

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. -MUNDS 13-29, DICKERSON 14-29A

Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Naphthalene (mg/kg)
COGCC Standard		0.17	85	100	175	500		23
SS01@3'	11/19/18	0.19	<0.0050	0.032	0.11	<50	<50	<0.010
SS01@5'	11/19/18	3.0	<0.0050	2.9	26	1,200	69	0.082
SS02@3'	11/19/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
SS02@5'	11/19/18	0.036	<0.0050	0.037	0.53	<50	<50	<0.010
SS03@3'	11/19/18	0.0075	<0.0050	0.030	0.24	<50	<50	0.027
SS03@5'	11/19/18	0.049	<0.0050	0.16	1.1	<50	<50	0.042
SS04@3'	11/19/18	0.026	<0.0050	0.072	0.40	<50	<50	0.020
SS04@5'	11/19/18	0.048	<0.0050	0.19	1.8	<50	<50	0.039
SS05@6'	11/19/18	0.31	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP03@5'	11/19/18	1.7	<0.0050	0.28	<0.010	<50	70	0.038
TP03@10'	11/19/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP05@5'	11/19/18	0.0098	<0.0050	0.029	0.43	<50	<50	<0.010
TP05@10'	11/19/18	0.16	0.25	14	170	4,600	59	0.033
TP07@5'	11/19/18	0.0082	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP07@10'	11/19/18	0.011	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP08@5'	11/20/18	1.2	<0.0050	3.1	12	250	110	0.19
TP08@10'	11/20/18	<0.0020	<0.0050	0.076	1.1	<50	93	0.070
TP08@13'	11/20/18	0.0061	0.027	0.059	0.87	<50	<50	0.021
TP09@5'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP09@10'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP09@13'	11/20/18	<0.0020	0.015	0.072	1.4	0	120	0.059
TP10@5'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP10@10'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP10@13'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP11@5'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP11@10'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP11@13'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP12@5'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP12@10'	11/20/18	<0.0020	<0.0050	0.058	0.97	<50	87	0.067
TP12@13'	11/20/18	0.0056	0.18	0.33	15	<50	110	0.060
TP13@5'	11/20/18	<0.0020	<0.0050	0.013	0.13	<50	<50	0.011
TP13@10'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP13@13'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
TP14@5'	11/20/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010

Soil Sample ID	Date	EC (mmhos/cm)	pH	SAR
		<4 or 2x BG	6-9	<12
SS03@3'	11/19/18	5.03	8.59	1.48

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. -MUNDS 13-29, DICKERSON 14-29A

Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Naphthalene (mg/kg)
COGCC Standard		0.17	85	100	175	500		23

Notes:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

EC = Specific conductance

mmhos/cm = Millimhos per centimeter

BG = Background

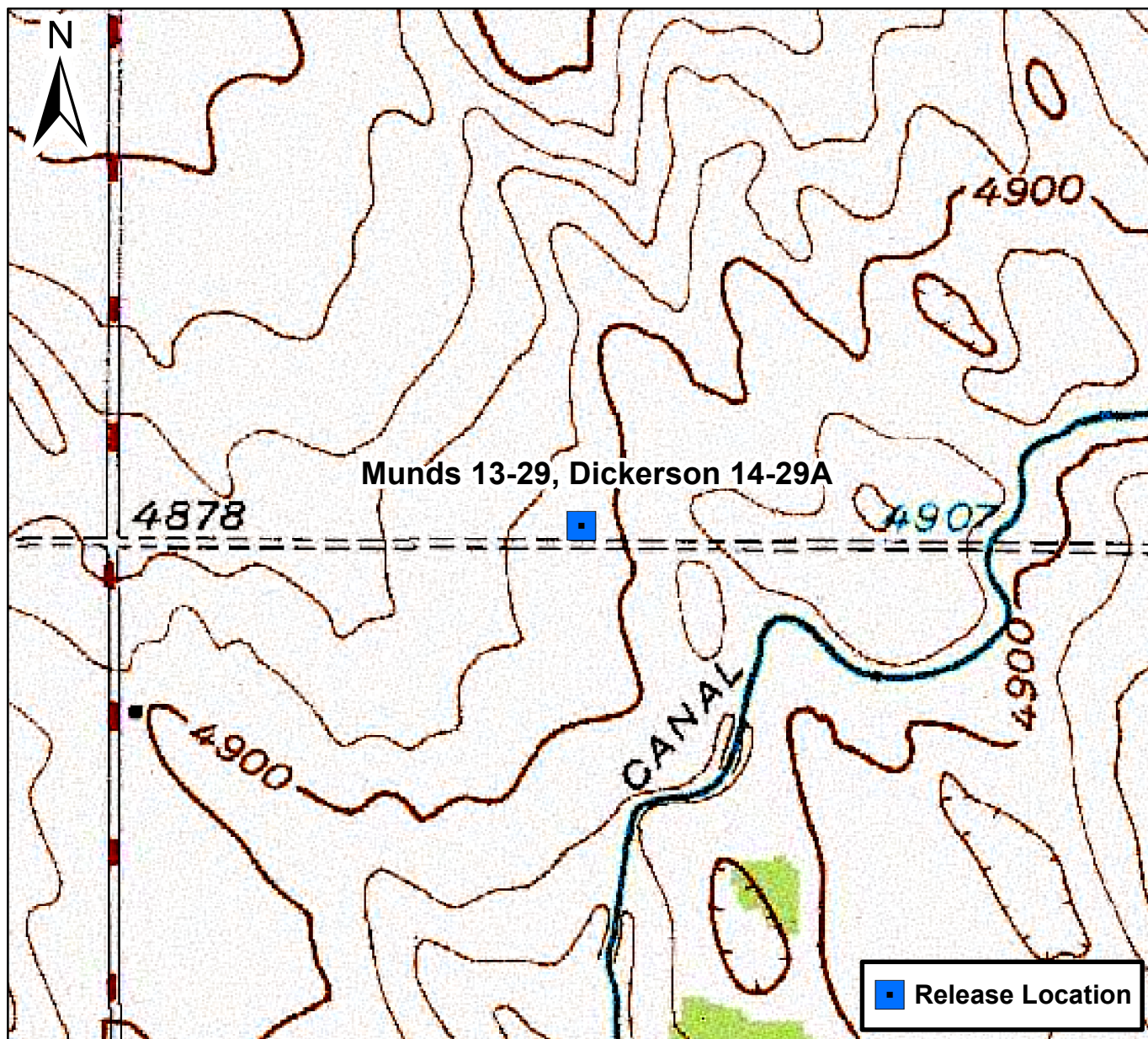
SAR = Sodium adsorption ratio

mg/kg = Milligrams per kilogram

< = 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

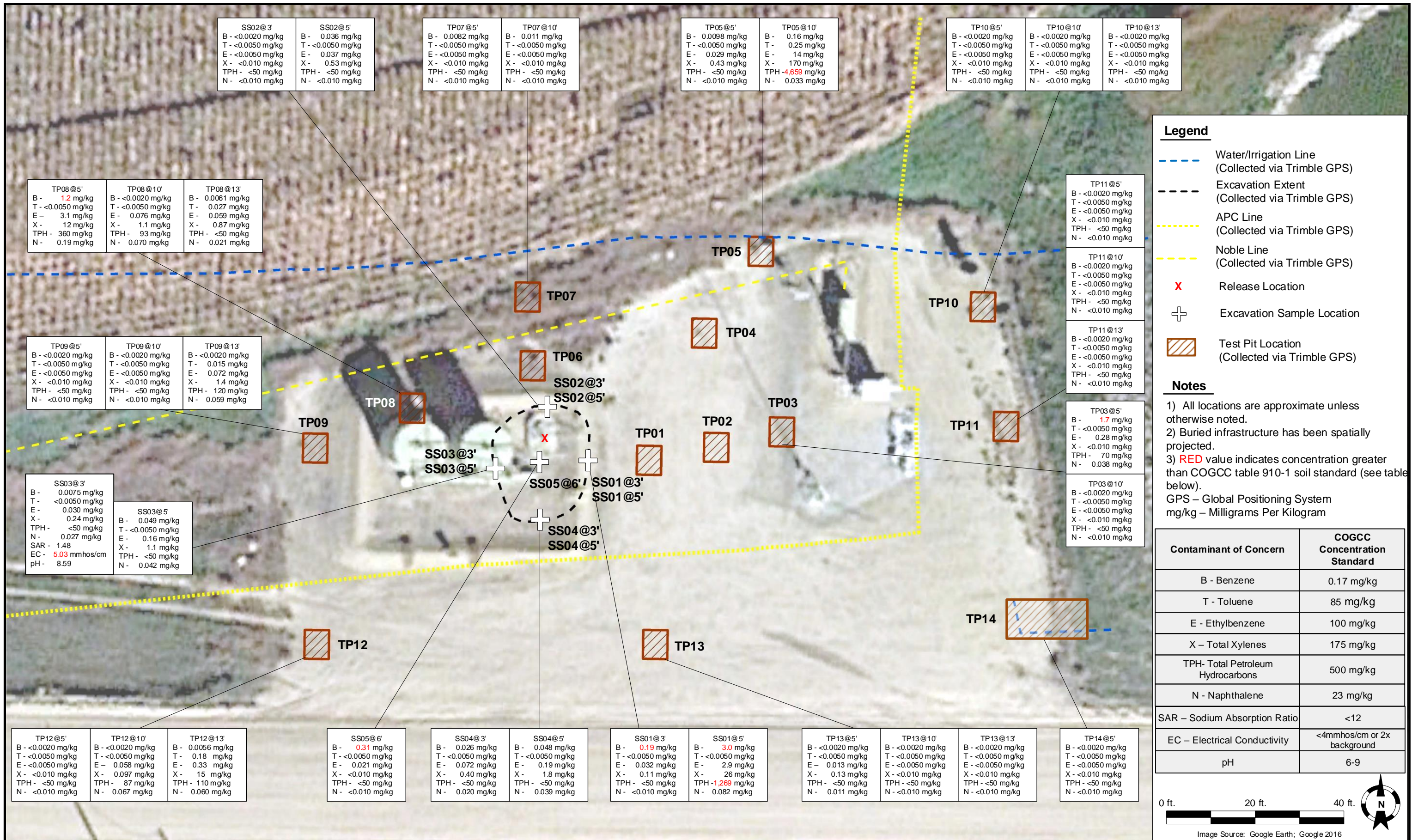


0 750 1,500 Feet

Figure 1

Site Location Map
Munds 13-29, Dickerson 14-29A
SESW S29 T4N R65W
Weld County, Colorado





Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 20, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Munds 13-29, Dickerson 14-29A

Enclosed are the results of analyses for samples received by Summit Scientific on 11/19/18 18:42. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

DRAFT REPORT

DATA SUBJECT TO CHANGE



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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@3'	1811222-01	Soil	11/19/18 15:00	11/19/18 18:42
SS01@5'	1811222-02	Soil	11/19/18 15:02	11/19/18 18:42
SS02@3'	1811222-03	Soil	11/19/18 15:04	11/19/18 18:42
SS02@5'	1811222-04	Soil	11/19/18 15:06	11/19/18 18:42
SS03@3'	1811222-05	Soil	11/19/18 15:07	11/19/18 18:42
SS03@5'	1811222-06	Soil	11/19/18 15:08	11/19/18 18:42
SS04@3'	1811222-07	Soil	11/19/18 15:10	11/19/18 18:42
SS04@5'	1811222-08	Soil	11/19/18 15:12	11/19/18 18:42
SS05@6'	1811222-09	Soil	11/19/18 15:14	11/19/18 18:42
TP03@5'	1811222-10	Soil	11/19/18 15:30	11/19/18 18:42
TP03@10'	1811222-11	Soil	11/19/18 15:46	11/19/18 18:42
TP05@5'	1811222-12	Soil	11/19/18 16:00	11/19/18 18:42
TP05@10'	1811222-13	Soil	11/19/18 16:05	11/19/18 18:42
TP07@5'	1811222-14	Soil	11/19/18 16:20	11/19/18 18:42
TP07@10'	1811222-15	Soil	11/19/18 16:25	11/19/18 18:42

DRAFT REPORT

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

1811222.1



741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 2

Client: Noble/Tasman
Address: -
City/State/Zip: -
Phone: 303-487-1228 Fax: -
Sampler Name: GA

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: Munds 13-29, Dickerson 14-29A
Project Number:

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix		Analyze For:								Special Instructions				
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR							
SS01 @ 3'	11/19/18	1500	1			X																
SS01 @ 5'		1502	1			X																
SS02 @ 3'		1504	1			X																
SS02 @ 5'		1506	1			X																
SS03 @ 3'		1507	1			X																
SS03 @ 5'		1508	1			X																
SS04 @ 3'		1510	1			X																
SS04 @ 5'		1512	1			X																
SS05 @ 6'		1514	1			X																
T103 @ 5'	↓	1530	1			X																

Relinquished by: 	Date/Time: 11/19/18 1840	Received by: 	Date/Time: 11-19-18 1840	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/>	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: 4.3 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		

Summit Scientific



18112222

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

Page 2 of 2

Client: Noble/Tasman
Address: -
City/State/Zip: -
Phone: 303-487-1228 Fax: -
Sampler Name: -

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: Munds 13-29, Dickerson 14-29A
Project Number: -

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix		Analyze For:								Special Instructions		
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR					
TP03 @ 10'	11/19/18	1546	1			X			X				X	X						
TP05 @ 5'		1600	1			X			X				X	X						
TP05 @ 10'		1605	1			X			X				X	X						
TP07 @ 5'		1620	1			X			X				X	X						
TP07 @ 10'		1626	1			X			X				X	X						
Relinquished by: 	Date/Time: <u>11/19/18</u> <u>1840</u>	Received by: 	Date/Time: <u>11-19-18</u> <u>1840</u>	Turn Around Time (Check)								Notes:								
				Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>																
				24 Hours <input type="checkbox"/> Standard <input type="checkbox"/>																
				48 Hours <input type="checkbox"/>																
Relinquished by:		Date/Time:		Received by:		Date/Time:		Sample Integrity:												
								Temperature Upon Receipt: <u>41.3</u>												
								Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>												

Sample Receipt Checklist

S2 Work Order: 1611222

Client: Noble / Tasman Client Project ID: Mons 13-29, Dickerson 14-29A

Shipped Via: Pickup Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Temp (°C)	<u>4.3</u>
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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.	<input checked="" type="checkbox"/>			
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

UP
Custodian Printed Name or Initials

[Signature]
Signature or Initials of Custodian

11.19.18 1840
Date/Time



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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS01@3'
1811222-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.19	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.032	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.11	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		127 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.9 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		128 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		83.2 %	30-150		"	"	"	"	

DRAFT REPORT

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS01@5'
1811222-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	3.0	0.20	mg/kg	100	1811250	11/19/18	11/20/18	EPA 8260B	
Toluene	ND	0.0050	"	1	"	"	"	"	
Ethylbenzene	2.9	0.50	"	100	"	"	"	"	
Xylenes (total)	26	1.0	"	"	"	"	"	"	
Naphthalene	0.082	0.010	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	1200	50	"	100	"	"	"	"	

Date Sampled: **11/19/18 15:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<i>Surrogate: 1,2-Dichloroethane-d4</i>		89.0 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		93.8 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		134 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	69	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<i>Surrogate: o-Terphenyl</i>		83.0 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS02@3'
1811222-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	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: **11/19/18 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		83.8 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS02@5'
1811222-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	0.036	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.037	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.53	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.0 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		83.4 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		112 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<i>Surrogate: o-Terphenyl</i>		86.8 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS03@3'
1811222-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.0075	0.0020	mg/kg	1	1811250	11/19/18	11/20/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.030	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.24	0.010	"	"	"	"	"	"	
Naphthalene	0.027	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		96.0 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.5 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		156 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		81.2 %	30-150		"	"	"	"	

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

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1820	12.4	mg/kg dry	1	1811238	11/19/18	11/19/18	EPA 6020B	
Magnesium	993	6.18	"	"	"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS03@3'
1811222-05 (Soil)

Summit Scientific

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

Sodium	317	6.18	mg/kg dry	1	1811238	11/19/18	11/19/18	EPA 6020B
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Calculated Analysis

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.48	0.100	units	1	1811265	11/20/18	11/20/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	80.9		%	1	1811243	11/19/18	11/20/18	Calculation	
pH	8.59		pH Units	"	1811254	11/19/18	11/19/18	EPA 9045D	

Specific Conductance by EPA Method 120.1

Date Sampled: **11/19/18 15:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	5.03	0.0100	mmhos/cm	1	1811253	11/19/18	11/19/18	EPA 120.1	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS03@5'
1811222-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	0.049	0.0020	mg/kg	1	1811250	11/19/18	11/20/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.16	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.1	0.010	"	"	"	"	"	"	
Naphthalene	0.042	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: 1,2-Dichloroethane-d4</i>		124 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.2 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: o-Terphenyl</i>		83.7 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS04@3'
1811222-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	0.026	0.0020	mg/kg	1	1811250	11/19/18	11/20/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.072	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.40	0.010	"	"	"	"	"	"	
Naphthalene	0.020	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.3 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.6 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		133 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: o-Terphenyl</i>		82.1 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS04@5'
1811222-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.048	0.0020	mg/kg	1	1811250	11/19/18	11/20/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.19	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.8	1.0	"	100	"	"	"	"	
Naphthalene	0.039	0.010	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.5 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.8 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.9 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/19/18	EPA 8015M	

Date Sampled: **11/19/18 15:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		82.6 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

SS05@6'
1811222-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	0.31	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.021	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: 1,2-Dichloroethane-d4</i>		85.7 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.0 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/20/18	EPA 8015M	

Date Sampled: **11/19/18 15:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: o-Terphenyl</i>		85.2 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

TP03@5'
1811222-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	1.7	0.020	mg/kg	10	1811250	11/19/18	11/19/18	EPA 8260B	
Toluene	ND	0.0050	"	1	"	"	"	"	
Ethylbenzene	0.28	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	0.038	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		91.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		157 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	70	50	mg/kg	1	1811252	11/19/18	11/20/18	EPA 8015M	

Date Sampled: **11/19/18 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		79.5 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

TP03@10'
1811222-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 15:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	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: **11/19/18 15:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		71.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.9 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 15:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/20/18	EPA 8015M	

Date Sampled: **11/19/18 15:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		84.1 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

TP05@5'
1811222-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.0098	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.029	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.43	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/19/18 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.8 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		84.9 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/20/18	EPA 8015M	

Date Sampled: **11/19/18 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		84.3 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

TP05@10'
1811222-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.16	0.0020	mg/kg	1	1811250	11/19/18	11/20/18	EPA 8260B	
Toluene	0.25	0.0050	"	"	"	"	"	"	
Ethylbenzene	14	0.50	"	100	"	"	"	"	
Xylenes (total)	170	1.0	"	"	"	"	"	"	
Naphthalene	0.033	0.010	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	4600	50	"	100	"	"	"	"	

Date Sampled: **11/19/18 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		124 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.5 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		152 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	59	50	mg/kg	1	1811252	11/19/18	11/20/18	EPA 8015M	

Date Sampled: **11/19/18 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		83.1 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

TP07@5'
1811222-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.0082	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	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: **11/19/18 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		83.9 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.8 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/20/18	EPA 8015M	

Date Sampled: **11/19/18 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		85.1 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

TP07@10'
1811222-15 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/19/18 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.011	0.0020	mg/kg	1	1811250	11/19/18	11/19/18	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: **11/19/18 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.1 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.8 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/19/18 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1811252	11/19/18	11/20/18	EPA 8015M	

Date Sampled: **11/19/18 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		84.0 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

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

Summit Scientific

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

Batch 1811238 - General Preparation

Blank (1811238-BLK1)

Prepared & Analyzed: 11/19/18

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

LCS (1811238-BS1)

Prepared & Analyzed: 11/19/18

Calcium	565	10.0	mg/kg wet	500	113	70-130
Magnesium	587	5.00	"	500	117	70-130
Sodium	561	5.00	"	500	112	70-130

Duplicate (1811238-DUP1)

Source: 1811206-01

Prepared & Analyzed: 11/19/18

Calcium	484	11.1	mg/kg dry	473	2.30	20
Magnesium	237	5.55	"	247	3.87	20
Sodium	54.9	5.55	"	53.4	2.80	20

Matrix Spike (1811238-MS1)

Source: 1811206-01

Prepared & Analyzed: 11/19/18

Calcium	967	11.1	mg/kg dry	555	473	89.0	70-130
Magnesium	856	5.55	"	555	247	110	70-130
Sodium	663	5.55	"	555	53.4	110	70-130

Matrix Spike Dup (1811238-MSD1)

Source: 1811206-01

Prepared & Analyzed: 11/19/18

Calcium	929	11.1	mg/kg dry	555	473	82.3	70-130	3.92	25
Magnesium	769	5.55	"	555	247	94.0	70-130	10.7	25
Sodium	581	5.55	"	555	53.4	95.1	70-130	13.3	25

DRAFT REPORT

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

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

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

Batch 1811243 - General Preparation

Duplicate (1811243-DUP1)		Source: 1811206-01		Prepared: 11/19/18 Analyzed: 11/20/18						
% Solids	90.0		%		90.1			0.200	20	

Batch 1811254 - General Preparation

LCS (1811254-BS1)		Prepared & Analyzed: 11/19/18								
pH	9.1		pH Units	9.18		99.5	95-105			
Duplicate (1811254-DUP1)		Source: 1811220-01		Prepared & Analyzed: 11/19/18						
pH	8.4		pH Units		8.6			1.76	20	

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

Specific Conductance by EPA Method 120.1 - Quality Control
Summit Scientific

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

Batch 1811253 - General Preparation

Blank (1811253-BLK1)

Prepared & Analyzed: 11/19/18

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (1811253-BS1)

Prepared & Analyzed: 11/19/18

Specific Conductance (EC) 0.751 0.0100 mmhos/cm 0.750 100 90-110

Duplicate (1811253-DUP1)

Source: 1811220-01

Prepared & Analyzed: 11/19/18

Specific Conductance (EC) 0.446 0.0100 mmhos/cm 0.445 0.213 20

DRAFT REPORT

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/20/18 15:06

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

DRAFT REPORT

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

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 27, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Munds 13-29, Dickerson 14-29A

Enclosed are the results of analyses for samples received by Summit Scientific on 11/20/18 18:50. 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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP08@5'	1811250-01	Soil	11/20/18 09:30	11/20/18 18:50
TP08@10'	1811250-02	Soil	11/20/18 09:35	11/20/18 18:50
TP08@13'	1811250-03	Soil	11/20/18 09:40	11/20/18 18:50
TP09@5'	1811250-04	Soil	11/20/18 10:00	11/20/18 18:50
TP09@10'	1811250-05	Soil	11/20/18 10:05	11/20/18 18:50
TP09@13'	1811250-06	Soil	11/20/18 10:10	11/20/18 18:50
TP10@5'	1811250-07	Soil	11/20/18 10:50	11/20/18 18:50
TP10@10'	1811250-08	Soil	11/20/18 10:55	11/20/18 18:50
TP10@13'	1811250-09	Soil	11/20/18 11:00	11/20/18 18:50
TP11@5'	1811250-10	Soil	11/20/18 11:15	11/20/18 18:50
TP11@10'	1811250-11	Soil	11/20/18 11:20	11/20/18 18:50
TP11@13'	1811250-12	Soil	11/20/18 11:25	11/20/18 18:50
TP12@5'	1811250-13	Soil	11/20/18 14:30	11/20/18 18:50
TP12@10'	1811250-14	Soil	11/20/18 14:32	11/20/18 18:50
TP12@13'	1811250-15	Soil	11/20/18 14:40	11/20/18 18:50
TP13@5'	1811250-16	Soil	11/20/18 15:30	11/20/18 18:50
TP13@10'	1811250-17	Soil	11/20/18 15:35	11/20/18 18:50
TP13@13'	1811250-18	Soil	11/20/18 15:40	11/20/18 18:50
TP14@5'	1811250-19	Soil	11/20/18 16:50	11/20/18 18:50

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

1811250.1

741 Corporate Circle Suite I ♦ Golden, Colorado 80401

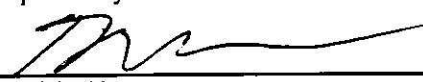
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 2

Client: Noble/Tasman
 Address: -
 City/State/Zip: -
 Phone: 303-487-1228 Fax: -
 Sampler Name: GB

Project Manager: Brandon Bruns, Invoice: Jacob Evans
 E-Mail: Bbruns@tasman-geo.com
 Project Name: Munds 13-29, Dickerson 14-29A
 Project Number: -

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:						Special Instructions	
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR			
TP08@5'	11/20/18	0930	✓			✓			✓				✓	✓				
TP08@10'		0935																
TP08@13'		0940																
TP09@5'		1000																
TP09@10'		1005																
TP09@13'		1010																
TP10@5'		1050																
TP10@10'		1055																
TP10@13'		1100																
TP11@5'	✓	1115	✓			✓			✓				✓	✓				

Relinquished by: 

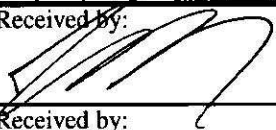
Relinquished by: _____

Relinquished by: _____

Date/Time: 11/20/18 1050

Date/Time: _____

Date/Time: _____

Received by: 

Received by: _____

Received in Lab by: _____

Date/Time: 11-20-18 1850

Date/Time: _____

Date/Time: _____

Turn Around Time (Check)

Same Day ☐ 72 Hours ☐

24 Hours ☐ Standard ☒

48 Hours ☐

Sample Integrity:

Temperature Upon Receipt: 4.5

Intact: Yes ☒ No ☐

Notes:

Summit Scientific

1811250.2


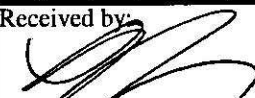
741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

Page 2 of 2

Client: Noble/Tasman
Address: -
City/State/Zip: -
Phone: 303-487-1228 Fax: -
Sampler Name: GB

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: muds 13-29, Dickerson 14-29A
Project Number: -

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:						Special Instructions			
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR					
TP11 @ 10'	1120	11/20/18	1			X			X				X	X						
TP11 @ 13'	1125																			
TP12 @ 5'	1430																			
TP12 @ 10'	1432																			
TP12 @ 13'	1440																			
TP13 @ 5'	1530																			
TP13 @ 10'	1535																			
TP13 @ 13'	1540																			
TP14 @ 5'	1650																			

Relinquished by: 	Date/Time: <u>11/20/18 1850</u>	Received by: 	Date/Time: <u>11-20-18 1850</u>	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: <u>4.5</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP08@5'
1811250-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	1.2	0.20	mg/kg	100	1811287	11/21/18	11/22/18	EPA 8260B	
Toluene	ND	0.0050	"	1	"	"	"	"	
Ethylbenzene	3.1	0.0050	"	"	"	"	"	"	
Xylenes (total)	12	1.0	"	100	"	"	11/21/18	"	
Naphthalene	0.19	0.010	"	1	"	"	11/22/18	"	
Gasoline Range Hydrocarbons	250	50	"	"	"	"	"	"	

Date Sampled: **11/20/18 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		494 %	23-173		"	"	"	"	S-02
Surrogate: Toluene-d8		83.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		818 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	110	50	mg/kg	1	1811288	"	11/21/18	EPA 8015M	

Date Sampled: **11/20/18 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP08@10'
1811250-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.076	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.1	0.010	"	"	"	"	"	"	
Naphthalene	0.070	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/20/18 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		201 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	93	50	mg/kg	1	1811288	"	11/21/18	EPA 8015M	

Date Sampled: **11/20/18 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		94.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP08@13'
1811250-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 09:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	0.0061	0.0020		mg/kg	1	1811287	11/21/18	11/22/18	EPA 8260B	
Toluene	0.027	0.0050		"	"	"	"	"	"	
Ethylbenzene	0.059	0.0050		"	"	"	"	"	"	
Xylenes (total)	0.87	0.010		"	"	"	"	"	"	
Naphthalene	0.021	0.010		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50		"	"	"	"	"	"	

Date Sampled: **11/20/18 09:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		85.9 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		132 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 09:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	1811288	"	11/21/18	EPA 8015M	

Date Sampled: **11/20/18 09:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		93.4 %		30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP09@5'
1811250-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		93.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP09@10'
1811250-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		89.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		92.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP09@13'
1811250-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	EPA 8260B	
Toluene	0.015	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.072	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.4	0.010	"	"	"	"	"	"	
Naphthalene	0.059	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/20/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		85.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		223 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	120	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.0 %	30-150		"	"	"	"	

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP10@5'
1811250-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.4 %	30-150		"	"	"	"	

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP10@10'
1811250-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		92.5 %	30-150		"	"	"	"	

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP10@13'
1811250-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		93.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP11@5'
1811250-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		87.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.9 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		94.2 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP11@10'
1811250-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		85.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		95.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP11@13'
1811250-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		88.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.8 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		94.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP12@5'
1811250-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		83.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.8 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		92.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP12@10'
1811250-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 14:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.058	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.97	0.010	"	"	"	"	"	"	
Naphthalene	0.067	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/20/18 14:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		84.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		206 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 14:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	87	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 14:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.0 %	30-150		"	"	"	"	

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP12@13'
1811250-15 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.0056	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	EPA 8260B	
Toluene	0.18	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.33	0.0050	"	"	"	"	"	"	
Xylenes (total)	15	1.0	"	100	"	"	11/22/18	"	
Naphthalene	0.060	0.010	"	1	"	"	11/22/18	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/20/18 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		89.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		213 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	110	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP13@5'
1811250-16 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 15:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.013	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.13	0.010	"	"	"	"	"	"	
Naphthalene	0.011	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/20/18 15:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		92.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		147 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 15:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 15:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		97.2 %	30-150		"	"	"	"	

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP13@10'
1811250-17 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 15:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 15:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		85.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.2 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 15:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 15:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		94.2 %	30-150		"	"	"	"	

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP13@13'
1811250-18 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 15:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 15:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 15:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 15:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		97.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

TP14@5'
1811250-19 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/20/18 16:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811287	11/21/18	11/22/18	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: **11/20/18 16:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		87.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/20/18 16:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811288	"	11/22/18	EPA 8015M	

Date Sampled: **11/20/18 16:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		91.7 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Brun

Reported:
11/27/18 10:58

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 1811287 - EPA 5030 Soil MS

Blank (1811287-BLK1)

Prepared: 11/21/18 Analyzed: 11/22/18

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	0.0401		"	0.0396		101	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0400		102	21-167			

LCS (1811287-BS1)

Prepared: 11/21/18 Analyzed: 11/22/18

Benzene	0.0789	0.0020	mg/kg	0.100		78.9	70-130			
Toluene	0.0932	0.0050	"	0.100		93.2	70-130			
Ethylbenzene	0.105	0.0050	"	0.100		105	70-130			
m,p-Xylene	0.207	0.010	"	0.200		103	70-130			
o-Xylene	0.100	0.0050	"	0.100		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0396		110	23-173			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	21-167			

Matrix Spike (1811287-MS1)

Source: 1811250-07

Prepared: 11/21/18 Analyzed: 11/22/18

Benzene	0.0778	0.0020	mg/kg	0.100	ND	77.8	70-130			
Toluene	0.0909	0.0050	"	0.100	ND	90.9	70-130			
Ethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130			
m,p-Xylene	0.214	0.010	"	0.200	ND	107	70-130			
o-Xylene	0.101	0.0050	"	0.100	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0425		"	0.0396		107	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	21-167			

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

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 1811287 - EPA 5030 Soil MS

Matrix Spike Dup (1811287-MSD1)		Source: 1811250-07			Prepared: 11/21/18 Analyzed: 11/22/18					
Benzene	0.0792	0.0020	mg/kg	0.100	ND	79.2	70-130	1.68	30	
Toluene	0.0916	0.0050	"	0.100	ND	91.6	70-130	0.855	30	
Ethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	4.52	30	
m,p-Xylene	0.220	0.010	"	0.200	ND	110	70-130	2.70	30	
o-Xylene	0.107	0.0050	"	0.100	ND	107	70-130	5.02	30	
Surrogate: 1,2-Dichloroethane-d4	0.0435		"	0.0396		110	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0400		102	21-167			

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1811288 - EPA 3550A

Blank (1811288-BLK1)

Prepared & Analyzed: 11/21/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1811288-BS1)

Prepared & Analyzed: 11/21/18

C10-C28 (DRO) 549 50 mg/kg 500 110 70-130

Matrix Spike (1811288-MS1)

Source: 1811250-01

Prepared & Analyzed: 11/21/18

C10-C28 (DRO) 631 50 mg/kg 500 113 104 70-130

Matrix Spike Dup (1811288-MSD1)

Source: 1811250-01

Prepared & Analyzed: 11/21/18

C10-C28 (DRO) 673 50 mg/kg 500 113 112 70-130 6.55 20

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/27/18 10:58

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
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