



Tuesday, July 26, 2022

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

Re: ALS Workorder: 2207270  
Project Name: Bath-Schmier 5N  
Project Number: 09A2073004

Dear Ms. Hakkarinen:

One water sample was received from PDC Energy, on 7/13/2022. The sample was scheduled for the following analyses:

Dissolved Gasses

GC/MS Volatiles

Inorganics

Metals

Total Extractable Petroleum Hydrocarbons (Diesel)

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,

*Margaret G. O'Brien*

For  
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.



## 2207270

### **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 acceptance criteria were met.

### **Metals:**

The sample was analyzed following Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures. Analysis by ICPMS followed method 200.8 and the current revision of SOP 827.

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

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**OrderNum:** 2207270

**Client Name:** PDC Energy

**Client Project Name:** Bath-Schmier 5N

**Client Project Number:** 09A2073004

**Client PO Number:**

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Bath-Schmier 5N	2207270-1		WATER	12-Jul-22	12:20



2225 Commerce Drive, Fort Collins, Colorado 80524  
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

## Chain-of-Custody

Form 2028

Comments:		Cations/Anions:	QC PACKAGE (check below)
Calcium, Chloride, Magnesium, Potassium, Sodium, Sulfate			LEVEL II (Standard QC)
6			LEVEL III (Std QC + forms)
8			LEVEL IV (Std QC + forms + raw data)
11			
<b>GOGCC Bradenhead Sampling Program</b> <i>2/4/90</i>			
<b>Preservative Key:</b> 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035			



**ALS Environmental - Fort Collins**  
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: PDC Energy Workorder No: 2207270  
 Project Manager: KMO Initials: AXK Date: 07/13/2022

		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>4.3</u>				
# of custody seals on cooler: <u>0</u>				
External µR/hr reading: <u>-</u>				
Background µR/hr reading: <u>12</u>				
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? NA (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.

Sample bottles 1-9 ALL have headspace

Were unpreserved bottles pH checked? NA

All client bottle ID's vs ALS lab ID's double-checked by: AK

If applicable, was the client contacted? YES / NO / NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

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

7/14/22

## ALS -- Fort Collins

## SAMPLE SUMMARY REPORT

Client: PDC Energy  
 Project: 09A2073004 Bath-Schmier 5N  
 Sample ID: Bath-Schmier 5N  
 Legal Location:  
 Collection Date: 7/12/2022 12:20

Date: 26-Jul-22  
 Work Order: 2207270  
 Lab ID: 2207270-1  
 Matrix: WATER  
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>Alkalinity as Calcium Carbonate</b>		<b>SM2320B</b>			Prep Date: 7/21/2022	PrepBy: AOW
TOTAL ALKALINITY AS CaCO3	850		20	MG/L	1	7/21/2022
BICARBONATE AS CaCO3	ND		20	MG/L	1	7/21/2022
CARBONATE AS CaCO3	710		20	MG/L	1	7/21/2022
<b>Diesel Range Organics</b>		<b>SW8015M</b>			Prep Date: 7/19/2022	PrepBy: JRS
Diesel Range Organics	7.5		1.1	MG/L	1	7/22/2022 07:06
Surr: O-TERPHENYL	91		69-120	%REC	1	7/22/2022 07:06
<b>Dissolved Gasses</b>		<b>RSK175</b>			Prep Date: 7/20/2022	PrepBy: JRS
METHANE	11000		10	UG/L	5	7/22/2022 16:02
ETHANE	5400		20	UG/L	5	7/22/2022 16:02
PROPANE	2200		30	UG/L	5	7/22/2022 16:02
<b>GC/MS Volatiles</b>		<b>SW8260_25</b>			Prep Date: 7/20/2022	PrepBy: TWK
BENZENE	710		50	UG/L	50	7/20/2022 20:46
TOLUENE	2500		50	UG/L	50	7/20/2022 20:46
ETHYLBENZENE	190		50	UG/L	50	7/20/2022 20:46
M+P-XYLENE	1700		50	UG/L	50	7/20/2022 20:46
O-XYLENE	540		50	UG/L	50	7/20/2022 20:46
TOTAL XYLENES	2200		1	UG/L	1	7/20/2022 20:46
Surr: 4-BROMOFLUOROBENZENE	103		80-120	%REC	50	7/20/2022 20:46
Surr: DIBROMOFLUOROMETHANE	90		80-120	%REC	50	7/20/2022 20:46
Surr: TOLUENE-D8	103		80-120	%REC	50	7/20/2022 20:46
GASOLINE RANGE ORGANICS	19000		5000	UG/L	50	7/20/2022 20:46
<b>Ion Chromatography</b>		<b>EPA300.0</b>			Prep Date: 7/19/2022	PrepBy: AOW
CHLORIDE	1000		20	MG/L	100	7/19/2022 12:22
SULFATE	1600		100	MG/L	100	7/19/2022 12:22
<b>Total Recoverable Metals by 200.8</b>		<b>EPA200.8</b>			Prep Date: 7/18/2022	PrepBy: ETC
CALCIUM	140		10	MG/L	10	7/19/2022 18:11
MAGNESIUM	ND		1	MG/L	10	7/19/2022 18:11
POTASSIUM	560		10	MG/L	10	7/19/2022 18:11
SODIUM	1200		10	MG/L	10	7/19/2022 18:11
<b>Total Dissolved Solids</b>		<b>SM2540C</b>			Prep Date: 7/16/2022	PrepBy: AOW
TOTAL DISSOLVED SOLIDS	5600		200	MG/L	1	7/18/2022



**Client:** PDC Energy  
**Project:** 09A2073004 Bath-Schmier 5N  
**Sample ID:** Bath-Schmier 5N  
**Legal Location:**  
**Collection Date:** 7/12/2022 12:20

**Date:** 26-Jul-22  
**Work Order:** 2207270  
**Lab ID:** 2207270-1  
**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

## ALS -- Fort Collins

Client: PDC Energy

Work Order: 2207270

Project: 09A2073004 Bath-Schmier 5N

Date: 7/26/2022 9:05:4

## QC BATCH REPORT

Batch ID: HC220719-81-1

Instrument ID: FUELS-1

Method: SW8015M

LCS	Sample ID: <b>HC220719-81</b>				Units: <b>MG/L</b>		Analysis Date: <b>7/22/2022 01:48</b>				
Client ID:	Run ID: <b>HC220722-82A</b>				Prep Date: <b>7/19/2022</b>			DF: <b>1</b>			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	7.39	1.07	8.33		89	53-120				20	
Surr: O-TERPHENYL	1.87		1.67		112	69-120					

LCSD	Sample ID: <b>HC220719-81</b>				Units: <b>MG/L</b>		Analysis Date: <b>7/22/2022 02:09</b>				
Client ID:	Run ID: <b>HC220722-82A</b>				Prep Date: <b>7/19/2022</b>			DF: <b>1</b>			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	8.12	1.07	8.33		97	53-120		7.39	9	20	
Surr: O-TERPHENYL	1.71		1.67		103	69-120			9		

MB	Sample ID: <b>HC220719-81</b>	Units: <b>MG/L</b>	Analysis Date: <b>7/22/2022 01:27</b>		
Client ID:	Run ID: <b>HC220722-82A</b>	Prep Date: <b>7/19/2022</b>		DF: <b>1</b>	
Analyte	Result	ReportLimit	Qual		
Diesel Range Organics	ND	1.1			
Surr: O-TERPHENYL	1.51		91	69-120	

The following samples were analyzed in this batch:

2207270-1

**Client:** PDC Energy  
**Work Order:** 2207270  
**Project:** 09A2073004 Bath-Schmier 5N

## QC BATCH REPORT

Batch ID: **HC220720-91-2** Instrument ID: **MEE-1** Method: **RSK175**

**LCS** Sample ID: **HC220720-91** Units: **UG/L** Analysis Date: **7/22/2022 14:29**

Client ID: Run ID: **HC220725-91A** Prep Date: **7/20/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	152	2	142		107	76-125				25	
ETHANE	288	4	267		108	70-120				25	
PROPANE	426	6	391		109	72-120				25	

**LCSD** Sample ID: **HC220720-91** Units: **UG/L** Analysis Date: **7/22/2022 15:20**

Client ID: Run ID: **HC220725-91A** Prep Date: **7/20/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	156	2	142		110	76-125		152	3	25	
ETHANE	292	4	267		110	70-120		288	2	25	
PROPANE	430	6	391		110	72-120		426	1	25	

**MB** Sample ID: **HC220720-91** Units: **UG/L** Analysis Date: **7/22/2022 14:32**

Client ID: Run ID: **HC220725-91A** Prep Date: **7/20/2022** DF: **1**

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

The following samples were analyzed in this batch:

2207270-1

**Client:** PDC Energy  
**Work Order:** 2207270  
**Project:** 09A2073004 Bath-Schmier 5N

## QC BATCH REPORT

Batch ID: **IP220718-1-1** Instrument ID: **ICPMS2** Method: **EPA200.8**

LCS		Sample ID: IM220718-1				Units: MG/L		Analysis Date: 7/19/2022 17:56			
Client ID:		Run ID: IM220719-10A10				Prep Date: 7/18/2022		DF: 10			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	10.4	1	10		104	85-115				20	
MAGNESIUM	9.48	0.1	10		95	85-115				20	
POTASSIUM	4.52	1	5		90	85-115				20	
SODIUM	9.86	1	10		99	85-115				20	

LCSD		Sample ID: IM220718-1				Units: MG/L		Analysis Date: 7/19/2022 18:02			
Client ID:		Run ID: IM220719-10A10				Prep Date: 7/18/2022		DF: 10			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	10.4	1	10		104	85-115		10.4	0	20	
MAGNESIUM	9.63	0.1	10		96	85-115		9.48	2	20	
POTASSIUM	4.65	1	5		93	85-115		4.52	3	20	
SODIUM	9.92	1	10		99	85-115		9.86	1	20	

MB		Sample ID: IP220718-1			Units: MG/L		Analysis Date: 7/19/2022 17:53		
Client ID:		Run ID: IM220719-10A10			Prep Date: 7/18/2022		DF: 10		
Analyte		Result	ReportLimit						Qual
CALCIUM		ND	1						
MAGNESIUM		ND	0.1						
POTASSIUM		ND	1						
SODIUM		ND	1						

The following samples were analyzed in this batch:

2207270-1

**Client:** PDC Energy  
**Work Order:** 2207270  
**Project:** 09A2073004 Bath-Schmier 5N

## QC BATCH REPORT

Batch ID: **VL220720-4-1** Instrument ID: **HPV4** Method: **SW8260\_25**

LCS		Sample ID: VL220720-44			Units: UG/L		Analysis Date: 7/20/2022 10:31				
Client ID:		Run ID: VL220720-4A			Prep Date: 7/20/2022			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	861	100	1000		86	75-121				20	

LCSD		Sample ID: VL220720-44			Units: UG/L		Analysis Date: 7/20/2022 10:51				
Client ID:		Run ID: VL220720-4A			Prep Date: 7/20/2022			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	881	100	1000		88	75-121		861	2	20	

MB		Sample ID: VL220720-4			Units: UG/L		Analysis Date: 7/20/2022 13:52		
Client ID:		Run ID: VL220720-4A			Prep Date: 7/20/2022			DF: 1	
Analyte		Result	ReportLimit		Qual				
GASOLINE RANGE ORGANICS		ND	100						

The following samples were analyzed in this batch:

2207270-1

Client: PDC Energy  
Work Order: 2207270  
Project: 09A2073004 Bath-Schmier 5N

## QC BATCH REPORT

Batch ID: VL220720-4-2 Instrument ID: HPV4 Method: SW8260\_25

LCS		Sample ID: VL220720-4				Units: %REC		Analysis Date: 7/20/2022 11:32				
Client ID:		Run ID: VL220720-4A				Prep Date: 7/20/2022			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	24.6		25		99	80-120						
Surr: DIBROMOFLUOROMETHANE	24.5		25		98	80-120						
Surr: TOLUENE-D8	25.2		25		101	80-120						
BENZENE	10.3	1	10		103	80-120				20		
TOLUENE	10.6	1	10		106	80-120				20		
ETHYLBENZENE	10.6	1	10		106	80-120				20		
M+P-XYLENE	21.4	1	20		107	80-120				20		
O-XYLENE	10.6	1	10		106	80-120				20		

LCSD		Sample ID: VL220720-4				Units: %REC		Analysis Date: 7/20/2022 11:53				
Client ID:		Run ID: VL220720-4A				Prep Date: 7/20/2022			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	24.6		25		98	80-120			0			
Surr: TOLUENE-D8	25.2		25		101	80-120			0			
BENZENE	9.81	1	10		98	80-120		10.3	5	20		
TOLUENE	9.96	1	10		100	80-120		10.6	6	20		
ETHYLBENZENE	10	1	10		100	80-120		10.6	6	20		
M+P-XYLENE	20.1	1	20		101	80-120		21.4	6	20		
O-XYLENE	10.1	1	10		101	80-120		10.6	5	20		

MB		Sample ID: VL220720-4		Units: %REC		Analysis Date: 7/20/2022 13:52	
Client ID:		Run ID: VL220720-4A		Prep Date: 7/20/2022		DF: 1	
Analyte		Result	ReportLimit			Qual	
Surr: 4-BROMOFLUOROBENZENE		27.4		110	80-120		
Surr: DIBROMOFLUOROMETHANE		25.2		101	80-120		
Surr: TOLUENE-D8		26.9		108	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:

2207270-1

**Client:** PDC Energy  
**Work Order:** 2207270  
**Project:** 09A2073004 Bath-Schmier 5N

## QC BATCH REPORT

Batch ID: **AK220721-2-2** Instrument ID: **NONE** Method: **SM2320B**

LCS		Sample ID: <b>AK220721-2</b>				Units: <b>MG/L</b>		Analysis Date: <b>7/21/2022</b>			
Client ID:		Run ID: <b>AK220721-2A1</b>				Prep Date: <b>7/21/2022</b>		DF: <b>1</b>			
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: AK220721-2		Units: MG/L		Analysis Date: 7/21/2022	
Client ID:		Run ID: AK220721-2A1		Prep Date: 7/21/2022		DF: 1	
Analyte		Result	ReportLimit	Qual			
TOTAL ALKALINITY AS CaCO3		ND	5				
BICARBONATE AS CaCO3		ND	5				
CARBONATE AS CaCO3		ND	5				

The following samples were analyzed in this batch:

2207270-1

**Client:** PDC Energy  
**Work Order:** 2207270  
**Project:** 09A2073004 Bath-Schmier 5N

## QC BATCH REPORT

Batch ID: **IC220719-1-1** Instrument ID: **IC3** Method: **EPA300.0**

LCS	Sample ID: IC220719-1			Units: MG/L			Analysis Date: 7/19/2022 15:12				
Client ID:	Run ID: IC220719-1A1			Prep Date: 7/19/2022			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				15	
SULFATE	50.6	1	50		101	90-110				15	

LCSD		Sample ID: IC220719-1			Units: MG/L		Analysis Date: 7/19/2022 11:34				
Client ID:		Run ID: IC220719-1A1			Prep Date: 7/19/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHLORIDE	9.97	0.2	10		100	90-110		10.1	2	15	
SULFATE	48.4	1	50		97	90-110		50.6	4	15	

MB		Sample ID: IC220719-1		Units: MG/L		Analysis Date: 7/19/2022 10:27	
Client ID:		Run ID: IC220719-1A1		Prep Date: 7/19/2022		DF: 1	
Analyte		Result	ReportLimit	Qual			
CHLORIDE		ND	0.2				
SULFATE		ND	1				

The following samples were analyzed in this batch:

2207270-1



**Client:** PDC Energy  
**Work Order:** 2207270  
**Project:** 09A2073004 Bath-Schmier 5N

## QC BATCH REPORT

Batch ID: **TD220716-1-2** Instrument ID: **Balance** Method: **SM2540C**

<b>DUP</b>		Sample ID: <b>2207270-1</b>				Units: <b>MG/L</b>		Analysis Date: <b>7/18/2022</b>			
Client ID: <b>Bath-Schmier 5N</b>		Run ID: <b>TD220718-1A1</b>				Prep Date: <b>7/16/2022</b>		DF: <b>1</b>			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	5830	200						5600	5	14	

<b>LCS</b>		Sample ID: <b>TD220716-1</b>				Units: <b>MG/L</b>		Analysis Date: <b>7/18/2022</b>			
Client ID:		Run ID: <b>TD220718-1A1</b>				Prep Date: <b>7/16/2022</b>		DF: <b>1</b>			
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				14	

<b>LCSD</b>		Sample ID: <b>TD220716-1</b>				Units: <b>MG/L</b>		Analysis Date: <b>7/18/2022</b>			
Client ID:		Run ID: <b>TD220718-1A1</b>				Prep Date: <b>7/16/2022</b>		DF: <b>1</b>			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	399	20	400		100	85-115		405	1	14	

<b>MB</b>		Sample ID: <b>TD220716-1</b>				Units: <b>MG/L</b>		Analysis Date: <b>7/18/2022</b>			
Client ID:		Run ID: <b>TD220718-1A1</b>				Prep Date: <b>7/16/2022</b>		DF: <b>1</b>			
Analyte	Result	ReportLimit									Qual
TOTAL DISSOLVED SOLIDS	ND	20									

The following samples were analyzed in this batch:

2207270-1