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October 27, 2023

Jenifer Hakkarinen
PDC Energy
1775 Sherman Street
Suite 3000
Denver, CO 80203

Work Order: **HS23101053**

Laboratory Results for: **City of Greeley 2-30**

Dear Jenifer Hakkarinen,

ALS Environmental received 1 sample(s) on Oct 17, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Tyler Monroe

Client: PDC Energy
Project: City of Greeley 2-30
Work Order: HS23101053

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23101053-01	City of Greeley 2-30	Water		16-Oct-2023 11:00	17-Oct-2023 08:00	<input type="checkbox"/>

Client: PDC Energy
Project: City of Greeley 2-30
Work Order: HS23101053

CASE NARRATIVE

GC Semivolatiles by Method RSK-175**Batch ID: R449897**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GC Semivolatiles by Method SW8015M**Batch ID: 202177**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GC Volatiles by Method SW8015**Batch ID: R449494****Sample ID: City of Greeley 2-30 (HS23101053-01)**

- Lowest possible dilution due to sample matrix.

GCMS Volatiles by Method SW8260**Batch ID: R450004****Sample ID: City of Greeley 2-30 (HS23101053-01)**

- Lowest possible dilution due to sample matrix.

Metals by Method E200.8**Batch ID: 202611****Sample ID: HS23101018-01MS/HS231019-01MS**

- MS and MSD are for unrelated samples

Wet Chemistry by Method E300**Batch ID: R450209****Sample ID: HS23101380-01MS/HS23101380-02MS**

- MS and MSD are for unrelated samples

WetChemistry by Method SM2320B**Batch ID: R450230**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E300**Batch ID: R450209****Sample ID: City of Greeley 2-30 (HS23101053-01)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Sulfate)

Client: PDC Energy
Project: City of Greeley 2-30
Work Order: HS23101053

CASE NARRATIVE

WetChemistry by Method M2540C

Batch ID: R449689

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

Client: PDC Energy
 Project: City of Greeley 2-30
 Sample ID: City of Greeley 2-30
 Collection Date: 16-Oct-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23101053
 Lab ID:HS23101053-01
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: FT		
Benzene	ND		500	ug/L	500	25-Oct-2023 01:19
Ethylbenzene	ND		500	ug/L	500	25-Oct-2023 01:19
m,p-Xylene	ND		1000	ug/L	500	25-Oct-2023 01:19
o-Xylene	ND		500	ug/L	500	25-Oct-2023 01:19
Toluene	2,000		500	ug/L	500	25-Oct-2023 01:19
Xylenes, Total	ND		500	ug/L	500	25-Oct-2023 01:19
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>103</i>		<i>70-126</i>	<i>%REC</i>	<i>500</i>	<i>25-Oct-2023 01:19</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>90.6</i>		<i>77-113</i>	<i>%REC</i>	<i>500</i>	<i>25-Oct-2023 01:19</i>
<i>Surr: Dibromofluoromethane</i>	<i>105</i>		<i>77-123</i>	<i>%REC</i>	<i>500</i>	<i>25-Oct-2023 01:19</i>
<i>Surr: Toluene-d8</i>	<i>101</i>		<i>82-127</i>	<i>%REC</i>	<i>500</i>	<i>25-Oct-2023 01:19</i>
GASOLINE RANGE ORGANICS BY SW8015C		Method:SW8015		Analyst: TS		
Gasoline Range Organics	ND		25.0	mg/L	500	18-Oct-2023 05:08
<i>Surr: 4-Bromofluorobenzene</i>	<i>112</i>		<i>70-123</i>	<i>%REC</i>	<i>500</i>	<i>18-Oct-2023 05:08</i>
DISSOLVED GASES BY RSK-175		Method:RSK-175		Analyst: SAM		
Ethane	3,930		200	ug/L	200	20-Oct-2023 15:27
Methane	6,310		100	ug/L	200	20-Oct-2023 15:27
Propane	2,330		200	ug/L	200	20-Oct-2023 15:27
TPH DRO/ORO BY SW8015C		Method:SW8015M		Prep:SW3511 / 18-Oct-2023 Analyst: SAM		
TPH (Diesel Range)	0.34		0.052	mg/L	1	25-Oct-2023 00:48
<i>Surr: 2-Fluorobiphenyl</i>	<i>132</i>		<i>60-135</i>	<i>%REC</i>	<i>1</i>	<i>25-Oct-2023 00:48</i>
TOTAL METALS BY E200.8, REV 5.4, 1994		Method:E200.8		Prep:E200.8 / 26-Oct-2023 Analyst: MSC		
Calcium	104		2.50	mg/L	5	26-Oct-2023 22:46
Magnesium	16.1		2.50	mg/L	5	26-Oct-2023 22:46
Potassium	14.5		2.50	mg/L	5	26-Oct-2023 22:46
Sodium	2,390		100	mg/L	500	27-Oct-2023 11:38
ANIONS BY E300.0, REV 2.1, 1993		Method:E300		Analyst: TH		
Chloride	3,620		50.0	mg/L	100	26-Oct-2023 14:44
Sulfate	4.37		2.50	mg/L	5	26-Oct-2023 14:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C		Analyst: DC		
Total Dissolved Solids (Residue, Filterable)	5,680		10.0	mg/L	1	19-Oct-2023 12:00
ALKALINITY BY -2011		Method:SM2320B		Analyst: DW		
Alkalinity, Bicarbonate (As CaCO3)	251		5.00	mg/L	1	26-Oct-2023 20:28
Alkalinity, Carbonate (As CaCO3)	17.2		5.00	mg/L	1	26-Oct-2023 20:28
Alkalinity, Total (As CaCO3)	268		5.00	mg/L	1	26-Oct-2023 20:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

Batch ID: 202177	Start Date: 18 Oct 2023 08:30	End Date: 18 Oct 2023 08:30
Method: SW3511		Prep Code: 3511_DRO

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23101053-01		31.84 (mL)	2 (mL)	0.06281	40 mL Amber

Batch ID: 202611	Start Date: 26 Oct 2023 12:30	End Date: 26 Oct 2023 12:30
Method: TOTAL METALS PREP BY E200.8, REV 5.4, 1994		Prep Code: 200.8PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23101053-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 202177 (0)		Test Name : TPH DRO/ORO BY SW8015C			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00		18 Oct 2023 08:30	25 Oct 2023 00:48	1
Batch ID: 202611 (0)		Test Name : TOTAL METALS BY E200.8, REV 5.4, 1994			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00		26 Oct 2023 12:30	27 Oct 2023 11:38	500
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00		26 Oct 2023 12:30	26 Oct 2023 22:46	5
Batch ID: R449494 (0)		Test Name : GASOLINE RANGE ORGANICS BY SW8015C			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00			18 Oct 2023 05:08	500
Batch ID: R449689 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00			19 Oct 2023 12:00	1
Batch ID: R449897 (0)		Test Name : DISSOLVED GASES BY RSK-175			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00			20 Oct 2023 15:27	200
Batch ID: R450004 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00			25 Oct 2023 01:19	500
Batch ID: R450209 (0)		Test Name : ANIONS BY E300.0, REV 2.1, 1993			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00			26 Oct 2023 14:44	100
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00			26 Oct 2023 14:38	5
Batch ID: R450230 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS23101053-01	City of Greeley 2-30	16 Oct 2023 11:00			26 Oct 2023 20:28	1

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: 202177 (0)		Instrument: FID-16		Method: TPH DRO/ORO BY SW8015C					
MBLK	Sample ID: MBLK-202177	Units: mg/L		Analysis Date: 24-Oct-2023 15:55					
Client ID:	Run ID: FID-16_450061		SeqNo: 7632267		PrepDate: 18-Oct-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
TPH (Diesel Range)	ND	0.050							
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.07071</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>118</i>	<i>60 - 135</i>			
LCS	Sample ID: LCS-202177	Units: mg/L		Analysis Date: 24-Oct-2023 16:25					
Client ID:	Run ID: FID-16_450061		SeqNo: 7632268		PrepDate: 18-Oct-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
TPH (Diesel Range)	0.462	0.050	0.6	0	77.0	70 - 130			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06196</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>103</i>	<i>60 - 135</i>			
LCSD	Sample ID: LCSD-202177	Units: mg/L		Analysis Date: 24-Oct-2023 16:55					
Client ID:	Run ID: FID-16_450061		SeqNo: 7632269		PrepDate: 18-Oct-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
TPH (Diesel Range)	0.4947	0.050	0.6	0	82.4	70 - 130	0.462	6.82	20
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.0591</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>98.5</i>	<i>60 - 135</i>	<i>0.06196</i>	<i>4.72</i>	<i>20</i>
The following samples were analyzed in this batch: HS23101053-01									

Client: PDC Energy
 Project: City of Greeley 2-30
 WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R449897 (0)		Instrument: FID-4		Method: DISSOLVED GASES BY RSK-175					
MBLK	Sample ID: MBLK-231020	Units: ug/L		Analysis Date: 20-Oct-2023 11:18					
Client ID:	Run ID: FID-4_449897	SeqNo: 7628518		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	ND	1.00							
Methane	ND	0.500							
Propane	ND	1.00							

LCS	Sample ID: LCS-231020	Units: ug/L		Analysis Date: 20-Oct-2023 11:35					
Client ID:	Run ID: FID-4_449897	SeqNo: 7628519		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.65	1.00	18.04	0	97.8	75 - 125			
Methane	7.75	0.500	9.647	0	80.3	75 - 125			
Propane	25.79	1.00	26.46	0	97.5	75 - 125			

LCSD	Sample ID: LCSD-231020	Units: ug/L		Analysis Date: 20-Oct-2023 11:52					
Client ID:	Run ID: FID-4_449897	SeqNo: 7628520		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.33	1.00	18.04	0	96.0	75 - 125	17.65	1.85	30
Methane	7.526	0.500	9.647	0	78.0	75 - 125	7.75	2.93	30
Propane	25.16	1.00	26.46	0	95.1	75 - 125	25.79	2.47	30

The following samples were analyzed in this batch: HS23101053-01

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R449494 (0)		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C						
MBLK	Sample ID: MBLK-231017	Units: mg/L		Analysis Date: 18-Oct-2023 01:01						
Client ID:	Run ID: FID-20_449494	SeqNo: 7618442		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	ND	0.0500								
Surr: 4-Bromofluorobenzene	0.118	0.00500	0.1	0	118	70 - 121				
LCS	Sample ID: LCS-231017	Units: mg/L		Analysis Date: 18-Oct-2023 00:34						
Client ID:	Run ID: FID-20_449494	SeqNo: 7618440		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8988	0.0500	1	0	89.9	76 - 124				
Surr: 4-Bromofluorobenzene	0.1189	0.00500	0.1	0	119	52 - 138				
LCSD	Sample ID: LCSD-231017	Units: mg/L		Analysis Date: 18-Oct-2023 00:47						
Client ID:	Run ID: FID-20_449494	SeqNo: 7618441		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.076	0.0500	1	0	108	76 - 124	0.8988	17.9	20	
Surr: 4-Bromofluorobenzene	0.1154	0.00500	0.1	0	115	52 - 138	0.1189	2.97	20	

The following samples were analyzed in this batch: HS23101053-01

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: 202611 (0)		Instrument: ICPMS06		Method: TOTAL METALS BY E200.8, REV 5.4, 1994					
MBLK	Sample ID: MBLK-202611	Units: ug/L		Analysis Date: 26-Oct-2023 22:16					
Client ID:	Run ID: ICPMS06_450161	SeqNo: 7636982		PrepDate: 26-Oct-2023		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	ND	500							
Magnesium	ND	500							
Potassium	ND	500							
Sodium	ND	200							

LCS	Sample ID: LCS-202611	Units: ug/L		Analysis Date: 26-Oct-2023 22:18					
Client ID:	Run ID: ICPMS06_450161	SeqNo: 7636983		PrepDate: 26-Oct-2023		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	5021	500	5000	0	100	85 - 115			
Magnesium	5028	500	5000	0	101	85 - 115			
Potassium	4952	500	5000	0	99.0	85 - 115			
Sodium	4846	200	5000	0	96.9	85 - 115			

MS	Sample ID: HS23101019-01MS	Units: ug/L		Analysis Date: 26-Oct-2023 22:27					
Client ID:	Run ID: ICPMS06_450161	SeqNo: 7636988		PrepDate: 26-Oct-2023		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	170000	500	5000	174900	-97.7	70 - 130			SO
Magnesium	20390	500	5000	16180	84.1	70 - 130			
Potassium	9295	500	5000	4546	95.0	70 - 130			
Sodium	86360	200	5000	84850	30.1	70 - 130			SO

MS	Sample ID: HS23101018-01MS	Units: ug/L		Analysis Date: 26-Oct-2023 22:22					
Client ID:	Run ID: ICPMS06_450161	SeqNo: 7636985		PrepDate: 26-Oct-2023		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	137300	500	5000	141300	-81.3	70 - 130			SO
Magnesium	15260	500	5000	11290	79.4	70 - 130			
Potassium	11760	500	5000	7508	85.0	70 - 130			
Sodium	81420	200	5000	83120	-34.1	70 - 130			SO

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: 202611 (0)		Instrument: ICPMS06		Method: TOTAL METALS BY E200.8, REV 5.4, 1994						
MSD	Sample ID: HS23101019-01MSD	Units: ug/L		Analysis Date: 26-Oct-2023 22:29						
Client ID:	Run ID: ICPMS06_450161	SeqNo: 7636989		PrepDate: 26-Oct-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	179900	500	5000	174900	99.6	70 - 130	170000	5.64	20	O
Magnesium	21280	500	5000	16180	102	70 - 130	20390	4.27	20	
Potassium	9764	500	5000	4546	104	70 - 130	9295	4.92	20	
Sodium	89680	200	5000	84850	96.5	70 - 130	86360	3.77	20	O

MSD	Sample ID: HS23101018-01MSD	Units: ug/L		Analysis Date: 26-Oct-2023 22:24						
Client ID:	Run ID: ICPMS06_450161	SeqNo: 7636986		PrepDate: 26-Oct-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	140700	500	5000	141300	-13.2	70 - 130	137300	2.45	20	SO
Magnesium	15610	500	5000	11290	86.2	70 - 130	15260	2.2	20	
Potassium	12010	500	5000	7508	90.1	70 - 130	11760	2.14	20	
Sodium	84980	200	5000	83120	37.1	70 - 130	81420	4.28	20	SO

The following samples were analyzed in this batch: HS23101053-01

Client: PDC Energy
 Project: City of Greeley 2-30
 WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R450004 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-231024	Units: ug/L		Analysis Date: 24-Oct-2023 19:22					
Client ID:	Run ID: VOA11_450004	SeqNo: 7631046		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	ND	1.0							
Ethylbenzene	ND	1.0							
m,p-Xylene	ND	2.0							
o-Xylene	ND	1.0							
Toluene	ND	1.0							
Xylenes, Total	ND	3.0							
Surr: 1,2-Dichloroethane-d4	48.97	1.0	50	0	97.9	70 - 123			
Surr: 4-Bromofluorobenzene	46.12	1.0	50	0	92.2	77 - 113			
Surr: Dibromofluoromethane	50.94	1.0	50	0	102	73 - 126			
Surr: Toluene-d8	51.06	1.0	50	0	102	81 - 120			

LCS	Sample ID: VLCSW-231024	Units: ug/L		Analysis Date: 24-Oct-2023 18:40					
Client ID:	Run ID: VOA11_450004	SeqNo: 7631045		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.35	1.0	20	0	91.8	74 - 120			
Ethylbenzene	18.54	1.0	20	0	92.7	77 - 117			
m,p-Xylene	36.74	2.0	40	0	91.8	77 - 122			
o-Xylene	18.07	1.0	20	0	90.4	75 - 119			
Toluene	18.19	1.0	20	0	91.0	77 - 118			
Xylenes, Total	54.81	3.0	60	0	91.4	75 - 122			
Surr: 1,2-Dichloroethane-d4	46.93	1.0	50	0	93.9	70 - 123			
Surr: 4-Bromofluorobenzene	49.53	1.0	50	0	99.1	77 - 113			
Surr: Dibromofluoromethane	49.2	1.0	50	0	98.4	73 - 126			
Surr: Toluene-d8	51.2	1.0	50	0	102	81 - 120			

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R450004 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MS		Sample ID: HS23101419-25MS		Units: ug/L		Analysis Date: 24-Oct-2023 20:25			
Client ID:		Run ID: VOA11_450004		SeqNo: 7631049		PrepDate:		DF: 1000	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	24180	1000	20000	6503	88.4	70 - 127			
Ethylbenzene	18340	1000	20000	1068	86.4	70 - 124			
m,p-Xylene	39580	2000	40000	4495	87.7	70 - 130			
o-Xylene	19460	1000	20000	2166	86.5	70 - 124			
Toluene	41130	1000	20000	22530	93.0	70 - 123			
Xylenes, Total	59040	3000	60000	6661	87.3	70 - 130			
Surr: 1,2-Dichloroethane-d4	48910	1000	50000	0	97.8	70 - 126			
Surr: 4-Bromofluorobenzene	49710	1000	50000	0	99.4	77 - 113			
Surr: Dibromofluoromethane	50860	1000	50000	0	102	77 - 123			
Surr: Toluene-d8	50870	1000	50000	0	102	82 - 127			

MSD		Sample ID: HS23101419-25MSD		Units: ug/L		Analysis Date: 24-Oct-2023 20:46			
Client ID:		Run ID: VOA11_450004		SeqNo: 7631050		PrepDate:		DF: 1000	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	25020	1000	20000	6503	92.6	70 - 127	24180	3.41	20
Ethylbenzene	19220	1000	20000	1068	90.7	70 - 124	18340	4.65	20
m,p-Xylene	40240	2000	40000	4495	89.4	70 - 130	39580	1.66	20
o-Xylene	20210	1000	20000	2166	90.2	70 - 124	19460	3.8	20
Toluene	42760	1000	20000	22530	101	70 - 123	41130	3.9	20
Xylenes, Total	60460	3000	60000	6661	89.7	70 - 130	59040	2.37	20
Surr: 1,2-Dichloroethane-d4	48440	1000	50000	0	96.9	70 - 126	48910	0.971	20
Surr: 4-Bromofluorobenzene	48870	1000	50000	0	97.7	77 - 113	49710	1.71	20
Surr: Dibromofluoromethane	50210	1000	50000	0	100	77 - 123	50860	1.29	20
Surr: Toluene-d8	50660	1000	50000	0	101	82 - 127	50870	0.419	20

The following samples were analyzed in this batch: HS23101053-01

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R449689 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WMBLK-10192023	Units: mg/L		Analysis Date: 19-Oct-2023 12:00						
Client ID:	Run ID: Balance1_449689	SeqNo: 7623454		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		ND	10.0							
LCS	Sample ID: WLCS-10192023	Units: mg/L		Analysis Date: 19-Oct-2023 12:00						
Client ID:	Run ID: Balance1_449689	SeqNo: 7623453		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		1076	10.0	1000	0	108	85 - 115			
DUP	Sample ID: HS23101158-01DUP	Units: mg/L		Analysis Date: 19-Oct-2023 12:00						
Client ID:	Run ID: Balance1_449689	SeqNo: 7623444		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		988	10.0				988	0		20
DUP	Sample ID: HS23100983-04DUP	Units: mg/L		Analysis Date: 19-Oct-2023 12:00						
Client ID:	Run ID: Balance1_449689	SeqNo: 7623437		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		1180	10.0				1184	0.338	20	
The following samples were analyzed in this batch:		HS23101053-01								

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R450209 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 26-Oct-2023 10:53					
Client ID:	Run ID: ICS-Integrion_450209		SeqNo: 7636286		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	ND	0.500							
Sulfate	ND	0.500							

LCS	Sample ID: LCS	Units: mg/L		Analysis Date: 26-Oct-2023 11:04					
Client ID:	Run ID: ICS-Integrion_450209		SeqNo: 7636287		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	20.62	0.500	20	0	103	90 - 110			
Sulfate	19.25	0.500	20	0	96.2	90 - 110			

MS	Sample ID: HS23101380-02MS	Units: mg/L		Analysis Date: 26-Oct-2023 14:15					
Client ID:	Run ID: ICS-Integrion_450209		SeqNo: 7636314		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	118.4	0.500	10	112	63.3	80 - 120			SEO
Sulfate	333.3	0.500	10	332.3	9.26	80 - 120			SEO

MS	Sample ID: HS23101380-01MS	Units: mg/L		Analysis Date: 26-Oct-2023 13:57					
Client ID:	Run ID: ICS-Integrion_450209		SeqNo: 7636311		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	60.62	0.500	10	51.65	89.8	80 - 120			O
Sulfate	275	0.500	10	270.9	40.6	80 - 120			SEO

MSD	Sample ID: HS23101380-02MSD	Units: mg/L		Analysis Date: 26-Oct-2023 14:21					
Client ID:	Run ID: ICS-Integrion_450209		SeqNo: 7636315		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	118.4	0.500	10	112	64.1	80 - 120	118.4	0.0693	20 SEO
Sulfate	333.9	0.500	10	332.3	15.7	80 - 120	333.3	0.193	20 SEO

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R450209 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993						
MSD		Sample ID: HS23101380-01MSD		Units: mg/L		Analysis Date: 26-Oct-2023 14:03				
Client ID:		Run ID: ICS-Integrion_450209		SeqNo: 7636312		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	60.68	0.500	10	51.65	90.4	80 - 120	60.62	0.0956	20	O
Sulfate	275.3	0.500	10	270.9	44.2	80 - 120	275	0.131	20	SEO

The following samples were analyzed in this batch: HS23101053-01

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

QC BATCH REPORT

Batch ID: R450230 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-10252023	Units: mg/L		Analysis Date: 26-Oct-2023 17:50					
Client ID:	Run ID: Skalar 03_450230	SeqNo: 7637166		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.00							
Alkalinity, Carbonate (As CaCO3)	ND	5.00							
Alkalinity, Total (As CaCO3)	ND	5.00							

LCS	Sample ID: LCS-10252023	Units: mg/L		Analysis Date: 26-Oct-2023 17:56					
Client ID:	Run ID: Skalar 03_450230	SeqNo: 7637167		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	931.4	5.00	1000	0	93.1	85 - 115			
Alkalinity, Total (As CaCO3)	941.4	5.00	1000	0	94.1	85 - 115			

LCSD	Sample ID: LCSD-10252023	Units: mg/L		Analysis Date: 26-Oct-2023 18:02					
Client ID:	Run ID: Skalar 03_450230	SeqNo: 7637168		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	936.4	5.00	1000	0	93.6	85 - 115	931.4	0.535	20
Alkalinity, Total (As CaCO3)	946.5	5.00	1000	0	94.6	85 - 115	941.4	0.54	20

DUP	Sample ID: HS23100907-12DUP	Units: mg/L		Analysis Date: 26-Oct-2023 19:16					
Client ID:	Run ID: Skalar 03_450230	SeqNo: 7637180		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	1946	5.00					1941	0.237	20
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0	0	20
Alkalinity, Total (As CaCO3)	1946	5.00					1941	0.237	20

The following samples were analyzed in this batch: HS23101053-01

Client: PDC Energy
Project: City of Greeley 2-30
WorkOrder: HS23101053

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-31	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS23101053

Date/Time Received: 17-Oct-2023 08:00

Client Name: PDC Energy 80203

Received by: Nelson D. Dusara

Completed By: /S/ Corey Grandits

17-Oct-2023 10:05

Reviewed by: /S/ Tyler Monroe

17-Oct-2023 14:14

eSignature

Date/Time

eSignature

Date/Time

Matrices: **W**Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒No ☐Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐No ☐Not Present ☒

Custody seals intact on sample bottles?

Yes ☐No ☐Not Present ☒

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes ☐No ☐Not Present ☒

Chain of custody present?

Yes ☒No ☐

1 Page(s)

Chain of custody signed when relinquished and received?

Yes ☒No ☐

Samplers name present on COC?

Yes ☒No ☐

Chain of custody agrees with sample labels?

Yes ☒No ☐

Samples in proper container/bottle?

Yes ☒No ☐

Sample containers intact?

Yes ☒No ☐

Sufficient sample volume for indicated test?

Yes ☒No ☐

All samples received within holding time?

Yes ☒No ☐

Container/Temp Blank temperature in compliance?

Yes ☒No ☐

Temperature(s)/Thermometer(s):

2.2UC/2.1C

IR31

Cooler(s)/Kit(s):

50336

Date/Time sample(s) sent to storage:

10/17/23

Water - VOA vials have zero headspace?

Yes ☒No ☐No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☒No ☐N/A ☐

pH adjusted?

Yes ☐No ☒N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



ALS Environmental

965 E 11th St
Loveland, CO 80537
PH: 970-305-1648

Chain-of-Custody

WORKORDER #

SAMPLER		Jeff Braden		DATE		10/16/23		PAGE		1 of 1	
CT NAME	City of Greeley 2:30	FACILITY ID	123-13160	TURNAROUND		Standard		DISPOSAL		By Lab or Return to Client	
CT No.	0902073549	EDD FORMAT	COGCC EDD, LTE	Dissolved Methane, Ethane, Propane BTEX & TPH GRO TPH DRO Alkalinity, Carbonate, Bicarbonate, Total Total Cations - see comments Total Anions - see comments Total Dissolved Solids	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> HS23101053 PDC Energy City of Greeley 2-30 </div> </div>						
PDCE Bradenhead Sampling	PURCHASE ORDER	N/A									
PDCE Energy	BILL TO COMPANY	PDCE Energy									
Jenifer Hakkarinen	INVOICE ATTN TO	Jenifer Hakkarinen									
1775 Sherman ST, Suite 3000	ADDRESS	1775 Sherman Street, Suite 3000									
Denver, CO 80203	CITY / STATE / ZIP	Denver, Colorado									
303-860-5815	PHONE	303.860.5815									
jenifer.hakkarinen@pdce.com jessica.johannsen@pdce.com jbraden@ensolum.com		FAX		E-MAIL		jenifer.hakkarinen@pdce.com					

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	RSK 175	SW8260_25	SW8015M	SM2320B	EPA200.7/208	EPA 300.0	SM2540C
	City of Greeley 2-30	W	10/16/23	1100	11	1,2	II	X	X	X	X	X	X	X

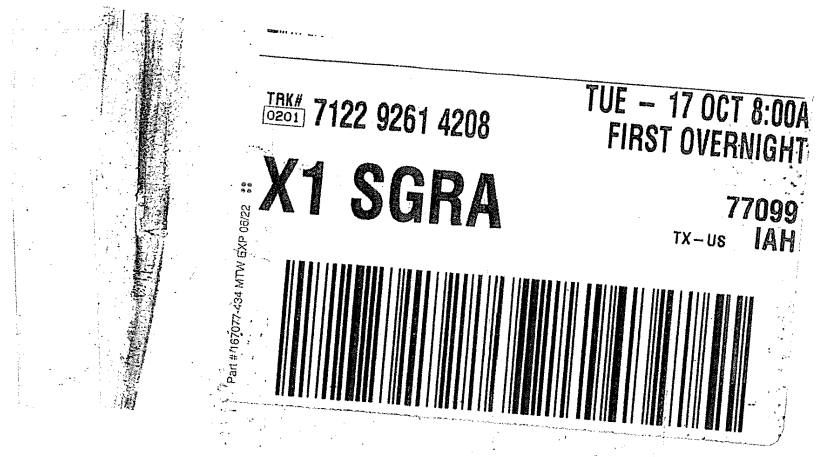
Zone: MST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

Metals or anions, please detail analytes below.

Cations/Anions: Chloride, Magnesium, Potassium, Sodium, Sulfate analyzed per Bradenhead Sampling Program	QC PACKAGE (check below) <input checked="" type="checkbox"/> LEVEL II (Standard QC) <input type="checkbox"/> LEVEL III (Std QC + forms) <input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)
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RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Jeff Braden	10/16/23	1315
RECEIVED BY		Karen Craven	10/16/23	1315
RELINQUISHED BY		Karen Craven	10/16/23	1600
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY			10/17/23	2:1

Active Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035



17/10/23 Saben