Friday, July 22, 2022

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

Re: ALS Workorder: 2206600
Project Name: Postle IC 11-159HC BH
Project Number:

Dear Mr. Trehus:

Two water samples were received from Great Western Operating Company, LLC, on 6/24/2022. 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)

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,

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.

2206600

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.

GRO:
The sample was analyzed following the current revision of SOP 425 generally based on SW-846 Methods 8000C and 8015D. TVPH 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 C6 to C10.

See NCR#15460.

All remaining 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 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 2206600-2 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:

Analyte	Method	SOP #
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.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2206600
Client Name: PDC Energy
Client Project Name: Postle IC 11-159HC BH
Client Project Number:
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
11-159HC A	2206600-1		WATER	24-Jun-22	10:37
11-159HC B	2206600-2		WATER	24-Jun-22	10:37

ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r6

WORKORDER # 2206600

PAGE of

DISPOSAL By Lab or Return to Client

PROJECT NAME	Postle IC 11-159HC BH	SAMPLER	Max Trehus
PROJECT No.		SITE ID	
		EDD FORMAT	
COMPANY NAME	PDC	PURCHASE ORDER	
SEND REPORT TO	Max Trehus	BILL TO COMPANY	
ADDRESS	Jennifer Hakkarinen	INVOICE ATTN TO	
CITY / STATE / ZIP	Jessica Johannsen	ADDRESS	
PHONE		CITY / STATE / ZIP	
FAX		PHONE	
E-MAIL		FAX	
		E-MAIL	

DATE

TURNAROUND

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	O2 Dissolved Gasses	BTEX	DRO	GRO	Anions, Alk, TDS	TDS Metal	TL Metals
	11-159HC A	W	6/24/22	10:37	3	-		X						
	11-159HC A				3	1			X					
	11-159HC A				3	1				X				
	11-159HC A				3	1					X			
	11-159HC A				1	-						X		
2	11-159HC B				1	-							X	
1	11-159HC A				1	2								X

*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:

Facility ID: 436906
3.1

QC PACKAGE (check below)	
	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

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

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Max Trehus	6/24	1316
RECEIVED BY		Claire Rennes	6/24/22	1317
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

05-30-9

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: PDC Energy Workorder No: 2206600

Project Manager: KMO Initials: CXT Date: 6-25-2022

		N/A	YES	NO
1.	Are airbills / shipping documents present and/or removable? Tracking number:	X		
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, *Sample Handling Guidelines*)		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	RAD ONLY	X	

Cooler #:	1						
Temperature (°C):	3.1						
# of custody seals on cooler:	0						
External µR/hr reading:	NA						
Background µR/hr reading:	11						

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? NA

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

Sample 1 bottles 1-12 contain headspace

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: _____ Date/Time: _____

Project Manager Signature / Date: Margaret G. O'Brien 6/27/22

Form 201r29.xls
(10/15/2019)

*IR Gun #3, VWR SN 170647571
*IR Gun #5, VWR SN 192272629

Client: PDC Energy **Date:** *22-Jul-22*
Project: Postle IC 11-159HC BH **Work Order:** 2206600
Sample ID: 11-159HC A **Lab ID:** 2206600-1
Legal Location: **Matrix:** WATER
Collection Date: 6/24/2022 10:37 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Alkalinity as Calcium Carbonate		**SM2320B**			Prep Date: **6/29/2022**	PrepBy:**KRL**
BICARBONATE AS CaCO3	ND		20	MG/L	1	6/29/2022
CARBONATE AS CaCO3	**1400**		**20**	**MG/L**	1	6/29/2022
TOTAL ALKALINITY AS CaCO3	**2800**		**20**	**MG/L**	1	6/29/2022
Diesel Range Organics		**SW8015M**			Prep Date: **7/6/2022**	PrepBy:**CPC**
Diesel Range Organics	**17**		**0.93**	**MG/L**	1	7/15/2022 08:16
Surr: O-TERPHENYL	*109*		*69-120*	*%REC*	1	7/15/2022 08:16
Dissolved Gasses		**RSK175**			Prep Date: **7/7/2022**	PrepBy:**CPC**
METHANE	**3700**		**4**	**UG/L**	2	7/8/2022 14:55
ETHANE	**1800**		**8**	**UG/L**	2	7/8/2022 14:55
PROPANE	**910**		**12**	**UG/L**	2	7/8/2022 14:55
Gasoline Range Organics		**SW8015**			Prep Date: **7/12/2022**	PrepBy:**JRS**
GASOLINE RANGE ORGANICS	**3.5**		**2**	**MG/L**	20	7/13/2022 12:14
Surr: 2,3,4-TRIFLUOROTOLUENE	*117*		*80-120*	*%REC*	20	7/13/2022 12:14
GC/MS Volatiles		**SW8260_25**			Prep Date: **7/8/2022**	PrepBy:**TWK**
BENZENE	**320**		**25**	**UG/L**	25	7/8/2022 21:50
TOLUENE	**300**		**25**	**UG/L**	25	7/8/2022 21:50
ETHYLBENZENE	**120**		**25**	**UG/L**	25	7/8/2022 21:50
M+P-XYLENE	**450**		**25**	**UG/L**	25	7/8/2022 21:50
O-XYLENE	**140**		**25**	**UG/L**	25	7/8/2022 21:50
TOTAL XYLENES	**590**		**1**	**UG/L**	1	7/8/2022 21:50
Surr: 4-BROMOFLUOROBENZENE	*98*		*80-120*	*%REC*	25	7/8/2022 21:50
Surr: DIBROMOFLUOROMETHANE	*83*		*80-120*	*%REC*	25	7/8/2022 21:50
Surr: TOLUENE-D8	*98*		*80-120*	*%REC*	25	7/8/2022 21:50
Ion Chromatography		**EPA300.0**			Prep Date: **6/28/2022**	PrepBy:**AOW**
CHLORIDE	**580**		**100**	**MG/L**	500	6/28/2022 15:00
SULFATE	**1100**		**500**	**MG/L**	500	6/28/2022 15:00
Total Recoverable Metals by 200.7		**EPA200.7**			Prep Date: **7/1/2022**	PrepBy:**ETC**
CALCIUM	ND		100	MG/L	10	7/5/2022 12:56
POTASSIUM	**420**		**100**	**MG/L**	10	7/5/2022 12:56
MAGNESIUM	ND		100	MG/L	10	7/5/2022 12:56
SODIUM	**1400**		**100**	**MG/L**	10	7/5/2022 12:56
Total Dissolved Solids		**SM2540C**			Prep Date: **6/29/2022**	PrepBy:**KRL**
TOTAL DISSOLVED SOLIDS	**7400**		**400**	**MG/L**	1	6/30/2022

Client: PDC Energy
Project: Postle IC 11-159HC BH
Sample ID: 11-159HC B
Legal Location:
Collection Date: 6/24/2022 10:37

Date: *22-Jul-22*
Work Order: 2206600
Lab ID: 2206600-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dissolved Metals by 200.7		**EPA200.7**			Prep Date: **7/1/2022**	PrepBy:**ETC**
CALCIUM	ND		100	MG/L	10	7/5/2022 12:57
POTASSIUM	**480**		**100**	**MG/L**	10	7/5/2022 12:57
MAGNESIUM	ND		100	MG/L	10	7/5/2022 12:57
SODIUM	**1700**		**100**	**MG/L**	10	7/5/2022 12:57

Client:	PDC Energy	**Date:**	*22-Jul-22*
Project:	Postle IC 11-159HC BH	**Work Order:**	2206600
Sample ID:	11-159HC B	**Lab ID:**	2206600-2
Legal Location:		**Matrix:**	WATER
Collection Date:	6/24/2022 10:37	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

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

Batch ID: **HC220706-3-1** Instrument ID: **FUELS-1** Method: **SW8015M**

LCS Sample ID: **HC220706-3** Units: **MG/L** Analysis Date: **7/15/2022 16:24**

Client ID: Run ID: **HC220720-81A** Prep Date: **7/6/2022** 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	7.48	1.07	8.33		90	53-120				20	
Surr: O-TERPHENYL	1.54		1.67		92	69-120					

LCSD Sample ID: **HC220706-3** Units: **MG/L** Analysis Date: **7/15/2022 16:46**

Client ID: Run ID: **HC220720-81A** Prep Date: **7/6/2022** 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	7.72	1.07	8.33		93	53-120		7.48	3	20	
Surr: O-TERPHENYL	1.55		1.67		93	69-120			1		

MB Sample ID: **HC220706-3** Units: **MG/L** Analysis Date: **7/15/2022 14:38**

Client ID: Run ID: **HC220720-81A** Prep Date: **7/6/2022** DF: **1**

Analyte	Result	ReportLimit	%REC	Control Limit	Qual
Diesel Range Organics	ND	1.1			
Surr: O-TERPHENYL	1.8		108	69-120	

The following samples were analyzed in this batch: 2206600-1

QC BATCH REPORT

Batch ID: **HC220707-91-1** Instrument ID: **MEE-1** Method: **RSK175**

LCS Sample ID: **HC220707-91** Units: **UG/L** Analysis Date: **7/8/2022 14:41**

Client ID: Run ID: **HC220712-91A** Prep Date: **7/7/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	155	2	142		109	76-125				25	
ETHANE	293	4	267		110	70-120				25	
PROPANE	435	6	391		111	72-120				25	

LCSD Sample ID: **HC220707-91** Units: **UG/L** Analysis Date: **7/8/2022 15:45**

Client ID: Run ID: **HC220712-91A** Prep Date: **7/7/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	165	2	142		116	76-125		155	6	25	
ETHANE	310	4	267		116	70-120		293	6	25	
PROPANE	462	6	391		118	72-120		435	6	25	

MB Sample ID: **HC220707-91** Units: **UG/L** Analysis Date: **7/8/2022 14:46**

Client ID: Run ID: **HC220712-91A** Prep Date: **7/7/2022** DF: **1**

Analyte	Result	ReportLimit	Qual
METHANE	ND	2	
ETHANE	ND	4	
PROPANE	ND	6	

The following samples were analyzed in this batch: 2206600-1

QC BATCH REPORT

Batch ID: **HC220712-61-1** Instrument ID: **FUELS-1** Method: **SW8015**

LCS Sample ID: **HC220712-61** Units: **MG/L** Analysis Date: **7/12/2022 13:46**

Client ID: Run ID: **HC220712-61A** Prep Date: **7/12/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.472	0.1	0.5		94	80-120				20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.113		0.1		113	80-120					

LCSD Sample ID: **HC220712-61** Units: **MG/L** Analysis Date: **7/12/2022 14:02**

Client ID: Run ID: **HC220712-61A** Prep Date: **7/12/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.469	0.1	0.5		94	80-120		0.472	1	20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.113		0.1		113	80-120			0		

MB Sample ID: **HC220712-61** Units: **MG/L** Analysis Date: **7/12/2022 14:33**

Client ID: Run ID: **HC220712-61A** Prep Date: **7/12/2022** DF: **1**

Analyte	Result	ReportLimit	%REC	Control Limit	Qual
GASOLINE RANGE ORGANICS	ND	0.1			
Surr: 2,3,4-TRIFLUOROTOLUENE	0.113		113	80-120	

The following samples were analyzed in this batch: 2206600-1

QC BATCH REPORT

Batch ID: **IP220701-2-3** Instrument ID: **ICP5900** Method: **EPA200.7**

LCS Sample ID: **IP220701-2** Units: **MG/L** Analysis Date: **7/5/2022 12:51**
Client ID: Run ID: **IT220705-1A1** Prep Date: **7/1/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	39.9	1	40		100	85-115				20	
MAGNESIUM	39.3	1	40		98	85-115				20	
POTASSIUM	40.2	1	40		100	85-115				20	
SODIUM	41.1	1	40		103	85-115				20	

LCSD Sample ID: **IP220701-2** Units: **MG/L** Analysis Date: **7/5/2022 12:54**
Client ID: Run ID: **IT220705-1A1** Prep Date: **7/1/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	39.9	1	40		100	85-115		39.9	0	20	
MAGNESIUM	39.3	1	40		98	85-115		39.3	0	20	
POTASSIUM	40.5	1	40		101	85-115		40.2	1	20	
SODIUM	41.2	1	40		103	85-115		41.1	0	20	

MB Sample ID: **IP220701-2** Units: **MG/L** Analysis Date: **7/5/2022 12:49**
Client ID: Run ID: **IT220705-1A1** Prep Date: **7/1/2022** 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: 2206600-1

QC BATCH REPORT

Batch ID: **IP220701-2-4** Instrument ID: **ICP5900** Method: **EPA200.7**

MB Sample ID: **FP220630-2** Units: **MG/L** Analysis Date: **7/5/2022 12:50**

Client ID: Run ID: **IT220705-1A1** Prep Date: **7/1/2022** 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: 2206600-2

Batch ID: **VL220708-4-2** Instrument ID: **HPV4** Method: **SW8260_25**

LCS Sample ID: **VL220708-4** Units: **%REC** Analysis Date: **7/8/2022 17:18**

Client ID: Run ID: **VL220708-4A** Prep Date: **7/8/2022** 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		99	80-120					
Surr: DIBROMOFLUOROMETHANE	24.8		25		99	80-120					
Surr: TOLUENE-D8	24.6		25		99	80-120					
BENZENE	10.4	1	10		104	80-120				20	
TOLUENE	9.81	1	10		98	80-120				20	
ETHYLBENZENE	9.76	1	10		98	80-120				20	
M+P-XYLENE	19.4	1	20		97	80-120				20	
O-XYLENE	9.69	1	10		97	80-120				20	

LCSD Sample ID: **VL220708-4** Units: **%REC** Analysis Date: **7/8/2022 17:39**

Client ID: Run ID: **VL220708-4A** Prep Date: **7/8/2022** 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	24.8		25		99	80-120			0		
Surr: DIBROMOFLUOROMETHANE	25		25		100	80-120			1		
Surr: TOLUENE-D8	24.6		25		98	80-120			0		
BENZENE	9.99	1	10		100	80-120		10.4	4	20	
TOLUENE	9.38	1	10		94	80-120		9.81	5	20	
ETHYLBENZENE	9.35	1	10		94	80-120		9.76	4	20	
M+P-XYLENE	18.5	1	20		93	80-120		19.4	5	20	
O-XYLENE	9.28	1	10		93	80-120		9.69	4	20	

MB Sample ID: **VL220708-4** Units: **%REC** Analysis Date: **7/8/2022 18:20**

Client ID: Run ID: **VL220708-4A** Prep Date: **7/8/2022** DF: **1**

Analyte	Result	ReportLimit	%REC	Control Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	26.9		108	80-120	
Surr: DIBROMOFLUOROMETHANE	24.5		98	80-120	
Surr: TOLUENE-D8	25.8		103	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: 2206600-1

QC BATCH REPORT

Batch ID: **AK220629-2-1** Instrument ID: **NONE** Method: **SM2320B**

LCS Sample ID: **AK220629-2** Units: **MG/L** Analysis Date: **6/29/2022**

Client ID: Run ID: **AK220629-1A1** Prep Date: **6/29/2022** 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	100	5	100		100	85-115				15	

MB Sample ID: **AK220629-2** Units: **MG/L** Analysis Date: **6/29/2022**

Client ID: Run ID: **AK220629-1A1** Prep Date: **6/29/2022** 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: 2206600-1

Client: PDC Energy
Work Order: 2206600
Project: Postle IC 11-159HC BH

QC BATCH REPORT

Batch ID: **IC220628-1-1** Instrument ID: **IC3** Method: **EPA300.0**

LCS Sample ID: **IC220628-1** Units: **MG/L** Analysis Date: **6/28/2022 13:05**
Client ID: Run ID: **IC220628-1A1** Prep Date: **6/28/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	9.94	0.2	10		99	90-110				15	
SULFATE	49.6	1	50		99	90-110				15	

LCSD Sample ID: **IC220628-1** Units: **MG/L** Analysis Date: **6/28/2022 14:18**
Client ID: Run ID: **IC220628-1A1** Prep Date: **6/28/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	9.93	0.2	10		99	90-110		9.94	0	15	
SULFATE	49.8	1	50		100	90-110		49.6	0	15	

MB Sample ID: **IC220628-1** Units: **MG/L** Analysis Date: **6/28/2022 13:11**
Client ID: Run ID: **IC220628-1A1** Prep Date: **6/28/2022** DF: **1**

Analyte	Result	ReportLimit	Qual
CHLORIDE	ND	0.2	
SULFATE	ND	1	

MS Sample ID: **2206504-1** Units: **MG/L** Analysis Date: **6/28/2022 14:42**
Client ID: **RO Permeate** Run ID: **IC220628-1A1** Prep Date: **6/28/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	5.26	0.2	5	0.2	105	85-115				15	
SULFATE	20.5	1	20	1	102	85-115				15	

The following samples were analyzed in this batch: 2206600-1

QC BATCH REPORT

Batch ID: **TD220629-1-1** Instrument ID: **Balance** Method: **SM2540C**

LCS Sample ID: **TD220629-1** Units: **MG/L** Analysis Date: **6/30/2022**
Client ID: Run ID: **TD220630-1A1** Prep Date: **6/29/2022** 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	398	20	400		99	85-115				14	

LCSD Sample ID: **TD220629-1** Units: **MG/L** Analysis Date: **6/30/2022**
Client ID: Run ID: **TD220630-1A1** Prep Date: **6/29/2022** 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	405	20	400		101	85-115		398	2	14	

MB Sample ID: **TD220629-1** Units: **MG/L** Analysis Date: **6/30/2022**
Client ID: Run ID: **TD220630-1A1** Prep Date: **6/29/2022** DF: **1**

Analyte	Result	ReportLimit	Qual
TOTAL DISSOLVED SOLIDS	ND	20	

The following samples were analyzed in this batch: 2206600-1

Ft. Collins, Colorado

NCR #: 15460

CONTROLLED
NON-CONFORMANCE REPORT

Non-Conformance

Initiated By: Jessica R. Spiller on 7/15/2022

Event Type: Method Requirements Not Met -- Holding Time Exceeded

Event Explanation: These workorders were prepped and analyzed the same day another testcode that involves Hexane for the extraction occurred. This lead to higher GRO results within the range to be analyzed and failing CCVs. The workorders were reprepped and reanalyzed 6 days out of the holding time.

Action To Prevent Reccurence: Discuss with analysts who prepped that day the consequences of Hexane contamination for this testcode/do not prep DROs the same day GROs are being prepped/analyzed.

Corrective Action

Corrective Action:

Department Manager Approval:

Approval Date:

Corrective Action Comments:

Workorders Affected

Workorder -- Procedure		Approved By	Approval Date
2206600 -- SW8015 2206601 -- SW8015	No client contact information.	PENDING	
2206531 -- SW8015 2206590 -- SW8015 2206592 -- SW8015	Greg Geras was contacted on 7/18/2022	Alannah R. Liebert	7/18/2022

There Are No Associated Batches

NCR Approval

Project Manager Approval:

ARL on 7/18/2022

Department Manager Approval:

QA Manager Approval:

Date Printed: Friday, July 22, 2022

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