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December 07, 2022

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

Work Order: **HS22111201**

Laboratory Results for: **Schank J 35-22**

Dear Jenifer Hakkarinen,

ALS Environmental received 1 sample(s) on Nov 19, 2022 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
Tyler Monroe

Client: PDC Energy
Project: Schank J 35-22
Work Order: HS22111201

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22111201-01	Schank J 35-22	Water		16-Nov-2022 12:20	19-Nov-2022 09:15	<input type="checkbox"/>

Client: PDC Energy
Project: Schank J 35-22
Work Order: HS22111201

CASE NARRATIVE

GC Semivolatiles by Method RSK-175**Batch ID: R422714**

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

GC Semivolatiles by Method SW8015M**Batch ID: 186456**

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

GC Volatiles by Method SW8015**Batch ID: R422447**

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

GCMS Volatiles by Method SW8260**Batch ID: R422722****Sample ID: HS22111077-12MS**

- and MSD are for an unrelated sample

Batch ID: R422621**Sample ID: HS22111143-04MS**

- MS and MSD are for an unrelated sample

Metals by Method E200.8**Batch ID: 186949****Sample ID: HS22111317-01MS/HS22111333-01MS**

- MS and MSD are for an unrelated samples

WetChemistry by Method E300**Batch ID: R423239****Sample ID: Schank J 35-22 (HS22111201-01)**

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

WetChemistry by Method SM2320B**Batch ID: R422786**

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

WetChemistry by Method M2540C**Batch ID: R422648**

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

Client: PDC Energy
 Project: Schank J 35-22
 Sample ID: Schank J 35-22
 Collection Date: 16-Nov-2022 12:20

ANALYTICAL REPORT

WorkOrder:HS22111201
 Lab ID:HS22111201-01
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP		
Benzene	3,500		100	ug/L	100	29-Nov-2022 15:18
Ethylbenzene	160		10	ug/L	10	28-Nov-2022 15:10
m,p-Xylene	2,000		20	ug/L	10	28-Nov-2022 15:10
o-Xylene	310		10	ug/L	10	28-Nov-2022 15:10
Toluene	7,600		100	ug/L	100	29-Nov-2022 15:18
Xylenes, Total	2,300		10	ug/L	10	28-Nov-2022 15:10
Surr: 1,2-Dichloroethane-d4	96.8		70-126	%REC	10	28-Nov-2022 15:10
Surr: 1,2-Dichloroethane-d4	103		70-126	%REC	100	29-Nov-2022 15:18
Surr: 4-Bromofluorobenzene	98.9		77-113	%REC	10	28-Nov-2022 15:10
Surr: 4-Bromofluorobenzene	97.7		77-113	%REC	100	29-Nov-2022 15:18
Surr: Dibromofluoromethane	110		77-123	%REC	10	28-Nov-2022 15:10
Surr: Dibromofluoromethane	121		77-123	%REC	100	29-Nov-2022 15:18
Surr: Toluene-d8	93.4		82-127	%REC	10	28-Nov-2022 15:10
Surr: Toluene-d8	92.6		82-127	%REC	100	29-Nov-2022 15:18
GASOLINE RANGE ORGANICS BY SW8015C		Method:SW8015		Analyst: FT		
Gasoline Range Organics	22.5		2.50	mg/L	50	22-Nov-2022 13:40
Surr: 4-Bromofluorobenzene	118		70-123	%REC	50	22-Nov-2022 13:40
DISSOLVED GASES BY RSK-175		Method:RSK-175		Analyst: PPM		
Ethane	2,180		500	ug/L	500	23-Nov-2022 14:57
Methane	10,500		250	ug/L	500	23-Nov-2022 14:57
Propane	2,570		500	ug/L	500	23-Nov-2022 14:57
TPH DRO/ORO BY SW8015C		Method:SW8015M		Prep:SW3511 / 21-Nov-2022		Analyst: PPM
TPH (Diesel Range)	0.076		0.050	mg/L	1	23-Nov-2022 12:57
Surr: 2-Fluorobiphenyl	92.2		60-135	%REC	1	23-Nov-2022 12:57
TOTAL METALS BY E200.8, REV 5.4, 1994		Method:E200.8		Prep:E200.8 / 05-Dec-2022		Analyst: JHD
Calcium	5.63		0.500	mg/L	1	07-Dec-2022 13:57
Magnesium	0.874		0.500	mg/L	1	07-Dec-2022 13:57
Potassium	2.13		0.500	mg/L	1	07-Dec-2022 13:57
Sodium	473		4.00	mg/L	20	07-Dec-2022 16:15
ANIONS BY E300.0, REV 2.1, 1993		Method:E300		Analyst: TH		
Chloride	598		10.0	mg/L	20	06-Dec-2022 01:53
Sulfate	ND		1.00	mg/L	2	06-Dec-2022 01:48
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C		Analyst: CWG		
Total Dissolved Solids (Residue, Filterable)	1,310		10.0	mg/L	1	23-Nov-2022 17:36

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

Client: PDC Energy
Project: Schank J 35-22
Sample ID: Schank J 35-22
Collection Date: 16-Nov-2022 12:20

ANALYTICAL REPORT

WorkOrder:HS22111201
Lab ID:HS22111201-01
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM 2320B-2011		Method:SM2320B		Analyst: JAC		
Alkalinity, Bicarbonate (As CaCO ₃)	75.9		5.00	mg/L	1	29-Nov-2022 20:28
Alkalinity, Carbonate (As CaCO ₃)	32.3		5.00	mg/L	1	29-Nov-2022 20:28
Alkalinity, Total (As CaCO ₃)	108		5.00	mg/L	1	29-Nov-2022 20:28

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

Weight / Prep Log

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

Batch ID: 186456	Start Date: 21 Nov 2022 14:43	End Date: 21 Nov 2022 17:00
Method: SW3511	Prep Code: 3511_DRO	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22111201-01		32.95 (mL)	2 (mL)	0.0607	40 mL Amber

Batch ID: 186949	Start Date: 05 Dec 2022 10:00	End Date: 05 Dec 2022 14:00
Method: TOTAL METALS PREP BY E200.8, REV 5.4, 1994	Prep Code: 200.8PR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22111201-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 186456 (0)		Test Name : TPH DRO/ORO BY SW8015C			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20		21 Nov 2022 14:43	23 Nov 2022 12:57	1
Batch ID: 186949 (0)		Test Name : TOTAL METALS BY E200.8, REV 5.4, 1994			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20		05 Dec 2022 10:00	07 Dec 2022 16:15	20
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20		05 Dec 2022 10:00	07 Dec 2022 13:57	1
Batch ID: R422447 (0)		Test Name : GASOLINE RANGE ORGANICS BY SW8015C			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			22 Nov 2022 13:40	50
Batch ID: R422621 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			28 Nov 2022 15:10	10
Batch ID: R422648 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			23 Nov 2022 17:36	1
Batch ID: R422714 (0)		Test Name : DISSOLVED GASES BY RSK-175			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			23 Nov 2022 14:57	500
Batch ID: R422722 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			29 Nov 2022 15:18	100
Batch ID: R422786 (0)		Test Name : ALKALINITY BY SM 2320B-2011			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			29 Nov 2022 20:28	1
Batch ID: R423239 (0)		Test Name : ANIONS BY E300.0, REV 2.1, 1993			Matrix: Water	
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			06 Dec 2022 01:53	20
HS22111201-01	Schank J 35-22	16 Nov 2022 12:20			06 Dec 2022 01:48	2

Client: PDC Energy
 Project: Schank J 35-22
 WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: 186456 (0)		Instrument: FID-16		Method: TPH DRO/ORO BY SW8015C						
MBLK	Sample ID: MBLK-186456	Units: mg/L		Analysis Date: 21-Nov-2022 19:20						
Client ID:	Run ID: FID-16_422700		SeqNo: 7002669		PrepDate: 21-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	ND	0.050								
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.0419</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>69.8</i>	<i>60 - 135</i>				
LCS	Sample ID: LCS-186456	Units: mg/L		Analysis Date: 21-Nov-2022 19:50						
Client ID:	Run ID: FID-16_422700		SeqNo: 7002717		PrepDate: 21-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.533	0.050	0.6	0	88.8	70 - 130				
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06199</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>103</i>	<i>60 - 135</i>				
LCSD	Sample ID: LCSD-186456	Units: mg/L		Analysis Date: 21-Nov-2022 20:19						
Client ID:	Run ID: FID-16_422700		SeqNo: 7002671		PrepDate: 21-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5345	0.050	0.6	0	89.1	70 - 130	0.533	0.282	20	
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06172</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>103</i>	<i>60 - 135</i>	<i>0.06199</i>	<i>0.439</i>	<i>20</i>	
The following samples were analyzed in this batch: HS22111201-01										

Client: PDC Energy
 Project: Schank J 35-22
 WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422714 (0)		Instrument: FID-4		Method: DISSOLVED GASES BY RSK-175					
MBLK	Sample ID: MBLK-221123	Units: ug/L		Analysis Date: 23-Nov-2022 10:01					
Client ID:	Run ID: FID-4_422714		SeqNo: 7002907		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	ND	1.00							
Methane	ND	0.500							
Propane	ND	1.00							

LCS	Sample ID: LCS-221123	Units: ug/L		Analysis Date: 23-Nov-2022 10:20					
Client ID:	Run ID: FID-4_422714		SeqNo: 7002908		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	20.24	1.00	18.04	0	112	75 - 125			
Methane	8.799	0.500	9.647	0	91.2	75 - 125			
Propane	31.1	1.00	26.46	0	118	75 - 125			

LCSD	Sample ID: LCSD-221123	Units: ug/L		Analysis Date: 23-Nov-2022 10:37					
Client ID:	Run ID: FID-4_422714		SeqNo: 7002909		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	20.42	1.00	18.04	0	113	75 - 125	20.24	0.868	30
Methane	8.273	0.500	9.647	0	85.8	75 - 125	8.799	6.16	30
Propane	30.97	1.00	26.46	0	117	75 - 125	31.1	0.426	30

The following samples were analyzed in this batch: HS22111201-01

Client: PDC Energy
 Project: Schank J 35-22
 WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422447 (0)		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C						
MBLK	Sample ID: MBLK-221122	Units: mg/L		Analysis Date: 22-Nov-2022 10:48						
Client ID:	Run ID: FID-20_422447	SeqNo: 6996881		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	ND	0.0500								
Surr: 4-Bromofluorobenzene	0.1073	0.00500	0.1	0	107	70 - 121				
LCS	Sample ID: LCS-221122	Units: mg/L		Analysis Date: 22-Nov-2022 10:21						
Client ID:	Run ID: FID-20_422447	SeqNo: 6996879		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9199	0.0500	1	0	92.0	76 - 124				
Surr: 4-Bromofluorobenzene	0.08832	0.00500	0.1	0	88.3	52 - 138				
LCSD	Sample ID: LCSD-221122	Units: mg/L		Analysis Date: 22-Nov-2022 10:35						
Client ID:	Run ID: FID-20_422447	SeqNo: 6996880		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9576	0.0500	1	0	95.8	76 - 124	0.9199	4.03	20	
Surr: 4-Bromofluorobenzene	0.0877	0.00500	0.1	0	87.7	52 - 138	0.08832	0.698	20	
The following samples were analyzed in this batch: HS22111201-01										

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: 186949 (0)		Instrument: ICPMS07		Method: TOTAL METALS BY E200.8, REV 5.4, 1994					
MBLK	Sample ID: MBLK-186949	Units: ug/L		Analysis Date: 07-Dec-2022 12:56					
Client ID:	Run ID: ICPMS07_423374	SeqNo: 7018874		PrepDate: 05-Dec-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Calcium	ND	500							
Magnesium	ND	500							
Potassium	ND	500							
Sodium	ND	200							

LCS	Sample ID: LCS-186949	Units: ug/L		Analysis Date: 07-Dec-2022 16:13					
Client ID:	Run ID: ICPMS07_423374	SeqNo: 7019246		PrepDate: 05-Dec-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Calcium	5135	500	5000	0	103	85 - 115			
Magnesium	5259	500	5000	0	105	85 - 115			
Potassium	5096	500	5000	0	102	85 - 115			
Sodium	5171	200	5000	0	103	85 - 115			

MS	Sample ID: HS22111333-01MS	Units: ug/L		Analysis Date: 07-Dec-2022 13:09					
Client ID:	Run ID: ICPMS07_423374	SeqNo: 7018881		PrepDate: 05-Dec-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Calcium	31780	500	5000	25110	133	70 - 130			SO
Magnesium	6633	500	5000	1437	104	70 - 130			
Potassium	8845	500	5000	3933	98.2	70 - 130			
Sodium	8458	200	5000	3362	102	70 - 130			

MS	Sample ID: HS22111317-01MS	Units: ug/L		Analysis Date: 07-Dec-2022 13:02					
Client ID:	Run ID: ICPMS07_423374	SeqNo: 7018877		PrepDate: 05-Dec-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Calcium	302400	500	5000	307300	-97.4	70 - 130			SEO
Magnesium	37590	500	5000	33210	87.5	70 - 130			O
Potassium	45860	500	5000	42160	73.9	70 - 130			O
Sodium	349200	200	5000	354900	-113	70 - 130			SEO

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: 186949 (0)		Instrument: ICPMS07		Method: TOTAL METALS BY E200.8, REV 5.4, 1994							
MSD		Sample ID: HS22111333-01MSD		Units: ug/L		Analysis Date: 07-Dec-2022 13:11					
Client ID:		Run ID: ICPMS07_423374		SeqNo: 7018882		PrepDate: 05-Dec-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	30650	500	5000	25110	111	70 - 130	31780	3.62	20	O	
Magnesium	6412	500	5000	1437	99.5	70 - 130	6633	3.39	20		
Potassium	8550	500	5000	3933	92.3	70 - 130	8845	3.39	20		
Sodium	8179	200	5000	3362	96.3	70 - 130	8458	3.36	20		

MSD		Sample ID: HS22111317-01MSD		Units: ug/L		Analysis Date: 07-Dec-2022 13:03					
Client ID:		Run ID: ICPMS07_423374		SeqNo: 7018878		PrepDate: 05-Dec-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	307600	500	5000	307300	5.85	70 - 130	302400	1.69	20	SEO	
Magnesium	38530	500	5000	33210	106	70 - 130	37590	2.47	20	O	
Potassium	47040	500	5000	42160	97.6	70 - 130	45860	2.55	20	O	
Sodium	358700	200	5000	354900	76.4	70 - 130	349200	2.68	20	EO	

The following samples were analyzed in this batch: HS22111201-01

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422621 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-221128	Units: ug/L		Analysis Date: 28-Nov-2022 11:15					
Client ID:	Run ID: VOA4_422621	SeqNo: 7000492		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethylbenzene	ND	1.0							
m,p-Xylene	ND	2.0							
o-Xylene	ND	1.0							
Xylenes, Total	ND	1.0							
Surr: 1,2-Dichloroethane-d4	43.52	1.0	50	0	87.0	70 - 123			
Surr: 4-Bromofluorobenzene	49.94	1.0	50	0	99.9	77 - 113			
Surr: Dibromofluoromethane	51.39	1.0	50	0	103	73 - 126			
Surr: Toluene-d8	47.47	1.0	50	0	94.9	81 - 120			

LCS	Sample ID: VLCSW-221128	Units: ug/L		Analysis Date: 28-Nov-2022 09:36					
Client ID:	Run ID: VOA4_422621	SeqNo: 7000490		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethylbenzene	15.99	1.0	20	0	79.9	77 - 117			
m,p-Xylene	32.76	2.0	40	0	81.9	77 - 122			
o-Xylene	16.5	1.0	20	0	82.5	75 - 119			
Xylenes, Total	49.25	1.0	60	0	82.1	75 - 122			
Surr: 1,2-Dichloroethane-d4	48.01	1.0	50	0	96.0	70 - 123			
Surr: 4-Bromofluorobenzene	53.74	1.0	50	0	107	77 - 113			
Surr: Dibromofluoromethane	52.01	1.0	50	0	104	73 - 126			
Surr: Toluene-d8	46.76	1.0	50	0	93.5	81 - 120			

MS	Sample ID: HS22111143-04MS	Units: ug/L		Analysis Date: 28-Nov-2022 13:00					
Client ID:	Run ID: VOA4_422621	SeqNo: 7000497		PrepDate:		DF: 100			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethylbenzene	5309	100	2000	3931	68.9	70 - 124			S
m,p-Xylene	16200	200	4000	13450	68.9	70 - 130			S
o-Xylene	8691	100	2000	7299	69.6	70 - 124			S
Xylenes, Total	24900	100	6000	20750	69.1	70 - 130			S
Surr: 1,2-Dichloroethane-d4	4646	100	5000	0	92.9	70 - 126			
Surr: 4-Bromofluorobenzene	5008	100	5000	0	100	77 - 113			
Surr: Dibromofluoromethane	5421	100	5000	0	108	77 - 123			
Surr: Toluene-d8	4733	100	5000	0	94.7	82 - 127			

Client: PDC Energy
 Project: Schank J 35-22
 WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422621 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MSD		Sample ID: HS22111143-04MSD		Units: ug/L		Analysis Date: 28-Nov-2022 13:22				
Client ID:		Run ID: VOA4_422621		SeqNo: 7000498		PrepDate:		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethylbenzene	6276	100	2000	3931	117	70 - 124	5309	16.7	20	
m,p-Xylene	19290	200	4000	13450	146	70 - 130	16200	17.4	20	S
o-Xylene	10330	100	2000	7299	152	70 - 124	8691	17.3	20	S
Xylenes, Total	29630	100	6000	20750	148	70 - 130	24900	17.4	20	S
Surr: 1,2-Dichloroethane-d4	4859	100	5000	0	97.2	70 - 126	4646	4.49	20	
Surr: 4-Bromofluorobenzene	5240	100	5000	0	105	77 - 113	5008	4.52	20	
Surr: Dibromofluoromethane	5371	100	5000	0	107	77 - 123	5421	0.927	20	
Surr: Toluene-d8	4856	100	5000	0	97.1	82 - 127	4733	2.57	20	

The following samples were analyzed in this batch: HS22111201-01

Client: PDC Energy
 Project: Schank J 35-22
 WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422722 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-221129	Units: ug/L		Analysis Date: 29-Nov-2022 11:05					
Client ID:	Run ID: VOA4_422722	SeqNo: 7003066		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	ND	1.0							
Toluene	ND	1.0							
Surr: 1,2-Dichloroethane-d4	50.73	1.0	50	0	101	70 - 123			
Surr: 4-Bromofluorobenzene	49.83	1.0	50	0	99.7	77 - 113			
Surr: Dibromofluoromethane	57.26	1.0	50	0	115	73 - 126			
Surr: Toluene-d8	46.94	1.0	50	0	93.9	81 - 120			
LCS	Sample ID: VLCSW-221129	Units: ug/L		Analysis Date: 29-Nov-2022 10:23					
Client ID:	Run ID: VOA4_422722	SeqNo: 7003064		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.09	1.0	20	0	85.5	74 - 120			
Toluene	15.58	1.0	20	0	77.9	77 - 118			
Surr: 1,2-Dichloroethane-d4	51.43	1.0	50	0	103	70 - 123			
Surr: 4-Bromofluorobenzene	50.41	1.0	50	0	101	77 - 113			
Surr: Dibromofluoromethane	59.46	1.0	50	0	119	73 - 126			
Surr: Toluene-d8	46.49	1.0	50	0	93.0	81 - 120			
MS	Sample ID: HS22111077-12MS	Units: ug/L		Analysis Date: 29-Nov-2022 13:12					
Client ID:	Run ID: VOA4_422722	SeqNo: 7003553		PrepDate:		DF: 10			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	227.2	10	200	90.57	68.3	70 - 127			S
Toluene	191	10	200	0	95.5	70 - 123			
Surr: 1,2-Dichloroethane-d4	494.5	10	500	0	98.9	70 - 126			
Surr: 4-Bromofluorobenzene	507.5	10	500	0	101	77 - 113			
Surr: Dibromofluoromethane	580.4	10	500	0	116	77 - 123			
Surr: Toluene-d8	462.5	10	500	0	92.5	82 - 127			

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422722 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MSD		Sample ID: HS22111077-12MSD		Units: ug/L		Analysis Date: 29-Nov-2022 13:33				
Client ID:		Run ID: VOA4_422722		SeqNo: 7003554		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	212.2	10	200	90.57	60.8	70 - 127	227.2	6.86	20	S
Toluene	182.5	10	200	0	91.3	70 - 123	191	4.56	20	
Surr: 1,2-Dichloroethane-d4	515.7	10	500	0	103	70 - 126	494.5	4.19	20	
Surr: 4-Bromofluorobenzene	521.3	10	500	0	104	77 - 113	507.5	2.7	20	
Surr: Dibromofluoromethane	581	10	500	0	116	77 - 123	580.4	0.108	20	
Surr: Toluene-d8	463.4	10	500	0	92.7	82 - 127	462.5	0.205	20	

The following samples were analyzed in this batch: HS22111201-01

Client: PDC Energy
 Project: Schank J 35-22
 WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422648 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WBLK-112322	Units: mg/L		Analysis Date: 23-Nov-2022 17:36						
Client ID:	Run ID: Balance1_422648	SeqNo: 7001258		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		ND	10.0							

LCS	Sample ID: WLCS-112322	Units: mg/L		Analysis Date: 23-Nov-2022 17:36						
Client ID:	Run ID: Balance1_422648	SeqNo: 7001259		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		1080	10.0	1000	0	108	85 - 115			

DUP	Sample ID: HS22111232-04DUP	Units: mg/L		Analysis Date: 23-Nov-2022 17:36						
Client ID:	Run ID: Balance1_422648	SeqNo: 7001257		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		1760	10.0				1760	0	5	

DUP	Sample ID: HS22111024-01DUP	Units: mg/L		Analysis Date: 23-Nov-2022 17:36						
Client ID:	Run ID: Balance1_422648	SeqNo: 7001237		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)		824	10.0				824	0	5	

The following samples were analyzed in this batch:		HS22111201-01								
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Client: PDC Energy
 Project: Schank J 35-22
 WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R422786 (0)		Instrument: ManTech01		Method: ALKALINITY BY SM 2320B-2011					
MBLK	Sample ID: WBLKW1-112922	Units: mg/L		Analysis Date: 29-Nov-2022 18:13					
Client ID:	Run ID: ManTech01_422786	SeqNo: 7004966		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.00							
Alkalinity, Carbonate (As CaCO3)	ND	5.00							
Alkalinity, Total (As CaCO3)	ND	5.00							

LCS	Sample ID: LCS1-112922	Units: mg/L		Analysis Date: 29-Nov-2022 18:22					
Client ID:	Run ID: ManTech01_422786	SeqNo: 7004967		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	992.7	5.00	1000	0	99.3	85 - 115			
Alkalinity, Total (As CaCO3)	1015	5.00	1000	0	102	85 - 115			

LCSD	Sample ID: LCSD1-112922	Units: mg/L		Analysis Date: 29-Nov-2022 18:31					
Client ID:	Run ID: ManTech01_422786	SeqNo: 7004968		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	996	5.00	1000	0	99.6	85 - 115	992.7	0.331	20
Alkalinity, Total (As CaCO3)	1017	5.00	1000	0	102	85 - 115	1015	0.194	20

DUP	Sample ID: HS22110882-01DUP	Units: mg/L		Analysis Date: 29-Nov-2022 18:45					
Client ID:	Run ID: ManTech01_422786	SeqNo: 7004970		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	194.8	5.00					179.2	8.3	20
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0	0	20
Alkalinity, Total (As CaCO3)	194.8	5.00					179.2	8.3	20

The following samples were analyzed in this batch: HS22111201-01

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R423239 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 05-Dec-2022 23:26					
Client ID:	Run ID: ICS-Integrion_423239		SeqNo: 7015290		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	ND	0.500							
Sulfate	ND	0.500							

LCS	Sample ID: LCS	Units: mg/L		Analysis Date: 05-Dec-2022 23:32					
Client ID:	Run ID: ICS-Integrion_423239		SeqNo: 7015291		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19.92	0.500	20	0	99.6	90 - 110			
Sulfate	20.88	0.500	20	0	104	90 - 110			

MS	Sample ID: HS22111578-02MS	Units: mg/L		Analysis Date: 06-Dec-2022 01:00					
Client ID:	Run ID: ICS-Integrion_423239		SeqNo: 7015306		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	9.937	0.500	10	0.116	98.2	80 - 120			
Sulfate	10.03	0.500	10	0	100	80 - 120			

MS	Sample ID: HS22111162-04MS	Units: mg/L		Analysis Date: 06-Dec-2022 00:29					
Client ID:	Run ID: ICS-Integrion_423239		SeqNo: 7015300		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	21.7	0.500	10	12.08	96.3	80 - 120			
Sulfate	27.12	0.500	10	17.4	97.2	80 - 120			

MSD	Sample ID: HS22111578-02MSD	Units: mg/L		Analysis Date: 06-Dec-2022 01:06					
Client ID:	Run ID: ICS-Integrion_423239		SeqNo: 7015307		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	9.803	0.500	10	0.116	96.9	80 - 120	9.937	1.36	20
Sulfate	9.904	0.500	10	0	99.0	80 - 120	10.03	1.28	20

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

QC BATCH REPORT

Batch ID: R423239 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993					
MSD		Sample ID: HS22111162-04MSD		Units: mg/L		Analysis Date: 06-Dec-2022 00:34			
Client ID:		Run ID: ICS-Integrion_423239		SeqNo: 7015301		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	21.9	0.500	10	12.08	98.2	80 - 120	21.7	0.881	20
Sulfate	27.32	0.500	10	17.4	99.2	80 - 120	27.12	0.733	20

The following samples were analyzed in this batch: HS22111201-01

Client: PDC Energy
Project: Schank J 35-22
WorkOrder: HS22111201

**QUALIFIERS,
ACRONYMS, UNITS**

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

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

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2022	31-Dec-2022
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS22111201

Date/Time Received: 19-Nov-2022 09:15

Client Name: PDC Energy 80203

Received by: Corey Grandits

Completed By: /S/ Corey Grandits	19-Nov-2022 13:37	Reviewed by: /S/ Tyler Monroe	23-Nov-2022 09:11
eSignature	Date/Time	eSignature	Date/Time

Matrices: WCarrier 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 type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	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"/>	1 Page(s)
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samplers name present on COC?	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"/>	

Temperature(s)/Thermometer(s):

3.3UC/2.8C IR31

Cooler(s)/Kit(s):

Lg Blue

Date/Time sample(s) sent to storage:

11/19/2022

Water - VOA vials have zero headspace?

Yes ☒ No ☐ No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☒ No ☐ N/A ☐

pH adjusted?

Yes ☐ No ☒ N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

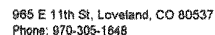
Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:








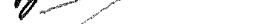
Form 202r8

[illegible]

*Time Zone (Circle): EST CST 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:	Cations/Anions:	QC PACKAGE (check below)	
Calcium, Chloride, Magnesium, Potassium, Sodium, Sulfate	1234	<input type="checkbox"/>	LEVEL II (Standard QC)
Samples analyzed per	3.7	<input type="checkbox"/>	LEVEL III (Std QC + forms)
COGCC Bradenhead Sampling Program	Ln det	<input type="checkbox"/>	LEVEL IV (Std QC + forms + raw data)
		<input type="checkbox"/>	
Preservative Key:	1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-H2S/GC 7-Other 8-H degrees C 9-50/55		

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Jeff Braden	11/17/22	0950
RECEIVED BY		Tyler Monroe	11/17/22	0950
RELINQUISHED BY		Tyler Monroe	11/17/22	1600
RECEIVED BY		COREY G	11-14-22	0915
RELINQUISHED BY				
RECEIVED BY				

LG Bme

NOV 19 2022

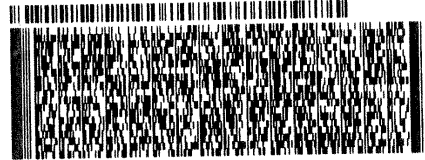
ORIGIN ID:GXVA (970) 305-1648
AMY KEPHART
ALS
965 E 11TH ST
LOVELAND, CO 80537
UNITED STATES US

SHIP DATE: 18NOV22
ACTWT: 43.50 LB MAN
CAD: 0487862/CAFE3618
DIMS: 23x14x13 IN
BILL SENDER

TO **SAMPLE RECEIVING**
ALS
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099

LG Bme

INVT: PO1 DEPT: REF:



FedEx
TRK# 6182 5243 3747
0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO SGRA

77099
TX-US IAH



*1882405 11/18 581J6/E488/FE2D