



Wednesday, June 29, 2022

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

Re: ALS Workorder: 2206424
Project Name: Schneider HD 11-059HNX BH
Project Number:

Dear Mr. Trehus:

Two water samples were received from Great Western Operating Company, LLC, on 6/17/2022. 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

	<h1>Accreditations</h1>	Effective June 7, 2022
	ALS Environmental – Fort Collins	

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.



2206424

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.

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 acceptance criteria 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 2206424-2 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.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2206424

Client Name: PDC Energy

Client Project Name: Schneider HD 11-059HNX BH

Client Project Number:

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
11-059HNX A	2206424-1		WATER	16-Jun-22	10:30
11-059HNX B	2206424-2		WATER	16-Jun-22	10:30



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: PDC Energy Workorder No: 2206424
 Project Manager: KMO Initials: CXT Date: 6-17-2022

		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, <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	RAD ONLY	X	
Cooler #: <u>1</u>				
Temperature (°C): <u>5.9</u>				
# of custody seals on cooler: <u>0</u>				
External µR/hr reading: <u>NA</u>				
Background µR/hr reading: <u>10</u>				
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>NA</u> (If no, see Form 008.)				

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

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: Margaret G. O'Brien Date/Time: 6/18/22

Project Manager Signature / Date: _____

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: PDC Energy
Project: Schneider HD 11-059HNX BH
Sample ID: 11-059HNX A
Legal Location:
Collection Date: 6/16/2022 10:30

Date: 29-Jun-22
Work Order: 2206424
Lab ID: 2206424-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Alkalinity as Calcium Carbonate			SM2320B			Prep Date: 6/27/2022 PrepBy: AOW
BICARBONATE AS CaCO3	ND		20	MG/L	1	6/27/2022
CARBONATE AS CaCO3	680		20	MG/L	1	6/27/2022
TOTAL ALKALINITY AS CaCO3	2100		20	MG/L	1	6/27/2022
Diesel Range Organics			SW8015M			Prep Date: 6/21/2022 PrepBy: JRS
Diesel Range Organics	35		1	MG/L	1	6/25/2022 02:22
Surr: O-TERPHENYL	178	*	69-120	%REC	1	6/25/2022 02:22
Dissolved Gasses			RSK175			Prep Date: 6/21/2022 PrepBy: JRS
METHANE	320		2	UG/L	1	6/24/2022 17:28
ETHANE	72		4	UG/L	1	6/24/2022 17:28
PROPANE	26		6	UG/L	1	6/24/2022 17:28
Gasoline Range Organics			SW8015			Prep Date: 6/21/2022 PrepBy: JRS
GASOLINE RANGE ORGANICS	11		5	MG/L	50	6/22/2022 00:01
Surr: 2,3,4-TRIFLUOROTOLUENE	105		80-120	%REC	50	6/22/2022 00:01
GC/MS Volatiles			SW8260_25			Prep Date: 6/28/2022 PrepBy: TWK
BENZENE	83		10	UG/L	10	6/29/2022 00:58
TOLUENE	240		10	UG/L	10	6/29/2022 00:58
ETHYLBENZENE	36		10	UG/L	10	6/29/2022 00:58
M+P-XYLENE	170		10	UG/L	10	6/29/2022 00:58
O-XYLENE	84		10	UG/L	10	6/29/2022 00:58
TOTAL XYLENES	260		1	UG/L	1	6/29/2022 00:58
Surr: 4-BROMOFLUOROBENZENE	99		80-120	%REC	10	6/29/2022 00:58
Surr: DIBROMOFLUOROMETHANE	85		80-120	%REC	10	6/29/2022 00:58
Surr: TOLUENE-D8	105		80-120	%REC	10	6/29/2022 00:58
Ion Chromatography			EPA300.0			Prep Date: 6/20/2022 PrepBy: AOW
CHLORIDE	3000		50	MG/L	250	6/20/2022 16:07
SULFATE	310		250	MG/L	250	6/20/2022 16:07
Total Recoverable Metals by 200.7			EPA200.7			Prep Date: 6/21/2022 PrepBy: ETC
CALCIUM	100		100	MG/L	10	6/22/2022 13:51
POTASSIUM	1400		100	MG/L	10	6/22/2022 13:51
MAGNESIUM	ND		100	MG/L	10	6/22/2022 13:51
SODIUM	2200		100	MG/L	10	6/22/2022 13:51
Total Dissolved Solids			SM2540C			Prep Date: 6/21/2022 PrepBy: KRL
TOTAL DISSOLVED SOLIDS	8300		400	MG/L	1	6/23/2022

Client: PDC Energy
Project: Schneider HD 11-059HNX BH
Sample ID: 11-059HNX B
Legal Location:
Collection Date: 6/16/2022 10:30

Date: 29-Jun-22
Work Order: 2206424
Lab ID: 2206424-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dissolved Metals by 200.7			EPA200.7		Prep Date: 6/21/2022	PrepBy: ETC
CALCIUM	100		100	MG/L	10	6/22/2022 13:51
POTASSIUM	1400		100	MG/L	10	6/22/2022 13:51
MAGNESIUM	ND		100	MG/L	10	6/22/2022 13:51
SODIUM	2200		100	MG/L	10	6/22/2022 13:51

Client: PDC Energy
Project: Schneider HD 11-059HNX BH
Sample ID: 11-059HNX B
Legal Location:
Collection Date: 6/16/2022 10:30

Date: 29-Jun-22
Work Order: 2206424
Lab ID: 2206424-2
Matrix: WATER
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

ALS -- Fort Collins

Date: 6/29/2022 4:26:0

Client: PDC Energy

QC BATCH REPORT

Work Order: 2206424

Project: Schneider HD 11-059HNX BH

Batch ID: **HC220621-61-1**

Instrument ID: **FUELS-1**

Method: **SW8015**

LCS		Sample ID: HC220621-61			Units: MG/L		Analysis Date: 6/21/2022 18:18				
Client ID:		Run ID: HC220621-61A					Prep Date: 6/21/2022		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	0.494	0.1	0.5		99	80-120				20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.104		0.1		104	80-120					

LCSD		Sample ID: HC220621-61			Units: MG/L		Analysis Date: 6/21/2022 18:34				
Client ID:		Run ID: HC220621-61A					Prep Date: 6/21/2022		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	0.489	0.1	0.5		98	80-120		0.494	1	20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.104		0.1		104	80-120			0		

MB		Sample ID: HC220621-61			Units: MG/L		Analysis Date: 6/21/2022 18:49				
Client ID:		Run ID: HC220621-61A					Prep Date: 6/21/2022		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	ND	0.1									
Surr: 2,3,4-TRIFLUOROTOLUENE	0.103				103	80-120					

The following samples were analyzed in this batch:

Client: PDC Energy
 Work Order: 2206424
 Project: Schneider HD 11-059HNX BH

QC BATCH REPORT

Batch ID: **HC220621-81-1** Instrument ID: **FUELS-1** Method: **SW8015M**

LCS Sample ID: **HC220621-81** Units: **MG/L** Analysis Date: **6/27/2022 12:05**
 Client ID: Run ID: **HC220628-81A** Prep Date: **6/21/2022** 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	9.42	1.07	8.33		113	53-120				20	
Surr: O-TERPHENYL	1.76		1.67		106	69-120					

LCSD Sample ID: **HC220621-81** Units: **MG/L** Analysis Date: **6/27/2022 12:48**
 Client ID: Run ID: **HC220628-81A** Prep Date: **6/21/2022** 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	9.44	1.07	8.33		113	53-120		9.42	0	20	
Surr: O-TERPHENYL	1.78		1.67		107	69-120			1		

MB Sample ID: **HC220621-81** Units: **MG/L** Analysis Date: **6/24/2022 19:39**
 Client ID: Run ID: **HC220628-81A** Prep Date: **6/21/2022** 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	ND	1.1									
Surr: O-TERPHENYL	1.64				98	69-120					

The following samples were analyzed in this batch:

Client: PDC Energy
 Work Order: 2206424
 Project: Schneider HD 11-059HNX BH

QC BATCH REPORT

Batch ID: **HC220621-91-2** Instrument ID: **MEE-1** Method: **RSK175**

LCS		Sample ID: HC220621-91			Units: UG/L		Analysis Date: 6/24/2022 15:19				
Client ID:		Run ID: HC220627-91A			Prep Date: 6/21/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	137	2	142		96	76-125				25	
ETHANE	260	4	267		97	70-120				25	
PROPANE	380	6	391		97	72-120				25	

LCSD		Sample ID: HC220621-91			Units: UG/L		Analysis Date: 6/24/2022 16:13				
Client ID:		Run ID: HC220627-91A			Prep Date: 6/21/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	133	2	142		93	76-125		137	3	25	
ETHANE	251	4	267		94	70-120		260	3	25	
PROPANE	367	6	391		94	72-120		380	3	25	

MB		Sample ID: HC220621-91			Units: UG/L		Analysis Date: 6/24/2022 15:23					
Client ID:		Run ID: HC220627-91A			Prep Date: 6/21/2022		DF: 1					
Analyte	Result	ReportLimit										Qual
METHANE	ND	2										
ETHANE	ND	4										
PROPANE	ND	6										

The following samples were analyzed in this batch:

Client: PDC Energy
 Work Order: 2206424
 Project: Schneider HD 11-059HNX BH

QC BATCH REPORT

Batch ID: **IP220621-6-2** Instrument ID: **ICP5900** Method: **EPA200.7**

LCS		Sample ID: IP220621-6			Units: MG/L		Analysis Date: 6/22/2022 13:39				
Client ID:		Run ID: IT220622-1A2			Prep Date: 6/21/2022		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	38.4	1	40		96	85-115				20	
POTASSIUM	40.4	1	40		101	85-115				20	
SODIUM	40.4	1	40		101	85-115				20	

LCSD		Sample ID: IP220621-6			Units: MG/L		Analysis Date: 6/22/2022 13:40				
Client ID:		Run ID: IT220622-1A2			Prep Date: 6/21/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	40	1	40		100	85-115		39.9	0	20	
MAGNESIUM	38.4	1	40		96	85-115		38.4	0	20	
POTASSIUM	40.5	1	40		101	85-115		40.4	0	20	
SODIUM	40.4	1	40		101	85-115		40.4	0	20	

MB		Sample ID: IP220621-6			Units: MG/L		Analysis Date: 6/22/2022 13:37					
Client ID:		Run ID: IT220622-1A2			Prep Date: 6/21/2022		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:

Client: PDC Energy
 Work Order: 2206424
 Project: Schneider HD 11-059HXX BH

QC BATCH REPORT

Batch ID: **IP220621-6-3** Instrument ID: **ICP5900** Method: **EPA200.7**

LCS		Sample ID: IP220621-6			Units: MG/L		Analysis Date: 6/22/2022 13:39				
Client ID:		Run ID: IT220622-1A2			Prep Date: 6/21/2022		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	38.4	1	40		96	85-115				20	
POTASSIUM	40.4	1	40		101	85-115				20	
SODIUM	40.4	1	40		101	85-115				20	

LCSD		Sample ID: IP220621-6			Units: MG/L		Analysis Date: 6/22/2022 13:40				
Client ID:		Run ID: IT220622-1A2			Prep Date: 6/21/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	40	1	40		100	85-115		39.9	0	20	
MAGNESIUM	38.4	1	40		96	85-115		38.4	0	20	
POTASSIUM	40.5	1	40		101	85-115		40.4	0	20	
SODIUM	40.4	1	40		101	85-115		40.4	0	20	

MB		Sample ID: FP220620-6			Units: MG/L		Analysis Date: 6/22/2022 13:38					
Client ID:		Run ID: IT220622-1A2			Prep Date: 6/21/2022		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:

Client: PDC Energy
 Work Order: 2206424
 Project: Schneider HD 11-059HNX BH

QC BATCH REPORT

Batch ID: VL220628-44-3 Instrument ID: HPV4 Method: SW8260_25

LCS		Sample ID: VL220628-4			Units: %REC		Analysis Date: 6/28/2022 20:29				
Client ID:		Run ID: VL220628-44A			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
Surr: 4-BROMOFLUOROBENZENE	25.5		25		102	80-120					
Surr: DIBROMOFLUOROMETHANE	23		25		92	80-120					
Surr: TOLUENE-D8	26		25		104	80-120					
BENZENE	10	1	10		100	80-120				20	
TOLUENE	10.9	1	10		109	80-120				20	
ETHYLBENZENE	10.8	1	10		108	80-120				20	
M+P-XYLENE	21.6	1	20		108	80-120				20	
O-XYLENE	11.1	1	10		111	80-120				20	

LCSD		Sample ID: VL220628-4			Units: %REC		Analysis Date: 6/29/2022 02:59				
Client ID:		Run ID: VL220628-44A			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
Surr: 4-BROMOFLUOROBENZENE	25.9		25		104	80-120			2		
Surr: DIBROMOFLUOROMETHANE	22.4		25		90	80-120			3		
Surr: TOLUENE-D8	26.3		25		105	80-120			1		
BENZENE	9.97	1	10		100	80-120		10	1	20	
TOLUENE	11	1	10		110	80-120		10.9	1	20	
ETHYLBENZENE	10.8	1	10		108	80-120		10.8	0	20	
M+P-XYLENE	21.9	1	20		109	80-120		21.6	1	20	
O-XYLENE	11	1	10		110	80-120		11.1	1	20	

MB		Sample ID: VL220628-4			Units: %REC		Analysis Date: 6/28/2022 21:08				
Client ID:		Run ID: VL220628-44A			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
Surr: 4-BROMOFLUOROBENZENE	26.7				107	80-120					
Surr: DIBROMOFLUOROMETHANE	22.4				90	80-120					
Surr: TOLUENE-D8	26.9				107	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:

Client: PDC Energy
Work Order: 2206424
Project: Schneider HD 11-059HNX BH

QC BATCH REPORT

Batch ID: **AK220627-1-1** Instrument ID: **NONE** Method: **SM2320B**

LCS Sample ID: **AK220627-1** Units: **MG/L** Analysis Date: **6/27/2022**
 Client ID: Run ID: **AK220627-1A1** Prep Date: **6/27/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	102	5	100		102	85-115				15	

MB Sample ID: **AK220627-1** Units: **MG/L** Analysis Date: **6/27/2022**
 Client ID: Run ID: **AK220627-1A1** Prep Date: **6/27/2022** 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:

2206424-1

Client: PDC Energy
 Work Order: 2206424
 Project: Schneider HD 11-059HNX BH

QC BATCH REPORT

Batch ID: **IC220620-1-1** Instrument ID: **IC3** Method: **EPA300.0**

LCS		Sample ID: IC220620-1			Units: MG/L		Analysis Date: 6/20/2022 14:18				
Client ID:		Run ID: IC220620-1A1			Prep Date: 6/20/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	9.95	0.2	10		100	90-110				15	
SULFATE	49.5	1	50		99	90-110				15	

LCSD		Sample ID: IC220620-1			Units: MG/L		Analysis Date: 6/20/2022 15:36				
Client ID:		Run ID: IC220620-1A1			Prep Date: 6/20/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	10.1	0.2	10		101	90-110		9.95	1	15	
SULFATE	49.8	1	50		100	90-110		49.5	1	15	

MB		Sample ID: IC220620-1			Units: MG/L		Analysis Date: 6/20/2022 14:30					
Client ID:		Run ID: IC220620-1A1			Prep Date: 6/20/2022		DF: 1					
Analyte	Result	ReportLimit										Qual
CHLORIDE	ND	0.2										
SULFATE	ND	1										

The following samples were analyzed in this batch:

Client: PDC Energy
 Work Order: 2206424
 Project: Schneider HD 11-059HNX BH

QC BATCH REPORT

Batch ID: **TD220621-1-1** Instrument ID: **Balance** Method: **SM2540C**

LCS		Sample ID: TD220621-1			Units: MG/L		Analysis Date: 6/23/2022				
Client ID:		Run ID: TD220623-1A1			Prep Date: 6/21/2022		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	387	20	400		97	85-115				14	

LCSD		Sample ID: TD220621-1			Units: MG/L		Analysis Date: 6/23/2022				
Client ID:		Run ID: TD220623-1A1			Prep Date: 6/21/2022		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	426	20	400		106	85-115		387	10	14	

MB		Sample ID: TD220621-1			Units: MG/L		Analysis Date: 6/23/2022				
Client ID:		Run ID: TD220623-1A1			Prep Date: 6/21/2022		DF: 1				
Analyte	Result	ReportLimit	Qual								
TOTAL DISSOLVED SOLIDS	ND	20									

The following samples were analyzed in this batch: