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March 26, 2024

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

Work Order: **HS24030756**

Laboratory Results for: **Werning 8-3**

Dear Jessica Johannsen,

ALS Environmental received 1 sample(s) on Mar 13, 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
Tyler Monroe

Client: PDC Energy
Project: Werning 8-3
Work Order: HS24030756

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24030756-01	Werning 8-3	Water		12-Mar-2024 11:30	13-Mar-2024 09:20	<input type="checkbox"/>

Client: PDC Energy
Project: Werning 8-3
Work Order: HS24030756

CASE NARRATIVE

GC Semivolatiles by Method RSK-175

Batch ID: R461500

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

GC Semivolatiles by Method SW8015M

Batch ID: 209002

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

GC Volatiles by Method SW8015

Batch ID: R462163

Sample ID: Werning 8-3 (HS24030756-01)

- Lowest possible dilution due to sample matrix.

GCMS Volatiles by Method SW8260

Batch ID: R461690

Sample ID: Werning 8-3 (HS24030756-01)

- Lowest practical dilution due to sample matrix and/or high concentration of non-target analyte(s).

Metals by Method E200.8

Batch ID: 208920

Sample ID: HS24030768-02MS

- MS and MSD are for an unrelated sample

Sample ID: HS24030769-01MS

- MS and MSD are for an unrelated sample

WetChemistry by Method M2540C

Batch ID: R461478

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

WetChemistry by Method E300

Batch ID: R461455

Sample ID: HS24030761-01MS

- MS and MSD are for an unrelated sample (Sulfate)

Sample ID: Werning 8-3 (HS24030756-01)

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

Client: PDC Energy
Project: Werning 8-3
Work Order: HS24030756

CASE NARRATIVE

WetChemistry by Method SM2320B

Batch ID: R461418

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

Client: PDC Energy
 Project: Werning 8-3
 Sample ID: Werning 8-3
 Collection Date: 12-Mar-2024 11:30

ANALYTICAL REPORT
 WorkOrder:HS24030756
 Lab ID:HS24030756-01
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP		
Benzene	290		100	ug/L	100	20-Mar-2024 05:50
Ethylbenzene	ND		100	ug/L	100	20-Mar-2024 05:50
m,p-Xylene	500		200	ug/L	100	20-Mar-2024 05:50
o-Xylene	130		100	ug/L	100	20-Mar-2024 05:50
Toluene	800		100	ug/L	100	20-Mar-2024 05:50
Xylenes, Total	630		300	ug/L	100	20-Mar-2024 05:50
Surr: 1,2-Dichloroethane-d4	98.2		70-126	%REC	100	20-Mar-2024 05:50
Surr: 4-Bromofluorobenzene	95.0		77-113	%REC	100	20-Mar-2024 05:50
Surr: Dibromofluoromethane	86.2		77-123	%REC	100	20-Mar-2024 05:50
Surr: Toluene-d8	99.0		82-127	%REC	100	20-Mar-2024 05:50
GASOLINE RANGE ORGANICS BY SW8015C		Method:SW8015		Analyst: TS		
Gasoline Range Organics	ND		25.0	mg/L	500	25-Mar-2024 20:43
Surr: 4-Bromofluorobenzene	111		70-123	%REC	500	25-Mar-2024 20:43
DISSOLVED GASES BY RSK-175		Method:RSK-175		Analyst: E.H.		
Ethane	3,510		500	ug/L	500	15-Mar-2024 13:19
Methane	16,500		250	ug/L	500	15-Mar-2024 13:19
Propane	2,860		500	ug/L	500	15-Mar-2024 13:19
TPH DRO/ORO BY SW8015C		Method:SW8015M		Prep:SW3511 / 18-Mar-2024		Analyst: SAM
TPH (Diesel Range)	0.71		0.051	mg/L	1	20-Mar-2024 09:03
Surr: 2-Fluorobiphenyl	81.4		60-135	%REC	1	20-Mar-2024 09:03
TOTAL METALS BY E200.8, REV 5.4, 1994		Method:E200.8		Prep:E200.8 / 15-Mar-2024		Analyst: JC
Calcium	60.1		0.500	mg/L	1	19-Mar-2024 00:38
Magnesium	1.22		0.500	mg/L	1	19-Mar-2024 00:38
Potassium	18.6		0.500	mg/L	1	19-Mar-2024 00:38
Sodium	3,070		20.0	mg/L	100	19-Mar-2024 13:03
ANIONS BY E300.0, REV 2.1, 1993		Method:E300		Analyst: TH		
Chloride	4,570		100	mg/L	200	15-Mar-2024 15:46
Sulfate	ND		5.00	mg/L	10	15-Mar-2024 15:40
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C		Analyst: HB		
Total Dissolved Solids (Residue, Filterable)	7,150		10.0	mg/L	1	16-Mar-2024 09:00
ALKALINITY BY -2011		Method:SM2320B		Analyst: JAC		
Alkalinity, Bicarbonate (As CaCO3)	522		5.00	mg/L	1	15-Mar-2024 11:42
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	15-Mar-2024 11:42
Alkalinity, Total (As CaCO3)	522		5.00	mg/L	1	15-Mar-2024 11:42

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

Weight / Prep Log

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

Batch ID: 208920	Start Date: 15 Mar 2024 10:00	End Date: 15 Mar 2024 10:00
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	
HS24030756-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Batch ID: 209002	Start Date: 18 Mar 2024 11:09	End Date: 18 Mar 2024 11:09
Method: SW3511		Prep Code: 3511_DRO

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24030756-01		32.34 (mL)	2 (mL)	0.06184	40 mL Amber

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 208920 (0)		Test Name : TOTAL METALS BY E200.8, REV 5.4, 1994			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30		15 Mar 2024 10:00	19 Mar 2024 13:03	100
HS24030756-01	Werning 8-3	12 Mar 2024 11:30		15 Mar 2024 10:00	19 Mar 2024 00:38	1
Batch ID: 209002 (0)		Test Name : TPH DRO/ORO BY SW8015C			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30		18 Mar 2024 11:09	20 Mar 2024 09:03	1
Batch ID: R461418 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30			15 Mar 2024 11:42	1
Batch ID: R461455 (0)		Test Name : ANIONS BY E300.0, REV 2.1, 1993			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30			15 Mar 2024 15:46	200
HS24030756-01	Werning 8-3	12 Mar 2024 11:30			15 Mar 2024 15:40	10
Batch ID: R461478 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30			16 Mar 2024 09:00	1
Batch ID: R461500 (0)		Test Name : DISSOLVED GASES BY RSK-175			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30			15 Mar 2024 13:19	500
Batch ID: R461690 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30			20 Mar 2024 05:50	100
Batch ID: R462163 (0)		Test Name : GASOLINE RANGE ORGANICS BY SW8015C			Matrix: Water	
HS24030756-01	Werning 8-3	12 Mar 2024 11:30			25 Mar 2024 20:43	500

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: 209002 (0)		Instrument: FID-16		Method: TPH DRO/ORO BY SW8015C						
MBLK	Sample ID: MBLK-209002	Units: mg/L			Analysis Date: 19-Mar-2024 11:07					
Client ID:		Run ID: FID-16_461857	SeqNo: 7899952	PrepDate: 18-Mar-2024	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>0.0428</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>71.3</i>	<i>60 - 135</i>				
LCS	Sample ID: LCS-209002	Units: mg/L			Analysis Date: 19-Mar-2024 11:37					
Client ID:		Run ID: FID-16_461857	SeqNo: 7899953	PrepDate: 18-Mar-2024	DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.643	0.050	0.6	0	107	70 - 130				
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.05628</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>93.8</i>	<i>60 - 135</i>				
MS	Sample ID: HS24030876-02MS	Units: mg/L			Analysis Date: 19-Mar-2024 14:04					
Client ID:		Run ID: FID-16_461857	SeqNo: 7899958	PrepDate: 18-Mar-2024	DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.7881	0.050	0.6038	0.06452	120	70 - 130				
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.05668</i>	<i>0.0050</i>	<i>0.06038</i>	<i>0</i>	<i>93.9</i>	<i>60 - 135</i>				
MS	Sample ID: HS24030839-01MS	Units: mg/L			Analysis Date: 19-Mar-2024 12:36					
Client ID:		Run ID: FID-16_461857	SeqNo: 7899955	PrepDate: 18-Mar-2024	DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.8474	0.051	0.6149	0.1419	115	70 - 130				
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.05721</i>	<i>0.0051</i>	<i>0.06149</i>	<i>0</i>	<i>93.0</i>	<i>60 - 135</i>				
MSD	Sample ID: HS24030876-02MSD	Units: mg/L			Analysis Date: 19-Mar-2024 14:34					
Client ID:		Run ID: FID-16_461857	SeqNo: 7899959	PrepDate: 18-Mar-2024	DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.7734	0.052	0.6197	0.06452	114	70 - 130	0.7881	1.87	20	
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.05202</i>	<i>0.0052</i>	<i>0.06197</i>	<i>0</i>	<i>83.9</i>	<i>60 - 135</i>	<i>0.05668</i>	<i>8.57</i>	<i>20</i>	

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: 209002 (0) **Instrument:** FID-16 **Method:** TPH DRO/ORO BY SW8015C

MSD	Sample ID: HS24030839-01MSD	Units: mg/L			Analysis Date: 19-Mar-2024 13:05					
Client ID:	Run ID: FID-16_461857	SeqNo: 7899956		PrepDate: 18-Mar-2024		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.8834	0.052	0.6186	0.1419	120	70 - 130	0.8474	4.16	20	
Surr: 2-Fluorobiphenyl	0.05871	0.0052	0.06186	0	94.9	60 - 135	0.05721	2.59	20	

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461500 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK		Sample ID: MBLK-240315		Units: ug/L		Analysis Date: 15-Mar-2024 08:53			
Client ID:		Run ID: FID-4_461500		SeqNo: 7892269		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	1.50							

LCS		Sample ID: LCS-240315		Units: ug/L		Analysis Date: 15-Mar-2024 09:12			
Client ID:		Run ID: FID-4_461500		SeqNo: 7892270		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.56	1.00	18.04	0	97.3	75 - 125			
Methane	9.354	0.500	9.647	0	97.0	75 - 125			
Propane	27.78	1.50	26.46	0	105	75 - 125			

LCSD		Sample ID: LCSD-240315		Units: ug/L		Analysis Date: 15-Mar-2024 09:33			
Client ID:		Run ID: FID-4_461500		SeqNo: 7892271		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	18.39	1.00	18.04	0	102	75 - 125	17.56	4.57	30
Methane	9.875	0.500	9.647	0	102	75 - 125	9.354	5.42	30
Propane	28.67	1.50	26.46	0	108	75 - 125	27.78	3.15	30

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R462163 (0)		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C					
MBLK	Sample ID: MBLK-240325	Units: mg/L			Analysis Date: 25-Mar-2024 15:38				
Client ID:	Run ID: FID-20_462163	SeqNo: 7906458		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							
<i>Surr: 4-Bromofluorobenzene</i>	<i>0.1074</i>	<i>0.00500</i>	<i>0.1</i>	<i>0</i>	<i>107</i>	<i>70 - 121</i>			

LCS	Sample ID: LCS-240325	Units: mg/L			Analysis Date: 25-Mar-2024 15:10				
Client ID:	Run ID: FID-20_462163	SeqNo: 7906456		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Gasoline Range Organics	1.113	0.0500	1	0	111	76 - 124			
<i>Surr: 4-Bromofluorobenzene</i>	<i>0.09957</i>	<i>0.00500</i>	<i>0.1</i>	<i>0</i>	<i>99.6</i>	<i>52 - 138</i>			

LCSD	Sample ID: LCSD-240325	Units: mg/L			Analysis Date: 25-Mar-2024 15:24				
Client ID:	Run ID: FID-20_462163	SeqNo: 7906457		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Gasoline Range Organics	1.202	0.0500	1	0	120	76 - 124	1.113	7.71	20
<i>Surr: 4-Bromofluorobenzene</i>	<i>0.1021</i>	<i>0.00500</i>	<i>0.1</i>	<i>0</i>	<i>102</i>	<i>52 - 138</i>	<i>0.09957</i>	<i>2.54</i>	<i>20</i>

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: 208920 (0)		Instrument: ICPMS06		Method: TOTAL METALS BY E200.8, REV 5.4, 1994						
MBLK	Sample ID: MBLK-208920	Units: ug/L		Analysis Date: 19-Mar-2024 12:22						
Client ID:	Run ID: ICPMS06_461613	SeqNo: 7894479	PrepDate: 15-Mar-2024	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-208920	Units: ug/L		Analysis Date: 18-Mar-2024 23:48						
Client ID:	Run ID: ICPMS06_461507	SeqNo: 7893720	PrepDate: 15-Mar-2024	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	4892	500	5000	0	97.8	85 - 115				
Magnesium	5288	500	5000	0	106	85 - 115				
Potassium	5054	500	5000	0	101	85 - 115				
LCS	Sample ID: LCS-208920	Units: ug/L		Analysis Date: 19-Mar-2024 12:24						
Client ID:	Run ID: ICPMS06_461613	SeqNo: 7894480	PrepDate: 15-Mar-2024	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	5068	200	5000	0	101	85 - 115				
MS	Sample ID: HS24030769-01MS	Units: ug/L		Analysis Date: 19-Mar-2024 00:01						
Client ID:	Run ID: ICPMS06_461507	SeqNo: 7893727	PrepDate: 15-Mar-2024	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	39270	500	5000	33900	107	70 - 130				O
Magnesium	9722	500	5000	4709	100	70 - 130				
Potassium	31700	500	5000	26360	107	70 - 130				O
MS	Sample ID: HS24030768-02MS	Units: ug/L		Analysis Date: 18-Mar-2024 23:51						
Client ID:	Run ID: ICPMS06_461507	SeqNo: 7893722	PrepDate: 15-Mar-2024	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	7584	500	5000	2383	104	70 - 130				
Magnesium	5633	500	5000	373.1	105	70 - 130				
Potassium	210800	500	5000	200100	215	70 - 130				SEO

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: 208920 (0)		Instrument: ICPMS06		Method: TOTAL METALS BY E200.8, REV 5.4, 1994						
MS	Sample ID: HS24030769-01MS	Units: ug/L		Analysis Date: 19-Mar-2024 12:41						
Client ID:	Run ID: ICPMS06_461613	SeqNo: 7894502		PrepDate: 15-Mar-2024		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	591400	200	5000	623600	-645	70 - 130				SEO
MS	Sample ID: HS24030768-02MS	Units: ug/L		Analysis Date: 19-Mar-2024 12:28						
Client ID:	Run ID: ICPMS06_461613	SeqNo: 7894482		PrepDate: 15-Mar-2024		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	772900	200	5000	771800	22.5	70 - 130				SEO
MSD	Sample ID: HS24030769-01MSD	Units: ug/L		Analysis Date: 19-Mar-2024 00:03						
Client ID:	Run ID: ICPMS06_461507	SeqNo: 7893728		PrepDate: 15-Mar-2024		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	38990	500	5000	33900	102	70 - 130	39270	0.722	20	O
Magnesium	9786	500	5000	4709	102	70 - 130	9722	0.652	20	
Potassium	31380	500	5000	26360	101	70 - 130	31700	0.994	20	O
MSD	Sample ID: HS24030768-02MSD	Units: ug/L		Analysis Date: 18-Mar-2024 23:53						
Client ID:	Run ID: ICPMS06_461507	SeqNo: 7893723		PrepDate: 15-Mar-2024		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	7532	500	5000	2383	103	70 - 130	7584	0.695	20	
Magnesium	5646	500	5000	373.1	105	70 - 130	5633	0.244	20	
Potassium	213000	500	5000	200100	258	70 - 130	210800	1.03	20	SEO
MSD	Sample ID: HS24030769-01MSD	Units: ug/L		Analysis Date: 19-Mar-2024 12:43						
Client ID:	Run ID: ICPMS06_461613	SeqNo: 7894503		PrepDate: 15-Mar-2024		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	625800	200	5000	623600	44.0	70 - 130	623900	0.31	20	SEO

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: 208920 (0) Instrument: ICPMS06 Method: TOTAL METALS BY E200.8, REV 5.4, 1994

MSD	Sample ID: HS24030768-02MSD	Units: ug/L		Analysis Date: 19-Mar-2024 12:29						
Client ID:	Run ID: ICPMS06_461613	SeqNo: 7894483	PrepDate: 15-Mar-2024	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	792100	200	5000	771800	408	70 - 130	798300	0.778	20	SEO

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461690 (0)	Instrument: VOA4	Method: LOW LEVEL VOLATILES BY SW8260C
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MBLK		Sample ID: VBLKW-240319			Units: ug/L		Analysis Date: 19-Mar-2024 22:13			
Client ID:		Run ID: VOA4_461690			SeqNo: 7896316		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								
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>48.65</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.3</i>	<i>70 - 123</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>48.48</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.0</i>	<i>77 - 113</i>				
<i>Surr: Dibromofluoromethane</i>	<i>45.42</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>90.8</i>	<i>73 - 126</i>				
<i>Surr: Toluene-d8</i>	<i>49.21</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.4</i>	<i>81 - 120</i>				

LCS		Sample ID: VLCSW-240319			Units: ug/L		Analysis Date: 19-Mar-2024 21:05			
Client ID:		Run ID: VOA4_461690			SeqNo: 7896314		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.52	1.0	20	0	97.6	74 - 120				
Ethylbenzene	18.23	1.0	20	0	91.1	77 - 117				
m,p-Xylene	36.62	2.0	40	0	91.6	77 - 122				
o-Xylene	18.23	1.0	20	0	91.1	75 - 119				
Toluene	19.53	1.0	20	0	97.7	77 - 118				
Xylenes, Total	54.85	3.0	60	0	91.4	75 - 122				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>48.85</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.7</i>	<i>70 - 123</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>48.84</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.7</i>	<i>77 - 113</i>				
<i>Surr: Dibromofluoromethane</i>	<i>44.9</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>89.8</i>	<i>73 - 126</i>				
<i>Surr: Toluene-d8</i>	<i>49.92</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>99.8</i>	<i>81 - 120</i>				

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461690 (0) **Instrument:** VOA4 **Method:** LOW LEVEL VOLATILES BY SW8260C

LCSD		Sample ID: VLCS DW-240319			Units: ug/L		Analysis Date: 19-Mar-2024 21:28			
Client ID:		Run ID: VOA4_461690			SeqNo: 7896315		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	18.93	1.0	20	0	94.7	74 - 120	19.52	3.05	20	
Ethylbenzene	17.77	1.0	20	0	88.8	77 - 117	18.23	2.55	20	
m,p-Xylene	36.03	2.0	40	0	90.1	77 - 122	36.62	1.63	20	
o-Xylene	18.31	1.0	20	0	91.6	75 - 119	18.23	0.475	20	
Toluene	19.06	1.0	20	0	95.3	77 - 118	19.53	2.44	20	
Xylenes, Total	54.35	3.0	60	0	90.6	75 - 122	54.85	0.925	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>48.8</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>97.6</i>	<i>70 - 123</i>	<i>48.85</i>	<i>0.11</i>	<i>20</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>48.22</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>96.4</i>	<i>77 - 113</i>	<i>48.84</i>	<i>1.29</i>	<i>20</i>	
<i>Surr: Dibromofluoromethane</i>	<i>44.36</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>88.7</i>	<i>73 - 126</i>	<i>44.9</i>	<i>1.21</i>	<i>20</i>	
<i>Surr: Toluene-d8</i>	<i>50.73</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>81 - 120</i>	<i>49.92</i>	<i>1.61</i>	<i>20</i>	

MS		Sample ID: HS24030839-01MS			Units: ug/L		Analysis Date: 20-Mar-2024 06:12			
Client ID:		Run ID: VOA4_461690			SeqNo: 7896337		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.83	1.0	20	0	104	70 - 127				
Ethylbenzene	19.58	1.0	20	0	97.9	70 - 124				
m,p-Xylene	38.33	2.0	40	0	95.8	70 - 130				
o-Xylene	19.33	1.0	20	0	96.6	70 - 124				
Toluene	20.7	1.0	20	0	103	70 - 123				
Xylenes, Total	57.66	3.0	60	0	96.1	70 - 130				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>49.13</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.3</i>	<i>70 - 126</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>49</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.0</i>	<i>77 - 113</i>				
<i>Surr: Dibromofluoromethane</i>	<i>44</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>88.0</i>	<i>77 - 123</i>				
<i>Surr: Toluene-d8</i>	<i>50.83</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>102</i>	<i>82 - 127</i>				

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461690 (0) **Instrument:** VOA4 **Method:** LOW LEVEL VOLATILES BY SW8260C

MSD		Sample ID: HS24030839-01MSD			Units: ug/L		Analysis Date: 20-Mar-2024 06:35			
Client ID:		Run ID: VOA4_461690			SeqNo: 7896338		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.67	1.0	20	0	98.3	70 - 127	20.83	5.76	20	
Ethylbenzene	18.12	1.0	20	0	90.6	70 - 124	19.58	7.75	20	
m,p-Xylene	36.28	2.0	40	0	90.7	70 - 130	38.33	5.5	20	
o-Xylene	18.2	1.0	20	0	91.0	70 - 124	19.33	6.03	20	
Toluene	19.49	1.0	20	0	97.5	70 - 123	20.7	6.01	20	
Xylenes, Total	54.47	3.0	60	0	90.8	70 - 130	57.66	5.68	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	49.48	1.0	50	0	99.0	70 - 126	49.13	0.715	20	
<i>Surr: 4-Bromofluorobenzene</i>	48.56	1.0	50	0	97.1	77 - 113	49	0.904	20	
<i>Surr: Dibromofluoromethane</i>	44.04	1.0	50	0	88.1	77 - 123	44	0.091	20	
<i>Surr: Toluene-d8</i>	50.8	1.0	50	0	102	82 - 127	50.83	0.0537	20	

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461418 (0)	Instrument: Skalar 03	Method: ALKALINITY BY -2011
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MBLK	Sample ID: MBLK-03152024	Units: mg/L	Analysis Date: 15-Mar-2024 11:12							
Client ID:	Run ID: Skalar 03_461418	SeqNo: 7890207	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: LCS-03152024	Units: mg/L	Analysis Date: 15-Mar-2024 11:18							
Client ID:	Run ID: Skalar 03_461418	SeqNo: 7890208	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)	949.8	5.00	1000	0	95.0	85 - 115				
Alkalinity, Total (As CaCO3)	961.7	5.00	1000	0	96.2	85 - 115				

LCSD	Sample ID: LCSD-03152024	Units: mg/L	Analysis Date: 15-Mar-2024 11:26							
Client ID:	Run ID: Skalar 03_461418	SeqNo: 7890209	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)	944.4	5.00	1000	0	94.4	85 - 115	949.8	0.57	20	
Alkalinity, Total (As CaCO3)	956.9	5.00	1000	0	95.7	85 - 115	961.7	0.5	20	

DUP	Sample ID: HS24030679-04DUP	Units: mg/L	Analysis Date: 15-Mar-2024 11:36							
Client ID:	Run ID: Skalar 03_461418	SeqNo: 7890211	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)	35	5.00					33.2	5.28	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0	0	20	
Alkalinity, Total (As CaCO3)	35	5.00					33.2	5.28	20	

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461455 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY E300.0, REV 2.1, 1993

MBLK		Sample ID: MBLK		Units: mg/L		Analysis Date: 15-Mar-2024 11:18			
Client ID:		Run ID: ICS-Integrion_461455		SeqNo: 7891096		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: 15-Mar-2024 11:24			
Client ID:		Run ID: ICS-Integrion_461455		SeqNo: 7891097		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	20.38	0.500	20	0	102	90 - 110			
Sulfate	20.74	0.500	20	0	104	90 - 110			

MS		Sample ID: HS24030761-01MS		Units: mg/L		Analysis Date: 15-Mar-2024 11:36			
Client ID:		Run ID: ICS-Integrion_461455		SeqNo: 7891099		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	24.65	0.500	10	15.15	95.0	80 - 120			
Sulfate	67.66	0.500	10	62.14	55.2	80 - 120			SO

MS		Sample ID: HS24030738-01MS		Units: mg/L		Analysis Date: 15-Mar-2024 14:16			
Client ID:		Run ID: ICS-Integrion_461455		SeqNo: 7891121		PrepDate:		DF: 500	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	24880	250	5000	20090	95.8	80 - 120			O
Sulfate	8515	250	5000	2971	111	80 - 120			

MSD		Sample ID: HS24030761-01MSD		Units: mg/L		Analysis Date: 15-Mar-2024 11:42			
Client ID:		Run ID: ICS-Integrion_461455		SeqNo: 7891100		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	24.85	0.500	10	15.15	97.0	80 - 120	24.65	0.804	20
Sulfate	68.09	0.500	10	62.14	59.6	80 - 120	67.66	0.643	20 SO

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461455 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY E300.0, REV 2.1, 1993

MSD Sample ID: **HS24030738-01MSD** Units: **mg/L** Analysis Date: **15-Mar-2024 14:22**
 Client ID: Run ID: **ICS-Integrion_461455** SeqNo: **7891122** PrepDate: DF: **500**
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Chloride	24890	250	5000	20090	96.0	80 - 120	24880	0.0543	20	O
Sulfate	8545	250	5000	2971	111	80 - 120	8515	0.353	20	

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

QC BATCH REPORT

Batch ID: R461478 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID: WMBLK-03162024	Units: mg/L			Analysis Date: 16-Mar-2024 09:00				
Client ID:	Run ID: Balance1_461478	SeqNo: 7891955		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-03162024	Units: mg/L			Analysis Date: 16-Mar-2024 09:00				
Client ID:	Run ID: Balance1_461478	SeqNo: 7891954		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) 994 10.0 1000 0 99.4 85 - 115

DUP	Sample ID: HS24030754-02DUP	Units: mg/L			Analysis Date: 16-Mar-2024 09:00				
Client ID:	Run ID: Balance1_461478	SeqNo: 7891942		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) 298 10.0 296 0.673 20

DUP	Sample ID: HS24030709-05DUP	Units: mg/L			Analysis Date: 16-Mar-2024 09:00				
Client ID:	Run ID: Balance1_461478	SeqNo: 7891937		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) 240 10.0 232 3.39 20

The following samples were analyzed in this batch: HS24030756-01

Client: PDC Energy
Project: Werning 8-3
WorkOrder: HS24030756

**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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L22-90-R2	31-Mar-2024
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624 - 2024	31-Dec-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS24030756

Date/Time Received: 13-Mar-2024 09:20

Client Name: PDC Energy 80203

Received by: Paresh M. Giga

Completed By: /S/ Paresh M. Giga 14-Mar-2024 19:23 Reviewed by: /S/ Tyler Monroe 15-Mar-2024 10:49
eSignature Date/Time eSignature Date/Time

Matrices: Water

Carrier name: FedEx Priority Overnight

- Shipping container/cooler in good condition? Yes [checked] No [] Not Present []
Custody seals intact on shipping container/cooler? Yes [] No [] Not Present [checked]
Custody seals intact on sample bottles? Yes [] No [] Not Present [checked]
VOA/TX1005/TX1006 Solids in hermetically sealed vials? Yes [] No [] Not Present [checked]
Chain of custody present? Yes [checked] No [] 1 Page(s)
Chain of custody signed when relinquished and received? Yes [checked] No [] COC IDs:none
Samplers name present on COC? Yes [checked] No []
Chain of custody agrees with sample labels? Yes [checked] No []
Samples in proper container/bottle? Yes [checked] No []
Sample containers intact? Yes [checked] No []
Sufficient sample volume for indicated test? Yes [checked] No []
All samples received within holding time? Yes [checked] No []
Container/Temp Blank temperature in compliance? Yes [checked] No []

Temperature(s)/Thermometer(s): 1.8C/1.7C U/c IR31
Cooler(s)/Kit(s): 51997
Date/Time sample(s) sent to storage: 3/14/24 19:30

- Water - VOA vials have zero headspace? Yes [checked] No [] No VOA vials submitted []
Water - pH acceptable upon receipt? Yes [checked] No [] N/A []
pH adjusted? Yes [] No [checked] N/A []

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

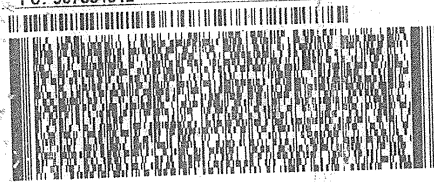
ORIGIN ID:GXVA (281) 530-5656
SAMPLE RECEIVING
ALS
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 12MAR24
ACTWT: 45.40 LB
CAD: 0760439/CAFE3709
DIMS: 24x14x13 IN
BILL THIRD PARTY

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

51997

(281) 630-6666
PO: 967554812



FedEx
Express



WED - 13 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 7122 9261 8247
0201

77099

TX-US IAH

NA JGKA

PCN# 187077-82F MWY 596 0022

