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10450 Stancliff Rd. Suite 210  
Houston, TX 77099  
T: +1 281 530 5656  
F: +1 281 530 5887

October 23, 2024

Jessica Johannsen  
PDC Energy  
1775 Sherman Street  
Suite 3000  
Denver, CO 80203

Work Order: **HS24100846**

Laboratory Results for: **Loeffler- Up 3-11**

Dear Jessica Johannsen,

ALS Environmental received 1 sample(s) on Oct 12, 2024 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

Anna Kinchen  
Project Manager

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**Work Order:** HS24100846

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24100846-01	Loeffler-Up 3-11	Water		10-Oct-2024 13:50	12-Oct-2024 09:00	<input type="checkbox"/>

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**Work Order:** HS24100846

**CASE NARRATIVE**

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**GC Semivolatiles by Method RSK-175****Batch ID: R479846**

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

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**GC Semivolatiles by Method SW8015M****Batch ID: 218985**

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

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**GC Volatiles by Method SW8015****Batch ID: R480220****Sample ID: Loeffler-Up 3-11 (HS24100846-01)**

- Lowest possible dilution due to sample matrix

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**GCMS Volatiles by Method SW8260****Batch ID: R480666**

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

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**Metals by Method E200.8****Batch ID: 219293****Sample ID: HS24101030-03MS**

- MS and MSD are for an unrelated sample (Calcium,Sodium)

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**WetChemistry by Method SM2320B****Batch ID: R480615**

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

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**WetChemistry by Method E300****Batch ID: R480489**

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

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**WetChemistry by Method M2540C****Batch ID: R480317**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
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Client: PDC Energy  
 Project: Loeffler- Up 3-11  
 Sample ID: Loeffler-Up 3-11  
 Collection Date: 10-Oct-2024 13:50

**ANALYTICAL REPORT**

WorkOrder:HS24100846  
 Lab ID:HS24100846-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: DP		
Benzene	ND		500	ug/L	500	22-Oct-2024 12:00
Ethylbenzene	ND		500	ug/L	500	22-Oct-2024 12:00
m,p-Xylene	ND		1000	ug/L	500	22-Oct-2024 12:00
o-Xylene	ND		500	ug/L	500	22-Oct-2024 12:00
Toluene	ND		500	ug/L	500	22-Oct-2024 12:00
Xylenes, Total	ND		1500	ug/L	500	22-Oct-2024 12:00
Surr: 1,2-Dichloroethane-d4	94.5		70-126	%REC	500	22-Oct-2024 12:00
Surr: 4-Bromofluorobenzene	98.7		77-113	%REC	500	22-Oct-2024 12:00
Surr: Dibromofluoromethane	94.8		77-123	%REC	500	22-Oct-2024 12:00
Surr: Toluene-d8	99.5		82-127	%REC	500	22-Oct-2024 12:00
<b>GASOLINE RANGE ORGANICS BY SW8015C</b>		<b>Method:SW8015</b>		Analyst: LC		
Gasoline Range Organics	ND		100	mg/L	500	16-Oct-2024 15:39
Surr: 4-Bromofluorobenzene	113		70-123	%REC	500	16-Oct-2024 15:39
<b>DISSOLVED GASES BY RSK-175</b>		<b>Method:RSK-175</b>		Analyst: RG		
Ethane	1,900		100	ug/L	100	14-Oct-2024 14:46
Methane	3,500		50.0	ug/L	100	14-Oct-2024 14:46
Propane	1,130		100	ug/L	100	14-Oct-2024 14:46
<b>DIESEL RANGE ORGANICS BY SW8015C</b>		<b>Method:SW8015M</b>		Prep:SW3510C / 14-Oct-2024 Analyst: SAM		
DRO (>C10 - C28)	0.657		0.417	mg/L	1	14-Oct-2024 17:08
Surr: 2-Fluorobiphenyl	86.6		60-135	%REC	1	14-Oct-2024 17:08
<b>TOTAL METALS BY E200.8, REV 5.4, 1994</b>		<b>Method:E200.8</b>		Prep:E200.8 / 19-Oct-2024 Analyst: MSC		
Calcium	2.02		0.500	mg/L	1	21-Oct-2024 17:22
Magnesium	ND		0.500	mg/L	1	21-Oct-2024 17:22
Potassium	21.5		2.50	mg/L	5	21-Oct-2024 16:23
Sodium	304		1.00	mg/L	5	21-Oct-2024 16:23
<b>ANIONS BY E300.0, REV 2.1, 1993</b>		<b>Method:E300</b>		Analyst: TH		
Chloride	330		5.00	mg/L	10	19-Oct-2024 16:16
Sulfate	0.842		0.500	mg/L	1	19-Oct-2024 16:10
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>		Analyst: KC		
Total Dissolved Solids (Residue, Filterable)	884		10.0	mg/L	1	17-Oct-2024 08:00
<b>ALKALINITY BY -2011</b>		<b>Method:SM2320B</b>		Analyst: AR		
Alkalinity, Bicarbonate (As CaCO3)	221		50.0	mg/L	10	21-Oct-2024 12:42
Alkalinity, Carbonate (As CaCO3)	148		50.0	mg/L	10	21-Oct-2024 12:42
Alkalinity, Total (As CaCO3)	369		50.0	mg/L	10	21-Oct-2024 12:42

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

Weight / Prep Log

Client: PDC Energy  
Project: Loeffler- Up 3-11  
WorkOrder: HS24100846

Batch ID: 218985	Start Date: 14 Oct 2024 13:41	End Date: 14 Oct 2024 13:41
Method: AQPREP: 3510C TPH	Prep Code: 8015WPR_LL	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24100846-01	1	120 (mL)	1 (mL)	0.008333	40 mL Amber

Batch ID: 219293	Start Date: 19 Oct 2024 07:30	End Date: 19 Oct 2024 07:30
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	
HS24100846-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 218985 ( 0 )		<b>Test Name :</b> DIESEL RANGE ORGANICS BY SW8015C			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50		14 Oct 2024 13:41	14 Oct 2024 17:08	1
<b>Batch ID:</b> 219293 ( 0 )		<b>Test Name :</b> TOTAL METALS BY E200.8, REV 5.4, 1994			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50		19 Oct 2024 07:30	21 Oct 2024 17:22	1
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50		19 Oct 2024 07:30	21 Oct 2024 16:23	5
<b>Batch ID:</b> R479846 ( 0 )		<b>Test Name :</b> DISSOLVED GASES BY RSK-175			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50			14 Oct 2024 14:46	100
<b>Batch ID:</b> R480220 ( 0 )		<b>Test Name :</b> GASOLINE RANGE ORGANICS BY SW8015C			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50			16 Oct 2024 15:39	500
<b>Batch ID:</b> R480317 ( 0 )		<b>Test Name :</b> TOTAL DISSOLVED SOLIDS BY SM2540C-2011			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50			17 Oct 2024 08:00	1
<b>Batch ID:</b> R480489 ( 0 )		<b>Test Name :</b> ANIONS BY E300.0, REV 2.1, 1993			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50			19 Oct 2024 16:16	10
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50			19 Oct 2024 16:10	1
<b>Batch ID:</b> R480615 ( 0 )		<b>Test Name :</b> ALKALINITY BY -2011			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50			21 Oct 2024 12:42	10
<b>Batch ID:</b> R480666 ( 0 )		<b>Test Name :</b> LOW LEVEL VOLATILES BY SW8260C			<b>Matrix:</b> Water	
HS24100846-01	Loeffler-Up 3-11	10 Oct 2024 13:50			22 Oct 2024 12:00	500

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: 218985 ( 0 )		Instrument: FID-22		Method: DIESEL RANGE ORGANICS BY SW8015C						
<b>MBLK</b>	Sample ID: <b>MBLK-218985</b>	Units: <b>mg/L</b>		Analysis Date: <b>14-Oct-2024 15:35</b>						
Client ID:	Run ID: <b>FID-22_480106</b>		SeqNo: <b>8315119</b>		PrepDate: <b>14-Oct-2024</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (>C10 - C28)	ND	0.0500								
Surr: 2-Fluorobiphenyl	0.08495	0.00500	0.1	0	84.9	60 - 135				
<b>LCS</b>	Sample ID: <b>LCS-218985</b>	Units: <b>mg/L</b>		Analysis Date: <b>14-Oct-2024 15:59</b>						
Client ID:	Run ID: <b>FID-22_480106</b>		SeqNo: <b>8315120</b>		PrepDate: <b>14-Oct-2024</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (>C10 - C28)	1.015	0.0500	1	0	101	70 - 130				
Surr: 2-Fluorobiphenyl	0.09978	0.00500	0.1	0	99.8	60 - 135				
<b>LCSD</b>	Sample ID: <b>LCSD-218985</b>	Units: <b>mg/L</b>		Analysis Date: <b>14-Oct-2024 17:55</b>						
Client ID:	Run ID: <b>FID-22_480106</b>		SeqNo: <b>8315123</b>		PrepDate: <b>14-Oct-2024</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (>C10 - C28)	0.9775	0.0500	1	0	97.8	70 - 130	1.015	3.72	20	
Surr: 2-Fluorobiphenyl	0.09802	0.00500	0.1	0	98.0	60 - 135	0.09978	1.78	20	
The following samples were analyzed in this batch: HS24100846-01										

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: R479846 ( 0 )		Instrument: FID-4		Method: DISSOLVED GASES BY RSK-175					
<b>MBLK</b>	Sample ID: <b>MBLK-241014</b>	Units: <b>ug/L</b>		Analysis Date: <b>14-Oct-2024 09:25</b>					
Client ID:	Run ID: <b>FID-4_479846</b>		SeqNo: <b>8309634</b>		PrepDate:		DF: <b>1</b>		
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	1.50							

<b>LCS</b>	Sample ID: <b>LCS-241014</b>	Units: <b>ug/L</b>		Analysis Date: <b>14-Oct-2024 09:42</b>					
Client ID:	Run ID: <b>FID-4_479846</b>		SeqNo: <b>8309635</b>		PrepDate:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.45	1.00	18.04	0	96.7	75 - 125			
Methane	9.499	0.500	9.647	0	98.5	75 - 125			
Propane	25.2	1.50	26.46	0	95.2	75 - 125			

<b>LCSD</b>	Sample ID: <b>LCSD-241014</b>	Units: <b>ug/L</b>		Analysis Date: <b>14-Oct-2024 10:00</b>					
Client ID:	Run ID: <b>FID-4_479846</b>		SeqNo: <b>8309636</b>		PrepDate:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.26	1.00	18.04	0	95.7	75 - 125	17.45	1.11	30
Methane	9.199	0.500	9.647	0	95.4	75 - 125	9.499	3.2	30
Propane	24.83	1.50	26.46	0	93.8	75 - 125	25.2	1.49	30

The following samples were analyzed in this batch: HS24100846-01



**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: R480220 ( 0 )		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C						
<b>MBLK</b>	Sample ID: <b>MBLK-241016</b>	Units: <b>mg/L</b>		Analysis Date: <b>16-Oct-2024 13:50</b>						
Client ID:	Run ID: <b>FID-20_480220</b>	SeqNo: <b>8318180</b>		PrepDate:		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	ND	0.200								
Surr: 4-Bromofluorobenzene	0.1055	0.00500	0.1	0	106	70 - 121				
<b>LCS</b>	Sample ID: <b>LCS-241016</b>	Units: <b>mg/L</b>		Analysis Date: <b>16-Oct-2024 13:09</b>						
Client ID:	Run ID: <b>FID-20_480220</b>	SeqNo: <b>8318178</b>		PrepDate:		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.088	0.200	1	0	109	76 - 124				
Surr: 4-Bromofluorobenzene	0.08716	0.00500	0.1	0	87.2	52 - 138				
<b>LCSD</b>	Sample ID: <b>LCSD-241016</b>	Units: <b>mg/L</b>		Analysis Date: <b>16-Oct-2024 13:23</b>						
Client ID:	Run ID: <b>FID-20_480220</b>	SeqNo: <b>8318179</b>		PrepDate:		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.059	0.200	1	0	106	76 - 124	1.088	2.66	20	
Surr: 4-Bromofluorobenzene	0.09012	0.00500	0.1	0	90.1	52 - 138	0.08716	3.34	20	

The following samples were analyzed in this batch: HS24100846-01

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

**Batch ID:** 219293 ( 0 )      **Instrument:** ICPMS07      **Method:** TOTAL METALS BY E200.8, REV 5.4, 1994

<b>MBLK</b>	Sample ID: <b>MBLK-219293</b>	Units: <b>ug/L</b>			Analysis Date: <b>21-Oct-2024 15:47</b>				
Client ID:	Run ID: <b>ICPMS07_480520</b>			SeqNo: <b>8326106</b>		PrepDate: <b>19-Oct-2024</b>		DF: <b>1</b>	
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-219293	Units: ug/L			Analysis Date: 21-Oct-2024 16:04				
Client ID:	Run ID: ICPMS07_480520			SeqNo: 8326107		PrepDate: 19-Oct-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Calcium	4689	500	5000	0	93.8	85 - 115			
Magnesium	4690	500	5000	0	93.8	85 - 115			
Potassium	4603	500	5000	0	92.1	85 - 115			
Sodium	4733	200	5000	0	94.7	85 - 115			

MS	Sample ID: HS24101030-03MS	Units: ug/L			Analysis Date: 21-Oct-2024 16:16				
Client ID:	Run ID: ICPMS07_480520			SeqNo: 8326121		PrepDate: 19-Oct-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Calcium	71070	500	5000	60700	207	70 - 130			SO
Magnesium	16130	500	5000	10340	116	70 - 130			
Potassium	6728	500	5000	1761	99.3	70 - 130			
Sodium	46380	200	5000	38520	157	70 - 130			SO

MSD	Sample ID: HS24101030-03MSD	Units: ug/L			Analysis Date: 21-Oct-2024 16:18					
Client ID:	Run ID: ICPMS07_480520			SeqNo: 8326122		PrepDate: 19-Oct-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD Limit Qual		
Calcium	70390	500	5000	60700	194	70 - 130	71070	0.956	20	SO
Magnesium	16060	500	5000	10340	114	70 - 130	16130	0.452	20	
Potassium	6554	500	5000	1761	95.9	70 - 130	6728	2.62	20	
Sodium	46400	200	5000	38520	158	70 - 130	46380	0.056	20	SO

The following samples were analyzed in this batch: HS24100846-01

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: R480666 ( 0 )		Instrument: VOA14		Method: LOW LEVEL VOLATILES BY SW8260C					
<b>MBLK</b>	Sample ID: VBLKW-241021	Units: ug/L		Analysis Date: 22-Oct-2024 03:38					
Client ID:	Run ID: VOA14_480666	SeqNo: 8327622		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							
Ethylbenzene	ND	1.0							
m,p-Xylene	ND	2.0							
o-Xylene	ND	1.0							
Toluene	ND	1.0							
Xylenes, Total	ND	3.0							
Surr: 1,2-Dichloroethane-d4	50.9	1.0	50	0	102	70 - 123			
Surr: 4-Bromofluorobenzene	50.71	1.0	50	0	101	77 - 113			
Surr: Dibromofluoromethane	50.43	1.0	50	0	101	73 - 126			
Surr: Toluene-d8	49.9	1.0	50	0	99.8	81 - 120			

<b>LCS</b>	Sample ID: VLCSW-241021	Units: ug/L		Analysis Date: 22-Oct-2024 12:48					
Client ID:	Run ID: VOA14_480666	SeqNo: 8328081		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.45	1.0	20	0	92.3	74 - 120			
Ethylbenzene	20.06	1.0	20	0	100	77 - 117			
m,p-Xylene	39.72	2.0	40	0	99.3	77 - 122			
o-Xylene	19.64	1.0	20	0	98.2	75 - 119			
Toluene	19.45	1.0	20	0	97.3	77 - 118			
Xylenes, Total	59.36	3.0	60	0	98.9	75 - 122			
Surr: 1,2-Dichloroethane-d4	48.58	1.0	50	0	97.2	70 - 123			
Surr: 4-Bromofluorobenzene	49.34	1.0	50	0	98.7	77 - 113			
Surr: Dibromofluoromethane	48.88	1.0	50	0	97.8	73 - 126			
Surr: Toluene-d8	50.54	1.0	50	0	101	81 - 120			

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: R480666 ( 0 )		Instrument: VOA14		Method: LOW LEVEL VOLATILES BY SW8260C						
<b>MS</b>		Sample ID: HS24101213-03MS		Units: ug/L		Analysis Date: 22-Oct-2024 05:14				
Client ID:		Run ID: VOA14_480666		SeqNo: 8327626		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	18.64	1.0	20	0	93.2	70 - 127				
Ethylbenzene	20.08	1.0	20	0	100	70 - 124				
m,p-Xylene	40.2	2.0	40	0	100	70 - 130				
o-Xylene	19.64	1.0	20	0	98.2	70 - 124				
Toluene	19.26	1.0	20	0	96.3	70 - 123				
Xylenes, Total	59.84	3.0	60	0	99.7	70 - 130				
Surr: 1,2-Dichloroethane-d4	50.77	1.0	50	0	102	70 - 126				
Surr: 4-Bromofluorobenzene	50.41	1.0	50	0	101	77 - 113				
Surr: Dibromofluoromethane	50.25	1.0	50	0	101	77 - 123				
Surr: Toluene-d8	50.41	1.0	50	0	101	82 - 127				

<b>MSD</b>		Sample ID: HS24101213-03MSD		Units: ug/L		Analysis Date: 22-Oct-2024 05:38				
Client ID:		Run ID: VOA14_480666		SeqNo: 8327627		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	13.73	1.0	20	0	68.7	70 - 127	18.64	30.3	20	SR
Ethylbenzene	14.53	1.0	20	0	72.6	70 - 124	20.08	32.1	20	R
m,p-Xylene	28.32	2.0	40	0	70.8	70 - 130	40.2	34.7	20	R
o-Xylene	14.2	1.0	20	0	71.0	70 - 124	19.64	32.2	20	R
Toluene	13.91	1.0	20	0	69.5	70 - 123	19.26	32.3	20	SR
Xylenes, Total	42.52	3.0	60	0	70.9	70 - 130	59.84	33.8	20	R
Surr: 1,2-Dichloroethane-d4	49.89	1.0	50	0	99.8	70 - 126	50.77	1.75	20	
Surr: 4-Bromofluorobenzene	50.16	1.0	50	0	100	77 - 113	50.41	0.498	20	
Surr: Dibromofluoromethane	50.18	1.0	50	0	100	77 - 123	50.25	0.154	20	
Surr: Toluene-d8	50.26	1.0	50	0	101	82 - 127	50.41	0.308	20	

The following samples were analyzed in this batch: HS24100846-01

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: R480317 ( 0 )		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WMBLK-10172024	Units: mg/L		Analysis Date: 17-Oct-2024 08:00						
Client ID:	Run ID: Balance1_480317	SeqNo: 8319671		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-10172024	Units: mg/L		Analysis Date: 17-Oct-2024 08:00						
Client ID:	Run ID: Balance1_480317	SeqNo: 8319670		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)		998	10.0	1000	0	99.8	85 - 115			
DUP	Sample ID: HS24100845-04 DUP	Units: mg/L		Analysis Date: 17-Oct-2024 08:00						
Client ID:	Run ID: Balance1_480317	SeqNo: 8319665		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)		1056	10.0				1080	2.25	20	
DUP	Sample ID: HS24100774-01 DUP	Units: mg/L		Analysis Date: 17-Oct-2024 08:00						
Client ID:	Run ID: Balance1_480317	SeqNo: 8319652		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)		578	10.0				554	4.24	20	
The following samples were analyzed in this batch:		HS24100846-01								

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: R480489 ( 0 )		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993					
<b>MBLK</b>	Sample ID: MBLK	Units: mg/L		Analysis Date: 19-Oct-2024 15:22					
Client ID:	Run ID: ICS-Integrion_480489		SeqNo: 8324181		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							

<b>LCS</b>	Sample ID: LCS	Units: mg/L		Analysis Date: 19-Oct-2024 15:34					
Client ID:	Run ID: ICS-Integrion_480489		SeqNo: 8324182		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	20.14	0.500	20	0	101	90 - 110			
Sulfate	21.38	0.500	20	0	107	90 - 110			

<b>MS</b>	Sample ID: HS24100978-01MS	Units: mg/L		Analysis Date: 19-Oct-2024 15:52					
Client ID:	Run ID: ICS-Integrion_480489		SeqNo: 8324184		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	9.797	0.500	10	0.101	97.0	80 - 120			
Sulfate	10.11	0.500	10	0.2124	99.0	80 - 120			

<b>MS</b>	Sample ID: HS24100853-01MS	Units: mg/L		Analysis Date: 19-Oct-2024 14:35					
Client ID:	Run ID: ICS-Integrion_480489		SeqNo: 8324176		PrepDate:		DF: 500		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19710	250	5000	15470	84.7	80 - 120			
Sulfate	5259	250	5000	307.7	99.0	80 - 120			

<b>MSD</b>	Sample ID: HS24100978-01MSD	Units: mg/L		Analysis Date: 19-Oct-2024 15:58					
Client ID:	Run ID: ICS-Integrion_480489		SeqNo: 8324185		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	9.761	0.500	10	0.101	96.6	80 - 120	9.797	0.368	20
Sulfate	10.05	0.500	10	0.2124	98.4	80 - 120	10.11	0.528	20

Client:

Project:

WorkOrder:

PDC Energy

Loeffler- Up 3-11

HS24100846

QC BATCH REPORT

Batch ID: R480489 ( 0 )		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993					
MSD	Sample ID: HS24100853-01MSD	Units: mg/L		Analysis Date: 19-Oct-2024 14:41					
Client ID:	Run ID: ICS-Integrion_480489		SeqNo: 8324177		PrepDate:		DF: 500		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19690	250	5000	15470	84.4	80 - 120	19710	0.0863	20
Sulfate	5246	250	5000	307.7	98.8	80 - 120	5259	0.252	20

The following samples were analyzed in this batch: HS24100846-01

**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QC BATCH REPORT**

Batch ID: R480615 ( 0 )		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
<b>MBLK</b>	Sample ID: MBLK-10212024	Units: mg/L		Analysis Date: 21-Oct-2024 10:05					
Client ID:	Run ID: Skalar 03_480615	SeqNo: 8326567		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							

<b>LCS</b>	Sample ID: LCS-10212024	Units: mg/L		Analysis Date: 21-Oct-2024 10:11					
Client ID:	Run ID: Skalar 03_480615	SeqNo: 8326568		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)	938.8	5.00	1000	0	93.9	85 - 115			
Alkalinity, Total (As CaCO3)	948.2	5.00	1000	0	94.8	85 - 115			

<b>LCSD</b>	Sample ID: LCSD-10212024	Units: mg/L		Analysis Date: 21-Oct-2024 10:17					
Client ID:	Run ID: Skalar 03_480615	SeqNo: 8326569		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)	942.2	5.00	1000	0	94.2	85 - 115	938.8	0.362	20
Alkalinity, Total (As CaCO3)	949.7	5.00	1000	0	95.0	85 - 115	948.2	0.158	20

<b>DUP</b>	Sample ID: HS24100524-02DUP	Units: mg/L		Analysis Date: 21-Oct-2024 10:37					
Client ID:	Run ID: Skalar 03_480615	SeqNo: 8326572		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)	418.1	5.00					414.3	0.913	20
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0	0	20
Alkalinity, Total (As CaCO3)	418.1	5.00					414.3	0.913	20

The following samples were analyzed in this batch: HS24100846-01



**Client:** PDC Energy  
**Project:** Loeffler- Up 3-11  
**WorkOrder:** HS24100846

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	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

<b>Acronym</b>	<b>Description</b>
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

<b>Unit Reported</b>	<b>Description</b>
mg/L	Milligrams per Liter

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**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

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Agency	Number	Expire Date
Arizona	AZ0793	27-May-2025
Arkansas	88-00356_2024	27-Mar-2025
California	2919; 2025	30-Apr-2025
Dept of Defense	L24-240	30-Apr-2026
Dept of Defense	L24-239	30-Apr-2026
Florida	E87611-38	30-Jun-2025
Illinois	2000322023-11	31-Jul-2025
Kansas	E-10352 2023-2024	31-Jul-2025
Kentucky	123043	30-Apr-2025
Louisiana	03087 2023-2024	30-Jun-2025
Maine	2024017	23-Jun-2026
Michigan	9971	30-Apr-2025
Nebraska	NE-OS-25-13	30-Apr-2025
New Jersey	TX008	30-Jun-2025
North Carolina	624 - 2024	31-Dec-2024
Pennsylvania	018	30-Jun-2025
Tennessee	04016	30-Apr-2025
Texas	T104704231 TX-C24-00130	30-Apr-2025
Utah	TX026932023-14	31-Jul-2025

## Sample Receipt Checklist

Work Order ID: HS24100846

Date/Time Received: 12-Oct-2024 09:00

Client Name: PDC Energy 80203

Received by: Kaycee RogersCompleted By: /S/ Kaycee Rogers

12-Oct-2024 15:14

eSignature

Date/Time

Reviewed by: /S/ Anna Kinchen

15-Oct-2024 12:37

eSignature

Date/Time

Matrices: WCarrier name: FedEx

Shipping container/cooler in good condition?

Yes ☒No ☐Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐No ☐Not Present ☒

Custody seals intact on sample bottles?

Yes ☐No ☐Not Present ☒

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes ☐No ☐Not Present ☒

Chain of custody present?

Yes ☒No ☐

1 Page(s)

Chain of custody signed when relinquished and received?

Yes ☒No ☐

Samplers name present on COC?

Yes ☒No ☐

Chain of custody agrees with sample labels?

Yes ☒No ☐

Samples in proper container/bottle?

Yes ☒No ☐

Sample containers intact?

Yes ☒No ☐

Sufficient sample volume for indicated test?

Yes ☒No ☐

All samples received within holding time?

Yes ☒No ☐

Container/Temp Blank temperature in compliance?

Yes ☒No ☐

Temperature(s)/Thermometer(s):

2.0UC/2.0C

IR 34

Cooler(s)/Kit(s):

BLUE

Date/Time sample(s) sent to storage:

10/12/2024 1514

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:

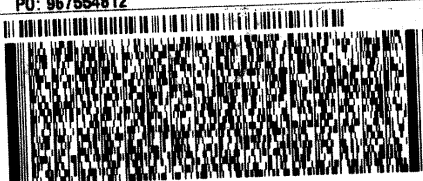


ORIGIN ID:GXVA (970) 305-1648  
KAREN CRAVEN  
ALS  
965 E 11TH ST  
LOVELAND, CO 80537  
UNITED STATES US

SHIP DATE: 11OCT24  
ACTWGT: 50.25 LB  
CAD: 0760439/CAF  
DIMS: 24x14x13  
BILL TH/P

10/12 07:56 PM 10 404630  
ACLRFE RD  
TX  
77099-4338-80  
H  
CLOSED - 800  
000930303000

TO **SAMPLE RECEIVING**  
**ALS HOUSTON**  
**10450 STANCLIFF RD**  
**SUITE 210**  
**HOUSTON TX 77099**  
(281) 530-6866  
PO: 967554812



TRK# 7122 9262 5000  
0201

**SATURDAY 12:00P**  
**PRIORITY OVERNIGHT**

**XO SGRA**

**77099**  
**TX-US IAH**

Part # 167077-434 RIT EXP 01/22

