



Monday, June 13, 2022

Max Trehus
Great Western Operating Company, LLC
4093 Specialty Place, Unit B
Longmont, CO 80504

Re: ALS Workorder: 2205566
Project Name: Burr FD 23-222HN BH
Project Number:

Dear Mr. Trehus:

Two water samples were received from Great Western Operating Company, LLC, on 5/26/2022. The samples were scheduled for the following analyses:

Dissolved Gasses

GC/MS Volatiles

Inorganics

Metals

Total Extractable Petroleum Hydrocarbons (Diesel)

Total Volatile Petroleum Hydrocarbons (Gasoline)

GRO - Subcontracted to ALS Holland, MI

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

 For

ALS Environmental
Katie M. OBrien
Project Manager

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Arizona	AZ0828
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
Oklahoma	1301
Louisiana	197538
Maryland (MD)	285
PJLA (DoD ELAP/ISO 170250)	95377
PJLA (DOE-AP/ISO 17025)	95377
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280
Virginia	460305

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.



2205566

GC/MS Volatiles:

The sample was analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

All acceptance criteria were met.

Dissolved Gasses:

The sample was prepared and analyzed according to method RSK-175 procedures and the current revision of SOP 449.

All acceptance criteria were met.

DRO:

The sample was analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.

All surrogate recoveries were within acceptable limits with the following exception:

Surrogate	Sample	Direction
O-terphenyl	-1	High

The high surrogate recovery is due to matrix interferences. No further action was taken.

All remaining acceptance criteria were met.

Metals:

The samples were analyzed following Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures. Analysis by Trace ICP followed method 200.7 and the current revision of SOP 834.

Sample 2205566-2 was to be analyzed for dissolved metals. The sample was filtered through a 0.45 micron filter and preserved with nitric acid to a pH less than two prior to analysis.

All acceptance criteria were met.

**Inorganics:**

The sample was analyzed following EMSL and Standard Method procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Alkalinity	SM2320B	1106
Bicarbonate	SM2320B	1106
Carbonate	SM2320B	1106
TDS	SM2540C	1101
Chloride	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

All acceptance criteria were met.

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Sample Number(s) Cross-Reference Table

OrderNum: 2205566

Client Name: PDC Energy

Client Project Name: Burr FD 23-222HN BH

Client Project Number:

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
23-222HNA	2205566-1		WATER	23-May-22	10:42
23-222HNB	2205566-2		WATER	23-May-22	10:42



Chain-of-Custody

Form 202r8

Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:		QC PACKAGE (check below)		RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME	
Facility ID: A40493		LEVEL II (Standard QC)		RECEIVED BY					
		LEVEL III (Std QC + forms)		RELINQUISHED BY					
		LEVEL IV (Std QC + forms + raw data)		RECEIVED BY					
				RELINQUISHED BY					
Reservative Key:		1-HCl	2-HNO3	3-H2SO4	4-NaOH	5-NaHSO4	7-Other	8-4 degrees C	9-5035

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

0.3



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CONDITION OF SAMPLE UPON RECEIPT FORM

Client: PDC Workorder No: 2205566
 Project Manager: KMO Initials: CXT Date: 5/26/2022

	N/A	YES	NO
1. Are airbills / shipping documents present and/or removable?	X		
Tracking number:			
2. Are custody seals on shipping containers intact?	X		
3. Are custody seals on sample containers intact?	X		
4. Is there a COC (chain-of-custody) present?		X	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X	
6. Are short-hold samples present?			X
7. Are all samples within holding times for the requested analyses?		X	
8. Were all sample containers received intact? (not broken or leaking)		X	
9. Is there sufficient sample for the requested analyses?		X	
10. Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)		X	
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)		X	
13. Were the samples shipped on ice?		X	
14. Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*: #6		
Cooler #: <u>1</u> Temperature (°C): <u>0.0</u> # of custody seals on cooler: <u>0</u> External µR/hr reading: <u>NA</u> Background µR/hr reading: <u>11</u> Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>NA</u>			

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Sample 1 bottle 12 was dropped by me and shattered. Bottle removed from LIMS

Were unpreserved bottles pH checked? NA All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? YES / NO / NA Contact: Taylor Ma Date/Time: 5/26/22

Project Manager Signature / Date: Taylor Ma

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SAMPLE SUMMARY REPORT

Client: PDC Energy
 Project: Burr FD 23-222HN BH
 Sample ID: 23-222HNA
 Legal Location:
 Collection Date: 5/23/2022 10:42

Date: 08-Jun-22
 Work Order: 2205566
 Lab ID: 2205566-1
 Matrix: WATER
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Alkalinity as Calcium Carbonate		SM2320B			Prep Date: 6/6/2022	PrepBy: AOW
BICARBONATE AS CaCO3	ND		20	MG/L	1	6/6/2022
CARBONATE AS CaCO3	790		20	MG/L	1	6/6/2022
TOTAL ALKALINITY AS CaCO3	1400		20	MG/L	1	6/6/2022
Diesel Range Organics		SW8015M			Prep Date: 6/6/2022	PrepBy: JRS
Diesel Range Organics	660		10	MG/L	10	6/6/2022 18:27
Surr: O-TERPHENYL	149	*	69-120	%REC	10	6/6/2022 18:27
Dissolved Gasses		RSK175			Prep Date: 6/1/2022	PrepBy: JRS
METHANE	400		1	UG/L	1	6/2/2022 13:35
ETHANE	570		2	UG/L	1	6/2/2022 13:35
PROPANE	570		1	UG/L	1	6/2/2022 13:35
GC/MS Volatiles		SW8260_25			Prep Date: 6/6/2022	PrepBy: TWK
BENZENE	270		25	UG/L	25	6/6/2022 20:54
TOLUENE	630		25	UG/L	25	6/6/2022 20:54
ETHYLBENZENE	80		25	UG/L	25	6/6/2022 20:54
M+P-XYLENE	340		25	UG/L	25	6/6/2022 20:54
O-XYLENE	130		25	UG/L	25	6/6/2022 20:54
TOTAL XYLENES	470		1	UG/L	1	6/6/2022 20:54
Surr: 4-BROMOFLUOROBENZENE	98		80-120	%REC	25	6/6/2022 20:54
Surr: DIBROMOFLUOROMETHANE	101		80-120	%REC	25	6/6/2022 20:54
Surr: TOLUENE-D8	98		80-120	%REC	25	6/6/2022 20:54
Ion Chromatography		EPA300.0			Prep Date: 5/31/2022	PrepBy: AOW
CHLORIDE	5100		100	MG/L	500	5/31/2022 13:47
SULFATE	ND		500	MG/L	500	5/31/2022 13:47
Total Recoverable Metals by 200.7		EPA200.7			Prep Date: 6/3/2022	PrepBy: ETC
CALCIUM	260		100	MG/L	10	6/6/2022 12:41
POTASSIUM	1900		100	MG/L	10	6/6/2022 12:41
MAGNESIUM	ND		100	MG/L	10	6/6/2022 12:41
SODIUM	2800		100	MG/L	10	6/6/2022 12:41
Total Dissolved Solids		SM2540C			Prep Date: 5/27/2022	PrepBy: KRL
TOTAL DISSOLVED SOLIDS	11000		400	MG/L	1	5/30/2022

Client: PDC Energy

Date: 08-Jun-22

Project: Burr FD 23-222HN BH

Work Order: 2205566

Sample ID: 23-222HNB

Lab ID: 2205566-2

Legal Location:

Matrix: WATER

Collection Date: 5/23/2022 10:42

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dissolved Metals by 200.7			EPA200.7		Prep Date: 6/3/2022	PrepBy: ETC
CALCIUM	270		100	MG/L	10	6/6/2022 12:44
POTASSIUM	1800		100	MG/L	10	6/6/2022 12:44
MAGNESIUM	ND		100	MG/L	10	6/6/2022 12:44
SODIUM	2800		100	MG/L	10	6/6/2022 12:44

Client: PDC Energy
Project: Burr FD 23-222HN BH
Sample ID: 23-222HNB
Legal Location:
Collection Date: 5/23/2022 10:42

Date: 08-Jun-22
Work Order: 2205566
Lab ID: 2205566-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC
 U or ND - Result is less than the sample specific MDC.
 Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
 Y2 - Chemical Yield outside default limits.
 W - DER is greater than Warning Limit of 1.42
 * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
 # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
 G - Sample density differs by more than 15% of LCS density.
 D - DER is greater than Control Limit
 M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
 L - LCS Recovery below lower control limit.
 H - LCS Recovery above upper control limit.
 P - LCS, Matrix Spike Recovery within control limits.
 N - Matrix Spike Recovery outside control limits
 NC - Not Calculated for duplicate results less than 5 times MDC
 B - Analyte concentration greater than MDC.
 B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.
 S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.
 G - A pattern resembling gasoline was detected in this sample.
 D - A pattern resembling diesel was detected in this sample.
 M - A pattern resembling motor oil was detected in this sample.
 C - A pattern resembling crude oil was detected in this sample.
 4 - A pattern resembling JP-4 was detected in this sample.
 5 - A pattern resembling JP-5 was detected in this sample.
 H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
 L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
 Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

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Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

Date: 6/8/2022 12:30:4

QC BATCH REPORT

Batch ID: **HC220601-91-1** Instrument ID: **MEE-1** Method: **RSK175**

DUP Sample ID: **2205566-1** Units: **UG/L** Analysis Date: **6/2/2022 13:38**

Client ID: **23-222HNA** Run ID: **HC220602-91A** Prep Date: **6/1/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	398	1						400	1	25	
ETHANE	563	2						570	1	25	
PROPANE	550	1						570	4	25	

LCS Sample ID: **HC220601-91** Units: **UG/L** Analysis Date: **6/1/2022 16:35**

Client ID: Run ID: **HC220602-91A** Prep Date: **6/1/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	138	1	142		97	76-125				25	
ETHANE	265	2	267		99	70-120				25	
PROPANE	392	1	391		100	72-120				25	

LCSD Sample ID: **HC220601-91** Units: **UG/L** Analysis Date: **6/1/2022 16:39**

Client ID: Run ID: **HC220602-91A** Prep Date: **6/1/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	159	1	142		112	76-125		138	14	25	
ETHANE	303	2	267		114	70-120		265	13	25	
PROPANE	445	1	391		114	72-120		392	13	25	

MB Sample ID: **HC220601-91** Units: **UG/L** Analysis Date: **6/1/2022 16:42**

Client ID: Run ID: **HC220602-91A** Prep Date: **6/1/2022** DF: **1**

Analyte	Result	ReportLimit	Qual
METHANE	ND	1	
ETHANE	ND	2	
PROPANE	ND	1	

The following samples were analyzed in this batch:

2205566-1

Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

QC BATCH REPORT

Batch ID: **HC220606-82-1** Instrument ID: **FUELS-1** Method: **SW8015M**

LCS	Sample ID: HC220606-82				Units: MG/L		Analysis Date: 6/6/2022 17:45				
Client ID:	Run ID: HC220607-81A				Prep Date: 6/6/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	8.73	1.07	8.33		105	53-120				20	
Surr: O-TERPHENYL	1.64		1.67		98	69-120					

LCSD		Sample ID: HC220606-82				Units: MG/L		Analysis Date: 6/6/2022 18:06			
Client ID:		Run ID: HC220607-81A				Prep Date: 6/6/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	9.17	1.07	8.33		110	53-120		8.73	5	20	
Surr: O-TERPHENYL	1.63		1.67		98	69-120			1		

MB		Sample ID: HC220606-82		Units: MG/L		Analysis Date: 6/6/2022 17:23	
Client ID:		Run ID: HC220607-81A		Prep Date: 6/6/2022		DF: 1	
Analyte		Result	ReportLimit	Qual			
Diesel Range Organics		ND	1.1				
Surr: O-TERPHENYL		1.61		97	69-120		

The following samples were analyzed in this batch:

2205566-1

Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

QC BATCH REPORT

Batch ID: **IP220603-4-2** Instrument ID: **ICP5900** Method: **EPA200.7**

LCS	Sample ID: IP220603-4				Units: MG/L		Analysis Date: 6/6/2022 12:35				
Client ID:		Run ID: IT220606-2A5				Prep Date: 6/3/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	39.2	1	40		98	85-115				20	
MAGNESIUM	38.1	1	40		95	85-115				20	
POTASSIUM	39.8	1	40		100	85-115				20	
SODIUM	39.6	1	40		99	85-115				20	

LCSD		Sample ID: IP220603-4			Units: MG/L		Analysis Date: 6/6/2022 12:36				
Client ID:		Run ID: IT220606-2A5			Prep Date: 6/3/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	38.7	1	40		97	85-115		39.2	1	20	
MAGNESIUM	37.7	1	40		94	85-115		38.1	1	20	
POTASSIUM	39.5	1	40		99	85-115		39.8	1	20	
SODIUM	39.2	1	40		98	85-115		39.6	1	20	

MB		Sample ID: IP220603-4		Units: MG/L		Analysis Date: 6/6/2022 12:33	
Client ID:		Run ID: IT220606-2A5		Prep Date: 6/3/2022		DF: 1	
Analyte		Result	ReportLimit	Qual			
CALCIUM		ND	1				
MAGNESIUM		ND	1				
POTASSIUM		ND	1				
SODIUM		ND	1				

The following samples were analyzed in this batch:

2205566-1

Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

QC BATCH REPORT

Batch ID: **IP220603-4-3** Instrument ID: **ICP5900** Method: **EPA200.7**

LCS	Sample ID: IP220603-4				Units: MG/L		Analysis Date: 6/6/2022 12:35				
Client ID:	Run ID: IT220606-2A5				Prep Date: 6/3/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	39.2	1	40		98	85-115				20	
MAGNESIUM	38.1	1	40		95	85-115				20	
POTASSIUM	39.8	1	40		100	85-115				20	
SODIUM	39.6	1	40		99	85-115				20	

LCSD		Sample ID: IP220603-4				Units: MG/L		Analysis Date: 6/6/2022 12:36			
Client ID:		Run ID: IT220606-2A5				Prep Date: 6/3/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	38.7	1	40		97	85-115		39.2	1	20	
MAGNESIUM	37.7	1	40		94	85-115		38.1	1	20	
POTASSIUM	39.5	1	40		99	85-115		39.8	1	20	
SODIUM	39.2	1	40		98	85-115		39.6	1	20	

MB		Sample ID: FP220602-4		Units: MG/L		Analysis Date: 6/6/2022 12:34	
Client ID:		Run ID: IT220606-2A5		Prep Date: 6/3/2022		DF: 1	
Analyte		Result	ReportLimit	Qual			
CALCIUM		ND	1				
MAGNESIUM		ND	1				
POTASSIUM		ND	1				
SODIUM		ND	1				

The following samples were analyzed in this batch:

2205566-2

Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

QC BATCH REPORT

Batch ID: VL220606-3-4 Instrument ID: HPV3 Method: SW8260_25

LCS	Sample ID: VL220606-333				Units: %REC		Analysis Date: 6/6/2022 18:10				
Client ID:		Run ID: VL220606-3A				Prep Date: 6/6/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.2		25		97	80-120					
Surr: DIBROMOFLUOROMETHANE	25		25		100	80-120					
Surr: TOLUENE-D8	24.4		25		98	80-120					
BENZENE	9.1	1	10		91	80-120				20	
TOLUENE	9.29	1	10		93	80-120				20	
ETHYLBENZENE	9.31	1	10		93	80-120				20	
M+P-XYLENE	18	1	20		90	80-120				20	
O-XYLENE	9.1	1	10		91	80-120				20	

LCSD		Sample ID: VL220606-333				Units: %REC		Analysis Date: 6/6/2022 18:33			
Client ID:		Run ID: VL220606-3A				Prep Date: 6/6/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.9		25		100	80-120			3		
Surr: DIBROMOFLUOROMETHANE	25.1		25		101	80-120			1		
Surr: TOLUENE-D8	24.9		25		100	80-120			2		
BENZENE	9.34	1	10		93	80-120		9.1	3	20	
TOLUENE	9.66	1	10		97	80-120		9.29	4	20	
ETHYLBENZENE	9.5	1	10		95	80-120		9.31	2	20	
M+P-XYLENE	18.5	1	20		93	80-120		18	3	20	
O-XYLENE	9.63	1	10		96	80-120		9.1	6	20	

MB		Sample ID: VL220606-333			Units: %REC		Analysis Date: 6/6/2022 19:23		
Client ID:		Run ID: VL220606-3A			Prep Date: 6/6/2022			DF: 1	
Analyte		Result	ReportLimit					Qual	
Surr: 4-BROMOFLUOROBENZENE		24.2			97	80-120			
Surr: DIBROMOFLUOROMETHANE		24.7			99	80-120			
Surr: TOLUENE-D8		23.5			94	80-120			
BENZENE		ND	1						
TOLUENE		ND	1						
ETHYLBENZENE		ND	1						
M+P-XYLENE		ND	1						
O-XYLENE		ND	1						
TOTAL XYLENES		ND	1						

The following samples were analyzed in this batch:

2205566-1

Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

QC BATCH REPORT

Batch ID: **AK220606-1-1** Instrument ID: **NONE** Method: **SM2320B**

LCS		Sample ID: AK220606-1				Units: MG/L		Analysis Date: 6/6/2022			
Client ID:		Run ID: AK220606-1A1				Prep Date: 6/6/2022		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	101	5	100		101	85-115				15	

MB		Sample ID: AK220606-1		Units: MG/L		Analysis Date: 6/6/2022	
Client ID:		Run ID: AK220606-1A1		Prep Date: 6/6/2022		DF: 1	
Analyte		Result	ReportLimit	Qual			
BICARBONATE AS CaCO3		ND	5				
CARBONATE AS CaCO3		ND	5				
TOTAL ALKALINITY AS CaCO3		ND	5				

The following samples were analyzed in this batch:

2205566-1

Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

QC BATCH REPORT

Batch ID: IC220531-1-1 Instrument ID: IC3 Method: EPA300.0

LCS	Sample ID: IC220531-1				Units: MG/L		Analysis Date: 5/31/2022 12:04				
Client ID:	Run ID: IC220531-1A1				Prep Date: 5/31/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	9.87	0.2	10		99	90-110				15	
SULFATE	48.2	1	50		96	90-110				15	

LCSD	Sample ID: IC220531-1			Units: MG/L			Analysis Date: 5/31/2022 14:30				
Client ID:	Run ID: IC220531-1A1			Prep Date: 5/31/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	9.98	0.2	10		100	90-110		9.87	1	15	
SULFATE	49	1	50		98	90-110		48.2	2	15	

MB		Sample ID: IC220531-1		Units: MG/L		Analysis Date: 5/31/2022 12:10	
Client ID:		Run ID: IC220531-1A1		Prep Date: 5/31/2022		DF: 1	
Analyte		Result	ReportLimit	Qual			
CHLORIDE		ND	0.2				
SULFATE		ND	1				

The following samples were analyzed in this batch:

2205566-1

Client: PDC Energy
Work Order: 2205566
Project: Burr FD 23-222HN BH

QC BATCH REPORT

Batch ID: **TD220527-1-1** Instrument ID: **Balance** Method: **SM2540C**

LCS	Sample ID: TD220527-1			Units: MG/L			Analysis Date: 5/30/2022				
Client ID:		Run ID: TD220530-1A1			Prep Date: 5/27/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	446	20	400		111	85-115				14	

LCSD		Sample ID: TD220527-1			Units: MG/L		Analysis Date: 5/30/2022				
Client ID:		Run ID: TD220530-1A1			Prep Date: 5/27/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	446	20	400		111	85-115		446	0	14	

MB		Sample ID: TD220527-1		Units: MG/L		Analysis Date: 5/30/2022	
Client ID:		Run ID: TD220530-1A1		Prep Date: 5/27/2022		DF: 1	
Analyte		Result	ReportLimit				
TOTAL DISSOLVED SOLIDS		ND	20				

The following samples were analyzed in this batch:

2205566-1



09-Jun-2022

Katie O'Brien
ALS Environmental
225 Commerce Dr
Ft. Collins, CO 80524

Re: **2205566**

Work Order: **22060401**

Dear Katie,

ALS Environmental received 1 sample on 04-Jun-2022 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 8.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink that reads "Jodi Blouw".

Electronically approved by: Jodi Blouw

Jodi Blouw

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: ALS Environmental
Project: 2205566
Work Order: 22060401

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
22060401-01	23-222HNA	Water		5/23/2022 10:42	6/4/2022 10:00	<input type="checkbox"/>

Client: ALS Environmental
Project: 2205566
WorkOrder: 22060401

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
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
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
µg/L	Micrograms per Liter

Client: ALS Environmental
Project: 2205566
Work Order: 22060401

Case Narrative

Samples for the above noted Work Order were received on 06/04/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

No deviations or anomalies were noted.

ALS Group USA, Corp

Date: 09-Jun-22

CLIENT: ALS Environmental
Project: 2205566

Work Order: 22060401

Lab ID: 22060401-01A

Collection Date: 5/23/2022 10:42:00 AM

Client Sample ID: 23-222HNA

Matrix: WATER

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
GASOLINE RANGE ORGANICS BY GC-FID		SW8015D		Analyst: MTB			
GRO (C6-C10)	8,800	2,000	760		µg/L	10	6/6/2022 12:56 PM
Surr: Toluene-d8	88.2	73-116	0		%REC	10	6/6/2022 12:56 PM

Qualifiers:	U - Analyzed for but Not Detected	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	P - Dual Column results RPD > 40%
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	H - Analyzed outside of Hold Time

AR Page 1 of 1

Client: ALS Environmental
 Work Order: 22060401
 Project: 2205566

QC BATCH REPORT

Batch ID: **R345970** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: 9G-BLKW1-220606-R345970				Units: µg/L		Analysis Date: 6/6/2022 12:33 PM			
Client ID:		Run ID: GC9_220606B				SeqNo: 8490739		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	76	200								
Surr: Toluene-d8	90.98	0	0	100	0	91	73-116	0			

MBLK		Sample ID: 9G-BLKW2-220606-R345970				Units: µg/L		Analysis Date: 6/6/2022 05:53 PM			
Client ID:		Run ID: GC9_220606B				SeqNo: 8490747		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	76	200								
Surr: Toluene-d8	86.53	0	0	100	0	86.5	73-116	0			

LCS		Sample ID: 9G-LCSW1-220606-R345970				Units: µg/L		Analysis Date: 6/6/2022 11:15 AM			
Client ID:		Run ID: GC9_220606B				SeqNo: 8490738		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	5017	76	200	5000	0	100	70-132	0			
Surr: Toluene-d8	92.17	0	0	100	0	92.2	73-116	0			

LCSD		Sample ID: 9G-LCSDW1-220606-R345970				Units: µg/L		Analysis Date: 6/6/2022 05:08 PM			
Client ID:		Run ID: GC9_220606B				SeqNo: 8490746		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	4929	76	200	5000	0	98.6	70-132	5017	1.78	30	
Surr: Toluene-d8	93.93	0	0	100	0	93.9	73-116	92.17	1.89	30	

MS		Sample ID: 22060404-01A MS				Units: µg/L		Analysis Date: 6/6/2022 04:24 PM			
Client ID:		Run ID: GC9_220606B				SeqNo: 8490744		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	7885	76	200	5000	22.87	157	70-132	0			S
Surr: Toluene-d8	131.3	0	0	100	0	131	73-116	0			S

The following samples were analyzed in this batch:

22060401-01A

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

Sample Receipt Checklist

Client Name: **ALS - FORT COLLINS**

Date/Time Received: **04-Jun-22 10:00**

Work Order: **22060401**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

04-Jun-22
Date

Reviewed by: Jadi Blum
eSignature

06-Jun-22
Date

Matrices: **Water**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>3.0/4.0 C</u>		<u>IR3</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/4/2022 11:18:02 AM</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: