

30-045-23466

Analytical Report

NM000

AUG 04 2018

DISTRICT III

Report Summary

Client: Phoenix Hydrocarbons

Chain Of Custody Number:

Samples Received: 8/1/2018 11:30:00AM

Job Number: 17078-0002

Work Order: P808001

Project Name/Location: Federal E4

Report Reviewed By:



Date: 8/8/18

Walter Hinchman, Laboratory Director



Date: 8/8/18

Tim Cain, Project Manager



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.

Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.

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Envirotech, Inc, currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.



Phoenix Hydrocarbons
PO Box 3638
Midland TX, 79702

Project Name: Federal E4
Project Number: 17078-0002
Project Manager: Mike Coley

Reported:
08/08/18 15:38

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
E4 Bradenhead	P808001-01A	Aqueous	08/01/18	08/01/18	Poly 500mL

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Phoenix Hydrocarbons	Project Name:	Federal E4	Reported: 08/08/18 15:38
PO Box 3638	Project Number:	17078-0002	
Midland TX, 79702	Project Manager:	Mike Coley	

**E4 Bradenhead
P808001-01 (Water)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Wet Chem/Gravimetric

Total Dissolved Solids	1440	10.0	mg/L	1	1830026	08/02/18	08/06/18	SM2540C	
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Dissolved Metals by 6010

Calcium	3.14	1.00	mg/L	1	1831011	08/02/18	08/02/18	EPA 6010C	
Iron	ND	2.00	mg/L	1	1831011	08/02/18	08/02/18	EPA 6010C	
Magnesium	0.280	0.200	mg/L	1	1831011	08/02/18	08/02/18	EPA 6010C	
Potassium	6.56	1.00	mg/L	1	1831011	08/02/18	08/02/18	EPA 6010C	
Sodium	508	20.0	mg/L	10	1831011	08/02/18	08/07/18	EPA 6010C	
Sodium Absorption Ratio	73.8		N/A	1	1832016	08/08/18	08/08/18	[CALC]	

Anions by 300.0/9056A

Fluoride	2.12	0.500	mg/L	2	1831013	08/02/18	08/02/18	EPA 300.0/9056A	
Chloride	7.18	4.00	mg/L	2	1831013	08/02/18	08/02/18	EPA 300.0/9056A	
Nitrite-N	ND	0.500	mg/L	2	1831013	08/02/18 15:06	08/02/18 17:29	EPA 300.0/9056A	
Nitrate-N	ND	0.500	mg/L	2	1831013	08/02/18 15:06	08/02/18 17:29	EPA 300.0/9056A	
o-Phosphate-P	ND	0.500	mg/L	2	1831013	08/02/18 15:06	08/02/18 17:29	EPA 300.0/9056A	
Sulfate	803	4.00	mg/L	2	1831013	08/02/18	08/02/18	EPA 300.0/9056A	

Wet Chemistry

pH @25°C	9.26		pH Units	1	1831007	08/01/18 13:52	08/02/18 08:50	9040C/4500 H+B	H1
Specific Conductance (@ 25 C)	2260	10.0	uS/cm	1	1831008	08/01/18	08/02/18	9050A/2510 B	
Total Alkalinity (as CaCO3 at pH 4.5)	235	10.0	mg/L	1	1831019	08/03/18	08/06/18	SM2320B	
Bicarbonate Alkalinity (as CaCO3)	122		mg/L	1	1831019	08/03/18	08/06/18	SM2320B	
Hydroxide Alkalinity (as CaCO3)	0.00		mg/L	1	1831019	08/03/18	08/06/18	SM2320B	
Carbonate Alkalinity (as CaCO3)	113		mg/L	1	1831019	08/03/18	08/06/18	SM2320B	

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PO Box 3638	Project Number:	17078-0002	Reported:
Midland TX, 79702	Project Manager:	Mike Coley	08/08/18 15:38

Wet Chem/Gravimetric - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1830026 - Wet Chemistry Preparation

Blank (1830026-BLK1)				Prepared: 07/27/18 1 Analyzed: 07/31/18 1						
Total Dissolved Solids	ND	10.0	mg/L							
LCS (1830026-BS1)				Prepared: 07/27/18 1 Analyzed: 07/31/18 1						
Total Dissolved Solids	94.0	10.0	mg/L	100		94.0	50-150			
Duplicate (1830026-DUP1)				Source: P807038-01 Prepared: 07/27/18 1 Analyzed: 07/31/18 1						
Total Dissolved Solids	4080	10.0	mg/L		4150			1.64	5	

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Dissolved Metals by 6010 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1831011 - Metals Water Hotblock Digestion EPA 3010A/200.2

Blank (1831011-BLK1)

Prepared & Analyzed: 08/02/18 1

Calcium	ND	1.00	mg/L
Iron	ND	2.00	"
Magnesium	ND	0.200	"
Potassium	ND	1.00	"
Sodium	ND	2.00	"

LCS (1831011-BS1)

Prepared & Analyzed: 08/02/18 1

Calcium	50.4	1.00	mg/L	50.0		101	80-120
Iron	50.7	2.00	"	50.0		101	80-120
Magnesium	50.4	0.200	"	50.0		101	80-120
Potassium	4.53	1.00	"	5.00		90.6	80-120
Sodium	49.0	2.00	"	50.0		97.9	80-120

Matrix Spike (1831011-MS1)

Source: P808001-01

Prepared & Analyzed: 08/02/18 1

Calcium	55.9	1.00	mg/L	50.0	3.14	106	75-125
Iron	53.4	2.00	"	50.0	ND	107	75-125
Magnesium	52.7	0.200	"	50.0	0.280	105	75-125
Potassium	14.7	1.00	"	5.00	6.56	162	75-125
Sodium	555	20.0	"	50.0	508	94.2	75-125

SPK1

Matrix Spike Dup (1831011-MSD1)

Source: P808001-01

Prepared & Analyzed: 08/02/18 1

Calcium	56.0	1.00	mg/L	50.0	3.14	106	75-125	0.0358	20
Iron	53.6	2.00	"	50.0	ND	107	75-125	0.243	20
Magnesium	52.7	0.200	"	50.0	0.280	105	75-125	0.0569	20
Potassium	14.2	1.00	"	5.00	6.56	154	75-125	2.84	20
Sodium	546	20.0	"	50.0	508	77.0	75-125	1.56	20

SPK1

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Phoenix Hydrocarbons
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 Project Number: 17078-0002
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Reported:
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Anions by 300.0/9056A - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1831013 - Anion Extraction EPA 300.0/9056A
Blank (1831013-BLK1)

Prepared & Analyzed: 08/02/18 1

Fluoride	ND	0.250	mg/L
Chloride	ND	2.00	"
Nitrite-N	ND	0.250	"
Nitrate-N	ND	0.250	"
o-Phosphate-P	ND	0.250	"
Sulfate	ND	2.00	"

LCS (1831013-BS1)

Prepared & Analyzed: 08/02/18 1

Fluoride	2.65	0.250	mg/L	2.50	106	90-110
Chloride	25.4	2.00	"	25.0	102	90-110
Nitrite-N	2.51	0.250	"	2.50	101	90-110
Nitrate-N	2.60	0.250	"	2.50	104	90-110
o-Phosphate-P	12.8	0.250	"	12.5	102	90-110
Sulfate	25.6	2.00	"	25.0	102	90-110

Matrix Spike (1831013-MS1)

Source: P808001-01

Prepared & Analyzed: 08/02/18 1

Fluoride	7.74	0.500	mg/L	5.00	2.12	112	80-120
Chloride	58.6	4.00	"	50.0	7.18	103	80-120
Nitrite-N	5.03	0.500	"	5.00	ND	101	80-120
Nitrate-N	5.21	0.500	"	5.00	ND	104	80-120
o-Phosphate-P	25.3	0.500	"	25.0	ND	101	80-120
Sulfate	857	4.00	"	50.0	803	108	80-120

Matrix Spike Dup (1831013-MSD1)

Source: P808001-01

Prepared & Analyzed: 08/02/18 1

Fluoride	7.80	0.500	mg/L	5.00	2.12	113	80-120	0.695	20
Chloride	59.0	4.00	"	50.0	7.18	104	80-120	0.653	20
Nitrite-N	5.10	0.500	"	5.00	ND	102	80-120	1.42	20
Nitrate-N	5.24	0.500	"	5.00	ND	105	80-120	0.613	20
o-Phosphate-P	25.4	0.500	"	25.0	ND	102	80-120	0.528	20
Sulfate	864	4.00	"	50.0	803	122	80-120	0.829	20

SPK2

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Wet Chemistry - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1831007 - Wet Chemistry Preparation

LCS (1831007-BS1)

Prepared: 08/01/18 1 Analyzed: 08/02/18 0

pH	7.95		pH Units	8.00		99.7	98.75-101.25			
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Duplicate (1831007-DUP1)

Source: P808001-01

Prepared: 08/01/18 1 Analyzed: 08/02/18 0

pH	9.26		pH Units		9.26			0.00	20	
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Wet Chemistry - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1831008 - Wet Chemistry Preparation

Blank (1831008-BLK1)

Prepared: 08/01/18 1 Analyzed: 08/02/18 0

Specific Conductance (@ 25 C) ND 10.0 uS/cm

LCS (1831008-BS1)

Prepared: 08/01/18 1 Analyzed: 08/02/18 0

Specific Conductance (@ 25 C) 1420 10.0 uS/cm 1410 101 98-102

Duplicate (1831008-DUP1)

Source: P808001-01

Prepared: 08/01/18 1 Analyzed: 08/02/18 0

Specific Conductance (@ 25 C) 2250 10.0 uS/cm 2260 0.443 20

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Wet Chemistry - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1831019 - Wet Chemistry Preparation

LCS (1831019-BS1)

Prepared: 08/03/18 1 Analyzed: 08/06/18 0

Total Alkalinity (as CaCO ₃ at pH 4.5)	254	10.0	mg/L	250		102	70-130			
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LCS Dup (1831019-BSD1)

Prepared: 08/03/18 1 Analyzed: 08/06/18 0

Total Alkalinity (as CaCO ₃ at pH 4.5)	250	10.0	mg/L	250		100	70-130	1.59	20	
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Notes and Definitions

SPK2 The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to native analyte concentration at 4 times or greater than the spike concentration.

SPK1 The spike recovery is outside of quality control limits.

H1 Sample was received after regulatory hold-time exceeded for target analyte.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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