TABLE 1
FORMER GUTTERSEN 41-13 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH[4] (mg/kg)
Residential SSL [1,2]			**1.2**	**490**	**5.8**	**58**	**30**	**27**	**2**	**500**
Protection of Groundwater SSL [1,2,3]			**0.0026**	**0.69**	**0.78**	**9.9**	**0.0081**	**0.0087**	**0.0038**	**500**
WH01 @ 6'	7/19/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 4'	7/19/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-02 @ 4'	7/19/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.
4. Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics
TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics
TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics
mg/kg = Milligrams per kilogram
TMB = Trimethylbenzene
ft. = Feet
bgs = Below ground surface

TABLE 2
FORMER GUTTERSEN 41-13 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard [(1)]			**6-8.3**	**<4**	**<6**	**2**
WH01 @ 6'	7/19/2022	6 ft. bgs	7.60	0.302	0.305	0.0394
FLR01 @ 4'	7/19/2022	4 ft. bgs	7.26	0.165	0.194	0.0329

Notes:
1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
COGCC = Colorado Oil and Gas Conservation Commission
EC = Electrical conductivity
SAR = Sodium adsorption ratio
mmhos/cm = Millimhos per centimeter
mg/L = Milligrams per liter
ft. = Feet
bgs = Below ground surface

TABLE 3
FORMER GUTTERSEN 41-13 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL [1,2]			**360**	**1,800**	**1.1**	**0.11**	**1.1**	**11**	**110**	**0.11**	**240**	**240**	**1.1**	**180**	**18**	**24**
Protection of Groundwater SSL [1,2,3]			**0.55**	**5.8**	**0.011**	**0.24**	**0.3**	**2.9**	**9**	**0.096**	**8.9**	**0.54**	**0.98**	**1.3**	**0.006**	**0.019**
WH01 @ 6'	7/19/2022	6 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLR01 @ 4'	7/19/2022	4 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.

COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
PAHs = Polycyclic aromatic hydrocarbons
Benz(a) = Benzanthracene
Benzo(a) = Benzopyrene
Benzo(b) = Benzofluoranthene
Benzo(k) = Benzofluoranthene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
M = Methylnaphthalene
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface

TABLE 4
FORMER GUTTERSEN 41-13 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data [1] Latitude / Longitude		PDOP Value	VOC Concentration [2] (ppm)
WH01 @ 6'	7/19/2022	6 ft. bgs	NC [3]	NC [3]	NC [3]	0.0
FLR01 @ 4'	7/19/2022	4 ft. bgs	40.230742	-104.492528	0.9	0.0
WHS01-N @ 0-6"	7/19/2022	0-6 in. bgs	40.230803	-104.492559	0.9	0.0
WHS01-W @ 0-6"	7/19/2022	0-6 in. bgs	40.230711	-104.492582	0.9	0.0
WHS01-S @ 0-6"	7/19/2022	0-6 in. bgs	40.230683	-104.492478	0.9	0.0
WHS01-E @ 0-6"	7/19/2022	0-6 in. bgs	40.230774	-104.492455	0.9	0.0
FL01-01 @ 4'	7/19/2022	4 ft. bgs	40.230261	-104.493173	0.9	0.1
FL01-02 @ 4'	7/19/2022	4 ft. bgs	40.229727	-104.493881	0.8	0.1
FL01-03 @ 4'	7/19/2022	4 ft. bgs	40.229216	-104.494476	0.8	0.1
BKG01 @ 4'	7/19/2022	4 ft. bgs	40.230711	-104.492738	0.9	0.0
BKG01 @ 6'	7/19/2022	6 ft. bgs	40.230711	-104.492738	0.9	0.0
SEP03-FL @ 4' [4]	7/19/2022	4 ft. bgs	40.229057	-104.494616	0.9	0.0

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.
2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).
3. GPS points were unable to be collected for these locations due to safety concerns regarding the depth and perceived stability of the excavation sidewall at the time of collection.
4. Sample included for reference only, sample collected during associated tank battery decommissioning.

PDOP = Position Dilution of Precision
ppm = Parts per million
ft. = Feet
in. = Inches
bgs = Below ground surface
NC = Data not collected

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 26, 2022

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203

RE: Guttersen 41-13 Wellhead
Work Order #2207277

Enclosed are the results of analyses for samples received by Summit Scientific on 07/19/22 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paul Shrewsbury
President

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2207277-01	Soil	07/19/22 10:35	07/19/22 16:00
FLR01@4'	2207277-02	Soil	07/19/22 10:40	07/19/22 16:00
FL01-02@4'	2207277-05	Soil	07/19/22 12:51	07/19/22 16:00

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 2207277

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

Client:	PDC / Tasman	Project Manager:	Mark Longhurst
Address:	6855 W 119th Ave	E-Mail:	mark.longhurst@PDCE.com
City/State/Zip:	Broomfield/ CO/ 80020		
Phone:	303-487-1228	Project Name:	Guttersen 41-13 Wellhead
Sampler Name:	David Vigil	Project Number:	

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	BTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	TMBs (1,2,4)&(1,3,5)	PAH - 915	Metals - 915	Hold	pH, EC, SAR by saturated paste
1	WH01 @6'	7/19/22	1035	3			X			X			X	X	X	X	X	X			
2	FLR01 @4'	↓	1040	3			X			X			X	X	X	X	X	X			
3	BKG01@4'		1045	1			X			X										X	
4	BKG01@6'		1050	1			X			X										X	
5	FL01-02 @4'	↓	1251	2			X			X			X	X	X						
6																					
7																					
8																					
9																					
10																					

Relinquished by: Dan Vigil	Date/Time: 7/19/22 1530	Received by: Tasman's Lock Box	Date/Time: 7/19/22 1530	**Turn Around Time**	(Check)
Relinquished by: Tasman's Lock Box	Date/Time: 7/19/22 1600	Received by: [signature]	Date/Time: 7/19/22 1600	Same Day ___	72 hours ___
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours ___	Standard X
				48 hours ___	
				Sample Integrity:	
				Temperature Upon Receipt: 0.3	
				Samples Intact: (Yes) No	

Notes:

S2

Sample Receipt Checklist

S2 Work Order# 2207277

Client: Pactasman Client Project ID: Guttersen 41-13 wellhead

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

	-			

Matrix (Check all that apply) Air [ ] Soil/Solid [ ] Water [ ] Other [ ]

Temp (°C) [6.3] Thermometer # [1]

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C [1]? **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	–			ON ICE
Were all samples received intact [1]?	–			
Was adequate sample volume provided [1]?	–			
If custody seals are present, are they intact [1]?	–			
Are samples due within 48 hours present?		–		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+}, Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			–	
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, H_2SO_4, NaOH, HNO_3, etc.			–	
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.				

Custodian Printed Name

7/19/22
Date/Time

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

WH01@6'

2207277-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFG0356	07/20/22	07/21/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0357	*89.2 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0429	*107 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0432	*108 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

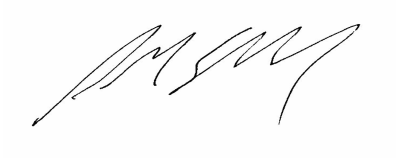
Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0358	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.9	*111 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM



PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

WH01@6'

2207277-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFG0350	07/20/22	07/20/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0249	*74.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0287	*86.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0394**	0.0100	mg/L	1	BFG0352	07/20/22	07/21/22	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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.

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

WH01@6'

2207277-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**20.1**	0.0510	mg/L dry	1	BFG0396	07/21/22	07/22/22	EPA 6020B	
Magnesium	**8.07**	0.0510	"	"	"	"	"	"	
Sodium	**6.41**	0.0510	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.305**	0.00100	units	1	BFG0450	07/25/22	07/25/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**98.1**		%	1	BFG0379	07/20/22	07/21/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

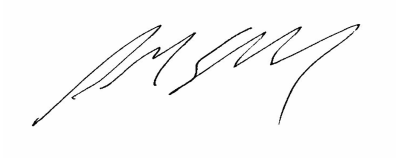
Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.302**	0.0100	mmhos/cm	1	BFG0434	07/22/22	07/22/22	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **07/19/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.60**		pH Units	1	BFG0433	07/22/22	07/22/22	EPA 9045D	



PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

FLR01@4'

2207277-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFG0356	07/20/22	07/21/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0337	*84.2 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0421	*105 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0440	*110 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0358	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.6	*109 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

FLR01@4'

2207277-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFG0350	07/20/22	07/20/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0285	*85.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0354	*106 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0329**	0.0100	mg/L	1	BFG0352	07/20/22	07/21/22	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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.

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

FLR01@4'

2207277-02 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**9.65**	0.0515	mg/L dry	1	BFG0396	07/21/22	07/22/22	EPA 6020B	
Magnesium	**5.32**	0.0515	"	"	"	"	"	"	
Sodium	**3.02**	0.0515	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.194**	0.00100	units	1	BFG0450	07/25/22	07/25/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**97.1**		%	1	BFG0379	07/20/22	07/21/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

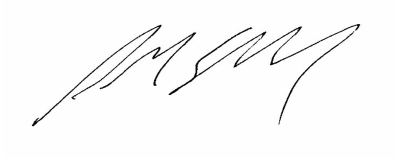
Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.165**	0.0100	mmhos/cm	1	BFG0434	07/22/22	07/22/22	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **07/19/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.26**		pH Units	1	BFG0433	07/22/22	07/22/22	EPA 9045D	



S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

FL01-02@4'

2207277-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/19/22 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFG0356	07/20/22	07/21/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/19/22 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0396	*99.0 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0429	*107 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0440	*110 %*	*50-150*		"	"	"	"	

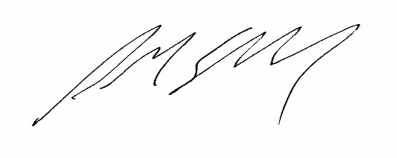
Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/19/22 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0358	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 12:51**

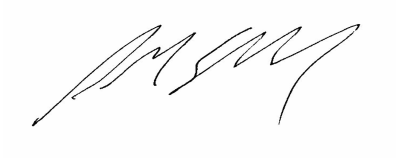
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.8	*110 %*	*30-150*		"	"	"	"	



Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0356 - EPA 5030 Soil MS										
Blank (BFG0356-BLK1)				Prepared: 07/20/22 Analyzed: 07/21/22						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0368*		*"*	*0.0400*		*92.0*	*50-150*			
Surrogate: Toluene-d8	*0.0420*		*"*	*0.0400*		*105*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0432*		*"*	*0.0400*		*108*	*50-150*			
LCS (BFG0356-BS1)				Prepared: 07/20/22 Analyzed: 07/22/22						
Benzene	0.141	0.0020	mg/kg	0.150		93.8	70-130			
Toluene	0.186	0.0050	"	0.150		124	70-130			
Ethylbenzene	0.137	0.0050	"	0.150		91.1	70-130			
m,p-Xylene	0.273	0.010	"	0.300		91.1	70-130			
o-Xylene	0.132	0.0050	"	0.150		88.2	70-130			
1,2,4-Trimethylbenzene	0.146	0.0050	"	0.150		97.6	70-130			
1,3,5-Trimethylbenzene	0.152	0.0050	"	0.150		101	70-130			
Naphthalene	0.114	0.0038	"	0.150		76.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0371*		*"*	*0.0400*		*92.8*	*50-150*			
Surrogate: Toluene-d8	*0.0441*		*"*	*0.0400*		*110*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0445*		*"*	*0.0400*		*111*	*50-150*			
Matrix Spike (BFG0356-MS1)	**Source: 2207268-01**			Prepared: 07/20/22 Analyzed: 07/22/22						
Benzene	0.140	0.0020	mg/kg	0.150	ND	93.7	70-130			
Toluene	0.188	0.0050	"	0.150	ND	125	70-130			
Ethylbenzene	0.138	0.0050	"	0.150	ND	92.3	70-130			
m,p-Xylene	0.278	0.010	"	0.300	ND	92.5	70-130			
o-Xylene	0.133	0.0050	"	0.150	ND	88.8	70-130			
1,2,4-Trimethylbenzene	0.148	0.0050	"	0.150	ND	98.8	70-130			
1,3,5-Trimethylbenzene	0.154	0.0050	"	0.150	ND	103	70-130			
Naphthalene	0.108	0.0038	"	0.150	ND	71.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0397*		*"*	*0.0400*		*99.3*	*50-150*			
Surrogate: Toluene-d8	*0.0442*		*"*	*0.0400*		*110*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0441*		*"*	*0.0400*		*110*	*50-150*			



Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0356 - EPA 5030 Soil MS										
Matrix Spike Dup (BFG0356-MSD1)		**Source: 2207268-01**		Prepared: 07/20/22 Analyzed: 07/22/22						
Benzene	0.134	0.0020	mg/kg	0.150	ND	89.1	70-130	5.04	30	
Toluene	0.180	0.0050	"	0.150	ND	120	70-130	4.58	30	
Ethylbenzene	0.132	0.0050	"	0.150	ND	87.7	70-130	5.07	30	
m,p-Xylene	0.264	0.010	"	0.300	ND	88.1	70-130	4.88	30	
o-Xylene	0.126	0.0050	"	0.150	ND	84.3	70-130	5.20	30	
1,2,4-Trimethylbenzene	0.141	0.0050	"	0.150	ND	93.9	70-130	5.17	30	
1,3,5-Trimethylbenzene	0.146	0.0050	"	0.150	ND	97.6	70-130	4.95	30	
Naphthalene	0.108	0.0038	"	0.150	ND	71.9	70-130	0.223	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0404*		"	*0.0400*		*101*	*50-150*			
Surrogate: Toluene-d8	*0.0443*		"	*0.0400*		*111*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0440*		"	*0.0400*		*110*	*50-150*			

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0358 - EPA 3550A										
Blank (BFG0358-BLK1)				Prepared & Analyzed: 07/20/22						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
LCS (BFG0358-BS1)				Prepared & Analyzed: 07/20/22						
C10-C28 (DRO)	557	50	mg/kg	500		111	70-130			
Matrix Spike (BFG0358-MS1)	**Source: 2207268-01**			Prepared & Analyzed: 07/20/22						
C10-C28 (DRO)	518	50	mg/kg	500	16.6	100	70-130			
Matrix Spike Dup (BFG0358-MSD1)	**Source: 2207268-01**			Prepared & Analyzed: 07/20/22						
C10-C28 (DRO)	545	50	mg/kg	500	16.6	106	70-130	5.03	20	

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

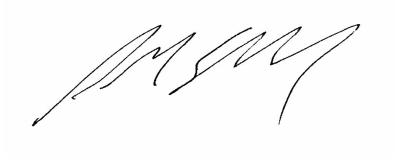
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0350 - EPA 5030 Soil MS										
Blank (BFG0350-BLK1)				Prepared & Analyzed: 07/20/22						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0404*		*"*	*0.0333*		*121*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0484*		*"*	*0.0333*		*145*	*40-150*			
LCS (BFG0350-BS1)				Prepared & Analyzed: 07/20/22						
Acenaphthene	0.0341	0.00500	mg/kg	0.0333		102	31-137			
Anthracene	0.0376	0.00500	"	0.0333		113	30-120			
Benzo (a) anthracene	0.0373	0.00500	"	0.0333		112	30-120			
Benzo (a) pyrene	0.0358	0.00500	"	0.0333		107	30-120			
Benzo (b) fluoranthene	0.0390	0.00500	"	0.0333		117	30-120			
Benzo (k) fluoranthene	0.0367	0.00500	"	0.0333		110	30-120			
Chrysene	0.0374	0.00500	"	0.0333		112	30-120			
Dibenz (a,h) anthracene	0.0379	0.00500	"	0.0333		114	30-120			
Fluoranthene	0.0328	0.00500	"	0.0333		98.3	30-120			
Fluorene	0.0323	0.00500	"	0.0333		96.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0384	0.00500	"	0.0333		115	30-120			
Pyrene	0.0370	0.00500	"	0.0333		111	35-142			
1-Methylnaphthalene	0.0372	0.00500	"	0.0333		112	35-142			
2-Methylnaphthalene	0.0302	0.00500	"	0.0333		90.6	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0359*		*"*	*0.0333*		*108*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0383*		*"*	*0.0333*		*115*	*40-150*			

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0350 - EPA 5030 Soil MS										
Matrix Spike (BFG0350-MS1)	**Source: 2207243-01**			Prepared & Analyzed: 07/20/22						
Acenaphthene	0.0233	0.00500	mg/kg	0.0333	ND	70.0	31-137			
Anthracene	0.0310	0.00500	"	0.0333	ND	92.9	30-120			
Benzo (a) anthracene	0.0292	0.00500	"	0.0333	ND	87.6	30-120			
Benzo (a) pyrene	0.0307	0.00500	"	0.0333	ND	92.0	30-120			
Benzo (b) fluoranthene	0.0314	0.00500	"	0.0333	ND	94.2	30-120			
Benzo (k) fluoranthene	0.0349	0.00500	"	0.0333	ND	105	30-120			
Chrysene	0.0304	0.00500	"	0.0333	ND	91.2	30-120			
Dibenz (a,h) anthracene	0.0302	0.00500	"	0.0333	ND	90.5	30-120			
Fluoranthene	0.0355	0.00500	"	0.0333	ND	106	30-120			
Fluorene	0.0234	0.00500	"	0.0333	ND	70.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0275	0.00500	"	0.0333	ND	82.4	30-120			
Pyrene	0.0312	0.00500	"	0.0333	ND	93.6	35-142			
1-Methylnaphthalene	0.0265	0.00500	"	0.0333	ND	79.5	15-130			
2-Methylnaphthalene	0.0254	0.00500	"	0.0333	ND	76.2	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0249*		*"*	*0.0333*		*74.8*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0329*		*"*	*0.0333*		*98.6*	*40-150*			
Matrix Spike Dup (BFG0350-MSD1)	**Source: 2207243-01**			Prepared & Analyzed: 07/20/22						**QR-02**
Acenaphthene	0.0151	0.00500	mg/kg	0.0333	ND	45.3	31-137	42.8	30	
Anthracene	0.0173	0.00500	"	0.0333	ND	52.0	30-120	56.4	30	
Benzo (a) anthracene	0.0130	0.00500	"	0.0333	ND	39.1	30-120	76.7	30	
Benzo (a) pyrene	0.0139	0.00500	"	0.0333	ND	41.7	30-120	75.2	30	
Benzo (b) fluoranthene	0.0138	0.00500	"	0.0333	ND	41.5	30-120	77.6	30	
Benzo (k) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	71.6	30	
Chrysene	0.0148	0.00500	"	0.0333	ND	44.4	30-120	69.1	30	
Dibenz (a,h) anthracene	0.0119	0.00500	"	0.0333	ND	35.8	30-120	86.6	30	
Fluoranthene	0.0127	0.00500	"	0.0333	ND	38.1	30-120	94.7	30	
Fluorene	0.0124	0.00500	"	0.0333	ND	37.2	30-120	61.6	30	
Indeno (1,2,3-cd) pyrene	0.0111	0.00500	"	0.0333	ND	33.4	30-120	84.7	30	
Pyrene	0.0144	0.00500	"	0.0333	ND	43.1	35-142	73.9	30	
1-Methylnaphthalene	0.00700	0.00500	"	0.0333	ND	21.0	15-130	116	50	
2-Methylnaphthalene	0.00825	0.00500	"	0.0333	ND	24.7	15-130	102	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0145*		*"*	*0.0333*		*43.5*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0155*		*"*	*0.0333*		*46.4*	*40-150*			



Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0352 - EPA 3050B										
Blank (BFG0352-BLK1)				Prepared: 07/20/22 Analyzed: 07/21/22						
Boron	ND	0.0100	mg/L							
LCS (BFG0352-BS1)				Prepared: 07/20/22 Analyzed: 07/21/22						
Boron	4.95	0.0100	mg/L	5.00		99.0	80-120			
Duplicate (BFG0352-DUP1)		**Source: 2207268-02**		Prepared: 07/20/22 Analyzed: 07/21/22						
Boron	0.0418	0.0100	mg/L		0.0531			23.8	20	QR-03
Matrix Spike (BFG0352-MS1)		**Source: 2207268-02**		Prepared: 07/20/22 Analyzed: 07/21/22						
Boron	5.63	0.0100	mg/L	5.00	0.0531	112	75-125			
Matrix Spike Dup (BFG0352-MSD1)		**Source: 2207268-02**		Prepared: 07/20/22 Analyzed: 07/21/22						
Boron	5.01	0.0100	mg/L	5.00	0.0531	99.2	75-125	11.5	25	

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0396 - General Preparation										
Blank (BFG0396-BLK1)				Prepared: 07/21/22 Analyzed: 07/22/22						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BFG0396-BS1)				Prepared: 07/21/22 Analyzed: 07/22/22						
Calcium	4.96	0.0500	mg/L wet				70-130			
Magnesium	4.81	0.0500	"				70-130			
Sodium	4.47	0.0500	"				70-130			

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0379 - General Preparation										
Duplicate (BFG0379-DUP1)	**Source: 2206376-13**			Prepared: 07/20/22 Analyzed: 07/21/22						
% Solids	88.7		%		88.5			0.249	20	

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0434 - General Preparation										
Blank (BFG0434-BLK1)				Prepared & Analyzed: 07/22/22						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BFG0434-BS1)				Prepared & Analyzed: 07/22/22						
Specific Conductance (EC)	0.158	0.0100	mmhos/cm	0.150		105	95-105			
Duplicate (BFG0434-DUP1)		**Source: 2207277-01**		Prepared & Analyzed: 07/22/22						
Specific Conductance (EC)	0.293	0.0100	mmhos/cm		0.302			3.16	20	

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0433 - General Preparation										
LCS (BFG0433-BS1)				Prepared & Analyzed: 07/22/22						
pH	9.11		pH Units	9.18		99.2	95-105			
Duplicate (BFG0433-DUP1)		**Source: 2207277-01**		Prepared & Analyzed: 07/22/22						
pH	7.57		pH Units		7.60			0.396	20	

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Guttersen 41-13 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 07/26/22 12:01

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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