

**SITE ASSESSMENT REPORT AND  
NO FURTHER ACTION REQUEST**

**FOSTER 3-35, 6-35, UPPR 53, PAN AM 2**

COGCC SPILL TRACKING # 462378  
COGCC REMEDIATION # Not Assigned

Prepared for:



2115 117th Avenue  
Greeley, CO 80631

Prepared by:



6899 North Pecos Street, Unit C  
Denver, CO 80221

October 16, 2019

Mr. Howard Aamold  
Noble Energy Inc.  
2115 117th Avenue  
Greeley, CO 80631

Subject:       **Site Assessment and No Further Action Request**  
***Foster 3-35, 6-35, UPRR 53, Pan Am 2***  
Spill/Release Point ID #: 462378  
Remediation Project #: Not Assigned  
NWNW S35 T3N R65W  
Weld County, Colorado

Dear Mr. Aamold:

Below please find a copy of the above referenced Site Assessment Report and No Further Action Request (Report) for the Foster 3-35, 6-35, UPRR 53, Pan Am 2 site (Site) in Weld County, Colorado. The text below describes the environmental assessment and associated soil sampling activities conducted by Tasman Geosciences, Inc. (Tasman), on behalf of Noble Energy, Inc. (Noble), on June 18, 2019.

## **Introduction**

The purpose of this document is to describe the results of site assessment and sampling activities at the Site on June 18, 2019 and October 11, 2019. The activities described below were performed in response to the discovery of a release from the Foster 3-35, 6-35, UPRR 53, Pan Am 2 dump line on February 15, 2019.

## **Facility Background**

The Site is located approximately 5.1 miles north of the town of Hudson in Weld County, Colorado, as shown on Figure 1. The Site is surrounded by non-crop land, and the legal description is the northwest ¼ of the northwest ¼ of Section 35, Township 3 North, Range 65 West, of the 6<sup>th</sup> Principal Meridian. The Site is approximately 1.2 miles east of Weld County Road 43 and has coordinates of 40.188767, -104.636141.

On February 15, 2019, the dump line release was discovered after approximately two barrels of production fluids surfaced during operations. A Form 19 was submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on February 22, 2019. The COGCC subsequently issued Spill/Release Point ID Number 462378 for this event and the site shut in.

## **Site Assessment Field Activities**

On June 18, 2019 Tasman completed a site assessment to determine potential soil and groundwater impacts associated with the dump line release at the Foster 3-35, 6-35, UPRR 53, Pan Am 2 tank

battery. Seven boreholes were completed via hand auger. Soil boring locations are illustrated on Figure 2, and boring logs are included in Attachment A. During soil boring activities, soil samples were collected and field screened for VOCs using a PID and standard head space sampling techniques. Soil samples from the depth interval exhibiting the highest PID reading above the groundwater table were retained for laboratory analysis. Seven soil samples were submitted to Summit Scientific Laboratory in Golden, Colorado (Summit) for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) using United States Environmental Protection Agency (USEPA) Method 8260B, as well as total petroleum hydrocarbons-diesel range organics (TPH-DRO) using USEPA Method 8015. Samples BH05@0-2' and BH06@0-2' were also analyzed for Sodium Adsorption Ratio (SAR) by USEPA Method 6020 / United States Department of Agriculture (USDA) Method 60 6(2,3A) and Specific Conductance (EC) and pH via American Public Health Association (APHA)/American Society for Testing and Materials (ASTM)/USEPA methods. Soil analytical results are summarized in Table 1. Complete laboratory analytical reports are included in Attachment B. During the assessment, groundwater was encountered at approximately 12 feet below ground surface (ft. bgs). One temporary monitoring well (BH04) was installed to evaluate potential dissolved phase impacts to groundwater. Temporary monitoring well BH04 was developed and sampled using a dedicated, disposable, polyethylene bailer. The groundwater sample (BH04) was submitted to Summit for BTEX analysis using USEPA method 8260B. Following sampling of temporary monitoring well BH04, the well was removed. Groundwater analytical results are summarized in Table 2. The laboratory report is included in Attachment B. All boreholes were backfilled with native soil following the conclusion of assessment activities.

On October 11, 2019, Tasman returned to the site to further assess soil impacts. Five additional soil borings (BH08-BH12) were advanced to approximately 20 ft. bgs using direct push drilling techniques. During drilling activities, groundwater was encountered at approximately 11 ft. bgs. A total of ten soil samples were collected below the observed groundwater table and submitted to Summit for BTEX, naphthalene and TPH – GRO/DRO analysis. Soil analytical results are summarized in Table 1 and sample locations are illustrated in Figure 3. Boring logs are included as Attachment A and the laboratory analytical report is included in Attachment B. All boreholes were backfilled with native soil following the conclusion of assessment activities.

## **Results**

Laboratory analytical results for the soil samples collected in the area of the release during Site assessment activities indicate that BTEX, naphthalene, TPH-GRO and TPH-DRO concentrations are below applicable COGCC Table 910-1 soil standards. Laboratory results for the groundwater sample collected indicate that BTEX concentrations are below applicable COGCC Table 910-1 groundwater standards.

## **No Further Action Request**

Based on field and laboratory data collected during site assessment activities, a No Further Action (NFA) designation is being requested from the COGCC for this project.

## Remarks

The discussion and conclusions contained in this report represent the professional opinions of Tasman Geosciences, Inc. These opinions are based on currently available information and are arrived at in accordance with currently accepted geologic and engineering practices.

Please contact me at (720) 431-1190 if you require additional information.

Sincerely,  
Tasman Geosciences, Inc.



Brandon Bruns, PE  
Project Manager

Attached:

Table 1 – Soil Analytical Data

Table 2 – Groundwater Analytical Data

Figure 1 – Site Location Map

Figure 2 – Site Assessment Soil and Groundwater Assessment Analytical Results Map  
(June 18, 2019)

Figure 3 – Soil Site Assessment Soil Analytical Results Map (October 11, 2019)

Attachment A – Boring Logs

Attachment B – Laboratory Analytical Data Report

# **TABLES**

**TABLE 1  
SOIL ANALYTICAL DATA  
NOBLE ENERGY, INC. - FOSTER 3-35, 6-35, UPRR 53, PAN AM 2**

Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
<b>COGCC Standard</b>		<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>500</b>	
BH01@6-7'	06/18/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH02@6-8'	06/18/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH03@6-8'	06/18/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH04@10-12'	06/18/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH05@0-2'	06/18/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH06@0-2'	06/18/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH07@10-12'	06/18/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH08@16-18	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH08@18-20	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH09@11-12	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH09@18-20	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH10@12-14	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH10@18-20	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH11@12-14	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH11@18-20	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH12@12-14	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
BH12@18-20	10/11/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50

Soil Sample ID	Date	SAR	pH	EC (mmhos/cm)
<b>COGCC Standard</b>		<b>&lt;12</b>	<b>6-9</b>	<b>&lt;4mmhos/cm</b>
BH05@0-2' <sup>H</sup>	06/18/19	0.574	8.79	0.229
BH06@0-2' <sup>H</sup>	06/18/19	0.553	8.73	0.250

**Notes:**

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Specific Conductance

mmhos/cm = millimhos per centimeter

H = pH was analyzed outside of the recommended holding time

< = Analytical result is less than the indicated laboratory reporting limit

Soil standards referenced from COGCC Table 910-1

**Highlighted results are equal to or exceed the COGCC Table 910-1 standard**

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FOSTER 3-35, 6-35, UPRR 53, PAN AM 2**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Standard</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
BH04	06/18/19	3.9	<1.0	<1.0	350

COGCC = Colorado Oil and Gas Conservation Commission

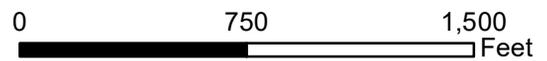
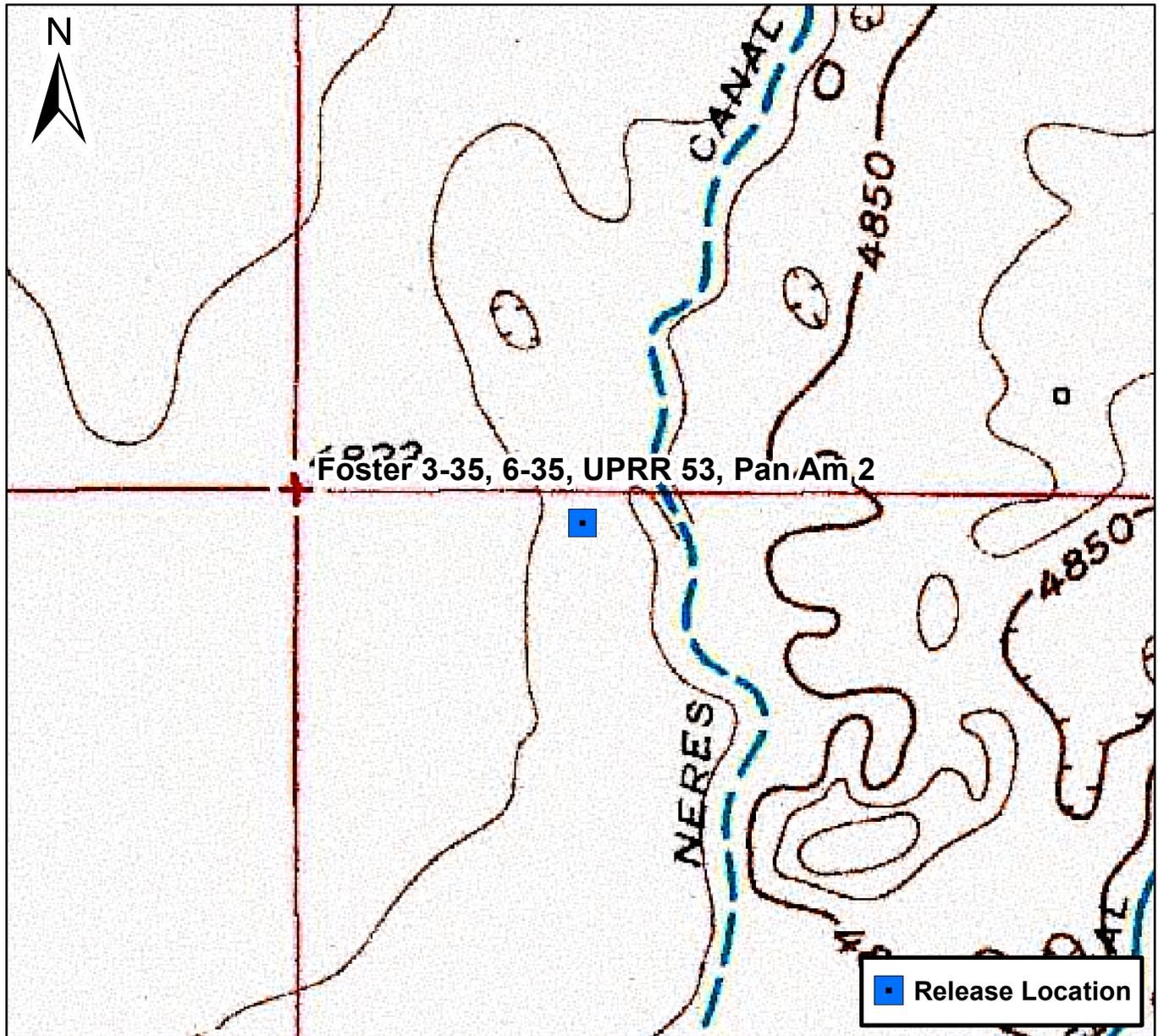
µg/L = Micrograms per liter

< = Analytical result is less than the indicated laboratory reporting limit

Groundwater standards referenced from COGCC Table 910-1

**Highlighted results are equal to or exceed the COGCC Table 910-1 standard**

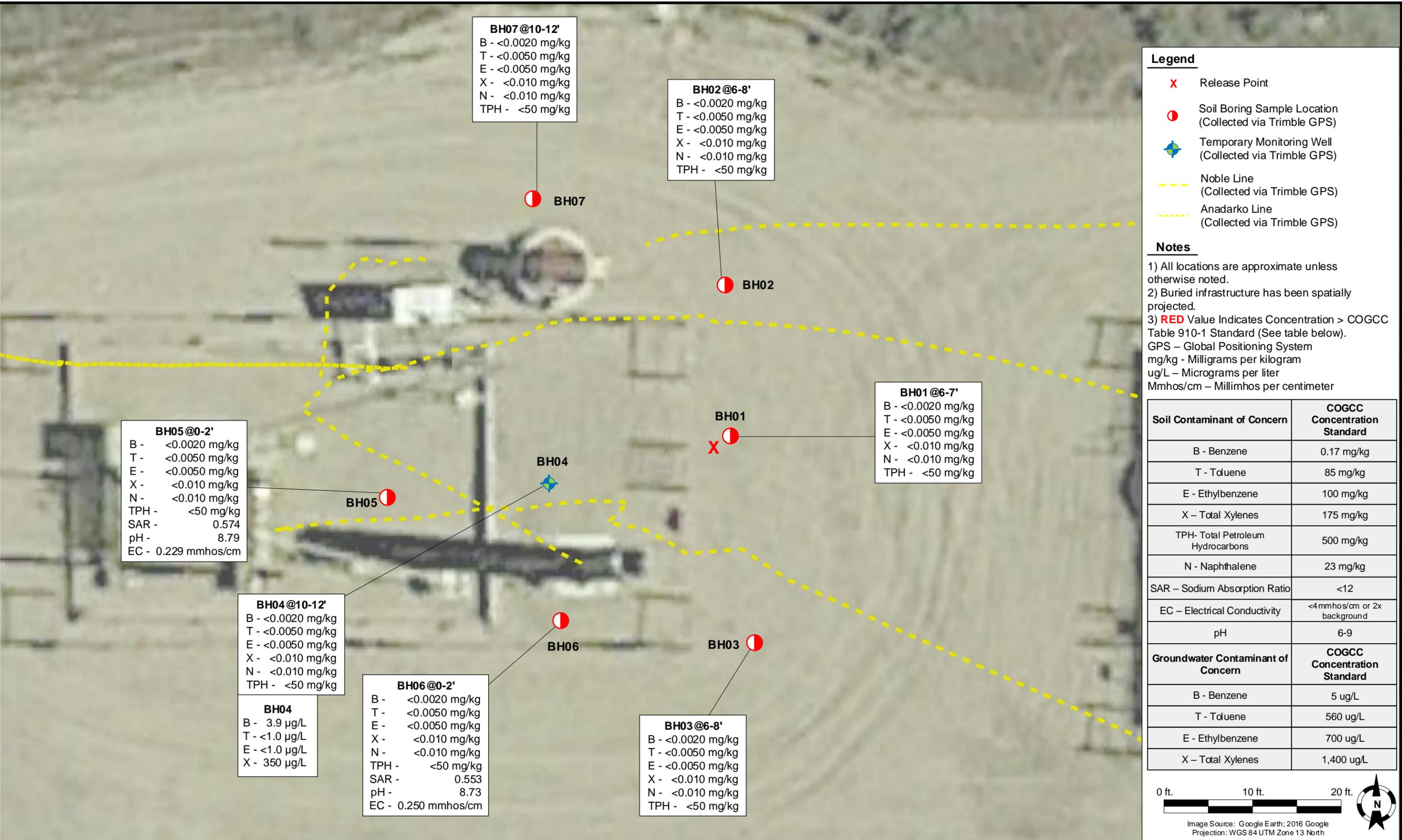
## **FIGURES**



### Figure 1

Site Location Map  
 Foster 3-35, 6-35, UPRR 53, Pan Am 2  
 NWNW S35 T3N R65W  
 Weld County, Colorado





DATE: 06/18/2019

DESIGNED BY: CO

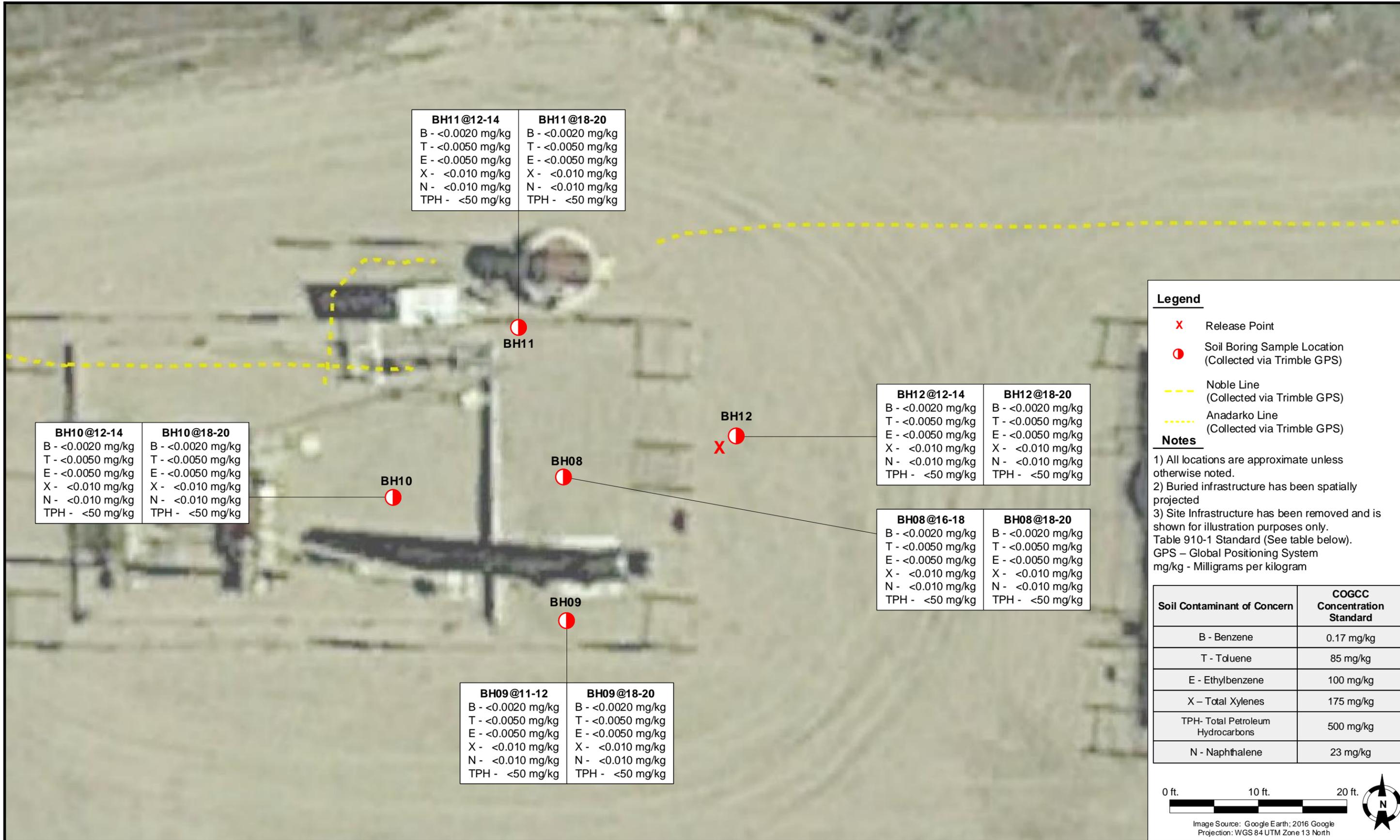
DRAWN BY: GB

**TASMAN GEOSCIENCES**  
Tasman Geosciences, Inc.  
6855 W. 119<sup>th</sup> Avenue  
Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
**Foster 3-35, 6-35, UPRR 53, Pan Am 2**  
NWNW, Section 35, Township 3 North, Range 65 West  
Weld County, Colorado

Site Assessment Soil and  
Groundwater Analytical  
Results Map  
(June 18, 2019)

FIGURE  
2



<b>BH11@12-14</b>	<b>BH11@18-20</b>
B - <0.0020 mg/kg	B - <0.0020 mg/kg
T - <0.0050 mg/kg	T - <0.0050 mg/kg
E - <0.0050 mg/kg	E - <0.0050 mg/kg
X - <0.010 mg/kg	X - <0.010 mg/kg
N - <0.010 mg/kg	N - <0.010 mg/kg
TPH - <50 mg/kg	TPH - <50 mg/kg

<b>BH10@12-14</b>	<b>BH10@18-20</b>
B - <0.0020 mg/kg	B - <0.0020 mg/kg
T - <0.0050 mg/kg	T - <0.0050 mg/kg
E - <0.0050 mg/kg	E - <0.0050 mg/kg
X - <0.010 mg/kg	X - <0.010 mg/kg
N - <0.010 mg/kg	N - <0.010 mg/kg
TPH - <50 mg/kg	TPH - <50 mg/kg

<b>BH12@12-14</b>	<b>BH12@18-20</b>
B - <0.0020 mg/kg	B - <0.0020 mg/kg
T - <0.0050 mg/kg	T - <0.0050 mg/kg
E - <0.0050 mg/kg	E - <0.0050 mg/kg
X - <0.010 mg/kg	X - <0.010 mg/kg
N - <0.010 mg/kg	N - <0.010 mg/kg
TPH - <50 mg/kg	TPH - <50 mg/kg

<b>BH08@16-18</b>	<b>BH08@18-20</b>
B - <0.0020 mg/kg	B - <0.0020 mg/kg
T - <0.0050 mg/kg	T - <0.0050 mg/kg
E - <0.0050 mg/kg	E - <0.0050 mg/kg
X - <0.010 mg/kg	X - <0.010 mg/kg
N - <0.010 mg/kg	N - <0.010 mg/kg
TPH - <50 mg/kg	TPH - <50 mg/kg

<b>BH09@11-12</b>	<b>BH09@18-20</b>
B - <0.0020 mg/kg	B - <0.0020 mg/kg
T - <0.0050 mg/kg	T - <0.0050 mg/kg
E - <0.0050 mg/kg	E - <0.0050 mg/kg
X - <0.010 mg/kg	X - <0.010 mg/kg
N - <0.010 mg/kg	N - <0.010 mg/kg
TPH - <50 mg/kg	TPH - <50 mg/kg

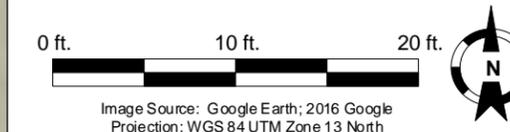
**Legend**

- X Release Point
- Soil Boring Sample Location (Collected via Trimble GPS)
- - - Noble Line (Collected via Trimble GPS)
- - - Anadarko Line (Collected via Trimble GPS)

**Notes**

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected
- 3) Site Infrastructure has been removed and is shown for illustration purposes only. Table 910-1 Standard (See table below). GPS – Global Positioning System mg/kg - Milligrams per kilogram

Soil Contaminant of Concern	COGCC Concentration Standard
B - Benzene	0.17 mg/kg
T - Toluene	85 mg/kg
E - Ethylbenzene	100 mg/kg
X – Total Xylenes	175 mg/kg
TPH- Total Petroleum Hydrocarbons	500 mg/kg
N - Naphthalene	23 mg/kg



DATE:	10/30/2019
DESIGNED BY:	JW
DRAWN BY:	KC

**TASMAN GEOSCIENCES**  
 Tasman Geosciences, Inc.  
 6855 W 119<sup>th</sup> St.  
 Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
**Foster 3-35, 6-35, UPRR 53, Pan Am 2**  
 NWNW, Section 35, Township 3 North, Range 65 West  
 Weld County, Colorado

Site Assessment Soil Analytical Results Map  
 (October 11, 2019)

**FIGURE 3**

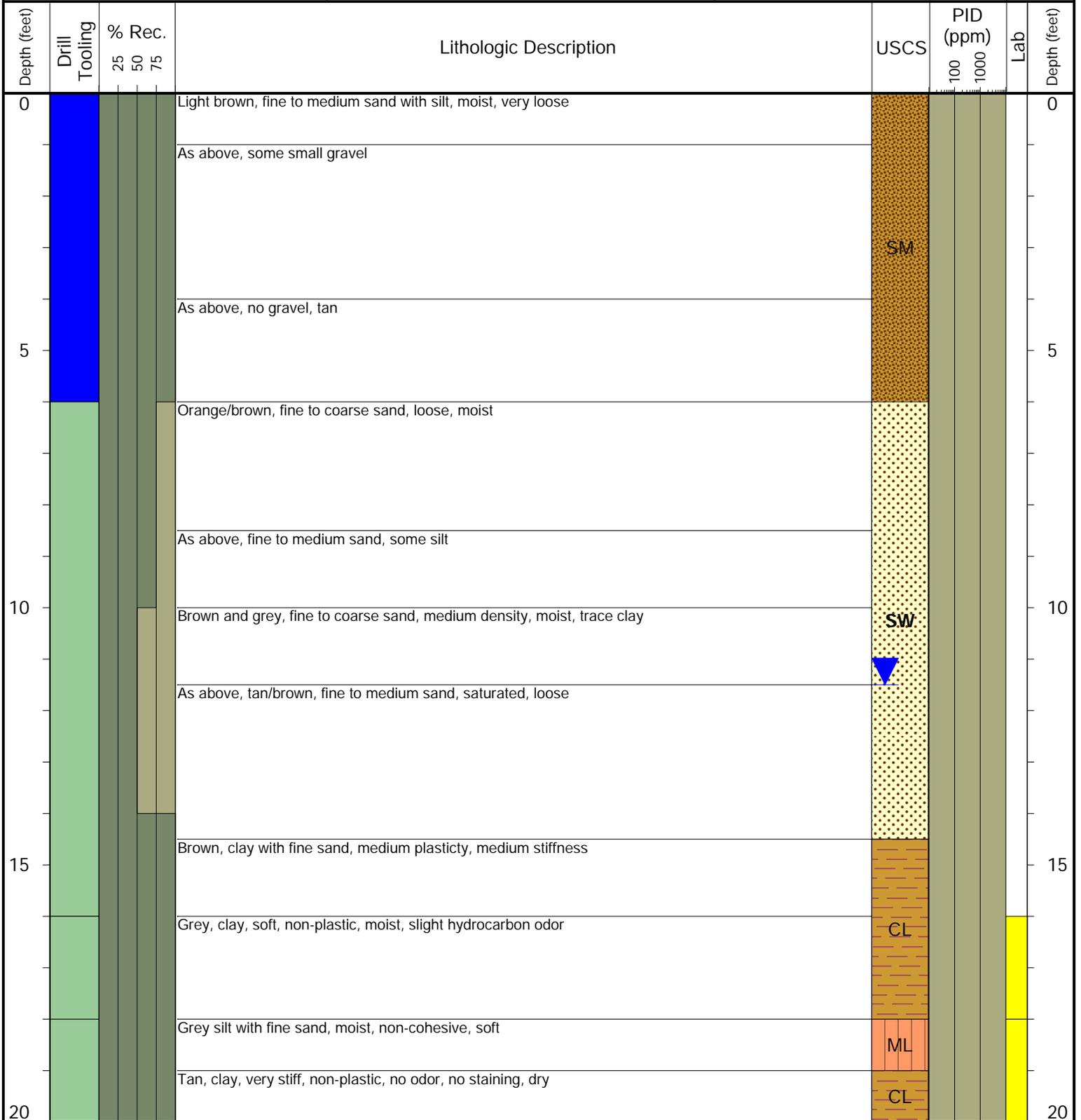
# **ATTACHMENT A**

## **BORING LOGS**



6855 W. 119th Avenue  
Broomfield, Colorado 80020

CLIENT: Noble Energy	Foster 3-35, 6-35, UPRR 53, Pan Am 2
LOGGED BY: Tanner Cook	
PROJECT MANAGER: Brandon Bruns, P.E.	BORING ID: BH08
DRILLING CONTRACTOR: Tasman Geosciences Inc.	
DRILLING EQUIPMENT: Geoprobe	LOCATION: Weld County, Colorado
DRILL BIT SIZE (INCHES): 2"	NORTHING (CO STATE PLANE): -104.636095
DATE STARTED - COMPLETED: 43749	EASTING (CO STATE PLANE): 40.188768
TOTAL WELL DEPTH (FT. BGS): 20	GROUND ELEVATION (FT. AMSL):
DEPTH WATER ENCOUNTERED (FT. BGS): 11.5	ABANDONMENT METHOD: Native Soil



<b>Drilling / Sample Method:</b>		<b>Laboratory Sample Types:</b>	
Macro-Core	Perforated Injection Tool	Geotechnical Lab	Geotechnical & Analytical Chemistry Lab
Expendable Well Tip	Hand Auger	Analytical Chemistry Lab	



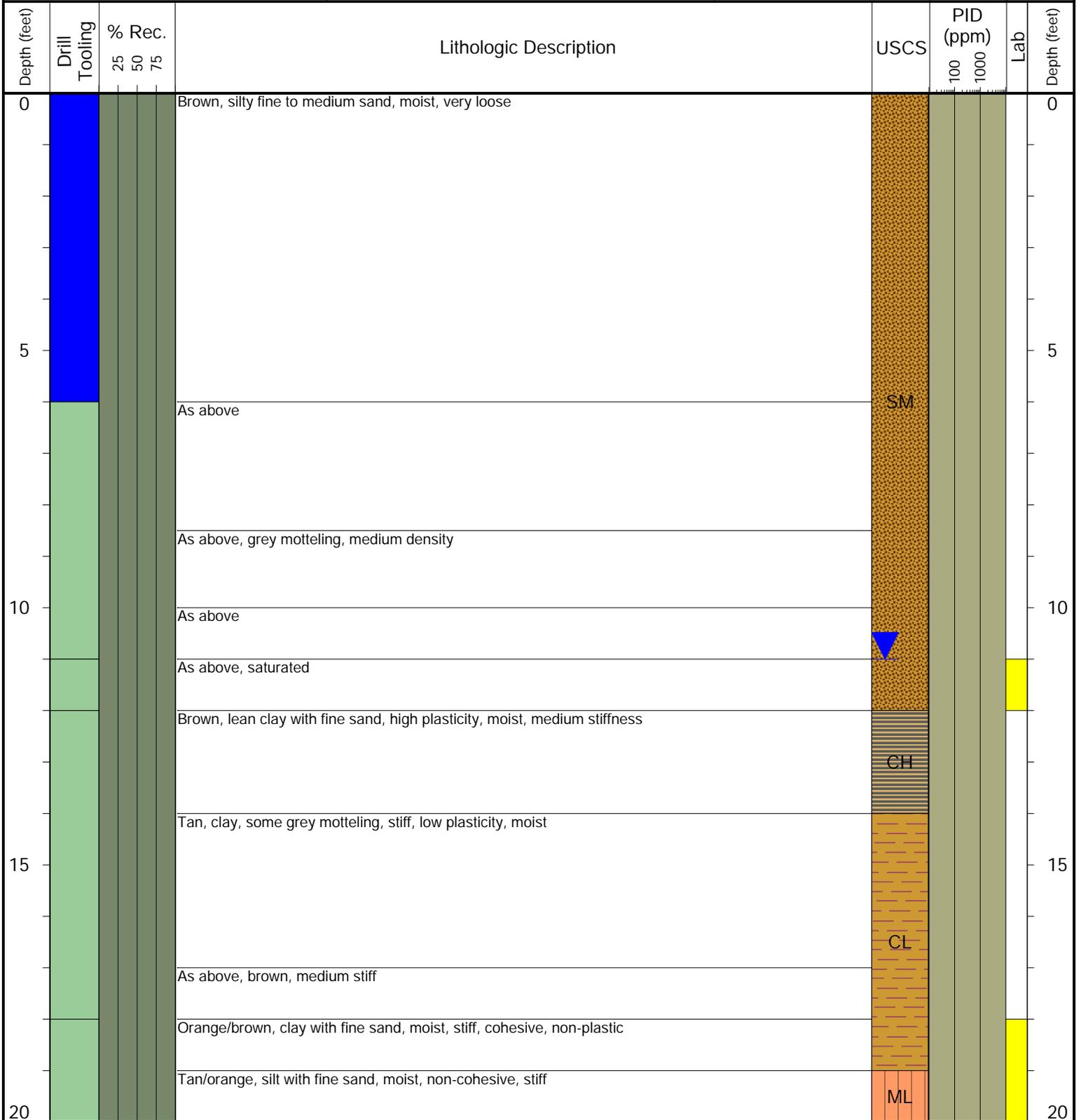
6855 W. 119th Avenue  
Broomfield, Colorado 80020

CLIENT: Noble Energy  
 LOGGED BY: Tanner Cook  
 PROJECT MANAGER: Brandon Bruns, P.E.  
 DRILLING CONTRACTOR: Tasman Geosciences Inc.  
 DRILLING EQUIPMENT: Geoprobe  
 DRILL BIT SIZE (INCHES): 2"  
 DATE STARTED - COMPLETED: 43749  
 TOTAL WELL DEPTH (FT. BGS): 20  
 DEPTH WATER ENCOUNTERED (FT. BGS): 11

Foster 3-35, 6-35, UPRR 53, Pan Am 2

BORING ID: BH09

LOCATION: Weld County, Colorado  
 NORTHING (CO STATE PLANE): -104.636163  
 EASTING (CO STATE PLANE): 40.188711  
 GROUND ELEVATION (FT. AMSL):  
 ABANDONMENT METHOD: Native Soil



Drilling / Sample Method:

- Macro-Core
- Expendable Well Tip
- Perforated Injection Tool
- Hand Auger

Laboratory Sample Types:

- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab



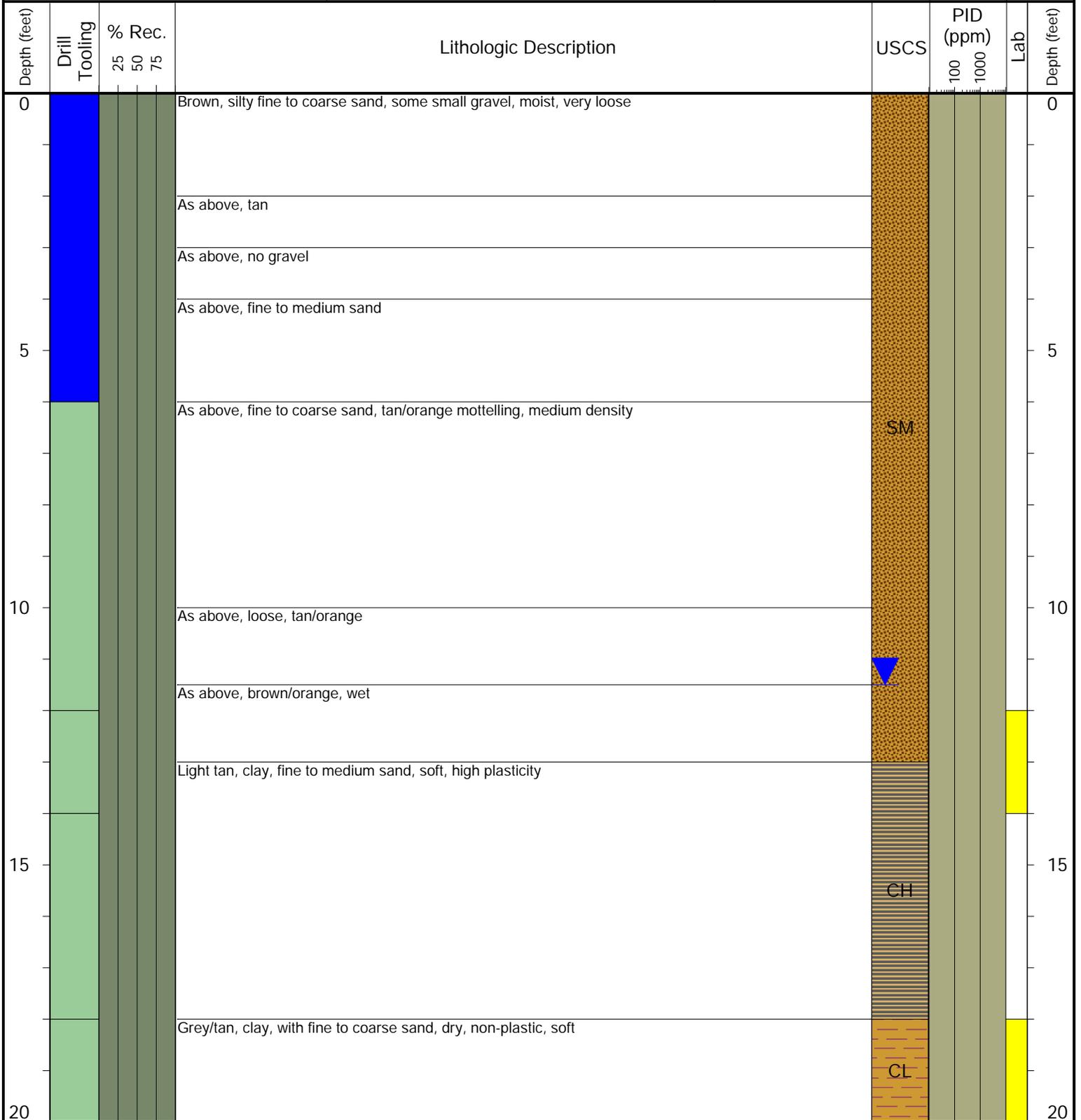
6855 W. 119th Avenue  
Broomfield, Colorado 80020

CLIENT: Noble Energy  
 LOGGED BY: Tanner Cook  
 PROJECT MANAGER: Brandon Bruns, P.E.  
 DRILLING CONTRACTOR: Tasman Geosciences Inc.  
 DRILLING EQUIPMENT: Geoprobe  
 DRILL BIT SIZE (INCHES): 2"  
 DATE STARTED - COMPLETED: 43749  
 TOTAL WELL DEPTH (FT. BGS): 20  
 DEPTH WATER ENCOUNTERED (FT. BGS): 11.5

Foster 3-35, 6-35, UPRR 53, Pan Am 2

BORING ID: BH10

LOCATION: Weld County, Colorado  
 NORTHING (CO STATE PLANE): -104.636233  
 EASTING (CO STATE PLANE): 40.188749  
 GROUND ELEVATION (FT. AMSL):  
 ABANDONMENT METHOD: Native Soil



**Drilling / Sample Method:**

- Macro-Core
- Perforated Injection Tool
- Expendable Well Tip
- Hand Auger

**Laboratory Sample Types:**

- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab



6855 W. 119th Avenue  
Broomfield, Colorado 80020

CLIENT: Noble Energy  
 LOGGED BY: Tanner Cook  
 PROJECT MANAGER: Brandon Bruns, P.E.  
 DRILLING CONTRACTOR: Tasman Geosciences Inc.  
 DRILLING EQUIPMENT: Geoprobe  
 DRILL BIT SIZE (INCHES): 2"  
 DATE STARTED - COMPLETED: 43749  
 TOTAL WELL DEPTH (FT. BGS): 20  
 DEPTH WATER ENCOUNTERED (FT. BGS): 11.5

Foster 3-35, 6-35, UPRR 53, Pan Am 2

BORING ID: BH11

LOCATION: Weld County, Colorado  
 NORTHING (CO STATE PLANE): -104.636167  
 EASTING (CO STATE PLANE): 40.188806  
 GROUND ELEVATION (FT. AMSL):  
 ABANDONMENT METHOD: Native Soil

Depth (feet)	Drill Tooling	% Rec.			Lithologic Description	USCS	PID (ppm)		Lab	Depth (feet)
		25	50	75			100	1000		
0	Hand Auger				Tan, sandy silt, fine to medium grained, moist, very loose, some small gravel	SM				0
					As above, brown					
5				As above, with small to medium gravel						5
				As above, orange/ brown, no gravel, loose						
				As above, medium density						
10				As above, loose						10
				As above, wet						
				Tan, clay with fine to medium sand, very soft, medium plasticity, wet						
				As above, brown, medium stiff						
15				As above, with fine to coarse sand						15
				Tan, clay with fine to medium sand, stiff, moist, non-plastic	CL					
				As above						
20				As above orange/brown, dry					20	

Drilling / Sample Method:

- Macro-Core
- Perforated Injection Tool
- Hand Auger
- Expendable Well Tip

Laboratory Sample Types:

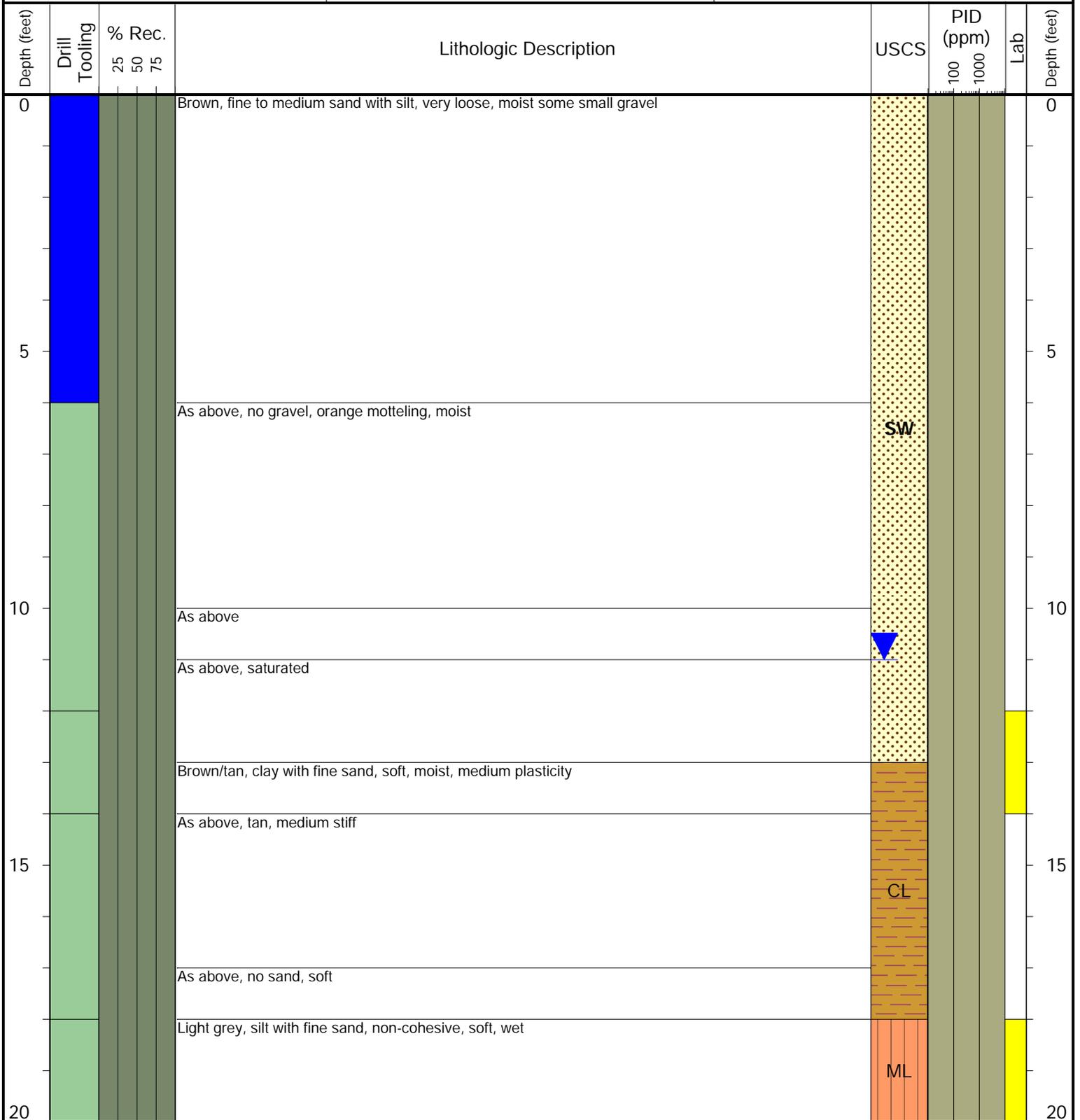
- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab



6855 W. 119th Avenue  
Broomfield, Colorado 80020

CLIENT: Noble Energy  
 LOGGED BY: Tanner Cook  
 PROJECT MANAGER: Brandon Bruns, P.E.  
 DRILLING CONTRACTOR: Tasman Geosciences Inc.  
 DRILLING EQUIPMENT: Geoprobe  
 DRILL BIT SIZE (INCHES): 2"  
 DATE STARTED - COMPLETED: 43749  
 TOTAL WELL DEPTH (FT. BGS): 20  
 DEPTH WATER ENCOUNTERED (FT. BGS): 11

Foster 3-35, 6-35, UPRR 53, Pan Am 2  
 BORING ID: BH12  
 LOCATION: Weld County, Colorado  
 NORTHING (CO STATE PLANE): -104.636095  
 EASTING (CO STATE PLANE): 40.188768  
 GROUND ELEVATION (FT. AMSL):  
 ABANDONMENT METHOD: Native Soil



**Drilling / Sample Method:**

- Macro-Core
- Perforated Injection Tool
- Hand Auger
- Expendable Well Tip

**Laboratory Sample Types:**

- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab

# **ATTACHMENT B**

## **LABORATORY ANALYTICAL DATA REPORT**

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 17, 2019

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Work Order # 1906239

Enclosed are the results of analyses for samples received by Summit Scientific on 06/18/19 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@6-7'	1906239-01	Soil	06/18/19 09:15	06/18/19 17:30
BH02@6-8'	1906239-02	Soil	06/18/19 09:52	06/18/19 17:30
BH03@6-8'	1906239-03	Soil	06/18/19 10:20	06/18/19 17:30
BH04@10-12'	1906239-04	Soil	06/18/19 10:52	06/18/19 17:30
BH05@0-2'	1906239-05	Soil	06/18/19 12:15	06/18/19 17:30
BH06@0-2'	1906239-06	Soil	06/18/19 12:30	06/18/19 17:30
BH07@10-12'	1906239-07	Soil	06/18/19 13:00	06/18/19 17:30
BH04	1906239-08	Water	06/18/19 13:00	06/18/19 17:30

This report includes additional analysis, SAR,EC and pH on two samples, requested by JW 6/28/19

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

# Summit Scientific

S<sub>2</sub>

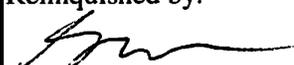
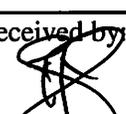
1906239

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: Noble / Tasman Project Manager: Brandon Bruns, Invoice: Jacob Evans  
Address: 6899 Pecos Street E-Mail: Bbruns@tasman-geo.com  
City/State/Zip: Denver / CO/ 80221  
Phone: 303-487-1228 Project Name: Foster 3-35, G-35, UPRR 53, Pan Am 2  
Sampler Name: GB & KC Project Number: -

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR	
1	BH01 @ G-7'	6/18/19	0915	1			X						X	X			
2	BH02 @ G-8'	↓	0952	1			X						X	X			
3	BH03 @ G-8'		1020	1			X						X	X			
4	BH04 @ 10-12'		1052	1			X						X	X			
5	BH05 @ 0-2'		1215	1			X						X	X			
6	BH06 @ 0-2'		1230	1			X						X	X			
7	BH07 @ 10-12'		1300	1			X						X	X			
8	BH04		1300	3			X		X				X				
9																	
10																	

Relinquished by: 	Date/Time: 6/18/19 1600	Received by: Tasman's Lock Box	Date/Time: 6/18/19 1600	<b>Turn Around Time (Check)</b> Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 3.2 Samples Intact: <input checked="" type="radio"/> Yes No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box	Date/Time: 06/18/19 1730	Received by: 	Date/Time: 06/18/19 1730		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

1906239

Sample Receipt Checklist

S2 Work Order \_\_\_\_\_

Client: Noble / TAsman Client Project ID: FOSTER 3-35, 6-35, PAN Am<sub>2</sub> UARR S3,

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_

Matrix (check all that apply): \_\_\_\_\_ Air  Soil/Solid  Water \_\_\_\_\_ Other: \_\_\_\_\_  
(Describe)

Temp (°C)	3.2
-----------	-----

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	X			
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
If custody seals are present, are they intact <sup>(1)</sup> ?			X	
Are samples with holding times due within 48 hours sample due within 48 hours present?		X		Standard TAT
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			X	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

RB  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

06/18/19  
Date/Time 1800



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
07/17/19 09:46

**BH01@6-7'**  
**1906239-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 09:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1906256	06/19/19	06/23/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **06/18/19 09:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/19 09:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1906257	06/19/19	06/20/19	EPA 8015M	

Date Sampled: **06/18/19 09:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		85.7 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
07/17/19 09:46

**BH02@6-8'**  
**1906239-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 09:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1906256	06/19/19	06/23/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **06/18/19 09:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.4 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/19 09:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1906257	06/19/19	06/20/19	EPA 8015M	

Date Sampled: **06/18/19 09:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		39.9 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
07/17/19 09:46

**BH03@6-8'**  
**1906239-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1906256	06/19/19	06/23/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **06/18/19 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.1 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/19 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1906257	06/19/19	06/20/19	EPA 8015M	

Date Sampled: **06/18/19 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		66.0 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
07/17/19 09:46

**BH04@10-12'**  
**1906239-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1906256	06/19/19	06/23/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **06/18/19 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/19 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1906257	06/19/19	06/20/19	EPA 8015M	

Date Sampled: **06/18/19 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		74.8 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

Reported:  
07/17/19 09:46

**BH05@0-2'**  
**1906239-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1906256	06/19/19	06/23/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		126 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1906257	06/19/19	06/20/19	EPA 8015M	

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		61.0 %	30-150		"	"	"	"	

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>228</b>	10.6	mg/kg dry	1	1907129	07/10/19	07/10/19	EPA 6020B	
Magnesium	<b>155</b>	5.28	"	"	"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

**BH05@0-2'**  
**1906239-05 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

<b>Sodium</b>	<b>45.8</b>	5.28	mg/kg dry	1	1907129	07/10/19	07/10/19	EPA 6020B
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**Calculated Analysis**

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sodium Adsorption Ratio</b>	<b>0.574</b>	0.100	units	1	1907199	07/15/19	07/15/19	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>% Solids</b>	<b>94.7</b>		%	1	1907123	07/10/19	07/10/19	Calculation	
<b>pH</b>	<b>8.79</b>		pH Units	"	1907120	07/10/19	07/10/19	EPA 9045D	I-02

**Specific Conductance by EPA Method 120.1**

Date Sampled: **06/18/19 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.229</b>	0.0100	mmhos/cm	1	1907121	07/10/19	07/10/19	EPA 120.1	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

Reported:  
07/17/19 09:46

**BH06@0-2'**  
**1906239-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1906256	06/19/19	06/23/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1906257	06/19/19	06/20/19	EPA 8015M	

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.1 %	30-150		"	"	"	"	

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	311	10.6	mg/kg dry	1	1907129	07/10/19	07/10/19	EPA 6020B	
Magnesium	165	5.32	"	"	"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

**BH06@0-2'**  
**1906239-06 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

<b>Sodium</b>	<b>48.6</b>	5.32	mg/kg dry	1	1907129	07/10/19	07/10/19	EPA 6020B
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**Calculated Analysis**

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sodium Adsorption Ratio</b>	<b>0.553</b>	0.100	units	1	1907199	07/15/19	07/15/19	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>% Solids</b>	<b>94.0</b>		%	1	1907123	07/10/19	07/10/19	Calculation	
<b>pH</b>	<b>8.73</b>		pH Units	"	1907120	07/10/19	07/10/19	EPA 9045D	I-02

**Specific Conductance by EPA Method 120.1**

Date Sampled: **06/18/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.250</b>	0.0100	mmhos/cm	1	1907121	07/10/19	07/10/19	EPA 120.1	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
07/17/19 09:46

**BH07@10-12'**  
**1906239-07 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1906256	06/19/19	06/23/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **06/18/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1906257	06/19/19	06/20/19	EPA 8015M	

Date Sampled: **06/18/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		41.0 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
07/17/19 09:46

**BH04**  
**1906239-08 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/18/19 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>3.9</b>	1.0		ug/l	1	1906259	06/19/19	06/25/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>350</b>	2.0		"	"	"	"	"	"	

Date Sampled: **06/18/19 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		88.3 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		91.6 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %		21-167		"	"	"	"	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
07/17/19 09:46

### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

#### Batch 1906256 - EPA 5030 Soil MS

##### Blank (1906256-BLK1)

Prepared: 06/19/19 Analyzed: 06/23/19

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0444		"	0.0400		111	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0435		"	0.0400		109	21-167			

##### LCS (1906256-BS1)

Prepared: 06/19/19 Analyzed: 06/23/19

Benzene	0.102	0.0020	mg/kg	0.100		102	70-130			
Toluene	0.127	0.0050	"	0.100		127	70-130			
Ethylbenzene	0.113	0.0050	"	0.100		113	70-130			
m,p-Xylene	0.240	0.010	"	0.200		120	70-130			
o-Xylene	0.104	0.0050	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0530		"	0.0400		133	23-173			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0400		102	21-167			

##### Matrix Spike (1906256-MS1)

Source: 1906233-01

Prepared: 06/19/19 Analyzed: 06/23/19

Benzene	0.0945	0.0020	mg/kg	0.100	ND	94.5	70-130			
Toluene	0.108	0.0050	"	0.100	0.00336	105	70-130			
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130			
m,p-Xylene	0.234	0.010	"	0.200	0.00720	113	70-130			
o-Xylene	0.107	0.0050	"	0.100	ND	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0453		"	0.0400		113	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
07/17/19 09:46

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch 1906256 - EPA 5030 Soil MS**

**Matrix Spike Dup (1906256-MSD1)**

Source: 1906233-01

Prepared: 06/19/19 Analyzed: 06/23/19

Benzene	0.0915	0.0020	mg/kg	0.100	ND	91.5	70-130	3.22	30	
Toluene	0.103	0.0050	"	0.100	0.00336	99.3	70-130	5.04	30	
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130	0.495	30	
m,p-Xylene	0.231	0.010	"	0.200	0.00720	112	70-130	0.955	30	
o-Xylene	0.107	0.0050	"	0.100	ND	107	70-130	0.224	30	
Surrogate: 1,2-Dichloroethane-d4	0.0506		"	0.0400		126	23-173			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0419		"	0.0400		105	21-167			

**Batch 1906259 - EPA 5030 Water MS**

**Blank (1906259-BLK1)**

Prepared: 06/19/19 Analyzed: 06/25/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.0		"	13.3		89.9	23-173			
Surrogate: Toluene-d8	12.9		"	13.3		97.0	20-170			
Surrogate: 4-Bromofluorobenzene	12.1		"	13.3		91.1	21-167			

**LCS (1906259-BS1)**

Prepared: 06/19/19 Analyzed: 06/25/19

Benzene	41.6	1.0	ug/l	33.3		125	51-132			
Toluene	41.3	1.0	"	33.3		124	51-138			
Ethylbenzene	40.0	1.0	"	33.3		120	58-146			
m,p-Xylene	81.1	2.0	"	66.7		122	57-144			
o-Xylene	41.1	1.0	"	33.3		123	53-146			
Surrogate: 1,2-Dichloroethane-d4	12.0		"	13.3		89.8	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		98.7	20-170			
Surrogate: 4-Bromofluorobenzene	12.0		"	13.3		89.9	21-167			

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
07/17/19 09:46

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1906259 - EPA 5030 Water MS**

<b>Matrix Spike (1906259-MS1)</b>	<b>Source: 1906220-02</b>			Prepared: 06/19/19		Analyzed: 06/25/19				
Benzene	40.8	1.0	ug/l	33.3	ND	122	34-141			
Toluene	41.1	1.0	"	33.3	ND	123	27-151			
Ethylbenzene	40.0	1.0	"	33.3	ND	120	29-160			
m,p-Xylene	80.9	2.0	"	66.7	1.06	120	20-166			
o-Xylene	40.9	1.0	"	33.3	ND	123	33-159			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.0</i>		<i>"</i>	<i>13.3</i>		<i>89.9</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.3</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>11.8</i>		<i>"</i>	<i>13.3</i>		<i>88.4</i>	<i>21-167</i>			

<b>Matrix Spike Dup (1906259-MSD1)</b>	<b>Source: 1906220-02</b>			Prepared: 06/19/19		Analyzed: 06/25/19				
Benzene	39.1	1.0	ug/l	33.3	ND	117	34-141	4.15	30	
Toluene	38.8	1.0	"	33.3	ND	116	27-151	5.78	30	
Ethylbenzene	40.3	1.0	"	33.3	ND	121	29-160	0.847	30	
m,p-Xylene	80.7	2.0	"	66.7	1.06	119	20-166	0.322	30	
o-Xylene	41.3	1.0	"	33.3	ND	124	33-159	0.924	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>11.5</i>		<i>"</i>	<i>13.3</i>		<i>86.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.3</i>		<i>"</i>	<i>13.3</i>		<i>92.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>11.7</i>		<i>"</i>	<i>13.3</i>		<i>87.8</i>	<i>21-167</i>			

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch 1906257 - EPA 3550A**

**Blank (1906257-BLK1)**

Prepared: 06/19/19 Analyzed: 06/20/19

C10-C28 (DRO) ND 50 mg/kg

**LCS (1906257-BS1)**

Prepared: 06/19/19 Analyzed: 06/20/19

C10-C28 (DRO) 495 50 mg/kg 500 98.9 70-130

**Matrix Spike (1906257-MS1)**

**Source: 1906233-01**

Prepared: 06/19/19 Analyzed: 06/20/19

C10-C28 (DRO) 631 50 mg/kg 500 884 NR 70-130 QM-07

**Matrix Spike Dup (1906257-MSD1)**

**Source: 1906233-01**

Prepared: 06/19/19 Analyzed: 06/20/19

C10-C28 (DRO) 857 50 mg/kg 500 884 NR 70-130 30.3 20 QM-07

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**

**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch 1907129 - General Preparation**

**Blank (1907129-BLK1)**

Prepared & Analyzed: 07/10/19

Calcium	ND	10.0	mg/kg wet							
Magnesium	ND	5.00	"							
Sodium	ND	5.00	"							

**LCS (1907129-BS1)**

Prepared & Analyzed: 07/10/19

Calcium	535	10.0	mg/kg wet	500		107	70-130			
Magnesium	545	5.00	"	500		109	70-130			
Sodium	536	5.00	"	500		107	70-130			

**Duplicate (1907129-DUP1)**

Source: 1906239-05

Prepared & Analyzed: 07/10/19

Calcium	233	10.6	mg/kg dry		228			2.32	20	
Magnesium	158	5.28	"		155			1.99	20	
Sodium	41.3	5.28	"		45.8			10.4	20	

**Matrix Spike (1907129-MS1)**

Source: 1906239-05

Prepared & Analyzed: 07/10/19

Calcium	752	10.6	mg/kg dry	528	228	99.2	70-130			
Magnesium	693	5.28	"	528	155	102	70-130			
Sodium	599	5.28	"	528	45.8	105	70-130			

**Matrix Spike Dup (1907129-MSD1)**

Source: 1906239-05

Prepared & Analyzed: 07/10/19

Calcium	738	10.6	mg/kg dry	528	228	96.6	70-130	1.86	25	
Magnesium	692	5.28	"	528	155	102	70-130	0.165	25	
Sodium	589	5.28	"	528	45.8	103	70-130	1.71	25	

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1907120 - General Preparation**

**LCS (1907120-BS1)**

Prepared & Analyzed: 07/10/19

pH 9.44 pH Units 9.23 102 95-105

**Duplicate (1907120-DUP1)**

Source: 1906239-05

Prepared & Analyzed: 07/10/19

pH 8.84 pH Units 8.79 0.567 20

**Batch 1907123 - General Preparation**

**Duplicate (1907123-DUP1)**

Source: 1906239-05

Prepared: 07/10/19 Analyzed: 07/11/19

% Solids 93.5 % 94.7 1.26 20

Summit Scientific

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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

**Specific Conductance by EPA Method 120.1 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch 1907121 - General Preparation**

**Blank (1907121-BLK1)**

Prepared & Analyzed: 07/10/19

Specific Conductance (EC)      ND      0.0100    mmhos/cm

**LCS (1907121-BS1)**

Prepared & Analyzed: 07/10/19

Specific Conductance (EC)      0.743      0.0100    mmhos/cm      0.750      99.1      90-110

**Duplicate (1907121-DUP1)**

**Source: 1906239-05**

Prepared & Analyzed: 07/10/19

Specific Conductance (EC)      0.230      0.0100    mmhos/cm      0.229      0.283      20

Summit Scientific



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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/17/19 09:46

### Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- I-02 This sample was analyzed outside of the recommended holding time.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 17, 2019

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Work Order # 1910137

Enclosed are the results of analyses for samples received by Summit Scientific on 10/11/19 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
10/17/19 16:23

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH12@12-14	1910137-01	Soil	10/11/19 13:00	10/11/19 17:30
BH12@18-20	1910137-02	Soil	10/11/19 13:05	10/11/19 17:30
BH10@12-14	1910137-03	Soil	10/11/19 11:20	10/11/19 17:30
BH10@18-20	1910137-04	Soil	10/11/19 11:25	10/11/19 17:30
BH09@11-12	1910137-05	Soil	10/11/19 11:00	10/11/19 17:30
BH09@18-20	1910137-06	Soil	10/11/19 11:05	10/11/19 17:30
BH11@12-14	1910137-07	Soil	10/11/19 13:30	10/11/19 17:30
BH11@18-20	1910137-08	Soil	10/11/19 13:35	10/11/19 17:30
BH08@16-18	1910137-09	Soil	10/11/19 12:15	10/11/19 17:30
BH08@18-20	1910137-10	Soil	10/11/19 12:20	10/11/19 17:30

This report has been edited from the original.

Sample ID's have been changed.  
BH06 samples renamed to BH09  
BH05 samples renamed to BH10  
BH07 samples renamed to BH11  
BH01 samples renamed to BH12

Per request of TC on 10-17-2019

Summit Scientific

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# Summit Scientific

1910137

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: Noble / Tasman Project Manager: Brandon Bruns, Invoice: Jacob Evans  
Address: 6855 119<sup>th</sup> St E-Mail: Bbruns@tasman-geo.com  
City/State/Zip: Broomfield / CO/ 80020  
Phone: 303-487-1228 Project Name: Foster 3-35, 6-35, URR53, PanAm 2  
Sampler Name: Tanner Cook Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	
1	BH01 @ 12-14	10/11/19	1300	1			X			X			X	X		
2	BH01 @ 18-20		1305													
3	BH05 @ 12-14		1120													
4	BH05 @ 18-20		1125													
5	BH06 @ 11-12		1100													
6	BH06 @ 18-20		1105													
7	BH07 @ 12-14		1330													
8	BH07 @ 18-20		1335													
9	BH08 @ 16-18		1215													
10	BH08 @ 18-20		1220													

Relinquished by: <i>Tanner Cook</i> Date/Time: 10/11/19 1730	Received by: <b>Tasman's Lock Box</b> Date/Time: 10/11/19 1730	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 3.0 Samples Intact: <input checked="" type="checkbox"/> Yes No	<b>Notes:</b>
Relinquished by: <b>Tasman's Lock Box</b> Date/Time: 10/11/19 1730	Received by: <i>[Signature]</i> Date/Time: 10/11/19 1730		
Relinquished by:	Received by:		

**Sample Receipt Checklist**

S2 Work Order 1910137

Client: Noble Gasman Client Project ID: Foster 3-35, 6-35, URS 3, Pan Am 2

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_

Matrix (check all that apply):  Air  Soil/Solid  Water  Other: \_\_\_\_\_ (Describe)

Temp (°C)	
-----------	--

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	X			
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
If custody seals are present, are they intact <sup>(1)</sup> ?			X	
Are samples with holding times due within 48 hours sample due within 48 hours present?		X		
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			X	
Are samples preserved that require preservation <b>(excluding cooling)</b> <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			X	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

TGG  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

10/11/19 1305  
Date/Time



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
10/17/19 16:23

**BH12@12-14**  
**1910137-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

**BH12@18-20**  
**1910137-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		135 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
10/17/19 16:23

**BH10@12-14**  
**1910137-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		137 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

**BH10@18-20**  
**1910137-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		129 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		110 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

**BH09@11-12**  
**1910137-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		132 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

**BH09@18-20**  
**1910137-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 11:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 11:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 11:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 11:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

**BH11@12-14**  
**1910137-07 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
10/17/19 16:23

**BH11@18-20**  
**1910137-08 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

**BH08@16-18**  
**1910137-09 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 12:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 12:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		138 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 12:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 12:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		105 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
10/17/19 16:23

**BH08@18-20**  
**1910137-10 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/11/19 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1910203	10/15/19	10/16/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/11/19 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		126 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/11/19 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1910204	10/15/19	10/16/19	EPA 8015M	

Date Sampled: **10/11/19 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
10/17/19 16:23

### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

#### Batch 1910203 - EPA 5030 Soil MS

##### Blank (1910203-BLK1)

Prepared: 10/15/19 Analyzed: 10/16/19

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0483		"	0.0400		121	23-173				
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0425		"	0.0400		106	21-167				

##### LCS (1910203-BS1)

Prepared: 10/15/19 Analyzed: 10/16/19

Benzene	0.0727	0.0020	mg/kg	0.100		72.7	70-130				
Toluene	0.102	0.0050	"	0.100		102	70-130				
Ethylbenzene	0.0885	0.0050	"	0.100		88.5	70-130				
m,p-Xylene	0.158	0.010	"	0.200		78.8	70-130				
o-Xylene	0.0846	0.0050	"	0.100		84.6	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0374		"	0.0400		93.5	23-173				
Surrogate: Toluene-d8	0.0509		"	0.0400		127	20-170				
Surrogate: 4-Bromofluorobenzene	0.0434		"	0.0400		108	21-167				

##### Matrix Spike (1910203-MS1)

Source: 1910067-01

Prepared: 10/15/19 Analyzed: 10/16/19

Benzene	0.0746	0.0020	mg/kg	0.100	ND	74.6	70-130				
Toluene	0.102	0.0050	"	0.100	ND	102	70-130				
Ethylbenzene	0.0882	0.0050	"	0.100	ND	88.2	70-130				
m,p-Xylene	0.157	0.010	"	0.200	ND	78.3	70-130				
o-Xylene	0.0858	0.0050	"	0.100	ND	85.8	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0400		93.0	23-173				
Surrogate: Toluene-d8	0.0490		"	0.0400		122	20-170				
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167				

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
10/17/19 16:23

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			Limit	RPD	Limit	RPD	

**Batch 1910203 - EPA 5030 Soil MS**

**Matrix Spike Dup (1910203-MSD1)**

Source: 1910067-01

Prepared: 10/15/19 Analyzed: 10/16/19

Benzene	0.0775	0.0020	mg/kg	0.100	ND	77.5	70-130	3.75	30	
Toluene	0.0970	0.0050	"	0.100	ND	97.0	70-130	5.04	30	
Ethylbenzene	0.0928	0.0050	"	0.100	ND	92.8	70-130	5.14	30	
m,p-Xylene	0.159	0.010	"	0.200	ND	79.4	70-130	1.37	30	
o-Xylene	0.0870	0.0050	"	0.100	ND	87.0	70-130	1.46	30	
Surrogate: 1,2-Dichloroethane-d4	0.0391		"	0.0400		97.7	23-173			
Surrogate: Toluene-d8	0.0465		"	0.0400		116	20-170			
Surrogate: 4-Bromofluorobenzene	0.0417		"	0.0400		104	21-167			

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch 1910204 - EPA 3550A**

**Blank (1910204-BLK1)**

Prepared: 10/15/19 Analyzed: 10/16/19

C10-C28 (DRO) ND 50 mg/kg

**LCS (1910204-BS1)**

Prepared: 10/15/19 Analyzed: 10/16/19

C10-C28 (DRO) 433 50 mg/kg 500 86.6 70-130

**Matrix Spike (1910204-MS1)**

**Source: 1910067-01**

Prepared: 10/15/19 Analyzed: 10/16/19

C10-C28 (DRO) 474 50 mg/kg 500 40.2 86.8 70-130

**Matrix Spike Dup (1910204-MSD1)**

**Source: 1910067-01**

Prepared: 10/15/19 Analyzed: 10/16/19

C10-C28 (DRO) 442 50 mg/kg 500 40.2 80.4 70-130 6.96 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
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Project: Noble - Foster 3-35,6-35,UPRR 53, Pan Am 2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/17/19 16:23

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference