



Analytical Report

OIL CONS. DIV DIST. 3
MAY 04 2017

Report Summary

Client: Southland Royalty
Chain Of Custody Number:
Samples Received: 4/21/2017 11:46:00AM
Job Number: 15041-0001
Work Order: P704019
Project Name/Location: Federal 30-9-34 #1S, API
#30-045-32951 BH Testing

Report Reviewed By:

Date: 5/3/17

Walter Hinchman, Laboratory Director

Date: 5/3/17

Tim Cain, Quality Assurance Officer

Supplement to analytical report generated on: 5/1/17 3:02 pm

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.



Southland Royalty
P.O. Box 820
Aztec NM, 87410

Project Name: Federal 30-9-34 #1S, API #30-045-32951 BH Testing
Project Number: 15041-0001
Project Manager: Eric Thomas

Reported:
03-May-17 13:25

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Federal 30-9-34 #1S	P704019-01A	Aqueous	04/21/17	04/21/17	Poly 250mL
	P704019-01B	Aqueous	04/21/17	04/21/17	Poly 250mL
	P704019-01C	Aqueous	04/21/17	04/21/17	VOA Vial, 40mL, H2SO4
	P704019-01D	Aqueous	04/21/17	04/21/17	VOA Vial, 40mL, H2SO4

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Southland Royalty	Project Name:	Federal 30-9-34 #1S, API #30-045-32951 BH Testing	Reported: 03-May-17 13:25
P.O. Box 820	Project Number:	15041-0001	
Aztec NM, 87410	Project Manager:	Eric Thomas	

**Federal 30-9-34 #1S
P704019-01 (Water)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Wet Chem/Gravimetric									
Total Dissolved Solids	3990	10.0	mg/L	1	1718001	04/30/17	05/01/17	SM2540C	
Cation/Anion Analysis									
pH @25°C	11.2		pH Units	1	1717005	04/24/17 10:30	04/25/17 12:44	9040C/4500 H	H2
Electrical Conductivity	5830		umhos/cm	1	1717004	04/24/17	04/25/17	9050A/2510	
Sodium Absorption Ratio	24.4		N/A	1	1717016	04/27/17	04/27/17	[CALC]	
Total Alkalinity as CaCO3	180	10.0	mg/L	1	1718005	05/01/17	05/01/17	Hach Method 8203	
Bicarbonate as CaCO3	ND	10.0	mg/L	1	1718005	05/01/17	05/01/17	Hach Method 8203	
Carbonate as CaCO3	120	10.0	mg/L	1	1718005	05/01/17	05/01/17	Hach Method 8203	
Hydroxide as CaCO3	60.0	10.0	mg/L	1	1718005	05/01/17	05/01/17	Hach Method 8203	
Fluoride	ND	1.25	mg/L	5	1717006	04/24/17	04/24/17	EPA 300.0	
Chloride	1720	10.0	mg/L	5	1717006	04/24/17	04/24/17	EPA 300.0	
Nitrite-N	ND	0.25	mg/L	1	1717006	04/24/17 10:31	04/24/17 20:14	EPA 300.0	A-01
Nitrate-N	ND	0.25	mg/L	1	1717006	04/24/17 10:31	04/24/17 20:14	EPA 300.0	A-01
o-Phosphate-P	ND	1.25	mg/L	5	1717006	04/24/17 10:31	04/24/17 14:32	EPA 300.0	
Sulfate	319	10.0	mg/L	5	1717006	04/24/17	04/24/17	EPA 300.0	
Iron	ND	0.99	mg/L	2	1717009	04/26/17	04/27/17	EPA 6010C	
Calcium	114	0.99	mg/L	2	1717009	04/26/17	04/27/17	EPA 6010C	
Magnesium	ND	0.40	mg/L	2	1717009	04/26/17	04/27/17	EPA 6010C	
Potassium	127	0.99	mg/L	2	1717009	04/26/17	04/27/17	EPA 6010C	
Sodium	1190	3.96	mg/L	2	1717009	04/26/17	04/27/17	EPA 6010C	

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P.O. Box 820	Project Number:	15041-0001	
Aztec NM, 87410	Project Manager:	Eric Thomas	

Wet Chem/Gravimetric - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
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Batch 1718001 - No Prep Wet Chem

Blank (1718001-BLK1)

Prepared: 30-Apr-17 Analyzed: 01-May-17

Total Dissolved Solids ND 10.0 mg/L

LCS (1718001-BS1)

Prepared: 30-Apr-17 Analyzed: 01-May-17

Total Dissolved Solids 99.0 10.0 mg/L 100 99.0 50-150

Duplicate (1718001-DUP1)

Source: P704019-01

Prepared: 30-Apr-17 Analyzed: 01-May-17

Total Dissolved Solids 3990 10.0 mg/L 3990 0.00 5

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P.O. Box 820	Project Number:	15041-0001	
Aztec NM, 87410	Project Manager:	Eric Thomas	

Cation/Anion Analysis - 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 1717004 - No Prep Wet Chem

Duplicate (1717004-DUP1)	Source: P704019-01		Prepared: 24-Apr-17 Analyzed: 25-Apr-17							
Electrical Conductivity	5860		umhos/cm		5830			0.513	20	

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P.O. Box 820	Project Number:	15041-0001	
Aztec NM, 87410	Project Manager:	Eric Thomas	

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1717005 - No Prep Wet Chem										
LCS (1717005-BS1)					Prepared: 24-Apr-17 Analyzed: 25-Apr-17					
pH	7.96		pH Units	8.00		99.8	98.75-101.25			
Duplicate (1717005-DUP1)					Source: P704019-01 Prepared: 24-Apr-17 Analyzed: 25-Apr-17					
pH	11.3		pH Units		11.2			0.0889	20	

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Cation/Anion Analysis - 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 1717006 - Anion Extraction EPA 300.0

Blank (1717006-BLK1)

Prepared & Analyzed: 24-Apr-17

Fluoride	ND	0.25	mg/L
Chloride	ND	2.00	"
Nitrite-N	ND	0.25	"
Nitrate-N	ND	0.25	"
o-Phosphate-P	ND	0.25	"
Sulfate	ND	2.00	"

LCS (1717006-BS1)

Prepared & Analyzed: 24-Apr-17

Fluoride	2.58	0.25	mg/L	2.50	103	90-110
Chloride	25.4	2.00	"	25.0	102	90-110
Nitrite-N	2.61	0.25	"	2.50	104	90-110
Nitrate-N	2.46	0.25	"	2.50	98.4	90-110
o-Phosphate-P	11.9	0.25	"	12.5	95.2	90-110
Sulfate	25.3	2.00	"	25.0	101	90-110

Matrix Spike (1717006-MS1)

Source: P704019-01

Prepared & Analyzed: 24-Apr-17

Fluoride	13.0	1.25	mg/L	12.5	ND	104	80-120
Chloride	1860	10.0	"	125	1720	117	80-120
Nitrite-N	12.4	1.25	"	12.5	ND	99.0	80-120
Nitrate-N	12.0	1.25	"	12.5	ND	96.3	80-120
o-Phosphate-P	44.6	1.25	"	62.5	ND	71.3	80-120
Sulfate	451	10.0	"	125	319	106	80-120

SPK1

Matrix Spike Dup (1717006-MSD1)

Source: P704019-01

Prepared & Analyzed: 24-Apr-17

Fluoride	13.1	1.25	mg/L	12.5	ND	104	80-120	0.576	20
Chloride	1850	10.0	"	125	1720	104	80-120	0.906	20
Nitrite-N	12.7	1.25	"	12.5	ND	102	80-120	2.79	20
Nitrate-N	12.2	1.25	"	12.5	ND	97.4	80-120	1.16	20
o-Phosphate-P	41.0	1.25	"	62.5	ND	65.6	80-120	8.35	20
Sulfate	449	10.0	"	125	319	104	80-120	0.533	20

SPK1

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Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1717009 - Metal Water Digestion EPA 3015A										
Blank (1717009-BLK1)				Prepared & Analyzed: 25-Apr-17						
Iron	ND	0.50	mg/L							
Calcium	ND	0.50	"							
Magnesium	ND	0.20	"							
Potassium	ND	0.50	"							
Sodium	ND	1.98	"							
LCS (1717009-BS1)				Prepared & Analyzed: 25-Apr-17						
Iron	5.38	0.50	mg/L	5.00		108	80-120			
Calcium	26.3	0.50	"	25.0		105	80-120			
Magnesium	26.0	0.20	"	25.0		104	80-120			
Potassium	4.97	0.50	"	5.00		99.4	80-120			
Sodium	24.8	1.98	"	25.0		99.2	80-120			
Matrix Spike (1717009-MS1)				Source: P704020-01		Prepared & Analyzed: 25-Apr-17				
Iron	6.20	0.50	mg/L	5.00	1.08	102	75-125			
Calcium	32.2	0.50	"	25.0	7.20	99.8	75-125			
Magnesium	26.0	0.20	"	25.0	0.57	102	75-125			
Potassium	5.61	0.50	"	5.00	0.76	96.9	75-125			
Sodium	37.5	1.98	"	25.0	11.4	105	75-125			
Matrix Spike Dup (1717009-MSD1)				Source: P704020-01		Prepared & Analyzed: 25-Apr-17				
Iron	6.18	0.50	mg/L	5.00	1.08	102	75-125	0.355	20	
Calcium	32.0	0.50	"	25.0	7.20	99.2	75-125	0.514	20	
Magnesium	25.7	0.20	"	25.0	0.57	101	75-125	0.979	20	
Potassium	5.69	0.50	"	5.00	0.76	98.6	75-125	1.54	20	
Sodium	37.6	1.98	"	25.0	11.4	105	75-125	0.263	20	

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P.O. Box 820	Project Number:	15041-0001	
Aztec NM, 87410	Project Manager:	Eric Thomas	

Cation/Anion Analysis - 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 1718005 - No Prep Wet Chem

Duplicate (1718005-DUP1)	Source: P704019-01			Prepared & Analyzed: 01-May-17						
Total Alkalinity as CaCO ₃	170	10.0	mg/L		180			5.71	30	
Bicarbonate as CaCO ₃	ND	10.0	"		ND				30	
Carbonate as CaCO ₃	100	10.0	"		120			18.2	30	
Hydroxide as CaCO ₃	70.0	10.0	"		60.0			15.4	30	

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Project Number: 15041-0001
Project Manager: Eric Thomas

Reported:
03-May-17 13:25

Notes and Definitions

SPK1 The spike recovery is outside of quality control limits.
H2 Sample was analyzed after regulatory hold-time exceeded for target analyte.
A-01 Run from H2SO4 preserved sample.
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

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Client: SOUTHLAND ROYALTY
 Project: BRADENHEAD TESTING
 Sampler: ERIC THOMAS
 Phone: 505-330-4366
 Email(s): ETHOMAS@CTFIELD SVCS.COM
 Project Manager:

RUSH?

☐ 1d
☐ 3d

Lab Use Only

Lab WO#

P704019

Job Number

1504-0001

Page

1 of 1

Analysis and Method

Lab Only

Sample ID	Sample Date	Sample Time	Matrix	Containers QTY - Vol/TYPE/Preservative	GRO/DRO by 8015	BTEX by 8021	TPH by 418.1	Chloride by 300.0	TCLP Metals	CO Table 910-1	TDS	Carbon/Anion	Lab Number	Correct Cont/Prsrv (s) Y/N
<u>Federal 30-9-34 #1S</u>	<u>4/21/17</u>	<u>10:45am</u>	<u>A</u>	<u>(2)-250mL poly/cool</u> <u>(2)-VOA'S/H2SO4</u>								<u>✓</u>	<u>1</u>	<u>Y</u>

Relinquished by: (Signature) <u>[Signature]</u>	Date <u>11:46</u>	Time <u>4-21-17</u>	Received by: (Signature) <u>[Signature]</u>	Date <u>11:46</u>	Time <u>04/21/17</u>	Lab Use Only	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	**Received on Ice Y / (N) T1 <u>19.5</u> T2 <u>20.1</u> T3 _____ AVG Temp °C <u>19.8</u>	

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass

**Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

☐ Sample(s) dropped off after hours to a secure drop off area.

Chain of Custody

Notes/Billing Info: Preserved 2-40mL VOA'S w/ H2SO4 for Anion Analysis.
-W 4/21/17

