable [x] | On Ice [x] | Cooler Temp. 2.3

QA 065-00 Rev. 1 1/21/2016

D80213: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: D80213 **Client:** ENCANA **Project:** BILLINGS 2G 18H FLOWLINE SPILL

Date / Time Received: 2/24/2016 5:25:00 PM **Delivery Method:** **Airbill #'s:** hd

Cooler Temps (Initial/Adjusted): #1: (2.3/2.3);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Bar Therm;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

D80213: Chain of Custody
Page 2 of 2

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2106-MB	5V36189.D	1	02/25/16	AJ	n/a	n/a	V5V2106

The QC reported here applies to the following samples: **Method:** SW846 8260B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	19	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	100	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	70-130%
2037-26-5	Toluene-D8	101%	64-130%
460-00-4	4-Bromofluorobenzene	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	70-130%

Method Blank Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2106-MB	5V36190.D	1	02/25/16	AJ	n/a	n/a	V5V2106

The QC reported here applies to the following samples: **Method:** SW846 8260B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.38	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/kg	
108-88-3	Toluene	ND	2.0	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	2.0	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	98%	70-130%
2037-26-5	Toluene-D8	100%	64-130%
460-00-4	4-Bromofluorobenzene	96%	62-131%
17060-07-0	1,2-Dichloroethane-D4	102%	70-130%

Blank Spike Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2106-BS	5V36191.D	1	02/25/16	AJ	n/a	n/a	V5V2106

The QC reported here applies to the following samples: **Method:** SW846 8260B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50.1	52.2	104	70-130
100-41-4	Ethylbenzene	50.1	52.7	105	70-130
108-88-3	Toluene	50.1	50.4	101	70-130
1330-20-7	Xylene (total)	150	157	104	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	70-130%
2037-26-5	Toluene-D8	102%	64-130%
460-00-4	4-Bromofluorobenzene	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	96%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D80098-2MS [a]	5V36193.D	1	02/25/16	AJ	n/a	n/a	V5V2106
D80098-2MSD [a]	5V36194.D	1	02/25/16	AJ	n/a	n/a	V5V2106
D80098-2 [a]	5V36192.D	1	02/25/16	AJ	n/a	n/a	V5V2106

The QC reported here applies to the following samples: **Method:** SW846 8260B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	D80098-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		295	323	109	275	307	112	5	64-139/30
100-41-4	Ethylbenzene	4.2	J	295	304	102	275	277	99	9	68-136/30
108-88-3	Toluene	ND		295	342	116	275	320	116	7	60-130/30
1330-20-7	Xylene (total)	40.5		886	881	95	825	818	94	7	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D80098-2	Limits
1868-53-7	Dibromofluoromethane	104%	105%	104%	70-130%
2037-26-5	Toluene-D8	110%	110%	109%	64-130%
460-00-4	4-Bromofluorobenzene	139%* [b]	134%* [b]	138%* [b]	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	106%	103%	70-130%

(a) Dilution required due to matrix interference (surrogate standard failure).
(b) Outside control limits due to possible matrix interference. Confirmed by reanalysis.

* = Outside of Control Limits.

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13179-MB	3G26883.D	1	02/29/16	DC	02/26/16	OP13179	E3G1353

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D80213-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	2.1	ug/kg	
120-12-7	Anthracene	ND	4.3	2.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.3	2.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.3	2.1	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.3	2.1	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.3	2.1	ug/kg	
218-01-9	Chrysene	ND	4.3	2.1	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.3	2.1	ug/kg	
206-44-0	Fluoranthene	ND	4.3	2.1	ug/kg	
86-73-7	Fluorene	ND	4.3	2.1	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.3	3.3	ug/kg	
91-20-3	Naphthalene	ND	4.3	2.6	ug/kg	
129-00-0	Pyrene	ND	4.3	2.1	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	74%	11-164%
321-60-8	2-Fluorobiphenyl	69%	14-138%
1718-51-0	Terphenyl-d14	90%	35-139%

Blank Spike Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13179-BS	3G26884.D	1	02/29/16	DC	02/26/16	OP13179	E3G1353

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D80213-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	81.6	98	42-130
120-12-7	Anthracene	83.3	96.9	116	45-130
56-55-3	Benzo(a)anthracene	83.3	92.8	111	49-137
205-99-2	Benzo(b)fluoranthene	83.3	98.3	118	43-146
207-08-9	Benzo(k)fluoranthene	83.3	94.7	114	27-146
50-32-8	Benzo(a)pyrene	83.3	99.7	120	53-130
218-01-9	Chrysene	83.3	90.1	108	61-130
53-70-3	Dibenzo(a,h)anthracene	83.3	84.0	101	59-130
206-44-0	Fluoranthene	83.3	98.0	118	48-130
86-73-7	Fluorene	83.3	86.5	104	44-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	90.8	109	58-130
91-20-3	Naphthalene	83.3	84.8	102	56-130
129-00-0	Pyrene	83.3	86.0	103	53-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	77%	11-164%
321-60-8	2-Fluorobiphenyl	73%	14-138%
1718-51-0	Terphenyl-d14	95%	35-139%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13179-MS	3G26886.D	1	02/29/16	DC	02/26/16	OP13179	E3G1353
OP13179-MSD	3G26887.D	1	02/29/16	DC	02/26/16	OP13179	E3G1353
D80213-1	3G26885.D	1	02/29/16	DC	02/26/16	OP13179	E3G1353

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D80213-1

CAS No.	Compound	D80213-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		95.5	83.3	87	95.5	81.1	85	3	10-167/30
120-12-7	Anthracene	ND		95.5	96.8	101	95.5	97.2	102	0	10-200/30
56-55-3	Benzo(a)anthracene	ND		95.5	88.3	93	95.5	91.5	96	4	10-161/30
205-99-2	Benzo(b)fluoranthene	ND		95.5	94.3	99	95.5	96.8	101	3	10-166/30
207-08-9	Benzo(k)fluoranthene	ND		95.5	90.2	94	95.5	92.4	97	2	10-152/30
50-32-8	Benzo(a)pyrene	ND		95.5	95.0	100	95.5	96.8	101	2	10-149/30
218-01-9	Chrysene	ND		95.5	85.7	90	95.5	88.2	92	3	10-156/30
53-70-3	Dibenzo(a,h)anthracene	ND		95.5	79.2	83	95.5	80.7	85	2	11-149/30
206-44-0	Fluoranthene	2.4	J	95.5	98.9	101	95.5	101	103	2	10-175/30
86-73-7	Fluorene	ND		95.5	86.9	91	95.5	85.7	90	1	10-280/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		95.5	86.2	90	95.5	86.7	91	1	10-151/30
91-20-3	Naphthalene	ND		95.5	88.5	93	95.5	84.1	88	5	10-230/30
129-00-0	Pyrene	ND		95.5	82.7	87	95.5	86.0	90	4	10-160/30

CAS No.	Surrogate Recoveries	MS	MSD	D80213-1	Limits
4165-60-0	Nitrobenzene-d5	66%	64%	69%	11-164%
321-60-8	2-Fluorobiphenyl	61%	58%	62%	14-138%
1718-51-0	Terphenyl-d14	70%	74%	73%	35-139%

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1658-MB	GA31894.D	1	02/25/16	AK	n/a	n/a	GGA1658

The QC reported here applies to the following samples: **Method:** SW846 8015B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	99%	60-140%

Blank Spike Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1658-BS	GA31895.D	1	02/25/16	AK	n/a	n/a	GGA1658

The QC reported here applies to the following samples: **Method:** SW846 8015B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	116	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D80098-1MS	GA31900.D	1	02/25/16	AK	n/a	n/a	GGA1658
D80098-1MSD	GA31901.D	1	02/25/16	AK	n/a	n/a	GGA1658
D80098-1	GA31899.D	1	02/25/16	AK	n/a	n/a	GGA1658

The QC reported here applies to the following samples: **Method:** SW846 8015B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	D80098-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		139	145	104	139	144	104	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D80098-1	Limits
120-82-1	1,2,4-Trichlorobenzene	108%	104%	88%	60-140%

* = Outside of Control Limits.

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13184-MB	FI34800.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640

The QC reported here applies to the following samples: **Method:** SW846-8015B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	10	9.5	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	109%	20-130%

Blank Spike Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13184-BS	FI34802.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640

The QC reported here applies to the following samples: **Method:** SW846-8015B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	250	157	63	32-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	102%	20-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D80213
Account: ENCACODN EnCana
Project: Billings 2G-18H Flowline Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13184-MS	FI34804.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640
OP13184-MSD	FI34806.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640
D80269-1	FI34808.D	1	02/29/16	GN	02/27/16	OP13184	GFI1640

The QC reported here applies to the following samples: **Method:** SW846-8015B

D80213-1, D80213-2, D80213-3, D80213-4, D80213-5

CAS No.	Compound	D80269-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	465		318	857	123	318	944	151	10	20-152/54

CAS No.	Surrogate Recoveries	MS	MSD	D80269-1	Limits
84-15-1	o-Terphenyl	82%	94%	83%	20-130%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	43	65		
Antimony	150	16	44		
Arsenic	130	26	60		
Barium	50	7	2		
Beryllium	50	4	8		
Boron	250	34	18		
Cadmium	50	2	4		
Calcium	2000	11	50	28.5	<2000
Chromium	50	2	3.5		
Cobalt	25	2	6		
Copper	50	6	19		
Iron	350	11	35		
Lead	250	18	25		
Lithium	25	9.5	3.5		
Magnesium	1000	70	200	31.0	<1000
Manganese	25	.05	4.5		
Molybdenum	50	4	18		
Nickel	150	4.5	14		
Phosphorus	500	75	170		
Potassium	5000	650	360		
Selenium	250	44	50		
Silicon	250	26	42		
Silver	150	2	3		
Sodium	2000	25	70	58.5	<2000
Strontium	25	.05	1.5		
Thallium	50	15	40		
Tin	250	65	60		
Titanium	50	.75	14		
Uranium	250	19	22		
Vanadium	50	2	3		
Zinc	150	3	18		

Associated samples MP18145: D80213-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	D80111-1A Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	45800	185000	125000	111.4	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	2500	140000	125000	110.0	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	222000	348000	125000	100.8	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP18145: D80213-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	D80111-1A Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	D80111-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	45800	185000	125000	111.4	0.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	2500	142000	125000	111.6	1.4	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	222000	353000	125000	104.8	1.4	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP18145: D80213-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	D80111-1A Original MSD	Spikelot ICPALL2 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	145000	125000	116.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	138000	125000	110.4	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	131000	125000	104.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP18145: D80213-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

Metal	D80111-1A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	9170	9770	6.6	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	499	478	4.3	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	44400	42900	3.4	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP18145: D80213-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18145
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 02/29/16

	D80111-1A		QC
Metal	Original SDL 1:5	%DIF	Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.86	1.7		
Antimony	3.0	.21	.82		
Arsenic	2.5	.38	2.1		
Barium	1.0	.02	.03	0.060	<1.0
Beryllium	1.0	.08	.16		
Boron	5.0	.08	.29		
Cadmium	1.0	.02	.1	-0.090	<1.0
Calcium	40	.22	9.6		
Chromium	1.0	.03	.07	-0.030	<1.0
Cobalt	0.50	.04	.12		
Copper	1.0	.08	.48	-0.020	<1.0
Iron	7.0	.15	.69		
Lead	5.0	.21	.6	-0.53	<5.0
Lithium	0.50	.04	.07		
Magnesium	20	.68	3.9		
Manganese	0.50	.001	.07		
Molybdenum	1.0	.04	.36		
Nickel	3.0	.05	.24	0.050	<3.0
Phosphorus	10	1.5	4.3		
Potassium	200	9.9	6		
Selenium	5.0	.71	1	0.37	<5.0
Silicon	5.0	.47	.91		
Silver	3.0	.03	.05	0.010	<3.0
Sodium	40	.49	1.5		
Strontium	5.0	.001	.03		
Thallium	1.0	.18	.86		
Tin	5.0	1.2	1.2		
Titanium	1.0	.01	.27		
Uranium	5.0	.29	.44		
Vanadium	1.0	.04	.07		
Zinc	3.0	.04	.35	-0.20	<3.0

Associated samples MP18146: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	D80213-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	18.5	214	222	87.9	75-125
Beryllium					
Boron					
Cadmium	0.0	53.5	55.6	96.2	75-125
Calcium					
Chromium	9.7	59.0	55.6	88.7	75-125
Cobalt					
Copper	3.8	56.7	55.6	95.1	75-125
Iron					
Lead	9.6	103	111	84.0	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	8.6	54.2	55.6	82.0	75-125
Phosphorus					
Potassium					
Selenium	0.0	108	111	97.1	75-125
Silicon					
Silver	0.0	20.4	22.2	91.7	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	35.3	78.1	55.6	77.0	75-125

Associated samples MP18146: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	D80213-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	D80213-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	18.5	218	225	88.8	1.9	20
Beryllium						
Boron						
Cadmium	0.0	55.2	56.2	98.3	3.1	20
Calcium						
Chromium	9.7	61.4	56.2	92.1	4.0	20
Cobalt						
Copper	3.8	56.8	56.2	94.4	0.2	20
Iron						
Lead	9.6	105	112	84.9	1.9	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	8.6	56.2	56.2	84.8	3.6	20
Phosphorus						
Potassium						
Selenium	0.0	113	112	100.6	4.5	20
Silicon						
Silver	0.0	21.4	22.5	95.3	4.8	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	35.3	82.5	56.2	84.1	5.5	20

Associated samples MP18146: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	D80213-1 Original MSD	Spikelot ICPALL2 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	191	200	95.5	80-120
Beryllium				
Boron				
Cadmium	51.0	50	102.0	80-120
Calcium				
Chromium	49.4	50	98.8	80-120
Cobalt				
Copper	48.8	50	97.6	80-120
Iron				
Lead	101	100	101.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	47.9	50	95.8	80-120
Phosphorus				
Potassium				
Selenium	112	100	112.0	80-120
Silicon				
Silver	19.7	20	98.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	49.6	50	99.2	80-120

Associated samples MP18146: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 02/29/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/29/16

Metal	D80213-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	166	189	13.8*(a)	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	87.4	94.5	8.1	0-10
Cobalt				
Copper	34.0	28.5	16.2 (b)	0-10
Iron				
Lead	86.4	106	22.7 (b)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	77.2	104	34.1*(a)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	317	394	24.1*(a)	0-10

Associated samples MP18146: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18146 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date: 02/29/16

	D80213-1		QC
Metal	Original	SDL 1:5 %DIF	Limits

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.
(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18147 Methods: SW846 6020A
Matrix Type: SOLID Units: mg/kg

Prep Date: 02/29/16

Metal	RL	IDL	MDL	MB raw	final
Arsenic	0.10	.0085	.024	0.0093	<0.10

Associated samples MP18147: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18147
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 02/29/16

Metal	D80213-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Arsenic	4.9	141	111	122.4	75-125

Associated samples MP18147: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18147 Methods: SW846 6020A
Matrix Type: SOLID Units: mg/kg

Prep Date: 02/29/16

Metal	D80213-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Arsenic	4.9	133	112	114.1	5.8	20

Associated samples MP18147: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18147
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 02/29/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Arsenic	117	100	117.0	80-120

Associated samples MP18147: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18147 Methods: SW846 6020A
Matrix Type: SOLID Units: ug/l

Prep Date: 02/29/16

Metal	D80213-1 Original	SDL 5:25	%DIF	QC Limits
Arsenic	44.2	39.1	11.5*(a)	0-10

Associated samples MP18147: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18148 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 03/01/16

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.008	0.0037	<0.10

Associated samples MP18148: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18148
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 03/01/16

Metal	D80213-1 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.014	0.36	0.352	98.2	75-125

Associated samples MP18148: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18148 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 03/01/16

Metal	D80213-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.014	0.36	0.352	98.2	0.0	20

Associated samples MP18148: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

QC Batch ID: MP18148
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 03/01/16

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.42	0.4	105.0	80-120

Associated samples MP18148: D80213-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP17381/GN33644	1.0	0.0	mg/kg	97.4	87.3	89.6	80-120%
Specific Conductivity	GP17363/GN33607			umhos/cm	1001	1010	100.9	90-110%
pH	GN33582			su	8.00	7.98	99.8	99.1-100.9%

Associated Samples:
Batch GN33582: D80213-1
Batch GP17363: D80213-1
Batch GP17381: D80213-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP17381/GN33644	D80213-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN33597	D80213-1	mv	140	137	2.2	0-20%

Associated Samples:
Batch GN33597: D80213-1
Batch GP17381: D80213-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP17381/GN33644	D80213-1	mg/kg	0.0	40	39.8	99.6	75-125%

Associated Samples:
Batch GP17381: D80213-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D80213
Account: ENCACODN - EnCana
Project: Billings 2G-18H Flowline Spill

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP17381/GN33644	D80213-1	mg/kg	0.0	40	40.3	1.2	20%

Associated Samples:
Batch GP17381: D80213-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits