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October 25, 2023

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

Work Order: **HS23100828**

Laboratory Results for: **Meining 1**

Dear Jenifer Hakkarinen,

ALS Environmental received 1 sample(s) on Oct 12, 2023 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: DAYNA.FISHER

Tyler Monroe

Client: PDC Energy
Project: Meining 1
Work Order: HS23100828

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23100828-01	Meining 1	Water		11-Oct-2023 10:00	12-Oct-2023 08:45	<input type="checkbox"/>

Client: PDC Energy
Project: Meining 1
Work Order: HS23100828

CASE NARRATIVE

GC Semivolatiles by Method RSK-175**Batch ID: R449897**

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

GC Semivolatiles by Method SW8015M**Batch ID: 202177****Sample ID: Meining 1 (HS23100828-01)**

- The surrogate recoveries could not be determined due to dilution below the calibration range.

GC Volatiles by Method SW8015**Batch ID: R449494****Sample ID: Meining 1 (HS23100828-01)**

- Lowest possible dilution due to sample matrix.

GCMS Volatiles by Method SW8260**Batch ID: R450004****Sample ID: Meining 1 (HS23100828-01)**

- Lowest possible dilution due to sample matrix.

Metals by Method E200.8**Batch ID: 202337****Sample ID: HS23101227-01MS**

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

Wet Chemistry by Method E300**Batch ID: R450002****Sample ID: HS23101372-49MS**

- MS and MSD are for an unrelated sample

WetChemistry by Method E300**Batch ID: R450002****Sample ID: HS23101372-51MS**

- MS and MSD are for an unrelated sample

Sample ID: Meining 1 (HS23100828-01)

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

Client: PDC Energy
Project: Meining 1
Work Order: HS23100828

CASE NARRATIVE

WetChemistry by Method SM2320B

Batch ID: R449904

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

WetChemistry by Method M2540C

Batch ID: R449450

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

Client: PDC Energy
 Project: Meining 1
 Sample ID: Meining 1
 Collection Date: 11-Oct-2023 10:00

ANALYTICAL REPORT

WorkOrder:HS23100828
 Lab ID:HS23100828-01
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: FT		
Benzene	860		500	ug/L	500	25-Oct-2023 00:37
Ethylbenzene	ND		500	ug/L	500	25-Oct-2023 00:37
m,p-Xylene	1,200		1000	ug/L	500	25-Oct-2023 00:37
o-Xylene	ND		500	ug/L	500	25-Oct-2023 00:37
Toluene	590		500	ug/L	500	25-Oct-2023 00:37
Xylenes, Total	1,200		500	ug/L	500	25-Oct-2023 00:37
Surr: 1,2-Dichloroethane-d4	100		70-126	%REC	500	25-Oct-2023 00:37
Surr: 4-Bromofluorobenzene	92.7		77-113	%REC	500	25-Oct-2023 00:37
Surr: Dibromofluoromethane	104		77-123	%REC	500	25-Oct-2023 00:37
Surr: Toluene-d8	102		82-127	%REC	500	25-Oct-2023 00:37
GASOLINE RANGE ORGANICS BY SW8015C		Method:SW8015		Analyst: TS		
Gasoline Range Organics	ND		25.0	mg/L	500	18-Oct-2023 04:27
Surr: 4-Bromofluorobenzene	117		70-123	%REC	500	18-Oct-2023 04:27
DISSOLVED GASES BY RSK-175		Method:RSK-175		Analyst: SAM		
Ethane	681		100	ug/L	100	20-Oct-2023 13:53
Methane	4,120		100	ug/L	200	20-Oct-2023 14:11
Propane	951		100	ug/L	100	20-Oct-2023 13:53
TPH DRO/ORO BY SW8015C		Method:SW8015M		Prep:SW3511 / 18-Oct-2023 Analyst: SAM		
TPH (Diesel Range)	26		1.1	mg/L	20	25-Oct-2023 01:47
Surr: 2-Fluorobiphenyl	0	JS	60-135	%REC	20	25-Oct-2023 01:47
TOTAL METALS BY E200.8, REV 5.4, 1994		Method:E200.8		Prep:E200.8 / 21-Oct-2023 Analyst: MSC		
Calcium	650		2.50	mg/L	5	23-Oct-2023 14:37
Magnesium	63.2		2.50	mg/L	5	23-Oct-2023 14:37
Potassium	15.8		2.50	mg/L	5	23-Oct-2023 14:37
Sodium	486		1.00	mg/L	5	23-Oct-2023 14:37
ANIONS BY E300.0, REV 2.1, 1993		Method:E300		Analyst: TH		
Chloride	411		10.0	mg/L	20	24-Oct-2023 18:44
Sulfate	ND		2.50	mg/L	5	24-Oct-2023 20:05
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C		Analyst: DC		
Total Dissolved Solids (Residue, Filterable)	2,740		10.0	mg/L	1	17-Oct-2023 11:30
ALKALINITY BY -2011		Method:SM2320B		Analyst: DW		
Alkalinity, Bicarbonate (As CaCO3)	6,840		50.0	mg/L	10	23-Oct-2023 21:51
Alkalinity, Carbonate (As CaCO3)	1,650		50.0	mg/L	10	23-Oct-2023 21:51
Alkalinity, Total (As CaCO3)	8,480		50.0	mg/L	10	23-Oct-2023 21:51

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

Weight / Prep Log

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

Batch ID: 202177	Start Date: 18 Oct 2023 08:30	End Date: 18 Oct 2023 08:30
Method: SW3511		Prep Code: 3511_DRO

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23100828-01		30.9 (mL)	2 (mL)	0.06472	40 mL Amber

Batch ID: 202337	Start Date: 21 Oct 2023 09:30	End Date: 21 Oct 2023 09:30
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	
HS23100828-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 202177 (0)		Test Name : TPH DRO/ORO BY SW8015C			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00		18 Oct 2023 08:30	25 Oct 2023 01:47	20
Batch ID: 202337 (0)		Test Name : TOTAL METALS BY E200.8, REV 5.4, 1994			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00		21 Oct 2023 09:30	23 Oct 2023 14:37	5
Batch ID: R449450 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00			17 Oct 2023 11:30	1
Batch ID: R449494 (0)		Test Name : GASOLINE RANGE ORGANICS BY SW8015C			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00			18 Oct 2023 04:27	500
Batch ID: R449897 (0)		Test Name : DISSOLVED GASES BY RSK-175			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00			20 Oct 2023 14:11	200
HS23100828-01	Meining 1	11 Oct 2023 10:00			20 Oct 2023 13:53	100
Batch ID: R449904 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00			23 Oct 2023 21:51	10
Batch ID: R450002 (0)		Test Name : ANIONS BY E300.0, REV 2.1, 1993			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00			24 Oct 2023 20:05	5
HS23100828-01	Meining 1	11 Oct 2023 10:00			24 Oct 2023 18:44	20
Batch ID: R450004 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS23100828-01	Meining 1	11 Oct 2023 10:00			25 Oct 2023 00:37	500

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: 202177 (0)		Instrument: FID-16		Method: TPH DRO/ORO BY SW8015C					
MBLK	Sample ID: MBLK-202177	Units: mg/L		Analysis Date: 24-Oct-2023 15:55					
Client ID:	Run ID: FID-16_450061		SeqNo: 7632267		PrepDate: 18-Oct-2023		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>0.07071</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>118</i>	<i>60 - 135</i>			
LCS	Sample ID: LCS-202177	Units: mg/L		Analysis Date: 24-Oct-2023 16:25					
Client ID:	Run ID: FID-16_450061		SeqNo: 7632268		PrepDate: 18-Oct-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
TPH (Diesel Range)	0.462	0.050	0.6	0	77.0	70 - 130			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06196</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>103</i>	<i>60 - 135</i>			
LCSD	Sample ID: LCSD-202177	Units: mg/L		Analysis Date: 24-Oct-2023 16:55					
Client ID:	Run ID: FID-16_450061		SeqNo: 7632269		PrepDate: 18-Oct-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
TPH (Diesel Range)	0.4947	0.050	0.6	0	82.4	70 - 130	0.462	6.82	20
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.0591</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>98.5</i>	<i>60 - 135</i>	<i>0.06196</i>	<i>4.72</i>	<i>20</i>
The following samples were analyzed in this batch: HS23100828-01									

Client: PDC Energy
 Project: Meining 1
 WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R449897 (0)		Instrument: FID-4		Method: DISSOLVED GASES BY RSK-175					
MBLK	Sample ID: MBLK-231020	Units: ug/L		Analysis Date: 20-Oct-2023 11:18					
Client ID:	Run ID: FID-4_449897		SeqNo: 7628518		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-231020	Units: ug/L		Analysis Date: 20-Oct-2023 11:35					
Client ID:	Run ID: FID-4_449897		SeqNo: 7628519		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.65	1.00	18.04	0	97.8	75 - 125			
Methane	7.75	0.500	9.647	0	80.3	75 - 125			
Propane	25.79	1.00	26.46	0	97.5	75 - 125			

LCSD	Sample ID: LCSD-231020	Units: ug/L		Analysis Date: 20-Oct-2023 11:52					
Client ID:	Run ID: FID-4_449897		SeqNo: 7628520		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.33	1.00	18.04	0	96.0	75 - 125	17.65	1.85	30
Methane	7.526	0.500	9.647	0	78.0	75 - 125	7.75	2.93	30
Propane	25.16	1.00	26.46	0	95.1	75 - 125	25.79	2.47	30

The following samples were analyzed in this batch: HS23100828-01

Client: PDC Energy
 Project: Meining 1
 WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R449494 (0)		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C						
MBLK	Sample ID: MBLK-231017	Units: mg/L		Analysis Date: 18-Oct-2023 01:01						
Client ID:	Run ID: FID-20_449494		SeqNo: 7618442		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	0.118	0.00500	0.1	0	118	70 - 121				
LCS	Sample ID: LCS-231017	Units: mg/L		Analysis Date: 18-Oct-2023 00:34						
Client ID:	Run ID: FID-20_449494		SeqNo: 7618440		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8988	0.0500	1	0	89.9	76 - 124				
Surr: 4-Bromofluorobenzene	0.1189	0.00500	0.1	0	119	52 - 138				
LCSD	Sample ID: LCSD-231017	Units: mg/L		Analysis Date: 18-Oct-2023 00:47						
Client ID:	Run ID: FID-20_449494		SeqNo: 7618441		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.076	0.0500	1	0	108	76 - 124	0.8988	17.9	20	
Surr: 4-Bromofluorobenzene	0.1154	0.00500	0.1	0	115	52 - 138	0.1189	2.97	20	
The following samples were analyzed in this batch: HS23100828-01										

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: 202337 (0)		Instrument: ICPMS06		Method: TOTAL METALS BY E200.8, REV 5.4, 1994						
MBLK	Sample ID: MBLK-202337	Units: ug/L		Analysis Date: 23-Oct-2023 13:44						
Client ID:	Run ID: ICPMS06_449817	SeqNo: 7627032		PrepDate: 21-Oct-2023		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-202337	Units: ug/L		Analysis Date: 23-Oct-2023 13:49						
Client ID:	Run ID: ICPMS06_449817	SeqNo: 7627035		PrepDate: 21-Oct-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	4914	500	5000	0	98.3	85 - 115				
Magnesium	4802	500	5000	0	96.0	85 - 115				
Potassium	4899	500	5000	0	98.0	85 - 115				
Sodium	4730	200	5000	0	94.6	85 - 115				

MS	Sample ID: HS23101227-01MS	Units: ug/L		Analysis Date: 23-Oct-2023 13:53						
Client ID:	Run ID: ICPMS06_449817	SeqNo: 7627037		PrepDate: 21-Oct-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	121200	500	5000	118100	60.8	70 - 130				SO
Magnesium	53420	500	5000	49180	84.8	70 - 130				O
Potassium	8190	500	5000	3626	91.3	70 - 130				
Sodium	78760	200	5000	75920	56.9	70 - 130				SO

MSD	Sample ID: HS23101227-01MSD	Units: ug/L		Analysis Date: 23-Oct-2023 13:55						
Client ID:	Run ID: ICPMS06_449817	SeqNo: 7627038		PrepDate: 21-Oct-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	120600	500	5000	118100	49.0	70 - 130	121200	0.486	20	SO
Magnesium	52890	500	5000	49180	74.3	70 - 130	53420	0.992	20	O
Potassium	8315	500	5000	3626	93.8	70 - 130	8190	1.52	20	
Sodium	79040	200	5000	75920	62.4	70 - 130	78760	0.352	20	SO

The following samples were analyzed in this batch: HS23100828-01

Client: PDC Energy
 Project: Meining 1
 WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R450004 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-231024	Units: ug/L		Analysis Date: 24-Oct-2023 19:22					
Client ID:	Run ID: VOA11_450004	SeqNo: 7631046		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	48.97	1.0	50	0	97.9	70 - 123			
Surr: 4-Bromofluorobenzene	46.12	1.0	50	0	92.2	77 - 113			
Surr: Dibromofluoromethane	50.94	1.0	50	0	102	73 - 126			
Surr: Toluene-d8	51.06	1.0	50	0	102	81 - 120			

LCS	Sample ID: VLCSW-231024	Units: ug/L		Analysis Date: 24-Oct-2023 18:40					
Client ID:	Run ID: VOA11_450004	SeqNo: 7631045		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.35	1.0	20	0	91.8	74 - 120			
Ethylbenzene	18.54	1.0	20	0	92.7	77 - 117			
m,p-Xylene	36.74	2.0	40	0	91.8	77 - 122			
o-Xylene	18.07	1.0	20	0	90.4	75 - 119			
Toluene	18.19	1.0	20	0	91.0	77 - 118			
Xylenes, Total	54.81	3.0	60	0	91.4	75 - 122			
Surr: 1,2-Dichloroethane-d4	46.93	1.0	50	0	93.9	70 - 123			
Surr: 4-Bromofluorobenzene	49.53	1.0	50	0	99.1	77 - 113			
Surr: Dibromofluoromethane	49.2	1.0	50	0	98.4	73 - 126			
Surr: Toluene-d8	51.2	1.0	50	0	102	81 - 120			

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R450004 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MS		Sample ID: HS23101419-25MS		Units: ug/L		Analysis Date: 24-Oct-2023 20:25			
Client ID:		Run ID: VOA11_450004		SeqNo: 7631049		PrepDate:		DF: 1000	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	24180	1000	20000	6503	88.4	70 - 127			
Ethylbenzene	18340	1000	20000	1068	86.4	70 - 124			
m,p-Xylene	39580	2000	40000	4495	87.7	70 - 130			
o-Xylene	19460	1000	20000	2166	86.5	70 - 124			
Toluene	41130	1000	20000	22530	93.0	70 - 123			
Xylenes, Total	59040	3000	60000	6661	87.3	70 - 130			
Surr: 1,2-Dichloroethane-d4	48910	1000	50000	0	97.8	70 - 126			
Surr: 4-Bromofluorobenzene	49710	1000	50000	0	99.4	77 - 113			
Surr: Dibromofluoromethane	50860	1000	50000	0	102	77 - 123			
Surr: Toluene-d8	50870	1000	50000	0	102	82 - 127			

MSD		Sample ID: HS23101419-25MSD		Units: ug/L		Analysis Date: 24-Oct-2023 20:46			
Client ID:		Run ID: VOA11_450004		SeqNo: 7631050		PrepDate:		DF: 1000	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	25020	1000	20000	6503	92.6	70 - 127	24180	3.41	20
Ethylbenzene	19220	1000	20000	1068	90.7	70 - 124	18340	4.65	20
m,p-Xylene	40240	2000	40000	4495	89.4	70 - 130	39580	1.66	20
o-Xylene	20210	1000	20000	2166	90.2	70 - 124	19460	3.8	20
Toluene	42760	1000	20000	22530	101	70 - 123	41130	3.9	20
Xylenes, Total	60460	3000	60000	6661	89.7	70 - 130	59040	2.37	20
Surr: 1,2-Dichloroethane-d4	48440	1000	50000	0	96.9	70 - 126	48910	0.971	20
Surr: 4-Bromofluorobenzene	48870	1000	50000	0	97.7	77 - 113	49710	1.71	20
Surr: Dibromofluoromethane	50210	1000	50000	0	100	77 - 123	50860	1.29	20
Surr: Toluene-d8	50660	1000	50000	0	101	82 - 127	50870	0.419	20

The following samples were analyzed in this batch: HS23100828-01

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R449450 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WMBLK-10172023	Units: mg/L		Analysis Date: 17-Oct-2023 11:30						
Client ID:	Run ID: Balance1_449450	SeqNo: 7617425		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-10172023	Units: mg/L		Analysis Date: 17-Oct-2023 11:30						
Client ID:	Run ID: Balance1_449450	SeqNo: 7617424		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)		1016	10.0	1000	0	102	85 - 115			
DUP	Sample ID: HS23100830-06DUP	Units: mg/L		Analysis Date: 17-Oct-2023 11:30						
Client ID:	Run ID: Balance1_449450	SeqNo: 7617421		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)		1082	10.0				1084	0.185	20	
DUP	Sample ID: HS23100817-02DUP	Units: mg/L		Analysis Date: 17-Oct-2023 11:30						
Client ID:	Run ID: Balance1_449450	SeqNo: 7617410		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)		6524	10.0				6524	0	20	
The following samples were analyzed in this batch:		HS23100828-01								

Client: PDC Energy
 Project: Meining 1
 WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R449904 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-10232023	Units: mg/L		Analysis Date: 23-Oct-2023 18:13					
Client ID:	Run ID: Skalar 03_449904	SeqNo: 7628687		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-10232023	Units: mg/L		Analysis Date: 23-Oct-2023 18:20					
Client ID:	Run ID: Skalar 03_449904	SeqNo: 7628688		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)	895.6	5.00	1000	0	89.6	85 - 115			
Alkalinity, Total (As CaCO3)	923.4	5.00	1000	0	92.3	85 - 115			

LCSD	Sample ID: LCSD-10232023	Units: mg/L		Analysis Date: 23-Oct-2023 18:25					
Client ID:	Run ID: Skalar 03_449904	SeqNo: 7628689		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)	897	5.00	1000	0	89.7	85 - 115	895.6	0.156	20
Alkalinity, Total (As CaCO3)	924.9	5.00	1000	0	92.5	85 - 115	923.4	0.162	20

DUP	Sample ID: HS23101055-11DUP	Units: mg/L		Analysis Date: 23-Oct-2023 18:37					
Client ID:	Run ID: Skalar 03_449904	SeqNo: 7628691		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)	544.6	5.00					550.9	1.15	20
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0	0	20
Alkalinity, Total (As CaCO3)	544.6	5.00					550.9	1.15	20

The following samples were analyzed in this batch: HS23100828-01

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R450002 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993						
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 24-Oct-2023 17:58						
Client ID:	Run ID: ICS-Integrion_450002		SeqNo: 7631765		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: 24-Oct-2023 18:09						
Client ID:	Run ID: ICS-Integrion_450002		SeqNo: 7631766		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.66	0.500	20	0	103	90 - 110				
Sulfate	18.68	0.500	20	0	93.4	90 - 110				

MS	Sample ID: HS23101372-51MS	Units: mg/L		Analysis Date: 24-Oct-2023 19:19						
Client ID:	Run ID: ICS-Integrion_450002		SeqNo: 7631776		PrepDate:		DF: 10			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	541.8	5.00	100	476.7	65.2	80 - 120				SO
Sulfate	1299	5.00	100	1212	87.1	80 - 120				EO

MS	Sample ID: HS23101372-49MS	Units: mg/L		Analysis Date: 24-Oct-2023 18:33						
Client ID:	Run ID: ICS-Integrion_450002		SeqNo: 7631770		PrepDate:		DF: 50			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2021	25.0	500	1644	75.5	80 - 120				S
Sulfate	3491	25.0	500	2997	98.9	80 - 120				O

MSD	Sample ID: HS23101372-51MSD	Units: mg/L		Analysis Date: 24-Oct-2023 19:25						
Client ID:	Run ID: ICS-Integrion_450002		SeqNo: 7631777		PrepDate:		DF: 10			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	540.6	5.00	100	476.7	64.0	80 - 120	541.8	0.225	20	SO
Sulfate	1292	5.00	100	1212	79.9	80 - 120	1299	0.554	20	SEO

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

QC BATCH REPORT

Batch ID: R450002 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993						
MSD	Sample ID: HS23101372-49MSD	Units: mg/L		Analysis Date: 24-Oct-2023 18:38						
Client ID:	Run ID: ICS-Integrion_450002		SeqNo: 7631771		PrepDate:		DF: 50			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2029	25.0	500	1644	77.1	80 - 120	2021	0.402	20	S
Sulfate	3508	25.0	500	2997	102	80 - 120	3491	0.491	20	O

The following samples were analyzed in this batch: HS23100828-01

Client: PDC Energy
Project: Meining 1
WorkOrder: HS23100828

**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	L23-358	31-May-2025
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	624-2023	31-Dec-2023
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-31	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS23100828

Date/Time Received: 12-Oct-2023 08:45

Client Name: PDC Energy 80203

Received by: Corey Grandits

Completed By: /S/ Corey Grandits

12-Oct-2023 08:45

Reviewed by: /S/ Tyler Monroe

16-Oct-2023 09:46

eSignature

Date/Time

eSignature

Date/Time

Matrices: WaterCarrier name: FedEx First Overnight

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 ☐

COC IDs:none

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):

3.5UC/3.4C

IR31

Cooler(s)/Kit(s):

Blue

Date/Time sample(s) sent to storage:

10/12/23

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:

Paul Matta

Login Notes: Metals pH at receipt 7. Preserved with 0.5ml of HNO3 (Lot:322143103). pH after preservation 1.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:

PROJECT NAME		Meining 1	
PROJECT No.		09C2073566	
COMPANY NAME		PDC Energy	
END REPORT TO		Jenifer Hakkarinen	
ADDRESS		1775 Sherman ST, Suite 3000	
CITY / STATE / ZIP		Denver, CO 80203	
PHONE		303-860-5815	
FAX			
E-MAIL		jenifer.hakkarinen@pdce.com jessica.johannsen@pdce.com jbraden@ensolum.com	
Lab ID		Field ID	
Matrix		Sample Date	
Sample Time		# Bottles	
Pres.		QC	
RSK 175		SW8260_25	
BTEX & TPH GRO		TPH DRO	
Alkalinity, Carbonate, Bicarbonate, Total		Total Cations - see comments	
Total Anions - see comments		Total Dissolved Solids	
EPA200.7/208		EPA 300.0	
SM2540C			
Time Zone: MST		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:	
QCC PACKAGE (check below)		LEVEL II (Standard QC)	
X		LEVEL III (Std QC + forms)	
		LEVEL IV (Std QC + forms + raw data)	
servative Key:		1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035	
RELINQUISHED BY		SIGNATURE	
RECEIVED BY		PRINTED NAME	
RELINQUISHED BY		DATE	
RECEIVED BY		TIME	
RELINQUISHED BY		Jeff Braden	
RECEIVED BY		Tyler Monroe	
RELINQUISHED BY		CA	
RECEIVED BY			

ORIGIN ID:GKYA (970) 305-1648

ALS GROUP USA
CONFIDENTIAL PRNG-DONOT SHARE
10450 STANCLIFF RD
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 11OCT23
ACTWGT: 31.40 LB
CAD: 6890998/SSF02441
DIMS: 16x11x16 IN

BILL THIRD PARTY

Part 1 16297-435 PRICE2 EXP 09/24

TO

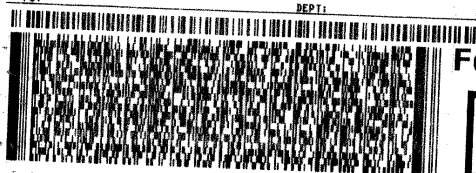
ALS HOUSTON
10450 STANCLIFF RD STE 210

HOUSTON TX 77099

(970) 305-1648
INV#
PO#

REF#

DEPT#



FedEx
Express



REL#
3785346

1 of 2

TRK# 7849 3212 5189
0201

MASTER

X1 SGRA

THU - 12 OCT 8:00A
FIRST OVERNIGHT

AHS

77099

TX-US IAH

