

FOURTH QUARTER 2019 SITE MONITORING DATA

UPRC 33-4F, 5F, HUNT FEDERAL K 33-19

COGCC SPILL TRACKING # 464229
COGCC REMEDIATION # 13785

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 West 119th Avenue
Broomfield, Colorado, 80020

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - UPRC 33-4F, 5F, HUNT FEDERAL K 33-19

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft.BTOC)	Depth to Water (ft.BGS) ¹	Depth to LNAPL (ft. BGS) ¹	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	07/22/19	4761.40	13.77	1.56	ND	ND	4757.34
BH01	10/24/19	4761.40	13.66	2.06	ND	ND	4756.84
BH02	07/22/19	4762.85	14.50	1.90	ND	ND	4757.59
BH02	10/24/19	4762.85	14.39	2.40	ND	ND	4757.09
BH03	07/22/19	4761.87	14.02	1.54	ND	ND	4757.23
BH03	10/24/19	4761.87	13.95	2.09	ND	ND	4756.68
BH04	07/22/19	4758.25	10.70	1.57	ND	ND	4756.97
BH04	10/24/19	4758.25	10.43	2.08	ND	ND	4756.46
BH05	07/22/19	4761.67	13.55	1.60	ND	ND	4757.39
BH05	10/24/19	4761.67	13.46	2.02	ND	ND	4756.97
BH06	07/22/19	4761.54	12.65	1.79	ND	ND	4757.61
BH06	10/24/19	4761.54	8.71	2.20	ND	ND	4757.20
BH07	07/22/19	4762.40	13.94	1.69	ND	ND	4757.40
BH07	10/24/19	4762.40	13.77	2.03	ND	ND	4757.06
BH08	07/22/19	4757.80	11.12	0.94	ND	ND	4757.20
BH08	10/24/19	4757.80	11.71	2.27	ND	ND	4755.87

Notes:

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

* Groundwater elevation was corrected for product thickness (when present) using the following calculation:

Groundwater elevation = (TOC Elevation - Measured Depth to Water)+(LNAPL Thickness in Well x LNAPL Relative Density)

LNAPL relative density was estimated to be approximately 0.75

1) Depth to water measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - UPRC 33-4F, 5F, HUNT FEDERAL K 33-19

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
GW01	04/18/19	410	340	68	1,500
GW02	07/02/19	17	<1.0	35	200
BH01	07/22/19	<1.0	<1.0	<1.0	<2.0
BH01	10/24/19	<1.0	<1.0	<1.0	<2.0
BH02	07/22/19	<1.0	<1.0	<1.0	<2.0
BH02	10/24/19	<1.0	<1.0	<1.0	<2.0
BH03	07/22/19	<1.0	<1.0	<1.0	<2.0
BH03	10/24/19	<1.0	<1.0	<1.0	<2.0
BH04	07/22/19	<1.0	<1.0	<1.0	<2.0
BH04	10/24/19	<1.0	<1.0	<1.0	<2.0
BH05	07/22/19	<1.0	<1.0	<1.0	<2.0
BH05	10/24/19	10	<1.0	5.6	28
BH06	07/22/19	<1.0	<1.0	<1.0	<2.0
BH06	10/24/19	<1.0	<1.0	<1.0	<2.0
BH07	07/22/19	<1.0	<1.0	<1.0	<2.0
BH07	10/24/19	<1.0	<1.0	<1.0	<2.0
BH08	07/22/19	<1.0	<1.0	<1.0	<2.0
BH08	10/24/19	<1.0	<1.0	<1.0	<2.0

Notes:

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

TABLE 3
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - UPRC 33-4F, 5F, HUNT FEDERAL K 33-19

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)
COGCC Standard		0.17	85	100	175	23	500	
SS11@3' ¹	07/02/19	<0.0020	<0.0050	0.28	2.6	0.19	660	110
SS13@4'	08/29/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS14@4'	08/29/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50
SS15@4'	08/29/19	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50

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

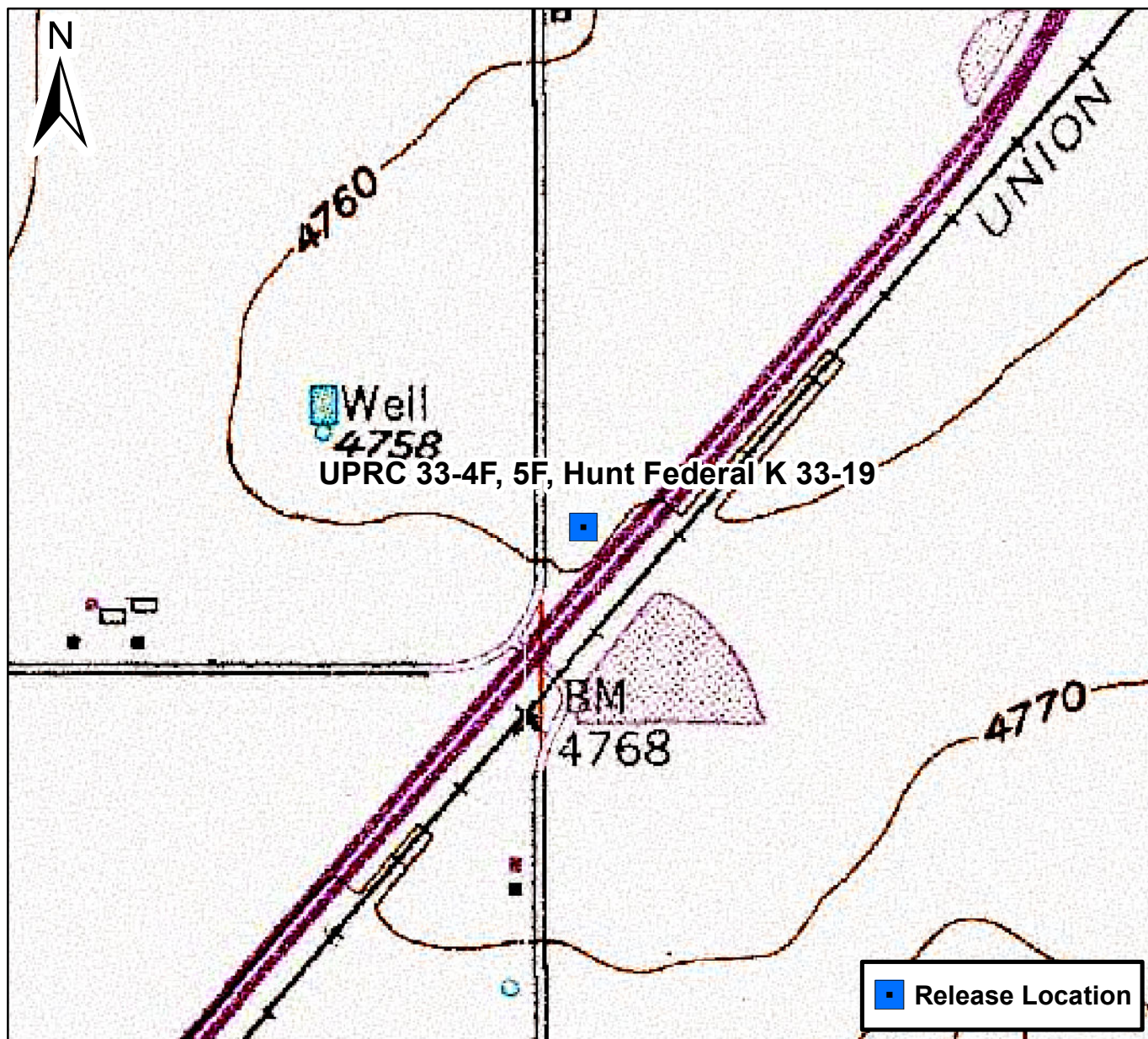
< = Analytical result is less than the indicated laboratory reporting limit

1. The laboratory assigned an S-02 flag to this sample, meaning the surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

2. All activities associated with the Site Assessment at this facility were reporting in the July 31, 2019 *Site Assessment Report* (Document # 402144032) submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on August 14, 2019. Soil sample SS11@3' is included in the Site Assessment Report and was the only soil sample in the assessment that exceeded COGCC soil standards. The results for this single sample are reproduced in this report as a reference point for the additional soil samples reported here

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

3. Soil samples were not collected from the BH01 location because BH01 is located in excavation backfill.



0 750 1,500 Feet

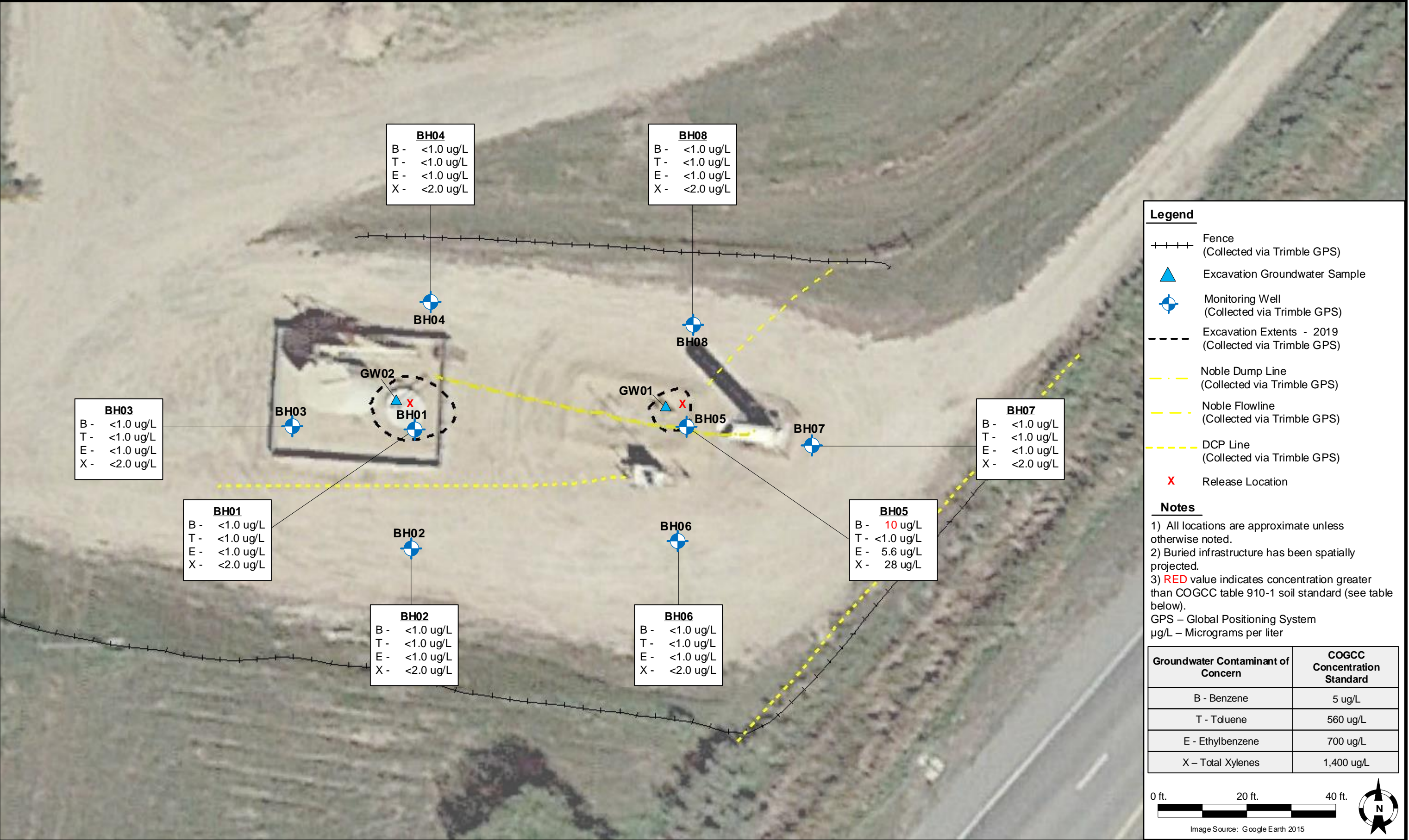
Figure 1

Site Location Map
 UPRC 33-4F, 5F, Hunt Federal K 33-19
 SWNW S33 T4N R66W
 Weld County, Colorado









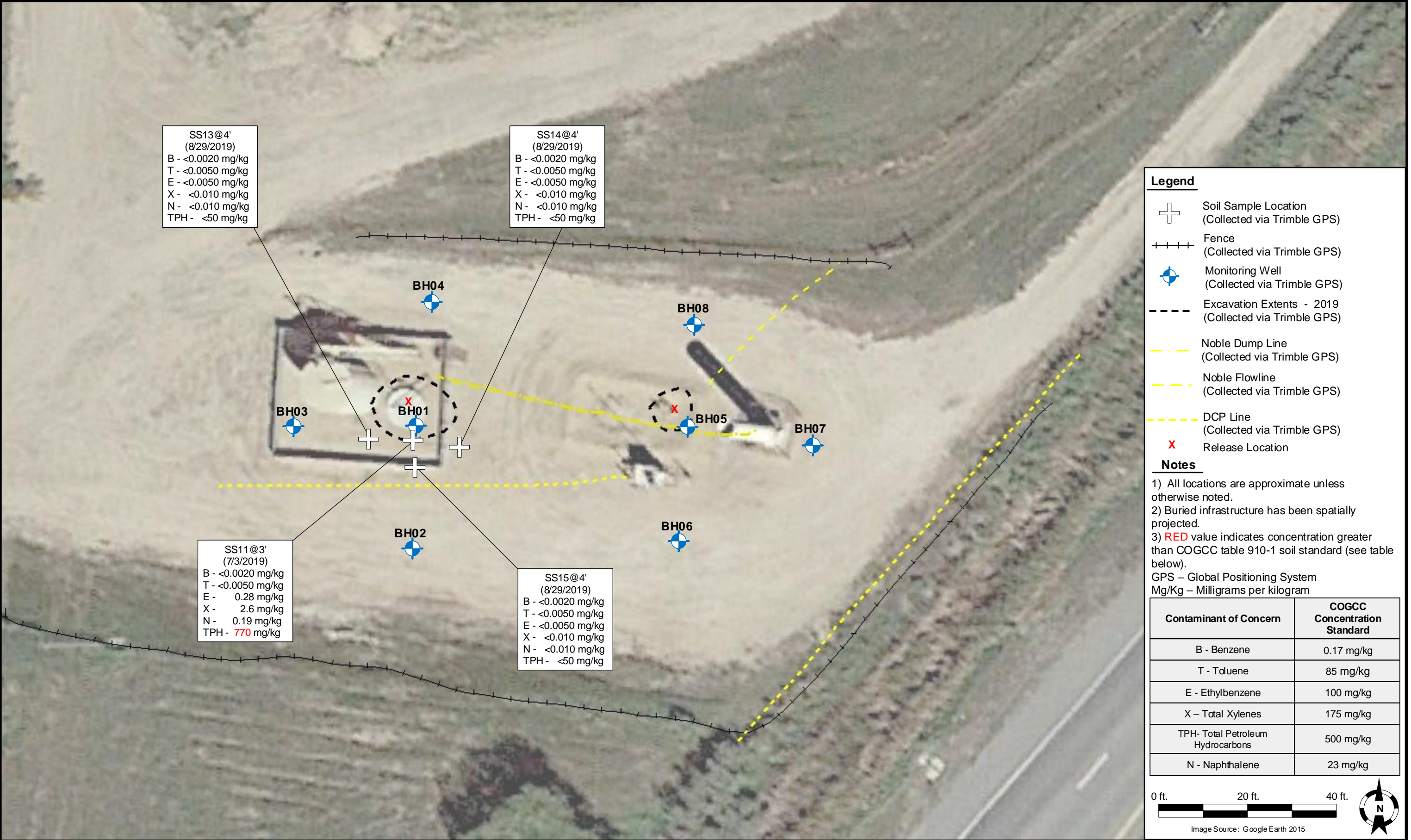
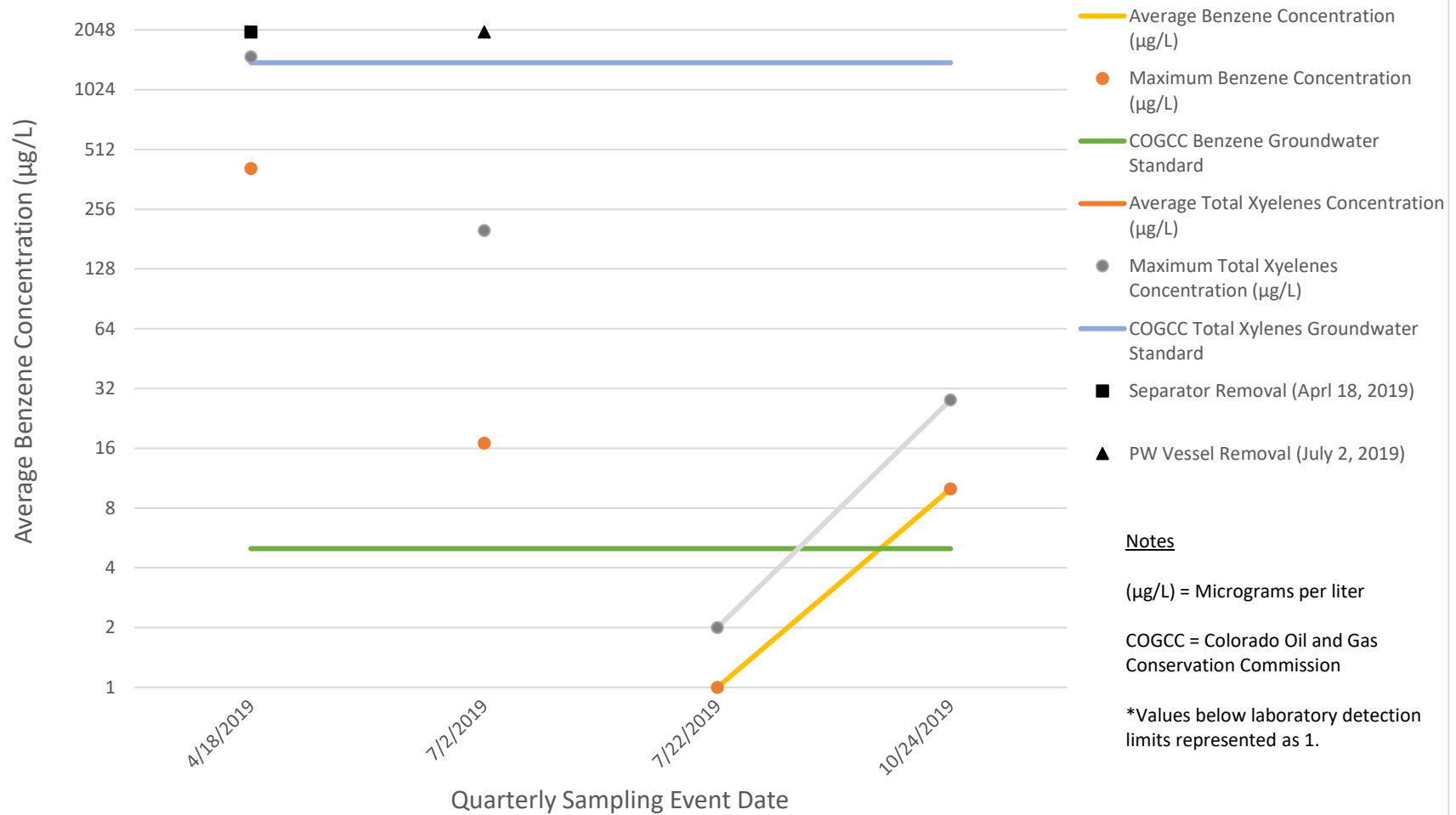


Figure 6
UPRC 33-4F, 5F, HUNT FEDERAL K 33-19
Average Concentration VS Quarterly Sampling Event Date



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 01, 2019

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Work Order # 1910310

Enclosed are the results of analyses for samples received by Summit Scientific on 10/24/19 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light blue background. The signature is written in a cursive style and appears to read "Muri Premier".

Muri Premier For Paul Shrewsbury

President



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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1910310-01	Water	10/24/19 10:12	10/24/19 17:30
BH02	1910310-02	Water	10/24/19 10:40	10/24/19 17:30
BH03	1910310-03	Water	10/24/19 10:32	10/24/19 17:30
BH04	1910310-04	Water	10/24/19 10:27	10/24/19 17:30
BH05	1910310-05	Water	10/24/19 10:46	10/24/19 17:30
BH06	1910310-06	Water	10/24/19 10:21	10/24/19 17:30
BH07	1910310-07	Water	10/24/19 10:13	10/24/19 17:30
BH08	1910310-08	Water	10/24/19 10:31	10/24/19 17:30

Summit Scientific

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1910310

Page 1 of 1

Project Number: 1/9

www.s2scientific.com

Sample Receipt Checklist

S2 Work Order 1910310

Client: Noble/Tasman Client Project ID: UPRC 33-4F, SF, Hunt Federal
 Shipped Via: H.D./P.O./FedEx/UPS/USPS/Other Airbill #: K33-19

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

RZ
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

10/24/19
Date/Time 1800



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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH01
1910310-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **10/24/19 10:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		135 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		125 %		21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH02
1910310-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/24/19 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH03
1910310-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/24/19 10:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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Broomfield CO, 80020

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH04
1910310-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/24/19 10:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

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Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH05
1910310-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	10	1.0	ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	5.6	1.0	"	"	"	"	"	"	
Xylenes (total)	28	2.0	"	"	"	"	"	"	

Date Sampled: **10/24/19 10:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		121 %		23-173	"	"	"	"	
Surrogate: Toluene-d8		104 %		20-170	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %		21-167	"	"	"	"	

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Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH06
1910310-06 (Water)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/24/19 10:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		137 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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Broomfield CO, 80020

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH07
1910310-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/24/19 10:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		132 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

BH08
1910310-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/24/19 10:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1910421	10/29/19	10/31/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/24/19 10:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.5 %	21-167		"	"	"	"	

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1910421 - EPA 5030 Water MS

Blank (1910421-BLK1)

Prepared: 10/29/19 Analyzed: 10/31/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3		107	23-173			
Surrogate: Toluene-d8	14.1		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		103	21-167			

LCS (1910421-BS1)

Prepared: 10/29/19 Analyzed: 10/31/19

Benzene	26.9	1.0	ug/l	33.3		80.7	51-132			
Toluene	27.6	1.0	"	33.3		82.9	51-138			
Ethylbenzene	29.1	1.0	"	33.3		87.2	58-146			
m,p-Xylene	59.5	2.0	"	66.7		89.2	57-144			
o-Xylene	27.4	1.0	"	33.3		82.1	53-146			
Surrogate: 1,2-Dichloroethane-d4	15.3		"	13.3		115	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	21-167			

Matrix Spike (1910421-MS1)

Source: 1910310-01

Prepared: 10/29/19 Analyzed: 10/31/19

Benzene	28.0	1.0	ug/l	33.3	ND	84.0	34-141			
Toluene	28.3	1.0	"	33.3	ND	84.9	27-151			
Ethylbenzene	30.1	1.0	"	33.3	ND	90.3	29-160			
m,p-Xylene	59.2	2.0	"	66.7	ND	88.7	20-166			
o-Xylene	29.0	1.0	"	33.3	ND	87.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	17.9		"	13.3		134	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	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
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

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

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

Batch 1910421 - EPA 5030 Water MS

Matrix Spike Dup (1910421-MSD1)

Source: 1910310-01

Prepared: 10/29/19 Analyzed: 10/31/19

Benzene	27.9	1.0	ug/l	33.3	ND	83.8	34-141	0.286	30	
Toluene	28.2	1.0	"	33.3	ND	84.6	27-151	0.389	30	
Ethylbenzene	28.3	1.0	"	33.3	ND	84.9	29-160	6.20	30	
m,p-Xylene	57.1	2.0	"	66.7	ND	85.7	20-166	3.46	30	
o-Xylene	27.9	1.0	"	33.3	ND	83.8	33-159	3.76	30	
Surrogate: 1,2-Dichloroethane-d4	18.4		"	13.3		138	23-173			
Surrogate: Toluene-d8	14.2		"	13.3		107	20-170			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.4	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
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/01/19 11:17

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 04, 2019

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Work Order # 1908376

Enclosed are the results of analyses for samples received by Summit Scientific on 08/29/19 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/04/19 09:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS13@4'	1908376-01	Soil	08/29/19 12:30	08/29/19 17:30
SS14@4'	1908376-02	Soil	08/29/19 12:40	08/29/19 17:30
SS15@4'	1908376-03	Soil	08/29/19 12:50	08/29/19 17:30

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.

1904376

Summit Scientific

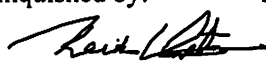

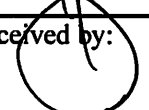
S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: Noble Enegry Project Manager: Brandon Bruns, Invoice: Jacob Evans
Address: E-Mail: bbruns@tasman-geo.com
City/State/Zip:
Phone: Project Name: UPRC 33-4F, 5F, Hunt Federal K 33-19
Sampler Name: Kevin Chritz Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN	TPH-DRO							
1	SS13@4'	8/29/2019	12:30	1			X			X			X	X							
2	SS14@4'	8/29/2019	12:40	1			X			X			X	X							
3	SS15@4'	8/29/2019	12:50	1			X			X			X	X							
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 8/29/2019 14:51	Received by: Tasman Box	Date/Time: 8/29/2019 14:51	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/>	Notes:
Relinquished by: Tasman Box	Date/Time: 8/29/2019 17:30	Received by: 	Date/Time: 8/29/19 17:30	Sample Integrity:	
Relinquished by:	Date/Time:	Received by: 	Date/Time:	Temperature Upon Receipt: 4.9 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

Sample Receipt Checklist

S2 Work Order 1904376

Client: Nodda Energy Client Project ID: UPRC 33-4F.SF. Hunt Federal

Shipped Via: H.D./P.D./FedEx/UPS/USPS/Other Airbill #: K33-19

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

Temp (°C)	<u>4.9</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?				
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 ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
If custody seals are present, are they intact ⁽¹⁾ ?			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 ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	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) ⁽¹⁾ ?				
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 ⁽¹⁾ ?			X	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				

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

PC
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

08/29/19
Date/Time 1 005



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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/04/19 09:23

SS13@4'
1908376-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/29/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1908408	08/30/19	08/31/19	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: **08/29/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		85.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/29/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1908409	08/30/19	08/31/19	EPA 8015M	

Date Sampled: **08/29/19 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/04/19 09:23

SS14@4'
1908376-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/29/19 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1908408	08/30/19	08/31/19	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: **08/29/19 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/29/19 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1908409	08/30/19	08/31/19	EPA 8015M	

Date Sampled: **08/29/19 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		98.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/04/19 09:23

SS15@4'
1908376-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/29/19 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1908408	08/30/19	08/31/19	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: **08/29/19 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/29/19 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1908409	08/30/19	08/31/19	EPA 8015M	

Date Sampled: **08/29/19 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		92.3 %	30-150		"	"	"	"	

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
09/04/19 09:23

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1908408 - EPA 5030 Soil MS

Blank (1908408-BLK1)

Prepared: 08/30/19 Analyzed: 08/31/19

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	0.0400		"	0.0400		99.9	23-173			
Surrogate: Toluene-d8	0.0366		"	0.0400		91.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.5	21-167			

LCS (1908408-BS1)

Prepared: 08/30/19 Analyzed: 08/31/19

Benzene	0.0823	0.0020	mg/kg	0.100		82.3	70-130			
Toluene	0.0854	0.0050	"	0.100		85.4	70-130			
Ethylbenzene	0.0812	0.0050	"	0.100		81.2	70-130			
m,p-Xylene	0.165	0.010	"	0.200		82.7	70-130			
o-Xylene	0.0822	0.0050	"	0.100		82.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0317		"	0.0400		79.2	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.7	21-167			

Matrix Spike (1908408-MS1)

Source: 1908340-02

Prepared: 08/30/19 Analyzed: 08/31/19

Benzene	0.0817	0.0020	mg/kg	0.100	ND	81.7	70-130			
Toluene	0.0871	0.0050	"	0.100	ND	87.1	70-130			
Ethylbenzene	0.0839	0.0050	"	0.100	ND	83.9	70-130			
m,p-Xylene	0.169	0.010	"	0.200	ND	84.6	70-130			
o-Xylene	0.0851	0.0050	"	0.100	ND	85.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0306		"	0.0400		76.6	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.7	21-167			

Summit Scientific

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
09/04/19 09:23

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 1908408 - EPA 5030 Soil MS

Matrix Spike Dup (1908408-MSD1)	Source: 1908340-02			Prepared: 08/30/19 Analyzed: 08/31/19						
Benzene	0.0821	0.0020	mg/kg	0.100	ND	82.1	70-130	0.513	30	
Toluene	0.0826	0.0050	"	0.100	ND	82.6	70-130	5.37	30	
Ethylbenzene	0.0776	0.0050	"	0.100	ND	77.6	70-130	7.76	30	
m,p-Xylene	0.162	0.010	"	0.200	ND	80.8	70-130	4.63	30	
o-Xylene	0.0818	0.0050	"	0.100	ND	81.8	70-130	3.96	30	
Surrogate: 1,2-Dichloroethane-d4	0.0303		"	0.0400		75.8	23-173			
Surrogate: Toluene-d8	0.0422		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	21-167			

Summit Scientific

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/04/19 09:23

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1908409 - EPA 3550A

Blank (1908409-BLK1)

Prepared: 08/30/19 Analyzed: 08/31/19

C10-C28 (DRO) ND 50 mg/kg

LCS (1908409-BS1)

Prepared: 08/30/19 Analyzed: 08/31/19

C10-C28 (DRO) 525 50 mg/kg 500 105 70-130

Matrix Spike (1908409-MS1)

Source: 1908340-02

Prepared: 08/30/19 Analyzed: 08/31/19

C10-C28 (DRO) 505 50 mg/kg 500 26.7 95.6 70-130

Matrix Spike Dup (1908409-MSD1)

Source: 1908340-02

Prepared: 08/30/19 Analyzed: 08/31/19

C10-C28 (DRO) 487 50 mg/kg 500 26.7 92.1 70-130 3.48 20

Summit Scientific

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

Project: Noble - UPRC 33-4F, 5F, Hunt Federal K33-19

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/04/19 09:23

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