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December 06, 2022

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

Work Order: **HS22110982**

Laboratory Results for: **Wilson IC 03-062HN**

Dear Jenifer Hakkarinen,

ALS Environmental received 1 sample(s) on Nov 16, 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: Wilson IC 03-062HN
Work Order: HS22110982

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22110982-01	WILSON IC 03-062HN	Water		14-Nov-2022 10:50	16-Nov-2022 09:30	<input type="checkbox"/>

Client: PDC Energy
Project: Wilson IC 03-062HN
Work Order: HS22110982

CASE NARRATIVE

GC Semivolatiles by Method RSK-175

Batch ID: R422151

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

GC Semivolatiles by Method SW8015M

Batch ID: 186360

Sample ID: WILSON IC 03-062HN (HS22110982-01)

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

GC Volatiles by Method SW8015

Batch ID: R422107

Sample ID: WILSON IC 03-062HN (HS22110982-01)

- Dilution required due to foamy matrix. Surrogate failed outside control limits high due to matrix interference. Sample is ND.

GCMS Volatiles by Method SW8260

Batch ID: R422621

Sample ID: HS22111143-04MS

- MS and MSD are for an unrelated sample

Sample ID: WILSON IC 03-062HN (HS22110982-01)

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

Metals by Method E200.8

Batch ID: 186760

Sample ID: HS22110882-01MS

- MS and MSD are for an unrelated sample

Sample ID: HS22111316-01MS

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

Sample ID: WILSON IC 03-062HN (HS22110982-01)

- Sample ran at 2x due to high concentration of Sodium.

WetChemistry by Method E300

Batch ID: R423318

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

WetChemistry by Method SM2320B

Batch ID: R422637

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

Client: PDC Energy
Project: Wilson IC 03-062HN
Work Order: HS22110982

CASE NARRATIVE

WetChemistry by Method SM2320B

WetChemistry by Method M2540C

Batch ID: R422403

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

Client: PDC Energy
 Project: Wilson IC 03-062HN
 Sample ID: WILSON IC 03-062HN
 Collection Date: 14-Nov-2022 10:50

ANALYTICAL REPORT

WorkOrder:HS22110982
 Lab ID:HS22110982-01
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP		
Benzene	ND		50	ug/L	50	28-Nov-2022 11:36
Ethylbenzene	ND		50	ug/L	50	28-Nov-2022 11:36
m,p-Xylene	110		100	ug/L	50	28-Nov-2022 11:36
o-Xylene	66		50	ug/L	50	28-Nov-2022 11:36
Toluene	110		50	ug/L	50	28-Nov-2022 11:36
Xylenes, Total	170		50	ug/L	50	28-Nov-2022 11:36
<i>Surr: 1,2-Dichloroethane-d4</i>	89.6		70-126	%REC	50	28-Nov-2022 11:36
<i>Surr: 4-Bromofluorobenzene</i>	99.8		77-113	%REC	50	28-Nov-2022 11:36
<i>Surr: Dibromofluoromethane</i>	105		77-123	%REC	50	28-Nov-2022 11:36
<i>Surr: Toluene-d8</i>	92.1		82-127	%REC	50	28-Nov-2022 11:36
GASOLINE RANGE ORGANICS BY SW8015C		Method:SW8015		Analyst: FT		
Gasoline Range Organics	ND		2.50	mg/L	50	17-Nov-2022 16:45
<i>Surr: 4-Bromofluorobenzene</i>	915	S	70-123	%REC	50	17-Nov-2022 16:45
DISSOLVED GASES BY RSK-175		Method:RSK-175		Analyst: PPM		
Ethane	84.4		10.0	ug/L	10	17-Nov-2022 18:22
Methane	178		5.00	ug/L	10	17-Nov-2022 18:22
Propane	36.7		1.00	ug/L	1	17-Nov-2022 16:33
TPH DRO/ORO BY SW8015C		Method:SW8015M		Prep:SW3511 / 18-Nov-2022		Analyst: PPM
TPH (Diesel Range)	110		5.1	mg/L	100	22-Nov-2022 08:02
<i>Surr: 2-Fluorobiphenyl</i>	0	JS	60-135	%REC	100	22-Nov-2022 08:02
TOTAL METALS BY E200.8, REV 5.4, 1994		Method:E200.8		Prep:E200.8 / 30-Nov-2022		Analyst: JHD
Calcium	1,730		100	mg/L	200	01-Dec-2022 11:21
Magnesium	ND		1.00	mg/L	2	01-Dec-2022 11:19
Potassium	1,100		100	mg/L	200	01-Dec-2022 11:21
Sodium	1,980		40.0	mg/L	200	01-Dec-2022 11:21
ANIONS BY E300.0, REV 2.1, 1993		Method:E300		Analyst: TH		
Chloride	5,480		50.0	mg/L	100	06-Dec-2022 15:03
Sulfate	270		2.50	mg/L	5	06-Dec-2022 14:58
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C		Analyst: CWG		
Total Dissolved Solids (Residue, Filterable)	13,300		10.0	mg/L	1	21-Nov-2022 14:27
ALKALINITY BY SM 2320B-2011		Method:SM2320B		Analyst: JAC		
Alkalinity, Bicarbonate (As CaCO3)	39.6		5.00	mg/L	1	28-Nov-2022 09:56
Alkalinity, Carbonate (As CaCO3)	273		5.00	mg/L	1	28-Nov-2022 09:56
Alkalinity, Total (As CaCO3)	313		5.00	mg/L	1	28-Nov-2022 09:56

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

Weight / Prep Log

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

Batch ID: 186360	Start Date: 18 Nov 2022 09:36	End Date: 18 Nov 2022 14:30
Method: SW3511	Prep Code: 3511_DRO	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22110982-01		32.45 (mL)	2 (mL)	0.06163	40 mL Amber

Batch ID: 186760	Start Date: 30 Nov 2022 09:00	End Date: 30 Nov 2022 13:00
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	
HS22110982-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 186360 (0)		Test Name : TPH DRO/ORO BY SW8015C			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50		18 Nov 2022 09:36	22 Nov 2022 08:02	100
Batch ID: 186760 (0)		Test Name : TOTAL METALS BY E200.8, REV 5.4, 1994			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50		30 Nov 2022 09:00	01 Dec 2022 11:21	200
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50		30 Nov 2022 09:00	01 Dec 2022 11:19	2
Batch ID: R422107 (0)		Test Name : GASOLINE RANGE ORGANICS BY SW8015C			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			17 Nov 2022 16:45	50
Batch ID: R422151 (0)		Test Name : DISSOLVED GASES BY RSK-175			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			17 Nov 2022 18:22	10
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			17 Nov 2022 16:33	1
Batch ID: R422403 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			21 Nov 2022 14:27	1
Batch ID: R422621 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			28 Nov 2022 11:36	50
Batch ID: R422637 (0)		Test Name : ALKALINITY BY SM 2320B-2011			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			28 Nov 2022 09:56	1
Batch ID: R423318 (0)		Test Name : ANIONS BY E300.0, REV 2.1, 1993			Matrix: Water	
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			06 Dec 2022 15:03	100
HS22110982-01	WILSON IC 03-062HN	14 Nov 2022 10:50			06 Dec 2022 14:58	5

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: 186360 (0)		Instrument: FID-16		Method: TPH DRO/ORO BY SW8015C					
MBLK	Sample ID: MBLK-186360	Units: mg/L		Analysis Date: 18-Nov-2022 14:34					
Client ID:	Run ID: FID-16_422290	SeqNo: 6992642		PrepDate: 18-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>0.04559</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>76.0</i>	<i>60 - 135</i>			

LCS	Sample ID: LCS-186360	Units: mg/L		Analysis Date: 18-Nov-2022 15:04					
Client ID:	Run ID: FID-16_422290	SeqNo: 6992643		PrepDate: 18-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)	0.4951	0.050	0.6	0	82.5	70 - 130			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06264</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>104</i>	<i>60 - 135</i>			

LCSD	Sample ID: LCSD-186360	Units: mg/L		Analysis Date: 18-Nov-2022 15:33					
Client ID:	Run ID: FID-16_422290	SeqNo: 6992644		PrepDate: 18-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)	0.5047	0.050	0.6	0	84.1	70 - 130	0.4951	1.92	20
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06077</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>101</i>	<i>60 - 135</i>	<i>0.06264</i>	<i>3.03</i>	<i>20</i>

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: R422151 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK		Sample ID: MBLK-221117		Units: ug/L		Analysis Date: 17-Nov-2022 10:29				
Client ID:		Run ID: FID-4_422151		SeqNo: 6989077		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-221117		Units: ug/L		Analysis Date: 17-Nov-2022 11:03				
Client ID:		Run ID: FID-4_422151		SeqNo: 6989078		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	17.48	1.00	18.04	0	96.9	75 - 125				
Methane	8.468	0.500	9.647	0	87.8	75 - 125				
Propane	27.24	1.00	26.46	0	103	75 - 125				

LCSD		Sample ID: LCSD-221117		Units: ug/L		Analysis Date: 17-Nov-2022 11:19				
Client ID:		Run ID: FID-4_422151		SeqNo: 6989079		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	17.59	1.00	18.04	0	97.5	75 - 125	17.48	0.674	30	
Methane	8.366	0.500	9.647	0	86.7	75 - 125	8.468	1.21	30	
Propane	27.05	1.00	26.46	0	102	75 - 125	27.24	0.722	30	

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: R422107 (0)		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C						
MBLK	Sample ID: MBLK-221117	Units: mg/L			Analysis Date: 17-Nov-2022 14:40					
Client ID:	Run ID: FID-20_422107	SeqNo: 6988140		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>0.1119</i>	<i>0.00500</i>	<i>0.1</i>	<i>0</i>	<i>112</i>	<i>70 - 121</i>			

LCS	Sample ID: LCS-221117	Units: mg/L			Analysis Date: 17-Nov-2022 13:54				
Client ID:	Run ID: FID-20_422107	SeqNo: 6988138		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Gasoline Range Organics	0.87	0.0500	1	0	87.0	76 - 124			
<i>Surr: 4-Bromofluorobenzene</i>	<i>0.08561</i>	<i>0.00500</i>	<i>0.1</i>	<i>0</i>	<i>85.6</i>	<i>52 - 138</i>			

LCSD	Sample ID: LCSD-221117	Units: mg/L			Analysis Date: 17-Nov-2022 14:09				
Client ID:	Run ID: FID-20_422107	SeqNo: 6988139		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Gasoline Range Organics	0.8338	0.0500	1	0	83.4	76 - 124	0.87	4.25	20
<i>Surr: 4-Bromofluorobenzene</i>	<i>0.08642</i>	<i>0.00500</i>	<i>0.1</i>	<i>0</i>	<i>86.4</i>	<i>52 - 138</i>	<i>0.08561</i>	<i>0.951</i>	<i>20</i>

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: 186760 (0) **Instrument:** ICPMS07 **Method:** TOTAL METALS BY E200.8, REV 5.4, 1994

MBLK		Sample ID: MBLK-186760		Units: ug/L		Analysis Date: 30-Nov-2022 16:55			
Client ID:		Run ID: ICPMS07_422847		SeqNo: 7007256		PrepDate: 30-Nov-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-186760		Units: ug/L		Analysis Date: 30-Nov-2022 16:57			
Client ID:		Run ID: ICPMS07_422847		SeqNo: 7007257		PrepDate: 30-Nov-2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	4704	500	5000	0	94.1	85 - 115			
Magnesium	4942	500	5000	0	98.8	85 - 115			
Potassium	4845	500	5000	0	96.9	85 - 115			
Sodium	4805	200	5000	0	96.1	85 - 115			

MS		Sample ID: HS22111316-01MS		Units: ug/L		Analysis Date: 30-Nov-2022 17:57			
Client ID:		Run ID: ICPMS07_422847		SeqNo: 7007285		PrepDate: 30-Nov-2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	310500	500	5000	294000	329	70 - 130			SEO
Magnesium	39210	500	5000	33180	121	70 - 130			O
Potassium	48170	500	5000	41660	130	70 - 130			SO
Sodium	369500	200	5000	353000	331	70 - 130			SEO

MS		Sample ID: HS22110882-01MS		Units: ug/L		Analysis Date: 30-Nov-2022 17:03			
Client ID:		Run ID: ICPMS07_422847		SeqNo: 7007260		PrepDate: 30-Nov-2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	256200	500	5000	251500	95.3	70 - 130			EO
Magnesium	32870	500	5000	27810	101	70 - 130			O
Potassium	40960	500	5000	35900	101	70 - 130			O
Sodium	325300	200	5000	319800	108	70 - 130			EO

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: 186760 (0) **Instrument:** ICPMS07 **Method:** TOTAL METALS BY E200.8, REV 5.4, 1994

MSD		Sample ID: HS22111316-01MSD			Units: ug/L		Analysis Date: 30-Nov-2022 17:59			
Client ID:		Run ID: ICPMS07_422847			SeqNo: 7007286		PrepDate: 30-Nov-2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	306700	500	5000	294000	254	70 - 130	310500	1.23	20	SEO
Magnesium	38980	500	5000	33180	116	70 - 130	39210	0.592	20	O
Potassium	47930	500	5000	41660	125	70 - 130	48170	0.49	20	O
Sodium	365600	200	5000	353000	252	70 - 130	369500	1.07	20	SEO

MSD		Sample ID: HS22110882-01MSD			Units: ug/L		Analysis Date: 30-Nov-2022 17:05			
Client ID:		Run ID: ICPMS07_422847			SeqNo: 7007261		PrepDate: 30-Nov-2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	268600	500	5000	251500	342	70 - 130	256200	4.7	20	SEO
Magnesium	34510	500	5000	27810	134	70 - 130	32870	4.86	20	SO
Potassium	42900	500	5000	35900	140	70 - 130	40960	4.62	20	SO
Sodium	341700	200	5000	319800	436	70 - 130	325300	4.92	20	SEO

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

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
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	1.0							
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>43.52</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>87.0</i>	<i>70 - 123</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>49.94</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>99.9</i>	<i>77 - 113</i>			
<i>Surr: Dibromofluoromethane</i>	<i>51.39</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>73 - 126</i>			
<i>Surr: Toluene-d8</i>	<i>47.47</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>94.9</i>	<i>81 - 120</i>			

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
Benzene	17.52	1.0	20	0	87.6	74 - 120			
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			
Toluene	16.28	1.0	20	0	81.4	77 - 118			
Xylenes, Total	49.25	1.0	60	0	82.1	75 - 122			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>48.01</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>96.0</i>	<i>70 - 123</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>53.74</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>107</i>	<i>77 - 113</i>			
<i>Surr: Dibromofluoromethane</i>	<i>52.01</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>104</i>	<i>73 - 126</i>			
<i>Surr: Toluene-d8</i>	<i>46.76</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>93.5</i>	<i>81 - 120</i>			

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: R422621 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
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
Benzene	3894	100	2000	2356	76.9	70 - 127				
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
Toluene	22060	100	2000	22910	-42.5	70 - 123				SEO
Xylenes, Total	24900	100	6000	20750	69.1	70 - 130				S
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>4646</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>92.9</i>	<i>70 - 126</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>5008</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>100</i>	<i>77 - 113</i>				
<i>Surr: Dibromofluoromethane</i>	<i>5421</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>108</i>	<i>77 - 123</i>				
<i>Surr: Toluene-d8</i>	<i>4733</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>94.7</i>	<i>82 - 127</i>				

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
Benzene	4613	100	2000	2356	113	70 - 127	3894	16.9	20	
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
Toluene	26180	100	2000	22910	164	70 - 123	22060	17.1	20	SEO
Xylenes, Total	29630	100	6000	20750	148	70 - 130	24900	17.4	20	S
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>4859</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>97.2</i>	<i>70 - 126</i>	<i>4646</i>	<i>4.49</i>	<i>20</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>5240</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>105</i>	<i>77 - 113</i>	<i>5008</i>	<i>4.52</i>	<i>20</i>	
<i>Surr: Dibromofluoromethane</i>	<i>5371</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>107</i>	<i>77 - 123</i>	<i>5421</i>	<i>0.927</i>	<i>20</i>	
<i>Surr: Toluene-d8</i>	<i>4856</i>	<i>100</i>	<i>5000</i>	<i>0</i>	<i>97.1</i>	<i>82 - 127</i>	<i>4733</i>	<i>2.57</i>	<i>20</i>	

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: R422403 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID: WBLK-112122	Units: mg/L		Analysis Date: 21-Nov-2022 14:27						
Client ID:	Run ID: Balance1_422403	SeqNo: 6995411		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-112122	Units: mg/L		Analysis Date: 21-Nov-2022 14:27						
Client ID:	Run ID: Balance1_422403	SeqNo: 6995412		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) 1054 10.0 1000 0 105 85 - 115

DUP	Sample ID: HS22110999-15DUP	Units: mg/L		Analysis Date: 21-Nov-2022 14:27						
Client ID:	Run ID: Balance1_422403	SeqNo: 6995408		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) 2980 10.0 3020 1.33 5

DUP	Sample ID: HS22110999-05DUP	Units: mg/L		Analysis Date: 21-Nov-2022 14:27						
Client ID:	Run ID: Balance1_422403	SeqNo: 6995397		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) 7120 10.0 7100 0.281 5

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: R422637 (0) **Instrument:** ManTech01 **Method:** ALKALINITY BY SM 2320B-2011

MBLK		Sample ID: MBLK-R422637	Units: mg/L		Analysis Date: 28-Nov-2022 09:56					
Client ID:		Run ID: ManTech01_422637	SeqNo: 7001009		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-R422637	Units: mg/L		Analysis Date: 28-Nov-2022 09:56					
Client ID:		Run ID: ManTech01_422637	SeqNo: 7001008		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)	999.6	5.00	1000	0	100.0	85 - 115				
Alkalinity, Total (As CaCO3)	1021	5.00	1000	0	102	85 - 115				

LCSD		Sample ID: LCSD-R422637	Units: mg/L		Analysis Date: 28-Nov-2022 09:56					
Client ID:		Run ID: ManTech01_422637	SeqNo: 7001007		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)	986.5	5.00	1000	0	98.6	85 - 115	999.6	1.32	20	
Alkalinity, Total (As CaCO3)	1008	5.00	1000	0	101	85 - 115	1021	1.28	20	

DUP		Sample ID: HS22110999-05DUP	Units: mg/L		Analysis Date: 28-Nov-2022 09:56					
Client ID:		Run ID: ManTech01_422637	SeqNo: 7001010		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)	850.8	5.00					875.4	2.86	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0	0	20	
Alkalinity, Total (As CaCO3)	850.8	5.00					875.4	2.86	20	

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: R423318 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY E300.0, REV 2.1, 1993

MBLK		Sample ID: MBLK		Units: mg/L		Analysis Date: 06-Dec-2022 11:54			
Client ID:		Run ID: ICS-Integrion_423318		SeqNo: 7016994		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: 06-Dec-2022 11:59			
Client ID:		Run ID: ICS-Integrion_423318		SeqNo: 7016995		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19.77	0.500	20	0	98.8	90 - 110			
Sulfate	20.2	0.500	20	0	101	90 - 110			

MS		Sample ID: HS22111367-01MS		Units: mg/L		Analysis Date: 06-Dec-2022 14:42			
Client ID:		Run ID: ICS-Integrion_423318		SeqNo: 7017022		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	9.627	0.500	10	0.119	95.1	80 - 120			
Sulfate	9.689	0.500	10	0	96.9	80 - 120			

MS		Sample ID: HS22111342-02MS		Units: mg/L		Analysis Date: 06-Dec-2022 12:10			
Client ID:		Run ID: ICS-Integrion_423318		SeqNo: 7016997		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	28.53	0.500	10	19.13	93.9	80 - 120			
Sulfate	29.96	0.500	10	20.42	95.4	80 - 120			

MSD		Sample ID: HS22111367-01MSD		Units: mg/L		Analysis Date: 06-Dec-2022 14:47			
Client ID:		Run ID: ICS-Integrion_423318		SeqNo: 7017023		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	9.729	0.500	10	0.119	96.1	80 - 120	9.627	1.05	20
Sulfate	9.815	0.500	10	0	98.1	80 - 120	9.689	1.29	20

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

QC BATCH REPORT

Batch ID: R423318 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY E300.0, REV 2.1, 1993

MSD		Sample ID: HS22111342-02MSD		Units: mg/L		Analysis Date: 06-Dec-2022 12:15			
Client ID:		Run ID: ICS-Integrion_423318		SeqNo: 7016998		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	28.46	0.500	10	19.13	93.3	80 - 120	28.53	0.218	20
Sulfate	29.85	0.500	10	20.42	94.4	80 - 120	29.96	0.362	20

The following samples were analyzed in this batch: HS22110982-01

Client: PDC Energy
Project: Wilson IC 03-062HN
WorkOrder: HS22110982

**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: HS22110982

Date/Time Received: 16-Nov-2022 09:30

Client Name: PDC Energy 80203

Received by: Corey Grandits

Completed By: /S/ Malcolm Burluson	16-Nov-2022 18:36	Reviewed by: /S/ Tyler Monroe	17-Nov-2022 10:30
eSignature	Date/Time	eSignature	Date/Time

Matrices: **W**

Carrier 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):	2.5UC 2.0C	IR31
Cooler(s)/Kit(s):	SM.RED	
Date/Time sample(s) sent to storage:	11162022 0930	
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:



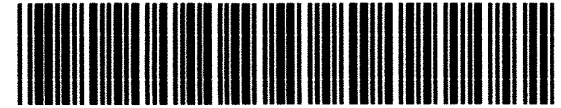
ALS Environmental

965 E 11th St, Loveland, CO 80537
Phone: 970-305-1648

Chain-of-Custody

HS22110982

PDC Energy
Wilson IC 03-062HN



PROJECT NAME Wilson IC 03-062HN		SAMPLER Jeff Braden		DATE 11/14/22											
PROJECT No. 09A2073188		FACILITY ID 123-45436		TURNAROUND											
PDCE Bradenhead Sampling		EDD FORMAT COGCC EDD, LTE													
COMPANY NAME PDC Energy		PURCHASE ORDER N/A													
SEND REPORT TO Jenifer Hakkarinen		BILL TO COMPANY PDC Energy													
ADDRESS 1775 Sherman Street, Suite 3000		INVOICE ATTN TO Jenifer Hakkarinen													
CITY / STATE / ZIP Denver, Colorado 80203		ADDRESS 1775 Sherman Street, Suite 3000													
PHONE 303.860.5815		CITY / STATE / ZIP Denver, Colorado 80203													
FAX		PHONE 303.860.5815													
E-MAIL jenifer.hakkarinen@pdce.com jessica.johannsen@pdce.com jbraden@ensolum.com		E-MAIL jenifer.hakkarinen@pdce.com													
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	RSK 175	Dissolved Methane, Ethane, Propane	BTEX & TPH GRO	TPH DRO	Alkalinity, Carbonate, Bicarbonate, Total	Total Cations - see comments	Total Anions - see comments	Total Dissolved Solids
	Wilson IC 03-062HN	W	11/14/22	1050	11	1,2	-	X	X	X	X	X	X	X	X

*Time Zone (Circle): EST CST MST 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		<input type="checkbox"/> LEVEL II (Standard QC)
		<input type="checkbox"/> LEVEL III (Std QC + forms)
Samples analyzed per	2.50 1021	<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)
COGCC Bradenhead Sampling Program	LF = 0.5	
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035		

SIGNATURE	PRINTED NAME	DATE	TIME
<i>Jeff Braden</i>	Jeff Braden	11/14/22	1410
<i>Tyler Monroe</i>	Tyler Monroe	11/14/22	1410
<i>Tyler Monroe</i>	Tyler Monroe	11/14/22	1530
<i>102079</i>		11/16/22	0424

ALS Environmental - Loveland Service Center
CONDITION OF SAMPLE UPON RECEIPT FORM



right solutions.
right partner.

Client: PDC

Received By: Amy Keenan

Date: 11/14/22

	N/A	YES	NO
1. Are airbills / shipping documents present and/or removable?	<input checked="" type="checkbox"/>		
2. Are custody seals on shipping containers intact?	<input checked="" type="checkbox"/>		
3. Are custody seals on sample containers intact?	<input checked="" type="checkbox"/>		
4. Is there a COC (chain-of-custody) present?		<input checked="" type="checkbox"/>	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		<input checked="" type="checkbox"/>	
6. Are short-hold samples present?			<input checked="" type="checkbox"/>
7. Are all samples within holding times for the requested analyses?		<input checked="" type="checkbox"/>	
8. Were all sample containers received intact? (not broken or leaking)		<input checked="" type="checkbox"/>	
9. Is there sufficient sample for the requested analyses?		<input checked="" type="checkbox"/>	
10. Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		<input checked="" type="checkbox"/>	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)	<input checked="" type="checkbox"/>		
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)		<input checked="" type="checkbox"/>	
13. Were the samples shipped on ice?		<input checked="" type="checkbox"/>	
14. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <u>#6</u>			<input checked="" type="checkbox"/>
Cooler #: <u> </u>			
Trip Blank #: <u> </u>			
Temperature (°C): <u>7.5</u>			
# of custody seals on cooler: <u> </u>			

Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

AK

