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July 19, 2023

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

Work Order: **HS23070109**

Laboratory Results for: **Ivey LC 26-363HN**

Dear Jenifer Hakkarinen,

ALS Environmental received 1 sample(s) on Jul 05, 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: Ivey LC 26-363HN
Work Order: HS23070109

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23070109-01	Ivey LC 26-363HN	Water		29-Jun-2023 12:30	05-Jul-2023 08:00	☐

Client: PDC Energy **CASE NARRATIVE**
Project: Ivey LC 26-363HN
Work Order: HS23070109

GC Volatiles by Method SW8015

Batch ID: R441005

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

GCMS Volatiles by Method SW8260

Batch ID: R440585

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

Metals by Method E200.8

Batch ID: 197701

Sample ID: HS23070536-01MS

- MS and MSD are for an unrelated sample

Wet Chemistry by Method E300

Batch ID: 197664

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

WetChemistry by Method M2540C

Batch ID: R440642

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

WetChemistry by Method SM2320B

Batch ID: 197543

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

Client: PDC Energy
Project: Ivey LC 26-363HN
Sample ID: Ivey LC 26-363HN
Collection Date: 29-Jun-2023 12:30

ANALYTICAL REPORT
WorkOrder:HS23070109
Lab ID:HS23070109-01
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		**Method:SW8260**				Analyst: FT
Benzene	**23,000**		**2000**	**ug/L**	2000	06-Jul-2023 05:07
Ethylbenzene	**340,000**		**2000**	**ug/L**	2000	06-Jul-2023 05:07
m,p-Xylene	**520,000**		**4000**	**ug/L**	2000	06-Jul-2023 05:07
o-Xylene	**250,000**		**2000**	**ug/L**	2000	06-Jul-2023 05:07
Toluene	**250,000**		**2000**	**ug/L**	2000	06-Jul-2023 05:07
Xylenes, Total	**760,000**		**2000**	**ug/L**	2000	06-Jul-2023 05:07
Surr: 1,2-Dichloroethane-d4	*110*		*70-126*	*%REC*	*2000*	*06-Jul-2023 05:07*
Surr: 4-Bromofluorobenzene	*105*		*77-113*	*%REC*	*2000*	*06-Jul-2023 05:07*
Surr: Dibromofluoromethane	*103*		*77-123*	*%REC*	*2000*	*06-Jul-2023 05:07*
Surr: Toluene-d8	*98.3*		*82-127*	*%REC*	*2000*	*06-Jul-2023 05:07*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: PJM
Gasoline Range Organics	**32,300**		**50.0**	**mg/L**	1000	11-Jul-2023 13:10
Surr: 4-Bromofluorobenzene	*117*		*70-123*	*%REC*	*1000*	*11-Jul-2023 13:10*
TOTAL METALS BY E200.8, REV 5.4, 1994		**Method:E200.8**		Prep:E200.8 / 18-Jul-2023		Analyst: JHD
Calcium	**3,630**		**25.0**	**mg/L**	5	18-Jul-2023 17:23
Magnesium	**159**		**25.0**	**mg/L**	5	18-Jul-2023 17:23
Potassium	**251**		**25.0**	**mg/L**	5	18-Jul-2023 17:23
Sodium	**1,630**		**10.0**	**mg/L**	5	18-Jul-2023 17:23
ANIONS BY E300.0, REV 2.1, 1993 MODIFIED FOR SOIL		**Method:E300**		Prep:E300 / 17-Jul-2023		Analyst: TH
Chloride	**999**		**23.8**	**mg/Kg**	5	17-Jul-2023 23:06
Sulfate	**12.8**		**4.76**	**mg/Kg**	1	17-Jul-2023 23:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**				Analyst: DC
Total Dissolved Solids (Residue, Filterable)	**4,940**		**10.0**	**mg/L**	1	05-Jul-2023 13:37
ALKALINITY BY SM2320B MOD.		**Method:SM2320B**		Prep:ASTM Leachate / 12-Jul-2023		Analyst: A01
Alkalinity, Bicarbonate (As CaCO3)	**7,000**		**50.0**	**mg/Kg**	1	13-Jul-2023 10:24
Alkalinity, Carbonate (As CaCO3)	ND		50.0	mg/Kg	1	13-Jul-2023 10:24
Alkalinity, Total (As CaCO3)	**7,000**		**50.0**	**mg/Kg**	1	13-Jul-2023 10:24

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

Weight / Prep Log

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

Batch ID: 197543 **Start Date:** 12 Jul 2023 16:00 **End Date:** 12 Jul 2023 16:00
Method: ALK LEACH **Prep Code:** ALK LEACH PREP

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23070109-01		5 (grams)	50 (mL)	10	500 mL plastic, Neat

Batch ID: 197664 **Start Date:** 17 Jul 2023 09:00 **End Date:** 17 Jul 2023 09:00
Method: 300 ANIONS SOIL PREP **Prep Code:** 300_S_PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23070109-01		5.2567 (g)	50 (mL)	9.512	500 mL plastic, Neat

Batch ID: 197701 **Start Date:** 18 Jul 2023 08:30 **End Date:** 18 Jul 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	
HS23070109-01		1 (mL)	10 (mL)	10	250 mL plastic, HNO3 to pH <2

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 197543 (0)	**Test Name :** ALKALINITY BY SM2320B MOD.				**Matrix:** Water	
HS23070109-01	Ivey LC 26-363HN	29 Jun 2023 12:30		12 Jul 2023 16:00	13 Jul 2023 10:24	1
Batch ID: 197664 (0)	**Test Name :** ANIONS BY E300.0, REV 2.1, 1993 MODIFIED FOR SOIL				**Matrix:** Water	
HS23070109-01	Ivey LC 26-363HN	29 Jun 2023 12:30		17 Jul 2023 09:00	17 Jul 2023 23:06	5
HS23070109-01	Ivey LC 26-363HN	29 Jun 2023 12:30		17 Jul 2023 09:00	17 Jul 2023 23:00	1
Batch ID: 197701 (0)	**Test Name :** TOTAL METALS BY E200.8, REV 5.4, 1994				**Matrix:** Water	
HS23070109-01	Ivey LC 26-363HN	29 Jun 2023 12:30		18 Jul 2023 08:30	18 Jul 2023 17:23	5
Batch ID: R440585 (0)	**Test Name :** LOW LEVEL VOLATILES BY SW8260C				**Matrix:** Water	
HS23070109-01	Ivey LC 26-363HN	29 Jun 2023 12:30			06 Jul 2023 05:07	2000
Batch ID: R440642 (0)	**Test Name :** TOTAL DISSOLVED SOLIDS BY SM2540C-2011				**Matrix:** Water	
HS23070109-01	Ivey LC 26-363HN	29 Jun 2023 12:30			05 Jul 2023 13:37	1
Batch ID: R441005 (0)	**Test Name :** GASOLINE RANGE ORGANICS BY SW8015C				**Matrix:** Water	
HS23070109-01	Ivey LC 26-363HN	29 Jun 2023 12:30			11 Jul 2023 13:10	1000

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: R441005 (0) **Instrument:** FID-20 **Method:** GASOLINE RANGE ORGANICS BY SW8015C

MBLK Sample ID: **MBLK-230711** Units: **mg/L** Analysis Date: **11-Jul-2023 10:37**
Client ID: Run ID: **FID-20_441005** SeqNo: **7419000** 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	*0.08472*	*0.00500*	*0.1*	*0*	*84.7*	*70 - 121*				

LCS Sample ID: **LCS-230711** Units: **mg/L** Analysis Date: **11-Jul-2023 10:10**
Client ID: Run ID: **FID-20_441005** SeqNo: **7418998** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8535	0.0500	1	0	85.3	76 - 124				
Surr: 4-Bromofluorobenzene	*0.08398*	*0.00500*	*0.1*	*0*	*84.0*	*52 - 138*				

LCSD Sample ID: **LCSD-230711** Units: **mg/L** Analysis Date: **11-Jul-2023 10:24**
Client ID: Run ID: **FID-20_441005** SeqNo: **7418999** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8747	0.0500	1	0	87.5	76 - 124	0.8535	2.45	20	
Surr: 4-Bromofluorobenzene	*0.08378*	*0.00500*	*0.1*	*0*	*83.8*	*52 - 138*	*0.08398*	*0.235*	*20*	

The following samples were analyzed in this batch: HS23070109-01

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: 197701 (0) **Instrument: ICPMS06** **Method: TOTAL METALS BY E200.8, REV 5.4, 1994**

MBLK Sample ID: **MBLK-197701** Units: **ug/L** Analysis Date: **18-Jul-2023 15:42**
Client ID: Run ID: **ICPMS06_441631** SeqNo: **7435771** PrepDate: **18-Jul-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-197701** Units: **ug/L** Analysis Date: **18-Jul-2023 17:06**
Client ID: Run ID: **ICPMS06_441631** SeqNo: **7435892** PrepDate: **18-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	5153	500	5000	0	103	85 - 115				
Magnesium	5311	500	5000	0	106	85 - 115				
Potassium	5177	500	5000	0	104	85 - 115				
Sodium	5321	200	5000	0	106	85 - 115				

MS Sample ID: **HS23070725-01MS** Units: **ug/L** Analysis Date: **18-Jul-2023 16:25**
Client ID: Run ID: **ICPMS06_441631** SeqNo: **7435842** PrepDate: **18-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	48090	500	5000	42920	103	70 - 130				O
Magnesium	8306	500	5000	3234	101	70 - 130				
Potassium	41700	500	5000	35440	125	70 - 130				O
Sodium	21080	200	5000	15610	109	70 - 130				

MS Sample ID: **HS23070536-01MS** Units: **ug/L** Analysis Date: **18-Jul-2023 16:19**
Client ID: Run ID: **ICPMS06_441631** SeqNo: **7435774** PrepDate: **18-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	159500	500	5000	158200	25.0	70 - 130				SO
Magnesium	21860	500	5000	16880	99.6	70 - 130				
Potassium	26920	500	5000	22240	93.5	70 - 130				O
Sodium	308700	200	5000	308100	12.8	70 - 130				SEO

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: 197701 (0) **Instrument: ICPMS06** **Method: TOTAL METALS BY E200.8, REV 5.4, 1994**

MSD Sample ID: **HS23070725-01MSD** Units: **ug/L** Analysis Date: **18-Jul-2023 16:27**
Client ID: Run ID: **ICPMS06_441631** SeqNo: **7435843** PrepDate: **18-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	48180	500	5000	42920	105	70 - 130	48090	0.185	20	O
Magnesium	8146	500	5000	3234	98.2	70 - 130	8306	1.95	20	
Potassium	40790	500	5000	35440	107	70 - 130	41700	2.18	20	O
Sodium	20930	200	5000	15610	106	70 - 130	21080	0.713	20	

MSD Sample ID: **HS23070536-01MSD** Units: **ug/L** Analysis Date: **18-Jul-2023 16:21**
Client ID: Run ID: **ICPMS06_441631** SeqNo: **7435840** PrepDate: **18-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	166100	500	5000	158200	158	70 - 130	159500	4.08	20	SO
Magnesium	22430	500	5000	16880	111	70 - 130	21860	2.59	20	
Potassium	28060	500	5000	22240	116	70 - 130	26920	4.15	20	O
Sodium	317100	200	5000	308100	181	70 - 130	308700	2.68	20	SEO

The following samples were analyzed in this batch: HS23070109-01

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: R440585 (0) **Instrument:** VOA10 **Method:** LOW LEVEL VOLATILES BY SW8260C

MBLK Sample ID: **VBLKW-230705** Units: **ug/L** Analysis Date: **05-Jul-2023 22:28**
Client ID: Run ID: **VOA10_440585** SeqNo: **7403036** 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	*53.75*	*1.0*	*50*	*0*	*108*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*51.55*	*1.0*	*50*	*0*	*103*	*77 - 113*				
Surr: Dibromofluoromethane	*51.04*	*1.0*	*50*	*0*	*102*	*73 - 126*				
Surr: Toluene-d8	*46.85*	*1.0*	*50*	*0*	*93.7*	*81 - 120*				

LCS Sample ID: **VLCSW-230705** Units: **ug/L** Analysis Date: **05-Jul-2023 21:46**
Client ID: Run ID: **VOA10_440585** SeqNo: **7403035** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	18.32	1.0	20	0	91.6	74 - 120				
Ethylbenzene	17.49	1.0	20	0	87.5	77 - 117				
m,p-Xylene	36.44	2.0	40	0	91.1	77 - 122				
o-Xylene	18.36	1.0	20	0	91.8	75 - 119				
Toluene	17.76	1.0	20	0	88.8	77 - 118				
Xylenes, Total	54.81	1.0	60	0	91.3	75 - 122				
Surr: 1,2-Dichloroethane-d4	*56.44*	*1.0*	*50*	*0*	*113*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*52.56*	*1.0*	*50*	*0*	*105*	*77 - 113*				
Surr: Dibromofluoromethane	*53.29*	*1.0*	*50*	*0*	*107*	*73 - 126*				
Surr: Toluene-d8	*47.3*	*1.0*	*50*	*0*	*94.6*	*81 - 120*				

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: R440585 (0) **Instrument:** VOA10 **Method:** LOW LEVEL VOLATILES BY SW8260C

MS Sample ID: **HS23062164-04MS** Units: **ug/L** Analysis Date: **05-Jul-2023 23:10**
Client ID: Run ID: **VOA10_440585** SeqNo: **7403038** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	18.16	1.0	20	0	90.8	70 - 127				
Ethylbenzene	15.8	1.0	20	0	79.0	70 - 124				
m,p-Xylene	33.64	2.0	40	0	84.1	70 - 130				
o-Xylene	17	1.0	20	0	85.0	70 - 124				
Toluene	16.71	1.0	20	0	83.5	70 - 123				
Xylenes, Total	50.65	1.0	60	0	84.4	70 - 130				
Surr: 1,2-Dichloroethane-d4	*55.43*	*1.0*	*50*	*0*	*111*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*51.92*	*1.0*	*50*	*0*	*104*	*77 - 113*				
Surr: Dibromofluoromethane	*53.24*	*1.0*	*50*	*0*	*106*	*77 - 123*				
Surr: Toluene-d8	*45.88*	*1.0*	*50*	*0*	*91.8*	*82 - 127*				

MSD Sample ID: **HS23062164-04MSD** Units: **ug/L** Analysis Date: **05-Jul-2023 23:31**
Client ID: Run ID: **VOA10_440585** SeqNo: **7403039** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	17.89	1.0	20	0	89.4	70 - 127	18.16	1.52	20	
Ethylbenzene	17.22	1.0	20	0	86.1	70 - 124	15.8	8.6	20	
m,p-Xylene	34.92	2.0	40	0	87.3	70 - 130	33.64	3.73	20	
o-Xylene	18.13	1.0	20	0	90.6	70 - 124	17	6.41	20	
Toluene	17.03	1.0	20	0	85.1	70 - 123	16.71	1.89	20	
Xylenes, Total	53.05	1.0	60	0	88.4	70 - 130	50.65	4.64	20	
Surr: 1,2-Dichloroethane-d4	*56.33*	*1.0*	*50*	*0*	*113*	*70 - 126*	*55.43*	*1.62*	*20*	
Surr: 4-Bromofluorobenzene	*50.52*	*1.0*	*50*	*0*	*101*	*77 - 113*	*51.92*	*2.72*	*20*	
Surr: Dibromofluoromethane	*54.07*	*1.0*	*50*	*0*	*108*	*77 - 123*	*53.24*	*1.55*	*20*	
Surr: Toluene-d8	*47.46*	*1.0*	*50*	*0*	*94.9*	*82 - 127*	*45.88*	*3.38*	*20*	

The following samples were analyzed in this batch: HS23070109-01

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: 197543 (0) **Instrument: Skalar 03** **Method: ALKALINITY BY SM2320B MOD.**

MBLK Sample ID: **MBLK-197543** Units: **mg/Kg** Analysis Date: **13-Jul-2023 10:04**
Client ID: Run ID: **Skalar 03_441237** SeqNo: **7425063** PrepDate: **12-Jul-2023** 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	50.0								
Alkalinity, Carbonate (As CaCO3)	ND	50.0								
Alkalinity, Total (As CaCO3)	ND	50.0								

LCS Sample ID: **LCS-197543** Units: **mg/Kg** Analysis Date: **13-Jul-2023 10:10**
Client ID: Run ID: **Skalar 03_441237** SeqNo: **7425064** PrepDate: **12-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Carbonate (As CaCO3)	9698	50.0	10000	0	97.0	80 - 120				
Alkalinity, Total (As CaCO3)	9739	50.0	10000	0	97.4	80 - 120				

LCSD Sample ID: **LCSD-197543** Units: **mg/Kg** Analysis Date: **13-Jul-2023 10:16**
Client ID: Run ID: **Skalar 03_441237** SeqNo: **7425065** PrepDate: **12-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Carbonate (As CaCO3)	9420	50.0	10000	0	94.2	80 - 120	9698	2.91	20	
Alkalinity, Total (As CaCO3)	9487	50.0	10000	0	94.9	80 - 120	9739	2.62	20	

DUP Sample ID: **HS23070109-01DUP** Units: **mg/Kg** Analysis Date: **13-Jul-2023 10:33**
Client ID: **Ivey LC 26-363HN** Run ID: **Skalar 03_441237** SeqNo: **7425067** PrepDate: **12-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	7114	50.0					7005	1.54	20	
Alkalinity, Carbonate (As CaCO3)	ND	50.0					0	0	20	
Alkalinity, Total (As CaCO3)	7114	50.0					7005	1.54	20	

The following samples were analyzed in this batch: HS23070109-01

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: 197664 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY E300.0, REV 2.1, 1993 MODIFIED FOR SOIL

MBLK Sample ID: **MBLK-197664** Units: **mg/Kg** Analysis Date: **17-Jul-2023 22:14**
Client ID: Run ID: **ICS-Integrion_441595** SeqNo: **7434212** PrepDate: **17-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	5.00								
Sulfate	ND	5.00								

LCS Sample ID: **LCS-197664** Units: **mg/Kg** Analysis Date: **17-Jul-2023 22:20**
Client ID: Run ID: **ICS-Integrion_441595** SeqNo: **7434213** PrepDate: **17-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	205	5.00	200	0	103	90 - 110				
Sulfate	211.6	5.00	200	0	106	90 - 110				

MS Sample ID: **HS23070810-01MS** Units: **mg/Kg** Analysis Date: **17-Jul-2023 22:37**
Client ID: Run ID: **ICS-Integrion_441595** SeqNo: **7434215** PrepDate: **17-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	599.2	4.84	96.78	529.6	71.9	75 - 125				SO
Sulfate	175.1	4.84	96.78	82.24	95.9	75 - 125				

MSD Sample ID: **HS23070810-01MSD** Units: **mg/Kg** Analysis Date: **17-Jul-2023 22:43**
Client ID: Run ID: **ICS-Integrion_441595** SeqNo: **7434216** PrepDate: **17-Jul-2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	605.9	4.89	97.81	529.6	78.0	75 - 125	599.2	1.11	20	O
Sulfate	178.1	4.89	97.81	82.24	98.0	75 - 125	175.1	1.69	20	

The following samples were analyzed in this batch: HS23070109-01

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: HS23070109

QC BATCH REPORT

Batch ID: R440642 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK Sample ID: **WBLK-07062023** Units: **mg/L** Analysis Date: **05-Jul-2023 13:37**
Client ID: Run ID: **Balance1_440642** SeqNo: **7404125** 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-07062023** Units: **mg/L** Analysis Date: **05-Jul-2023 13:37**
Client ID: Run ID: **Balance1_440642** SeqNo: **7404126** 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)	1072	10.0	1000	0	107	85 - 115				

DUP Sample ID: **HS23070114-05DUP** Units: **mg/L** Analysis Date: **05-Jul-2023 13:37**
Client ID: Run ID: **Balance1_440642** SeqNo: **7404124** 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)	84	10.0					82	2.41	20	

The following samples were analyzed in this batch: HS23070109-01

Client: PDC Energy
Project: Ivey LC 26-363HN
WorkOrder: **HS23070109**

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
Date	
mg/Kg	Milligrams per Kilogram
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; 2022-2023	31-Jul-2023
Louisiana	03087-2023	30-Jun-2024
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2023-2024	30-Apr-2024
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: HS23070109 **Date/Time Received:** **05-Jul-2023 08:00**

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

Completed By:	/S/ Paresh M. Giga	05-Jul-2023 12:06	**Reviewed by:**	/S/ Tyler Monroe	15-Jul-2023 10:44
	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):	5.2C/5.1C U/c	IR31
Cooler(s)/Kit(s):	50711	
Date/Time sample(s) sent to storage:	7/5/23 12:25	

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:			

Login Notes: Metals pH cannot be read.
Dark liquid.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

ALS Environmental
965 E 11th St
Loveland, CO 80537
PH: 970-305-1648

Chain-of-Custody

WORKORDER #

PAGE 1 of 1

DISPOSAL By Lab or Return to Client

		SAMPLER	Jeff Braden
PROJECT NAME	Ivey LC 26-363HN	FACILITY ID	001-09911
PROJECT No.	09C2073458	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

DATE 6/29/23

TURNAROUND Standard

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
	Ivey LC 26-363HN	W	6/29/23	1230	11	1,2	II	X	X	X	X	X	X	X
	VTC.													
	50711 5.2°													
	#31 Clr. 0.1°													

HS23070109
PDC Energy
Ivey LC 26-363HN

*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:

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

Client OK'd analysis w/ headspace in VOA's. TJM 6/30/23

Cations/Anions:

QC PACKAGE (check below)

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

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
RELINQUISHED BY		Jeff Braden	6/30/23	1410
RECEIVED BY		Tyler Monroe	6/30/23	1410
RELINQUISHED BY		Tyler Monroe	6/30/23	1600
RECEIVED BY		P. G. A.	7/5/23	08:20
RELINQUISHED BY				
RECEIVED BY