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November 21, 2022

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

Work Order: **HS22101630**

Laboratory Results for: **Volt 10N**

Dear Jenifer Hakkarinen,

ALS Environmental received 2 sample(s) on Oct 28, 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: DAYNA.FISHER

Tyler Monroe

Client: PDC Energy
Project: Volt 10N
Work Order: HS22101630

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22101630-01	V-10N-A	Water		26-Oct-2022 14:55	28-Oct-2022 09:35	<input type="checkbox"/>
HS22101630-02	V-10N-B	Water		26-Oct-2022 14:55	28-Oct-2022 09:35	<input type="checkbox"/>

Client: PDC Energy
Project: Volt 10N
Work Order: HS22101630

CASE NARRATIVE

GC Semivolatiles by Method RSK-175**Batch ID: R421352**

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

GC Semivolatiles by Method SW8015M**Batch ID: 185498**

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

Sample ID: V-10N-A (HS22101630-01)

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

GC Volatiles by Method SW8015**Batch ID: R420717****Sample ID: V-10N-A (HS22101630-01)**

- One or more surrogate recoveries were above the upper control limits. The sample results may be biased high. This was confirmed by reanalysis.

GCMS Volatiles by Method SW8260**Batch ID: R421389****Sample ID: HS22110240-07MSD**

- MSD is for an unrelated sample

Sample ID: V-10N-A (HS22101630-01)

- Lowest practical dilution due to foamy matrix.

Metals by Method E200.8**Batch ID: 186036**

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

Batch ID: 185903**Sample ID: HS22101342-01MS**

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

Sample ID: V-10N-B (HS22101630-02)

- Sample ran at 10x due to sample matrix.

WetChemistry by Method E300**Batch ID: R422225****Sample ID: HS22111071-02MS**

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

Client: PDC Energy
Project: Volt 10N
Work Order: HS22101630

CASE NARRATIVE

WetChemistry by Method SM2320B

Batch ID: R421449

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

WetChemistry by Method M2540C

Batch ID: R420959

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
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Client: PDC Energy
 Project: Volt 10N
 Sample ID: V-10N-A
 Collection Date: 26-Oct-2022 14:55

ANALYTICAL REPORT

WorkOrder:HS22101630
 Lab ID:HS22101630-01
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C			Method:SW8260			Analyst: AKP
Benzene	ND		1000	ug/L	1000	08-Nov-2022 18:31
Ethylbenzene	ND		1000	ug/L	1000	08-Nov-2022 18:31
m,p-Xylene	2,000		2000	ug/L	1000	08-Nov-2022 18:31
o-Xylene	ND		1000	ug/L	1000	08-Nov-2022 18:31
Toluene	2,300		1000	ug/L	1000	08-Nov-2022 18:31
Xylenes, Total	2,700		1000	ug/L	1000	08-Nov-2022 18:31
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>105</i>		<i>70-126</i>	<i>%REC</i>	<i>1000</i>	<i>08-Nov-2022 18:31</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.8</i>		<i>77-113</i>	<i>%REC</i>	<i>1000</i>	<i>08-Nov-2022 18:31</i>
<i>Surr: Dibromofluoromethane</i>	<i>112</i>		<i>77-123</i>	<i>%REC</i>	<i>1000</i>	<i>08-Nov-2022 18:31</i>
<i>Surr: Toluene-d8</i>	<i>97.1</i>		<i>82-127</i>	<i>%REC</i>	<i>1000</i>	<i>08-Nov-2022 18:31</i>
GASOLINE RANGE ORGANICS BY SW8015C			Method:SW8015			Analyst: FT
Gasoline Range Organics	530		2.50	mg/L	50	01-Nov-2022 14:35
<i>Surr: 4-Bromofluorobenzene</i>	<i>1490</i>	<i>S</i>	<i>70-123</i>	<i>%REC</i>	<i>50</i>	<i>01-Nov-2022 14:35</i>
DISSOLVED GASES BY RSK-175			Method:RSK-175			Analyst: PPM
Ethane	1,900		200	ug/L	200	07-Nov-2022 12:59
Methane	2,140		100	ug/L	200	07-Nov-2022 12:59
Propane	2,400		200	ug/L	200	07-Nov-2022 12:59
TPH DRO/ORO BY SW8015C			Method:SW8015M			Prep:SW3511 / 31-Oct-2022 Analyst: PPM
TPH (Diesel Range)	2,800		25	mg/L	500	08-Nov-2022 05:24
<i>Surr: 2-Fluorobiphenyl</i>	<i>0</i>	<i>JS</i>	<i>60-135</i>	<i>%REC</i>	<i>500</i>	<i>08-Nov-2022 05:24</i>
TOTAL METALS BY E200.8, REV 5.4, 1994			Method:E200.8			Prep:E200.8 / 10-Nov-2022 Analyst: JHD
Calcium	442		5.00	mg/L	10	10-Nov-2022 17:45
Magnesium	9.90		5.00	mg/L	10	10-Nov-2022 17:45
Potassium	281		5.00	mg/L	10	10-Nov-2022 17:45
Sodium	525		2.00	mg/L	10	10-Nov-2022 17:45
ANIONS BY E300.0, REV 2.1, 1993			Method:E300			Analyst: TH
Chloride	582		25.0	mg/L	50	18-Nov-2022 13:47
Sulfate	497		25.0	mg/L	50	18-Nov-2022 13:47
TOTAL DISSOLVED SOLIDS BY SM2540C -2011			Method:M2540C			Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	19,900		10.0	mg/L	1	02-Nov-2022 18:42
ALKALINITY BY SM 2320B-2011			Method:SM2320B			Analyst: JAC
Alkalinity, Bicarbonate (As CaCO3)	242		50.0	mg/L	10	09-Nov-2022 00:47
Alkalinity, Carbonate (As CaCO3)	201		50.0	mg/L	10	09-Nov-2022 00:47
Alkalinity, Total (As CaCO3)	443		50.0	mg/L	10	09-Nov-2022 00:47

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

Client: PDC Energy
Project: Volt 10N
Sample ID: V-10N-B
Collection Date: 26-Oct-2022 14:55

ANALYTICAL REPORT

WorkOrder:HS22101630
Lab ID:HS22101630-02
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
DISSOLVED METALS BY E200.8, REV 5.4, 1994	Method:E200.8 (dissolved)			Prep:E200.8 / 08-Nov-2022		Analyst: JHD
Calcium	398		5.00	mg/L	10	08-Nov-2022 15:15
Magnesium	ND		5.00	mg/L	10	08-Nov-2022 15:15
Potassium	235		5.00	mg/L	10	08-Nov-2022 15:15
Sodium	483		2.00	mg/L	10	08-Nov-2022 15:15

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

Weight / Prep Log

Client: PDC Energy

Project: Volt 10N

WorkOrder: HS22101630

Batch ID: 185498	Start Date: 31 Oct 2022 09:53	End Date: 31 Oct 2022 12:00
Method: SW3511		Prep Code: 3511_DRO

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22101630-01		32.85 (mL)	2 (mL)	0.06088	40 mL Amber

Batch ID: 185532	Start Date: 31 Oct 2022 18:00	End Date: 31 Oct 2022 18:30
Method: SAMPLE FILTRATION - 0.45 MICRON FILTER		Prep Code: FILTRATION

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22101630-02		100 (mL)	100 (mL)	1	120 mL Plastic Neat

Batch ID: 185903	Start Date: 08 Nov 2022 08:00	End Date: 08 Nov 2022 12:00
Method: DISSOLVED METALS DIGESTION BY E200.8,REV 5.4,1994		Prep Code: 200.8_DISSPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22101630-02		10 (mL)	10 (mL)	1	120 mL Plastic Neat

Batch ID: 186036	Start Date: 10 Nov 2022 09:00	End Date: 10 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	
HS22101630-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 185498 (0)		Test Name : TPH DRO/ORO BY SW8015C			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55		31 Oct 2022 09:53	08 Nov 2022 05:24	500
Batch ID: 185903 (0)		Test Name : DISSOLVED METALS BY E200.8, REV 5.4, 1994			Matrix: Water	
HS22101630-02	V-10N-B	26 Oct 2022 14:55		08 Nov 2022 08:00	08 Nov 2022 15:15	10
Batch ID: 186036 (0)		Test Name : TOTAL METALS BY E200.8, REV 5.4, 1994			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55		10 Nov 2022 09:00	10 Nov 2022 17:45	10
Batch ID: R420717 (0)		Test Name : GASOLINE RANGE ORGANICS BY SW8015C			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55			01 Nov 2022 14:35	50
Batch ID: R420959 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55			02 Nov 2022 18:42	1
Batch ID: R421352 (0)		Test Name : DISSOLVED GASES BY RSK-175			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55			07 Nov 2022 12:59	200
Batch ID: R421389 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55			08 Nov 2022 18:31	1000
Batch ID: R421449 (0)		Test Name : ALKALINITY BY SM 2320B-2011			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55			09 Nov 2022 00:47	10
Batch ID: R422225 (0)		Test Name : ANIONS BY E300.0, REV 2.1, 1993			Matrix: Water	
HS22101630-01	V-10N-A	26 Oct 2022 14:55			18 Nov 2022 13:47	50

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: 185498 (0)		Instrument: FID-16		Method: TPH DRO/ORO BY SW8015C					
MBLK	Sample ID: MBLK-185498	Units: mg/L		Analysis Date: 07-Nov-2022 13:17					
Client ID:	Run ID: FID-16_421293		SeqNo: 6968129		PrepDate: 31-Oct-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>0.04935</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>82.3</i>	<i>60 - 135</i>			
LCS	Sample ID: LCS-185498	Units: mg/L		Analysis Date: 07-Nov-2022 13:47					
Client ID:	Run ID: FID-16_421293		SeqNo: 6968130		PrepDate: 31-Oct-2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
TPH (Diesel Range)	0.5711	0.050	0.6	0	95.2	70 - 130			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06694</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>112</i>	<i>60 - 135</i>			
LCSD	Sample ID: LCSD-185498	Units: mg/L		Analysis Date: 07-Nov-2022 14:16					
Client ID:	Run ID: FID-16_421293		SeqNo: 6968131		PrepDate: 31-Oct-2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
TPH (Diesel Range)	0.5403	0.050	0.6	0	90.0	70 - 130	0.5711	5.55	20
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.06654</i>	<i>0.0050</i>	<i>0.06</i>	<i>0</i>	<i>111</i>	<i>60 - 135</i>	<i>0.06694</i>	<i>0.595</i>	<i>20</i>
The following samples were analyzed in this batch: HS22101630-01									

Client: PDC Energy
 Project: Volt 10N
 WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R421352 (0)		Instrument: FID-4		Method: DISSOLVED GASES BY RSK-175					
MBLK	Sample ID: MBLK-221107	Units: ug/L		Analysis Date: 07-Nov-2022 11:34					
Client ID:	Run ID: FID-4_421352	SeqNo: 6969312		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-221107	Units: ug/L		Analysis Date: 07-Nov-2022 11:52					
Client ID:	Run ID: FID-4_421352	SeqNo: 6969313		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	17.51	1.00	18.04	0	97.1	75 - 125			
Methane	7.329	0.500	9.647	0	76.0	75 - 125			
Propane	27.31	1.00	26.46	0	103	75 - 125			

LCSD	Sample ID: LCSD-221107	Units: ug/L		Analysis Date: 07-Nov-2022 12:26					
Client ID:	Run ID: FID-4_421352	SeqNo: 6969314		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Ethane	18.49	1.00	18.04	0	102	75 - 125	17.51	5.44	30
Methane	8.302	0.500	9.647	0	86.1	75 - 125	7.329	12.4	30
Propane	27.6	1.00	26.46	0	104	75 - 125	27.31	1.06	30

The following samples were analyzed in this batch: HS22101630-01

Client: PDC Energy
 Project: Volt 10N
 WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R420717 (0)		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C						
MBLK	Sample ID: MBLK-221101	Units: mg/L		Analysis Date: 01-Nov-2022 10:41						
Client ID:	Run ID: FID-20_420717		SeqNo: 6953467		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	0.1127	0.00500	0.1	0	113	70 - 121				

LCS	Sample ID: LCS-221101	Units: mg/L		Analysis Date: 01-Nov-2022 10:10						
Client ID:	Run ID: FID-20_420717		SeqNo: 6953465		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9667	0.0500	1	0	96.7	76 - 124				
Surr: 4-Bromofluorobenzene	0.0962	0.00500	0.1	0	96.2	52 - 138				

LCSD	Sample ID: LCSD-221101	Units: mg/L		Analysis Date: 01-Nov-2022 10:25						
Client ID:	Run ID: FID-20_420717		SeqNo: 6953466		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8654	0.0500	1	0	86.5	76 - 124	0.9667	11.1	20	
Surr: 4-Bromofluorobenzene	0.08468	0.00500	0.1	0	84.7	52 - 138	0.0962	12.7	20	

The following samples were analyzed in this batch: HS22101630-01

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: 185903 (0)		Instrument: ICPMS07		Method: DISSOLVED METALS BY E200.8, REV 5.4, 1994 (DISSOLVED)					
MBLK	Sample ID: MBLKF2-185903	Units: ug/L		Analysis Date: 08-Nov-2022 14:39					
Client ID:	Run ID: ICPMS07_421334	SeqNo: 6969528		PrepDate: 08-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Calcium	ND	500
Magnesium	ND	500
Potassium	ND	500
Sodium	ND	200

MBLK	Sample ID: MBLKF1-185903	Units: ug/L		Analysis Date: 08-Nov-2022 14:37					
Client ID:	Run ID: ICPMS07_421334	SeqNo: 6969527		PrepDate: 08-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Calcium	ND	500
Magnesium	ND	500
Potassium	ND	500
Sodium	ND	200

MBLK	Sample ID: MBLK-185903	Units: ug/L		Analysis Date: 08-Nov-2022 14:35					
Client ID:	Run ID: ICPMS07_421334	SeqNo: 6969526		PrepDate: 08-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Calcium	ND	500
Magnesium	ND	500
Potassium	ND	500
Sodium	ND	200

LCS	Sample ID: LCS-185903	Units: ug/L		Analysis Date: 08-Nov-2022 14:41					
Client ID:	Run ID: ICPMS07_421334	SeqNo: 6969529		PrepDate: 08-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Calcium	5003	500	5000	0	100	85 - 115
Magnesium	5179	500	5000	0	104	85 - 115
Potassium	5274	500	5000	0	105	85 - 115
Sodium	4888	200	5000	0	97.8	85 - 115

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: 185903 (0)		Instrument: ICPMS07		Method: DISSOLVED METALS BY E200.8, REV 5.4, 1994 (DISSOLVED)						
MS		Sample ID: HS22101342-01MS		Units: ug/L		Analysis Date: 08-Nov-2022 14:45				
Client ID:		Run ID: ICPMS07_421334		SeqNo: 6969531		PrepDate: 08-Nov-2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	1790000	500	5000	1831000	-837	85 - 115				SEO
Magnesium	5615	500	5000	229.9	108	85 - 115				
Potassium	9879	500	5000	4650	105	85 - 115				
Sodium	1076000	200	5000	1097000	-420	85 - 115				SEO
MSD		Sample ID: HS22101342-01MSD		Units: ug/L		Analysis Date: 08-Nov-2022 14:46				
Client ID:		Run ID: ICPMS07_421334		SeqNo: 6969532		PrepDate: 08-Nov-2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	1744000	500	5000	1831000	-1760	85 - 115	1790000	2.61	20	SEO
Magnesium	5553	500	5000	229.9	106	85 - 115	5615	1.11	20	
Potassium	9625	500	5000	4650	99.5	85 - 115	9879	2.6	20	
Sodium	1060000	200	5000	1097000	-740	85 - 115	1076000	1.5	20	SEO
The following samples were analyzed in this batch: HS22101630-02										

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: 186036 (0)		Instrument: ICPMS07		Method: TOTAL METALS BY E200.8, REV 5.4, 1994					
MBLK	Sample ID: MBLK-186036	Units: ug/L		Analysis Date: 10-Nov-2022 17:01					
Client ID:	Run ID: ICPMS07_421549	SeqNo: 6975414		PrepDate: 10-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-186036	Units: ug/L		Analysis Date: 10-Nov-2022 17:03					
Client ID:	Run ID: ICPMS07_421549	SeqNo: 6975415		PrepDate: 10-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	4745	500	5000	0	94.9	85 - 115			
Magnesium	4997	500	5000	0	99.9	85 - 115			
Potassium	5040	500	5000	0	101	85 - 115			
Sodium	4873	200	5000	0	97.5	85 - 115			

MS	Sample ID: HS22101632-04MS	Units: ug/L		Analysis Date: 10-Nov-2022 17:26					
Client ID:	Run ID: ICPMS07_421549	SeqNo: 6975510		PrepDate: 10-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	48070	500	5000	43890	83.7	70 - 130			O
Magnesium	6293	500	5000	907.3	108	70 - 130			
Potassium	6912	500	5000	1597	106	70 - 130			
Sodium	8944	200	5000	3689	105	70 - 130			

MS	Sample ID: HS22101632-02MS	Units: ug/L		Analysis Date: 10-Nov-2022 17:16					
Client ID:	Run ID: ICPMS07_421549	SeqNo: 6975505		PrepDate: 10-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	11250	500	5000	6693	91.2	70 - 130			
Magnesium	5638	500	5000	415.2	104	70 - 130			
Potassium	5785	500	5000	925	97.2	70 - 130			
Sodium	6727	200	5000	1897	96.6	70 - 130			

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: 186036 (0)		Instrument: ICPMS07		Method: TOTAL METALS BY E200.8, REV 5.4, 1994							
MSD		Sample ID: HS22101632-04MSD		Units: ug/L		Analysis Date: 10-Nov-2022 17:28					
Client ID:		Run ID: ICPMS07_421549		SeqNo: 6975511		PrepDate: 10-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	47750	500	5000	43890	77.3	70 - 130	48070	0.668	20	O	
Magnesium	6433	500	5000	907.3	111	70 - 130	6293	2.21	20		
Potassium	6935	500	5000	1597	107	70 - 130	6912	0.328	20		
Sodium	8962	200	5000	3689	105	70 - 130	8944	0.201	20		

MSD		Sample ID: HS22101632-02MSD		Units: ug/L		Analysis Date: 10-Nov-2022 17:18					
Client ID:		Run ID: ICPMS07_421549		SeqNo: 6975506		PrepDate: 10-Nov-2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	11450	500	5000	6693	95.1	70 - 130	11250	1.73	20		
Magnesium	5752	500	5000	415.2	107	70 - 130	5638	2.01	20		
Potassium	5870	500	5000	925	98.9	70 - 130	5785	1.46	20		
Sodium	6861	200	5000	1897	99.3	70 - 130	6727	1.97	20		

The following samples were analyzed in this batch: HS22101630-01

Client: PDC Energy
 Project: Volt 10N
 WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R421389 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-221108	Units: ug/L		Analysis Date: 08-Nov-2022 12:11					
Client ID:	Run ID: VOA4_421389	SeqNo: 6970460		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	51.79	1.0	50	0	104	70 - 123			
Surr: 4-Bromofluorobenzene	47.6	1.0	50	0	95.2	77 - 113			
Surr: Dibromofluoromethane	53.96	1.0	50	0	108	73 - 126			
Surr: Toluene-d8	49.12	1.0	50	0	98.2	81 - 120			

LCS	Sample ID: VLCSW-221108	Units: ug/L		Analysis Date: 08-Nov-2022 11:29					
Client ID:	Run ID: VOA4_421389	SeqNo: 6970459		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	23.34	1.0	20	0	117	74 - 120			
Ethylbenzene	22.25	1.0	20	0	111	77 - 117			
m,p-Xylene	41.47	2.0	40	0	104	77 - 122			
o-Xylene	22.75	1.0	20	0	114	75 - 119			
Toluene	23.44	1.0	20	0	117	77 - 118			
Xylenes, Total	64.21	1.0	60	0	107	75 - 122			
Surr: 1,2-Dichloroethane-d4	53.07	1.0	50	0	106	70 - 123			
Surr: 4-Bromofluorobenzene	46.28	1.0	50	0	92.6	77 - 113			
Surr: Dibromofluoromethane	54.43	1.0	50	0	109	73 - 126			
Surr: Toluene-d8	46.09	1.0	50	0	92.2	81 - 120			

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R421389 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MS		Sample ID: HS22110240-07MS		Units: ug/L		Analysis Date: 08-Nov-2022 19:40				
Client ID:		Run ID: VOA4_421389		SeqNo: 6970481		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	24.86	1.0	20	0	124	70 - 127				
Ethylbenzene	22.89	1.0	20	0	114	70 - 124				
m,p-Xylene	40.84	2.0	40	0	102	70 - 130				
o-Xylene	22.25	1.0	20	0	111	70 - 124				
Toluene	23.12	1.0	20	0	116	70 - 123				
Xylenes, Total	63.09	1.0	60	0	105	70 - 130				
Surr: 1,2-Dichloroethane-d4	51.58	1.0	50	0	103	70 - 126				
Surr: 4-Bromofluorobenzene	50.82	1.0	50	0	102	77 - 113				
Surr: Dibromofluoromethane	54.03	1.0	50	0	108	77 - 123				
Surr: Toluene-d8	49.16	1.0	50	0	98.3	82 - 127				

MSD		Sample ID: HS22110240-07MSD		Units: ug/L		Analysis Date: 08-Nov-2022 20:01				
Client ID:		Run ID: VOA4_421389		SeqNo: 6970482		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	29.52	1.0	20	0	148	70 - 127	24.86	17.1	20	S
Ethylbenzene	28.06	1.0	20	0	140	70 - 124	22.89	20.3	20	SR
m,p-Xylene	49.16	2.0	40	0	123	70 - 130	40.84	18.5	20	
o-Xylene	26.49	1.0	20	0	132	70 - 124	22.25	17.4	20	S
Toluene	27.93	1.0	20	0	140	70 - 123	23.12	18.8	20	S
Xylenes, Total	75.65	1.0	60	0	126	70 - 130	63.09	18.1	20	
Surr: 1,2-Dichloroethane-d4	50.93	1.0	50	0	102	70 - 126	51.58	1.26	20	
Surr: 4-Bromofluorobenzene	46.66	1.0	50	0	93.3	77 - 113	50.82	8.53	20	
Surr: Dibromofluoromethane	52.58	1.0	50	0	105	77 - 123	54.03	2.72	20	
Surr: Toluene-d8	46.41	1.0	50	0	92.8	82 - 127	49.16	5.75	20	

The following samples were analyzed in this batch: HS22101630-01

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R420959 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WBLK-110222	Units: mg/L		Analysis Date: 02-Nov-2022 18:42						
Client ID:	Run ID: Balance1_420959	SeqNo: 6959662		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-110222	Units: mg/L		Analysis Date: 02-Nov-2022 18:42						
Client ID:	Run ID: Balance1_420959	SeqNo: 6959663		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)		1088	10.0	1000	0	109	85 - 115			
DUP	Sample ID: HS22101618-01DUP	Units: mg/L		Analysis Date: 02-Nov-2022 18:42						
Client ID:	Run ID: Balance1_420959	SeqNo: 6959655		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)		8560	10.0				8540	0.234	5	
DUP	Sample ID: HS22101548-01DUP	Units: mg/L		Analysis Date: 02-Nov-2022 18:42						
Client ID:	Run ID: Balance1_420959	SeqNo: 6959641		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)		27660	10.0				27640	0.0723	5	
The following samples were analyzed in this batch:		HS22101630-01								

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R421449 (0)		Instrument: ManTech01		Method: ALKALINITY BY SM 2320B-2011					
MBLK	Sample ID: WBLKW2-110822	Units: mg/L		Analysis Date: 09-Nov-2022 00:01					
Client ID:	Run ID: ManTech01_421449	SeqNo: 6971895		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, Hydroxide (As CaCO3)	ND	5.00							
Alkalinity, Total (As CaCO3)	ND	5.00							

LCS	Sample ID: LCS1-110822	Units: mg/L		Analysis Date: 08-Nov-2022 23:31					
Client ID:	Run ID: ManTech01_421449	SeqNo: 6971891		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)	1016	5.00	1000	0	102	85 - 115			
Alkalinity, Total (As CaCO3)	1033	5.00	1000	0	103	85 - 115			

LCSD	Sample ID: LCSD1-110822	Units: mg/L		Analysis Date: 08-Nov-2022 23:40					
Client ID:	Run ID: ManTech01_421449	SeqNo: 6971892		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)	1021	5.00	1000	0	102	85 - 115	1016	0.562	20
Alkalinity, Total (As CaCO3)	1023	5.00	1000	0	102	85 - 115	1033	0.933	20

DUP	Sample ID: HS22110148-02DUP	Units: mg/L		Analysis Date: 09-Nov-2022 00:15					
Client ID:	Run ID: ManTech01_421449	SeqNo: 6971897		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)	78.92	5.00					79.38	0.581	20
Alkalinity, Carbonate (As CaCO3)	ND	5.00					0.89	0	20
Alkalinity, Hydroxide (As CaCO3)	ND	5.00					0	0	20
Alkalinity, Total (As CaCO3)	80.42	5.00					80.27	0.187	20

The following samples were analyzed in this batch: HS22101630-01

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R422225 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993						
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 18-Nov-2022 08:13						
Client ID:	Run ID: ICS-Integrion_422225		SeqNo: 6991318		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: 18-Nov-2022 08:24						
Client ID:	Run ID: ICS-Integrion_422225		SeqNo: 6991319		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.47	0.500	20	0	97.4	90 - 110				
Sulfate	19.97	0.500	20	0	99.9	90 - 110				

MS	Sample ID: HS22111112-01MS	Units: mg/L		Analysis Date: 18-Nov-2022 13:15						
Client ID:	Run ID: ICS-Integrion_422225		SeqNo: 6991340		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	87.46	0.500	10	78.61	88.5	80 - 120				O
Sulfate	40.27	0.500	10	31.05	92.2	80 - 120				

MS	Sample ID: HS22111071-02MS	Units: mg/L		Analysis Date: 18-Nov-2022 10:06						
Client ID:	Run ID: ICS-Integrion_422225		SeqNo: 6991322		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	24.06	0.500	10	14.63	94.3	80 - 120				
Sulfate	508.1	0.500	10	516.4	-83.2	80 - 120				SEO

MSD	Sample ID: HS22111112-01MSD	Units: mg/L		Analysis Date: 18-Nov-2022 13:21						
Client ID:	Run ID: ICS-Integrion_422225		SeqNo: 6991341		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	87.86	0.500	10	78.61	92.6	80 - 120	87.46	0.463	20	O
Sulfate	40.48	0.500	10	31.05	94.3	80 - 120	40.27	0.514	20	

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

QC BATCH REPORT

Batch ID: R422225 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0, REV 2.1, 1993					
MSD		Sample ID: HS22111071-02MSD		Units: mg/L		Analysis Date: 18-Nov-2022 10:11			
Client ID:		Run ID: ICS-Integrion_422225		SeqNo: 6991323		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	24.2	0.500	10	14.63	95.7	80 - 120	24.06	0.613	20
Sulfate	506.9	0.500	10	516.4	-95.2	80 - 120	508.1	0.236	20 SEO

The following samples were analyzed in this batch: HS22101630-01

Client: PDC Energy
Project: Volt 10N
WorkOrder: HS22101630

**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
Date	
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: HS22101630

Date/Time Received: **28-Oct-2022 09:35**

Client Name: PDC Energy 80203

Received by: **Paresh M. Giga**Completed By: /S/ Paresh M. Giga

29-Oct-2022 08:25

Reviewed by: /S/ Tyler Monroe

31-Oct-2022 12:48

eSignature

Date/Time

eSignature

Date/Time

Matrices: **Water**Carrier name: **FedEx Priority 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/1.8C U/c

IR31

Cooler(s)/Kit(s):

Blue

Date/Time sample(s) sent to storage:

10/28/22 19:00

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:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Chain of Custody Form

Page ____ of ____

HS22101630

PDC Energy

Volt 10N



ALS Project Manager:

Customer Information			Project Information															
Purchase Order		Project Name	Volt 10N				A	Dissolved Gases (Methane, Ethane, Propane)										
Work Order		Project Number					B	BTEX 8260										
Company Name	PDC Energy	Bill To Company	PDC Energy				C	DRO 8015										
Send Report To	Max Trehus	Invoice Attn.	Max Trehus				D	GRO 8015										
Address	4000 Burlington Ave	Address	1775 Sherman St #3000				E	Anions (Cl,SO4), Alk (T, CO3, HCO3), TDS										
							F	Dissolved Ca, Mg, K, Na - need to lab filter										
City/State/Zip	Evans, CO 80620	City/State/Zip	Denver, CO 80203				G	Total Ca, Mg, K, Na										
Phone	720-762-3569	Phone	303-860-5800				H											
Fax		Fax					I											
e-Mail Address	max.trehus@pdce.com jenifer.hakkarinen@pdce.com jessica.johannsen@pdce.com	e-Mail Address					J											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	V-10N A	10/26/22	14:55	W	8	3	X											
2	V-10N A			W	1	3		X										
3	V-10N A			W	1	3			X									
4	V-10N A			W	1	3				X								
5	V-10N A			W	8	1					X							
6	V-10N B			W	8	1						X						
7	V-10N A			W	2	1							X					
8																		
9																		
10																		

Sampler(s): Please Print & Sign Max Trehus			Shipment Method:		Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			Results Due Date:		
Relinquished By:		Date:	Time:	Received by:		Notes: Facility ID: 466567				
Relinquished by:		Date:	Time:	Received by (Laboratory):		QC Package: (Check Box Below)				
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		Cooler Temp.	X	Level II: Standard QC	TRRP-Checklist	
								Level III: Std QC + Raw Data	TRRP Level IV	
								Level IV: SW846 CLP-Like		
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035						Other:				

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Bue

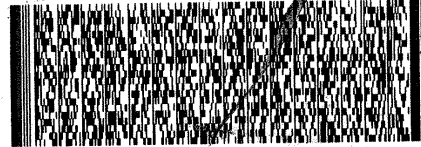
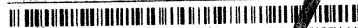
OCT 28 2022

ORIGIN ID: FTCA (970) 490-1511
SAMPLE CONTROL
ALS HOUSTON
225 COMMERCE DRIVE
FORT COLLINS, CO 80524
UNITED STATES US

SHIP DATE: 27OCT22
ACTWGT: 21.60 LB
CAD: 0730254/CAFE3816
DIMS: 15x12x10 IN
BILL THIRD PARTY

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

(281) 580-6856
REF: 6710-ENV-FC-LB-00



FedEx
Express



TRK# 5066 7517 6699
0201

**FRI - 28 OCT 10:30A
PRIORITY OVERNIGHT**

XA SGRA

**77099
TX-US IAH**

CPair # 167077434-10 k. 05P-0022

