

SS01@4'
 B - <0.0020 mg/kg
 T - <0.0050 mg/kg
 E - <0.0050 mg/kg
 X - <0.010 mg/kg
 N - <0.010 mg/kg
 TPH - <50 mg/kg
 SAR - 0.191
 pH - 9.24
 EC - 0.766 mmhos/cm

FS01@5'
 B - <0.0020 mg/kg
 T - <0.0050 mg/kg
 E - <0.0050 mg/kg
 X - <0.010 mg/kg
 N - <0.010 mg/kg
 TPH - <50 mg/kg

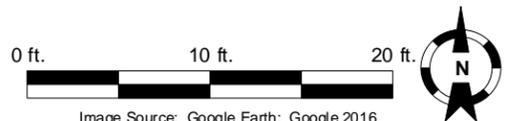
Legend

- Excavation Sample Location
- Excavation Sample Location (Not Submitted for Laboratory Analysis)
- Excavation Extent

Notes

- 1) Site Coordinates: 40.253164°, -104.523347°
 - 2) All locations are approximate unless otherwise noted
 - 3) **RED** value indicates concentration greater than COGCC table 910-1 soil standard (see table below).
- GPS – Global Positioning System
 mg/kg – Milligrams Per Kilogram
 mmhos/cm – Millimhos Per Centimeter

Contaminant of Concern	COGCC Concentration Standard
B - Benzene	0.17 mg/kg
T - Toluene	85 mg/kg
E - Ethylbenzene	100 mg/kg
X - Total Xylenes	175 mg/kg
N - Naphthalene	23 mg/kg
TPH- Total Petroleum Hydrocarbons	500 mg/kg
SAR – Sodium Absorption Ratio	<12
pH	6-9
EC – Electrical Conductivity	<4mmhos/cm or 2x background



DATE: 10/02/2020
 DESIGNED BY: TC
 DRAWN BY: TC

TASMAN
 GEOSCIENCES
 Tasman Geosciences, Inc.
 6855 W. 119th Avenue
 Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Guttersen D02-20 Vault Removal – Location ID: 302432
 NESW, Section 2, Township 3 North, Range 64 West
 Weld County, Colorado

Excavation Soil Analytical
 Results Map
 (09/23/2020)

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 01, 2020

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

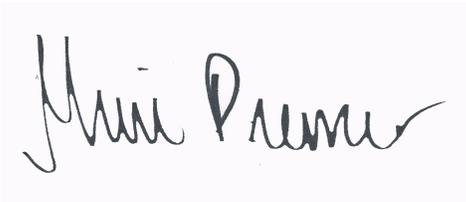
Broomfield, CO 80020

RE: Noble - Guttersen D02-20

Work Order #2009258

Enclosed are the results of analyses for samples received by Summit Scientific on 09/23/20 13:05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer For Paul Shrewsbury
President



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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/01/20 10:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@5'	2009258-01	Soil	09/23/20 10:10	09/23/20 13:05
SS01@4'	2009258-02	Soil	09/23/20 10:15	09/23/20 13:05

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

S₂

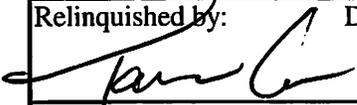
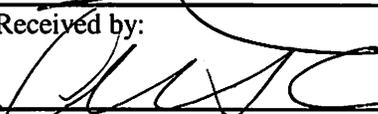
2009258

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

Page 1 of 1

Client: Noble ~~_____~~ / Tasman Geosciences Project Manager: Brandon Bruns
Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
City/State/Zip: Broomfield / CO/ 80020
Phone: 303-487-1228 Project Name: GutHersen D02-20
Sampler Name: Tanner Cook Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested					Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR		HOLD
1	F501 @ 5'	9/23/20	1010	1			X			X				X	X			
2	S501 @ 4'	↓	1015	↓										X	X	X		
3	S502 @ 4'	↓	1020	↓														
4	S503 @ 4'	↓	1025	↓													X	X
5	S504 @ 4'	↓	1030	↓													X	X
6																		
7																		
8																		
9																		
10																		

Relinquished by: 	Date/Time: 9/23/20 1300	Received by: Tasman's Lock Box	Date/Time: 9/23/20	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: 21.2° Samples Intact: Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 9/23/20 1305	Received by: 	Date/Time: 9-23-2020 1305		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2009258

Client: Noble/Tasmanian Client Project ID: Gutteresen 082-20

Shipped Via: (H.D.) P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____

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

Temp (°C)	21.2°
-----------	-------

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

AT
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

9.23.2020
Date/Time



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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/01/20 10:23

FS01@5'
2009258-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/23/20 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	2009320	09/28/20	09/29/20	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: **09/23/20 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/23/20 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	2009314	09/25/20	09/30/20	EPA 8015M	

Date Sampled: **09/23/20 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		104 %	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
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/01/20 10:23

SS01@4'
2009258-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/23/20 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	2009320	09/28/20	09/29/20	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: **09/23/20 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/23/20 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	2009314	09/25/20	09/30/20	EPA 8015M	

Date Sampled: **09/23/20 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		97.7 %	30-150		"	"	"	"	

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

Date Sampled: **09/23/20 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	15100	11.0	mg/kg dry	1	2009329	09/28/20	09/28/20	EPA 6020B	
Magnesium	2890	5.51	"	"	"	"	"	"	

Summit Scientific

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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/01/20 10:23

SS01@4'
2009258-02 (Soil)

Summit Scientific

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

Sodium	97.6	5.51	mg/kg dry	1	2009329	09/28/20	09/28/20	EPA 6020B
---------------	-------------	------	-----------	---	---------	----------	----------	-----------

Calculated Analysis

Date Sampled: **09/23/20 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.191	0.100	units	1	2009336	09/29/20	09/29/20	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/23/20 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.8		%	1	2009282	09/24/20	09/24/20	Calculation	
pH	9.24		pH Units	"	2009283	09/24/20	09/24/20	EPA 9045D	

Specific Conductance by EPA Method 120.1

Date Sampled: **09/23/20 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.766	0.0100	mmhos/cm	1	2009284	09/24/20	09/24/20	EPA 120.1	

Summit Scientific

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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/01/20 10:23

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 2009320 - EPA 5030 Soil MS

Blank (2009320-BLK1)

Prepared: 09/28/20 Analyzed: 09/29/20

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	0.0438		"	0.0400		109	23-173			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	21-167			

LCS (2009320-BS1)

Prepared & Analyzed: 09/28/20

Benzene	0.0911	0.0020	mg/kg	0.100		91.1	70-130			
Toluene	0.0758	0.0050	"	0.100		75.8	70-130			
Ethylbenzene	0.109	0.0050	"	0.100		109	70-130			
m,p-Xylene	0.220	0.010	"	0.200		110	70-130			
o-Xylene	0.116	0.0050	"	0.100		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	21-167			

Matrix Spike (2009320-MS1)

Source: 2009258-01

Prepared & Analyzed: 09/28/20

Benzene	0.0915	0.0020	mg/kg	0.100	ND	91.5	70-130			
Toluene	0.0751	0.0050	"	0.100	ND	75.1	70-130			
Ethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130			
m,p-Xylene	0.226	0.010	"	0.200	0.00528	111	70-130			
o-Xylene	0.120	0.0050	"	0.100	ND	120	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0446		"	0.0400		112	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	21-167			

Summit Scientific

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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/01/20 10:23

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 2009320 - EPA 5030 Soil MS

Matrix Spike Dup (2009320-MSD1)	Source: 2009258-01			Prepared & Analyzed: 09/28/20						
Benzene	0.0892	0.0020	mg/kg	0.100	ND	89.2	70-130	2.56	30	
Toluene	0.0749	0.0050	"	0.100	ND	74.9	70-130	0.240	30	
Ethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130	2.97	30	
m,p-Xylene	0.220	0.010	"	0.200	0.00528	107	70-130	2.88	30	
o-Xylene	0.119	0.0050	"	0.100	ND	119	70-130	1.08	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0435</i>		<i>"</i>	<i>0.0400</i>		<i>109</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0409</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0405</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>21-167</i>			

Summit Scientific

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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/01/20 10:23

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 2009314 - EPA 3550A

Blank (2009314-BLK1)

Prepared & Analyzed: 09/25/20

C10-C28 (DRO) ND 50 mg/kg

LCS (2009314-BS1)

Prepared & Analyzed: 09/25/20

C10-C28 (DRO) 610 50 mg/kg 500 122 70-130

Matrix Spike (2009314-MS1)

Source: 2009273-01

Prepared & Analyzed: 09/25/20

C10-C28 (DRO) 6390 50 mg/kg 500 6780 NR 70-130 QM-07

Matrix Spike Dup (2009314-MSD1)

Source: 2009273-01

Prepared & Analyzed: 09/25/20

C10-C28 (DRO) 7700 50 mg/kg 500 6780 183 70-130 18.6 20 QM-07

Summit Scientific

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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Brun

Reported:
10/01/20 10:23

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

Summit Scientific

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

Batch 2009329 - General Preparation

Blank (2009329-BLK1)

Prepared & Analyzed: 09/28/20

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

LCS (2009329-BS1)

Prepared & Analyzed: 09/28/20

Calcium	512	10.0	mg/kg wet	500		102	70-130			
Magnesium	503	5.00	"	500		101	70-130			
Sodium	583	5.00	"	500		117	70-130			

Duplicate (2009329-DUP1)

Source: 2009258-02

Prepared & Analyzed: 09/28/20

Calcium	12600	11.0	mg/kg dry		15100			18.1	20	
Magnesium	2470	5.51	"		2890			15.6	20	
Sodium	90.7	5.51	"		97.6			7.31	20	

Matrix Spike (2009329-MS1)

Source: 2009258-02

Prepared & Analyzed: 09/28/20

Calcium	15700	11.0	mg/kg dry	551	15100	94.9	70-130			
Magnesium	3280	5.51	"	551	2890	71.6	70-130			
Sodium	674	5.51	"	551	97.6	105	70-130			

Matrix Spike Dup (2009329-MSD1)

Source: 2009258-02

Prepared & Analyzed: 09/28/20

Calcium	15700	11.0	mg/kg dry	551	15100	106	70-130	0.392	25	
Magnesium	3300	5.51	"	551	2890	74.2	70-130	0.449	25	
Sodium	638	5.51	"	551	97.6	98.0	70-130	5.60	25	

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 - Gutteresen D02-20

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/01/20 10:23

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

Summit Scientific

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

Batch 2009282 - General Preparation

Duplicate (2009282-DUP1)		Source: 2009258-02			Prepared & Analyzed: 09/24/20						
% Solids	90.9		%		90.8				0.110	20	

Batch 2009283 - General Preparation

LCS (2009283-BS1)		Prepared & Analyzed: 09/24/20									
pH	9.19		pH Units		9.18		100	95-105			
Duplicate (2009283-DUP1)		Source: 2009258-02			Prepared & Analyzed: 09/24/20						
pH	9.21		pH Units		9.24				0.325	20	

Summit Scientific

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



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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Brun

Reported:
10/01/20 10:23

Specific Conductance by EPA Method 120.1 - Quality Control

Summit Scientific

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

Batch 2009284 - General Preparation

Blank (2009284-BLK1)

Prepared & Analyzed: 09/24/20

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (2009284-BS1)

Prepared & Analyzed: 09/24/20

Specific Conductance (EC) 0.807 0.0100 mmhos/cm 0.750 108 90-110

Duplicate (2009284-DUP1)

Source: 2009258-02

Prepared & Analyzed: 09/24/20

Specific Conductance (EC) 0.761 0.0100 mmhos/cm 0.766 0.721 20

Summit Scientific

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



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

Project: Noble - Guttersen D02-20

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/01/20 10:23

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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