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June 23, 2023

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

Work Order: **HS23060339**

Laboratory Results for: **Postle IC 11-159HC**

Dear Jenifer Hakkarinen,

ALS Environmental received 1 sample(s) on Jun 07, 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: JUMOKE.LAWAL
Tyler Monroe

Client: PDC Energy
Project: Postle IC 11-159HC
Work Order: HS23060339

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23060339-01	Postle IC 11-159HC	Water		06-Jun-2023 10:30	07-Jun-2023 08:00	☐

Client: PDC Energy **CASE NARRATIVE**
Project: Postle IC 11-159HC
Work Order: HS23060339

GC Semivolatiles by Method RSK-175

Batch ID: R437725

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

GC Semivolatiles by Method SW8015M

Batch ID: 195072

Sample ID: Postle IC 11-159HC (HS23060339-01)

• Surrogate recoveries were outside of the control limits due to matrix interference.

GC Volatiles by Method SW8015

Batch ID: R437496

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

GCMS Volatiles by Method SW8260

Batch ID: R437310

Sample ID: Postle IC 11-159HC (HS23060339-01)

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

Metals by Method E200.8

Batch ID: 196442

Sample ID: HS23060468-01MSD

• MS and MSD are for an unrelated sample

WetChemistry by Method E300

Batch ID: R439295

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

WetChemistry by Method SM2320B

Batch ID: R437985

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

WetChemistry by Method M2540C

Batch ID: R437707

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

Client: PDC Energy
Project: Postle IC 11-159HC
Sample ID: Postle IC 11-159HC
Collection Date: 06-Jun-2023 10:30

ANALYTICAL REPORT
WorkOrder:HS23060339
Lab ID:HS23060339-01
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		**Method:SW8260**				Analyst: AKP
Benzene	**160**		**50**	**ug/L**	50	07-Jun-2023 16:20
Ethylbenzene	ND		50	ug/L	50	07-Jun-2023 16:20
m,p-Xylene	**210**		**100**	**ug/L**	50	07-Jun-2023 16:20
o-Xylene	**68**		**50**	**ug/L**	50	07-Jun-2023 16:20
Toluene	**150**		**50**	**ug/L**	50	07-Jun-2023 16:20
Xylenes, Total	**280**		**50**	**ug/L**	50	07-Jun-2023 16:20
Surr: 1,2-Dichloroethane-d4	*97.0*		*70-126*	*%REC*	*50*	*07-Jun-2023 16:20*
Surr: 4-Bromofluorobenzene	*94.6*		*77-113*	*%REC*	*50*	*07-Jun-2023 16:20*
Surr: Dibromofluoromethane	*96.4*		*77-123*	*%REC*	*50*	*07-Jun-2023 16:20*
Surr: Toluene-d8	*97.2*		*82-127*	*%REC*	*50*	*07-Jun-2023 16:20*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: PJM
Gasoline Range Organics	**124**		**25.0**	**mg/L**	500	08-Jun-2023 17:30
Surr: 4-Bromofluorobenzene	*113*		*70-123*	*%REC*	*500*	*08-Jun-2023 17:30*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**				Analyst: SAM
Ethane	**404**		**20.0**	**ug/L**	20	12-Jun-2023 17:25
Methane	**512**		**10.0**	**ug/L**	20	12-Jun-2023 17:25
Propane	**213**		**20.0**	**ug/L**	20	12-Jun-2023 17:25
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3511 / 13-Jun-2023		Analyst: SAM
TPH (Diesel Range)	**3.2**		**0.051**	**mg/L**	1	15-Jun-2023 15:35
Surr: 2-Fluorobiphenyl	*140*	*S*	*60-135*	*%REC*	*1*	*15-Jun-2023 15:35*
TOTAL METALS BY E200.8, REV 5.4, 1994		**Method:E200.8**		Prep:E200.8 / 20-Jun-2023		Analyst: JHD
Calcium	**21.2**		**2.50**	**mg/L**	5	22-Jun-2023 13:27
Magnesium	**3.16**		**2.50**	**mg/L**	5	22-Jun-2023 13:27
Potassium	**278**		**2.50**	**mg/L**	5	22-Jun-2023 13:27
Sodium	**1,010**		**20.0**	**mg/L**	100	22-Jun-2023 16:05
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**				Analyst: TH
Chloride	**402**		**25.0**	**mg/L**	50	19-Jun-2023 12:47
Sulfate	**686**		**25.0**	**mg/L**	50	19-Jun-2023 12:47
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**				Analyst: DC
Total Dissolved Solids (Residue, Filterable)	**8,000**		**10.0**	**mg/L**	1	09-Jun-2023 13:37
ALKALINITY BY SM 2320B-2011		**Method:SM2320B**				Analyst: DW
Alkalinity, Bicarbonate (As CaCO3)	ND		100	mg/L	20	15-Jun-2023 20:01
Alkalinity, Carbonate (As CaCO3)	**1,260**		**100**	**mg/L**	20	15-Jun-2023 20:01
Alkalinity, Total (As CaCO3)	**1,720**		**100**	**mg/L**	20	15-Jun-2023 20:01

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

Weight / Prep Log

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

Batch ID: 195072 **Start Date:** 13 Jun 2023 07:15 **End Date:** 13 Jun 2023 07:15
Method: SW3511 **Prep Code:** 3511_DRO

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23060339-01		32.33 (mL)	2 (mL)	0.06186	40 mL Amber

Batch ID: 196442 **Start Date:** 20 Jun 2023 08:30 **End Date:** 20 Jun 2023 08:30
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	
HS23060339-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 195072 (0)	**Test Name :** TPH DRO/ORO BY SW8015C				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30		13 Jun 2023 07:15	15 Jun 2023 15:35	1
Batch ID: 196442 (0)	**Test Name :** TOTAL METALS BY E200.8, REV 5.4, 1994				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30		20 Jun 2023 08:30	22 Jun 2023 16:05	100
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30		20 Jun 2023 08:30	22 Jun 2023 13:27	5
Batch ID: R437310 (0)	**Test Name :** LOW LEVEL VOLATILES BY SW8260C				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30			07 Jun 2023 16:20	50
Batch ID: R437496 (0)	**Test Name :** GASOLINE RANGE ORGANICS BY SW8015C				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30			08 Jun 2023 17:30	500
Batch ID: R437707 (0)	**Test Name :** TOTAL DISSOLVED SOLIDS BY SM2540C-2011				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30			09 Jun 2023 13:37	1
Batch ID: R437725 (1)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30			12 Jun 2023 17:25	20
Batch ID: R437985 (0)	**Test Name :** ALKALINITY BY SM 2320B-2011				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30			15 Jun 2023 20:01	20
Batch ID: R439295 (0)	**Test Name :** ANIONS BY E300.0, REV 2.1, 1993				**Matrix:** Water	
HS23060339-01	Postle IC 11-159HC	06 Jun 2023 10:30			19 Jun 2023 12:47	50

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: 195072 (0) **Instrument: FID-16** **Method: TPH DRO/ORO BY SW8015C**

MBLK Sample ID: **MBLK-195072** Units: **mg/L** Analysis Date: **14-Jun-2023 08:54**
Client ID: Run ID: **FID-16_437924** SeqNo: **7363257** PrepDate: **13-Jun-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								
Surr: 2-Fluorobiphenyl	*0.03869*	*0.0050*	*0.06*	*0*	*64.5*	*60 - 135*				

LCS Sample ID: **LCS-195072** Units: **mg/L** Analysis Date: **14-Jun-2023 09:24**
Client ID: Run ID: **FID-16_437924** SeqNo: **7363258** PrepDate: **13-Jun-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5358	0.050	0.6	0	89.3	70 - 130				
Surr: 2-Fluorobiphenyl	*0.07051*	*0.0050*	*0.06*	*0*	*118*	*60 - 135*				

LCSD Sample ID: **LCSD-195072** Units: **mg/L** Analysis Date: **14-Jun-2023 09:53**
Client ID: Run ID: **FID-16_437924** SeqNo: **7363259** PrepDate: **13-Jun-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5517	0.050	0.6	0	91.9	70 - 130	0.5358	2.92	20	
Surr: 2-Fluorobiphenyl	*0.07062*	*0.0050*	*0.06*	*0*	*118*	*60 - 135*	*0.07051*	*0.168*	*20*	

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R437725 (1) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK Sample ID: **MBLK-230612** Units: **ug/L** Analysis Date: **12-Jun-2023 16:20**
Client ID: Run ID: **FID-4_437725** SeqNo: **7358848** 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-230612** Units: **ug/L** Analysis Date: **12-Jun-2023 16:35**
Client ID: Run ID: **FID-4_437725** SeqNo: **7358849** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	19.62	1.00	18.04	0	109	75 - 125				
Methane	8.159	0.500	9.647	0	84.6	75 - 125				
Propane	31.09	1.00	26.46	0	117	75 - 125				

LCSD Sample ID: **LCSD-230612** Units: **ug/L** Analysis Date: **12-Jun-2023 16:51**
Client ID: Run ID: **FID-4_437725** SeqNo: **7358850** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	19.47	1.00	18.04	0	108	75 - 125	19.62	0.754	30	
Methane	8.268	0.500	9.647	0	85.7	75 - 125	8.159	1.32	30	
Propane	31.59	1.00	26.46	0	119	75 - 125	31.09	1.61	30	

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R437496 (0) **Instrument:** FID-20 **Method:** GASOLINE RANGE ORGANICS BY SW8015C

MBLK Sample ID: **MBLK-230609** Units: **mg/L** Analysis Date: **08-Jun-2023 12:02**
Client ID: Run ID: **FID-20_437496** SeqNo: **7354331** 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	*0.104*	*0.00500*	*0.1*	*0*	*104*	*70 - 121*				

LCS Sample ID: **LCS-230608** Units: **mg/L** Analysis Date: **08-Jun-2023 11:34**
Client ID: Run ID: **FID-20_437496** SeqNo: **7354329** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.006	0.0500	1	0	101	76 - 124				
Surr: 4-Bromofluorobenzene	*0.09494*	*0.00500*	*0.1*	*0*	*94.9*	*52 - 138*				

LCSD Sample ID: **LCSD-230608** Units: **mg/L** Analysis Date: **08-Jun-2023 11:48**
Client ID: Run ID: **FID-20_437496** SeqNo: **7354330** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9865	0.0500	1	0	98.6	76 - 124	1.006	1.95	20	
Surr: 4-Bromofluorobenzene	*0.09469*	*0.00500*	*0.1*	*0*	*94.7*	*52 - 138*	*0.09494*	*0.259*	*20*	

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: 196442 (0) **Instrument: ICPMS06** **Method: TOTAL METALS BY E200.8, REV 5.4, 1994**

MBLK Sample ID: **MBLK-196442** Units: **ug/L** Analysis Date: **22-Jun-2023 13:19**
Client ID: Run ID: **ICPMS06_439582** SeqNo: **7378645** PrepDate: **20-Jun-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-196442** Units: **ug/L** Analysis Date: **22-Jun-2023 13:21**
Client ID: Run ID: **ICPMS06_439582** SeqNo: **7378646** PrepDate: **20-Jun-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	5041	500	5000	0	101	85 - 115				
Magnesium	5024	500	5000	0	100	85 - 115				
Potassium	4913	500	5000	0	98.3	85 - 115				
Sodium	5025	200	5000	0	100	85 - 115				

MS Sample ID: **HS23060468-01MS** Units: **ug/L** Analysis Date: **22-Jun-2023 16:09**
Client ID: Run ID: **ICPMS06_439582** SeqNo: **7379017** PrepDate: **20-Jun-2023** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	403800	2500	5000	421400	-352	70 - 130				SO
Magnesium	2479000	2500	5000	2631000	-3040	70 - 130				SEO
Potassium	13770	2500	5000	9000	95.3	70 - 130				
Sodium	2526000	1000	5000	2645000	-2370	70 - 130				SEO

MSD Sample ID: **HS23060468-01MSD** Units: **ug/L** Analysis Date: **22-Jun-2023 16:11**
Client ID: Run ID: **ICPMS06_439582** SeqNo: **7379018** PrepDate: **20-Jun-2023** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	405400	2500	5000	421400	-321	70 - 130	403800	0.387	20	SO
Magnesium	2487000	2500	5000	2631000	-2870	70 - 130	2479000	0.333	20	SEO
Potassium	13740	2500	5000	9000	94.8	70 - 130	13770	0.193	20	
Sodium	2557000	1000	5000	2645000	-1750	70 - 130	2526000	1.22	20	SEO

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R437310 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKW-230607** Units: **ug/L** Analysis Date: **07-Jun-2023 10:39**
Client ID: Run ID: **VOA7_437310** SeqNo: **7349754** 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							
Surr: 1,2-Dichloroethane-d4	*48.65*	*1.0*	*50*	*0*	*97.3*	*70 - 123*			
Surr: 4-Bromofluorobenzene	*47.57*	*1.0*	*50*	*0*	*95.1*	*77 - 113*			
Surr: Dibromofluoromethane	*49.2*	*1.0*	*50*	*0*	*98.4*	*73 - 126*			
Surr: Toluene-d8	*48.76*	*1.0*	*50*	*0*	*97.5*	*81 - 120*			

LCS Sample ID: **VLCSW-230607** Units: **ug/L** Analysis Date: **07-Jun-2023 09:57**
Client ID: Run ID: **VOA7_437310** SeqNo: **7349753** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.72	1.0	20	0	88.6	74 - 120			
Ethylbenzene	18.5	1.0	20	0	92.5	77 - 117			
m,p-Xylene	36.49	2.0	40	0	91.2	77 - 122			
o-Xylene	17.98	1.0	20	0	89.9	75 - 119			
Toluene	17.8	1.0	20	0	89.0	77 - 118			
Xylenes, Total	54.46	1.0	60	0	90.8	75 - 122			
Surr: 1,2-Dichloroethane-d4	*48.27*	*1.0*	*50*	*0*	*96.5*	*70 - 123*			
Surr: 4-Bromofluorobenzene	*48.29*	*1.0*	*50*	*0*	*96.6*	*77 - 113*			
Surr: Dibromofluoromethane	*48.81*	*1.0*	*50*	*0*	*97.6*	*73 - 126*			
Surr: Toluene-d8	*48.48*	*1.0*	*50*	*0*	*97.0*	*81 - 120*			

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R437310 (0) **Instrument: VOA7** **Method: LOW LEVEL VOLATILES BY SW8260C**

MS Sample ID: **HS23060288-01MS** Units: **ug/L** Analysis Date: **07-Jun-2023 12:27**
Client ID: Run ID: **VOA7_437310** SeqNo: **7349759** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	15.11	1.0	20	0	75.6	70 - 127				
Ethylbenzene	15.63	1.0	20	0	78.2	70 - 124				
m,p-Xylene	31.28	2.0	40	0	78.2	70 - 130				
o-Xylene	15.22	1.0	20	0	76.1	70 - 124				
Toluene	15.21	1.0	20	0	76.0	70 - 123				
Xylenes, Total	46.5	1.0	60	0	77.5	70 - 130				
Surr: 1,2-Dichloroethane-d4	*50.21*	*1.0*	*50*	*0*	*100*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*48.62*	*1.0*	*50*	*0*	*97.2*	*77 - 113*				
Surr: Dibromofluoromethane	*50.01*	*1.0*	*50*	*0*	*100*	*77 - 123*				
Surr: Toluene-d8	*48.4*	*1.0*	*50*	*0*	*96.8*	*82 - 127*				

MSD Sample ID: **HS23060288-01MSD** Units: **ug/L** Analysis Date: **07-Jun-2023 12:48**
Client ID: Run ID: **VOA7_437310** SeqNo: **7349760** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	14.88	1.0	20	0	74.4	70 - 127	15.11	1.56	20	
Ethylbenzene	15.58	1.0	20	0	77.9	70 - 124	15.63	0.32	20	
m,p-Xylene	30.93	2.0	40	0	77.3	70 - 130	31.28	1.11	20	
o-Xylene	15.32	1.0	20	0	76.6	70 - 124	15.22	0.612	20	
Toluene	15.12	1.0	20	0	75.6	70 - 123	15.21	0.595	20	
Xylenes, Total	46.25	1.0	60	0	77.1	70 - 130	46.5	0.543	20	
Surr: 1,2-Dichloroethane-d4	*49.65*	*1.0*	*50*	*0*	*99.3*	*70 - 126*	*50.21*	*1.12*	*20*	
Surr: 4-Bromofluorobenzene	*47.99*	*1.0*	*50*	*0*	*96.0*	*77 - 113*	*48.62*	*1.3*	*20*	
Surr: Dibromofluoromethane	*48.76*	*1.0*	*50*	*0*	*97.5*	*77 - 123*	*50.01*	*2.53*	*20*	
Surr: Toluene-d8	*48.62*	*1.0*	*50*	*0*	*97.2*	*82 - 127*	*48.4*	*0.445*	*20*	

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R437707 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK Sample ID: **WBLK-06092023** Units: **mg/L** Analysis Date: **09-Jun-2023 13:37**
Client ID: Run ID: **Balance1_437707** SeqNo: **7358548** 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: **LCS-0609123** Units: **mg/L** Analysis Date: **09-Jun-2023 13:37**
Client ID: Run ID: **Balance1_437707** SeqNo: **7358547** 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)	1060	10.0	1000	0	106	85 - 115				

DUP Sample ID: **HS23060413-01DUP** Units: **mg/L** Analysis Date: **09-Jun-2023 13:37**
Client ID: Run ID: **Balance1_437707** SeqNo: **7358535** 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)	648	10.0					650	0.308	20	

DUP Sample ID: **HS23060265-01DUP** Units: **mg/L** Analysis Date:
Client ID: Run ID: **Balance1_437707** SeqNo: **7358527** 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)	154	10.0					152	1.31	20	

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R437985 (0) **Instrument: Skalar 03** **Method: ALKALINITY BY SM 2320B-2011**

MBLK Sample ID: **MBLK-06152023** Units: **mg/L** Analysis Date: **15-Jun-2023 17:28**
Client ID: Run ID: **Skalar 03_437985** SeqNo: **7364775** 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-06152023** Units: **mg/L** Analysis Date: **15-Jun-2023 17:34**
Client ID: Run ID: **Skalar 03_437985** SeqNo: **7364776** 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)	881.4	5.00	1000	0	88.1	85 - 115				
Alkalinity, Total (As CaCO3)	894.9	5.00	1000	0	89.5	85 - 115				

LCSD Sample ID: **LCSD-06152023** Units: **mg/L** Analysis Date: **15-Jun-2023 17:40**
Client ID: Run ID: **Skalar 03_437985** SeqNo: **7364777** 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)	883.6	5.00	1000	0	88.4	85 - 115	881.4	0.249	20	
Alkalinity, Total (As CaCO3)	898.2	5.00	1000	0	89.8	85 - 115	894.9	0.368	20	

DUP Sample ID: **HS23060111-03DUP** Units: **mg/L** Analysis Date: **15-Jun-2023 19:09**
Client ID: Run ID: **Skalar 03_437985** SeqNo: **7364791** 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)	362.6	5.00					380.3	4.77	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0	0	20	
Alkalinity, Total (As CaCO3)	362.6	5.00					380.3	4.77	20	

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R439295 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY E300.0, REV 2.1, 1993**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **19-Jun-2023 11:49**
Client ID: Run ID: **ICS-Integrion_439295** SeqNo: **7371652** 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: **19-Jun-2023 11:55**
Client ID: Run ID: **ICS-Integrion_439295** SeqNo: **7371653** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.14	0.500	20	0	101	90 - 110				
Sulfate	20.61	0.500	20	0	103	90 - 110				

MS Sample ID: **HS23060778-02MS** Units: **mg/L** Analysis Date: **19-Jun-2023 12:29**
Client ID: Run ID: **ICS-Integrion_439295** SeqNo: **7371658** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.64	0.500	10	0.558	101	80 - 120				
Sulfate	10.91	0.500	10	0.4834	104	80 - 120				

MS Sample ID: **HS23060778-01MS** Units: **mg/L** Analysis Date: **19-Jun-2023 12:12**
Client ID: Run ID: **ICS-Integrion_439295** SeqNo: **7371655** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.73	0.500	10	0.558	102	80 - 120				
Sulfate	11.03	0.500	10	0.4837	105	80 - 120				

MSD Sample ID: **HS23060778-02MSD** Units: **mg/L** Analysis Date: **19-Jun-2023 12:35**
Client ID: Run ID: **ICS-Integrion_439295** SeqNo: **7371659** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.63	0.500	10	0.558	101	80 - 120	10.64	0.113	20	
Sulfate	10.88	0.500	10	0.4834	104	80 - 120	10.91	0.23	20	

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: HS23060339

QC BATCH REPORT

Batch ID: R439295 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY E300.0, REV 2.1, 1993**

MSD Sample ID: **HS23060778-01MSD** Units: **mg/L** Analysis Date: **19-Jun-2023 12:18**
Client ID: Run ID: **ICS-Integrion_439295** SeqNo: **7371656** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.75	0.500	10	0.558	102	80 - 120	10.73	0.242	20	
Sulfate	11.03	0.500	10	0.4837	105	80 - 120	11.03	0.00544	20	

The following samples were analyzed in this batch: HS23060339-01

Client: PDC Energy
Project: Postle IC 11-159HC
WorkOrder: **HS23060339**

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 Quantitaion 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
Dept of Defense	L23-358	31-May-2025
Florida	E87611-37	30-Jun-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-23-31	30-Apr-2024
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23060339 **Date/Time Received:** **07-Jun-2023 08:00**

Client Name: PDC Energy 80203 **Received by:** **Paresh M. Giga**

Completed By:	/S/ Paresh M. Giga	07-Jun-2023 11:13	**Reviewed by:**	/S/ Tyler Monroe	08-Jun-2023 09:24
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **Water** Carrier 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):	2.0C/1.9C U/C	IR31
Cooler(s)/Kit(s):	49667	
Date/Time sample(s) sent to storage:	6/7/23 11:25	

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:	Paresh M. Giga		

Login Notes: Metals pH >2 (7).
Preserved with 1ml HNO3 (Lot 321101202)
6/7/23 @ 11:25. Final pH (1)

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

ALS Environmental

965 E 11th St
Loveland, CO 80537

PH: 970-305-1646

Chain-of-Custody

WORKORDER #					
SAMPLER	Jeff Braden	DATE	6/6/23	PAGE	1 of 1
PROJECT NAME	Pastle IC 11-159HC	FACILITY ID	123-39322	TURNAROUND	Standard
DISPOSAL	By Lab or Return to Client				
PROJECT No.	09C2073434	EDD FORMAT	COGCC EDD, LTE		
	PDCE Bradenhead Sampling	PURCHASE ORDER	N/A		
COMPANY NAME	PDC Energy	BILL TO COMPANY	PDC Energy		
SEND REPORT TO	Jenifer Hakkarinen	INVOICE ATTN TO	Jenifer Hakkarinen		
ADDRESS	1775 Sherman ST, Suite 3000	ADDRESS	1775 Sherman Street, Suite 3000		
CITY / STATE / ZIP	Denver, CO 80203	CITY / STATE / ZIP	Denver, Colorado		
PHONE	303-860-5815	PHONE	303.860.5815		
FAX		FAX			
E-MAIL	jenifer.hakkarinen@pdce.com jessica.johannsen@pdce.com jbraden@ensolum.com	E-MAIL	jenifer.hakkarinen@pdce.com		

HS23060339
PDC Energy
Pastle IC 11-159HC

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	Dissolved Methane, Ethane, Propane (RSK 175)	BTEX & TPH GRO (SW8260_25)	TPH DRO (SW8015M)	Alkalinity, Carbonate, Bicarbonate, Total (SM2320B)	Total Cations - see comments (EPA200.7/208)	Total Anions - see comments (EPA 300.0)	Total Dissolved Solids (SM2540C)
	Pastle IC 11-159HC	W	6/6/23	1020	11	1,2	II	X	X	X	X	X	X	X

*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:

Calcium, Chloride, Magnesium, Potassium, Sodium, Sulfate
Samples analyzed per
COGCC Bradenhead Sampling Program

49667 WIC 2.0 #31 ctr-0.1°

QC PACKAGE (check below)

X	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	[signature]	Jeff Braden	6/6/23	1420
RECEIVED BY	[signature]	Amy McNutt	6/6/23	1420
RELINQUISHED BY	[signature]	Amy McNutt	6/6/23	1600
RECEIVED BY	[signature]	P. Green	6/7/23	08:00
RELINQUISHED BY				
RECEIVED BY				

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035