

State of Colorado Oil and Gas Conservation Commission



1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☒ Site/Facility Closure ☐ Other (describe): _____

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

OGCC Operator Number: 96155

Name of Operator: Whiting Oil and Gas Corporation

Address: 1700 Broadway, Suite 2300

City: Denver State: CO Zip: 80290

Contact Name and Telephone:

Mark Keyes; mark.keyes@whiting.com

No: 970-407-3007

Fax:

API Number: 05-103-11211

County: Rio Blanco - #103

Facility Name:

Facility Number: 335974

Well Name: Federal

Well Number: 397-3G-G1

Location: (QtrQtr, Sec, Twp, Rng, Meridian): SW/4, NE/4 Sec. 3-T3S-R97W, 6th Latitude: 39.820056 Longitude: -108.264881

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): produced water

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☒ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Rangeland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Redcreek - Rentsac Complex

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Buildings

Description of Impact (if previously provided, refer to that form or document): Form 19

Impacted Media (check):



Soils

Extent of Impact:

Estimated 100' x 35' x 10-12' bgl and 100x100 x 10-12

How Determined:

soil sampling



Vegetation



Groundwater



Surface Water

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

The release was investigated, soil samples were collected and the pit was closed. (refer to previously provided Form 19)

Describe how source is to be removed:

Impacted material was treated for hydrocarbon removal on site and the pit will be permanently closed.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

A Screen Machine 621T (Shredder) with an internal spray system delivering hydrogen peroxide for the purpose of chemical oxidation was used to accomplish soil remediation of hydrocarbons on site.



Tracking Number: _____
Name of Operator: Whiting Oil and Gas Corporation
OGCC Operator No: 96155
Received Date: _____
Well Name & No: Federal 397-3G-G1
Facility Name & No: 335974

REMEDIATION WORKPLAN (Cont.)

OGCC Employee: Stan Spencer

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Groundwater is not known to have been impacted.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Treated soils were reused and backfilled to grade. Any further revegetation activities will be performed by Whiting Oil and Gas Corporation.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

Remediation of soils is complete. Confirmation soil samples were collected from the sidewalls and floor of the pits in addition to treated soils returned to the pits. None of the final confirmation soil samples contained analyte concentrations in excess of Table 910-1, except arsenic. Elevated arsenic was also present in one of the background samples. Laboratory analytical results are provided as an attachment to this Form 27. 924 cubic yards were treated at the southwest pit and 1,000 cubic yards were treated at the northeast pit at the site.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

Material was treated and reused on site.

IMPLEMENTATION SCHEDULE

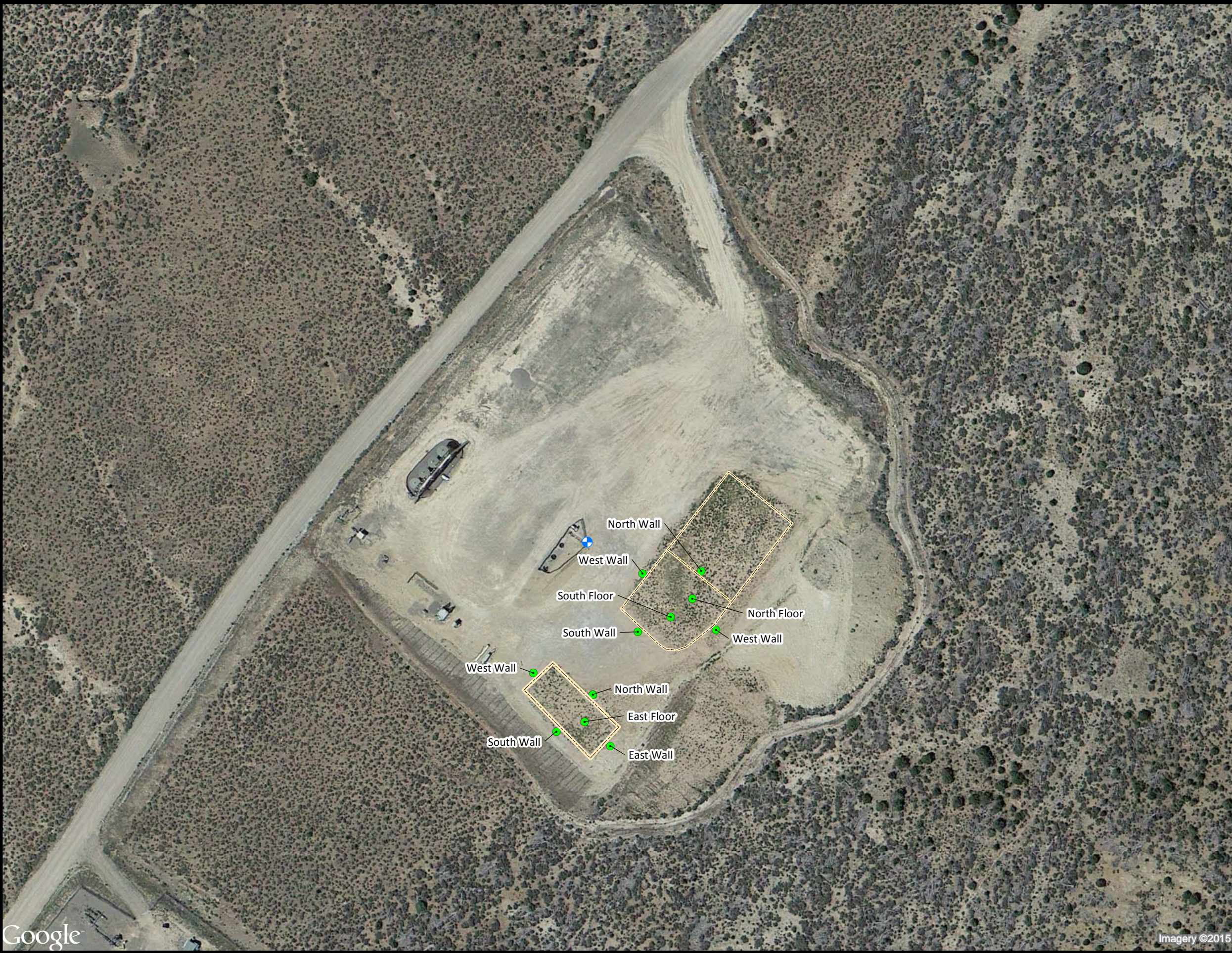
Date Site Investigation Began: <u>11-2013</u>	Date Site Investigation Completed: <u>11-2013</u>	Date Remediation Plan Submitted: <u>7-2014</u>
Remediation Start Date: <u>8-9/2014</u>	Anticipated Completion Date: <u>est. 8-9/2014</u>	Actual Completion Date: <u>11/3/2014</u>

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: _____ Signed: _____

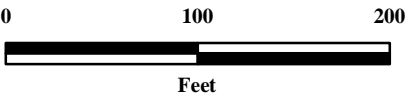
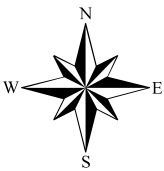
Title: _____ Date: _____

OGCC Approved: _____ Title: _____ Date: _____



Legend

- Sample Location
- ⊕ Whiting Well Location



Apex Companies, LLC
4608 S Garnett Road,
Suite 100
Tulsa, OK 74146

FIGURE 1



Whiting Petroleum Corporation
Federal 397-3G-G1
Pad G1 Form 19 Map
Sec 3, T3S R97W
January 2015

from USGS Quadrangle Rock School, CO
Ground Condition Depicted June 2013
Digital Data Courtesy ESRI Online

Table 1
Pit 1
Summary of Soil Analytical Results
Whiting Petroleum Company
Whiting Petroleum Colorado Pits
County of Rio Blanco, Colorado - Federal 397-3G-G1

		Location	US-1	US-2	TS-1	EF-1	WW-1	SW-1	EW-1	NW-1
		Location Description	Untreated soil		Treated Soil	East Floor	West Wall	South Wall	East Wall	North Wall
		Date of Sample	10/15/2014							
		Table 910-1 Concentration Levels								
Unit	Unit of Measurement	Soil Compounds	US-1	US-2	TS-1	EF-1	WW-1	SW-1	EW-1	NW-1
Benzene	mg/kg	0.17 mg/kg ²	0.0691	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Toulene	mg/kg	85 mg/kg ²	0.208	0.297	0.267	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Ethylbenzene	mg/kg	100 mg/kg ²	0.427	0.0745	0.0725	0.0296	<0.0200	<0.0200	<0.0200	<0.0200
Xylene	mg/kg	175 mg/kg ²	0.672	0.0896	0.0895	0.0267	0.0411	<0.0200	<0.0200	<0.0200
TPH-GRO	mg/kg		23.1	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00
TPH DRO	mg/kg		106	<50.0	59.2	<50.0	<50.0	<50.0	<50.0	<50.0
Total TPH	mg/kg	500 mg/kg	129.1	<54.0	59.2	<54.0	<54.0	<54.0	<54.0	<54.0
Electrical Conductivity	Ratio	<4 mmhos/cm or 2x background	0.173	0.427	0.355	0.322	0.223	0.444	0.242	0.0304
pH	s.u.	6 - 9	9.23	8.29	8.296	9.34	9.32	9.06	9.34	8.77
SAR		<12 ⁵	10.3	4.26	4.43	4.04	4.2	7.92	4.26	3.06
Total Silver	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Total Arsenic	mg/kg	0.36 mg/kg ²	4.74	5.31	4.59	2.05	4.46	4.65	4.23	3.54
Total Barium	mg/kg	15000 mg/kg ²	2650	1810	3060	2240	965	1870	2080	346
Total Cadmium	mg/kg	2 mg/l ³	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Total Chromium	mg/kg	70 mg/kg ^{2,6}	14.6	24.1	26.3	25.5	38.5	34.7	31.3	27.9
Total Mercury	mg/kg	23 mg/kg ²	0.0312	0.025	<0.0250	<0.0250	<0.0250	0.0281	<0.0250	0.0998
Total Lead	mg/kg	400 mg/kg ²	15.8	10.4	9.81	10.2	8.96	11.8	8.23	19.8
Total Selenium	mg/kg	390 mg/kg ^{2,6}	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00

BTEX analysis by EPA Method 8260B
TPH Analysis by TX1005 Method
TPH Category II Cleanup Level for Depths >3 feet.

Table 2
 Pad Background
 Summary of Soil Analytical Results
 Whiting Petroleum Company
 Whiting Petroleum Colorado Pits
 County of Rio Blanco, Colorado - Federal 397-3G-G1

		Location	Background 1	Background 2	Background 3
		Location Description			
		Date of Sample	10/28/2014		
		Table 910-1 Concentration Levels			
Unit	Unit of Measurement	Soil Compounds	BG1	BG2	BG3
Benzene	mg/kg	0.17 mg/kg ²	<0.0200	<0.0200	<0.0200
Toulene	mg/kg	85 mg/kg ²	<0.0200	<0.0200	<0.0200
Ethylbenzene	mg/kg	100 mg/kg ²	<0.0200	<0.0200	<0.0200
Xylene	mg/kg	175 mg/kg ²	<0.0200	<0.0200	<0.0200
TPH-GRO	mg/kg		<50.0	<50.0	<50.0
TPH DRO	mg/kg		<50.0	<50.0	<50.0
Total TPH	mg/kg	500 mg/kg	0	0	0
Electrical Conductivity	Ratio	<4 mmhos/cm or 2x background	0.314	0.0737	0.141
pH	s.u.	6 - 9	9.4	9.32	9.06
SAR		<12 ³	1.24	0.878	0.769
Total Silver	mg/kg		<0.500	<0.500	<0.500
Total Arsenic	mg/kg	0.36 mg/kg ²	<2.00	3.92	<2.00
Total Barium	mg/kg	15000 mg/kg ²	267	212	315
Total Cadmium	mg/kg	2 mg/l ³	0.983	1.11	1.12
Total Chromium	mg/kg	70 mg/kg ^{2,10}	23.5	33.3	24.4
Total Mercury	mg/kg	23 mg/kg ²	<0.0250	<0.0250	<0.0250
Total Lead	mg/kg	400 mg/kg ²	4.22	8.99	6.42
Total Selenium	mg/kg	390 mg/kg ^{2,6}	<2.00	<2.00	<2.00

BTEX analysis by EPA Method 8260B
 TPH Analysis by TX1005 Method
 TPH Category II Cleanup Level for Depths >3 feet.

Table 3
Pit 2
Summary of Soil Analytical Results
Whiting Petroleum Company
Whiting Petroleum Colorado Pits
County of Rio Blanco, Colorado - Federal 397-3G-G1

		Location	East Wall	Top Soil 1	Top Soil 2	Dirty 1K	Dirty 2K	Clean 1K	Clean 2K	Treated Soil	North Wall	South Wall	Dirty Pile 3k	N. Floor	S. Floor	West Wall
		Location Description														
		Date of Sample	10/28/2014								11/5/2014					
		Table 910-1 Concentration Levels														
Unit	Unit of Measurement	Soil Compounds	EW	TS1	TS2	D1K	D2K	C1K	C2K	TS	NW	SW	DP3K	NF	SF	WW
Benzene	mg/kg	0.17 mg/kg ²	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Toulene	mg/kg	85 mg/kg ²	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.0331	<0.0200	<0.0200	<0.0200
Ethylbenzene	mg/kg	100 mg/kg ²	<0.0200	<0.0200	<0.0200	0.0636	0.0732	<0.0200	<0.0200	0.0335	<0.0200	<0.0200	0.733	<0.0200	<0.0200	<0.0200
Xylene	mg/kg	175 mg/kg ²	<0.0200	<0.0200	<0.0200	0.108	<0.0200	<0.0200	<0.0200	0.0763	<0.0200	<0.0200	1.02	<0.0200	<0.0200	<0.0200
TPH-GRO	mg/kg		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	149	<50.0	<50.0	634	<50.0	<50.0	<50.0
TPH DRO	mg/kg		<50.0	<50.0	<50.0	77.1	64.4	<50.0	<50.0	<50	<50.0	<50.0	<250	<50.0	<50.0	<50.0
Total TPH	mg/kg	500 mg/kg	0	0	0	77.1	64.4	0	0	149	0	0	634	0	0	0
Electrical Conductivity	Ratio	<4 mmhos/cm or 2x background	0.373	0.317	0.317	1.22	1.12	1.02	0.874	0.874	0.699	0.546	0.696	0.216	0.149	0.348
pH	s.u.	6 - 9	9.36	8.96	8.91	8.8	8.91	8.78	8.99	8.99	8.98	8.66	9.41	9.55	9.31	9.36
SAR		<12 ⁵	1.74	1.24	1.37	2.79	3.56	2.65	2.84	2.84	1.26	1.39	1.14	8.63	5.34	4.7
Total Silver	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500				<0.500	<0.500	<0.500
Total Arsenic	mg/kg	0.36 mg/kg ²	<2.00	2.7	<2.00	2.68	2.14	2.34	3.55	3.55				<2.00	<2.00	4.3
Total Barium	mg/kg	15000 mg/kg ²	730	1740	458	2810	2300	2460	3070	3070				1750	1530	974
Total Cadmium	mg/kg	2 mg/l ³	1.13	1.09	1.27	1.25	1.27	1.46	1.66	1.66				2.8	1.97	1.72
Total Chromium	mg/kg	70 mg/kg ^{2,6}	30.4	28.9	26.8	30.3	31.4	30	31.3	31.3				28.6	30.6	28.8
Total Mercury	mg/kg	23 mg/kg ²	<0.0250	<0.0250	<0.0250	0.0266	0.0292	-	0.0252	0.0252	<0.0250	<0.0250	0.2	0.0275	<0.0250	<0.0250
Total Lead	mg/kg	400 mg/kg ²	5.57	7.17	7.45	5.98	6.78	7.73	10.8	10.8				19.6	7.75	7.68
Total Selenium	mg/kg	390 mg/kg ^{2,6}	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00				<2.00	<2.00	<2.00

BTEX analysis by EPA Method 8260B
TPH Analysis by TX1005 Method
TPH Category II Cleanup Level for Depths >3 feet.



6701 Aberdeen Avenue, Suite 9
200 East Sunset Road, Suite E
5002 Basin Street, Suite A1
(BioAquatic) 2501 Mayes Rd., Suite 100

Lubbock, Texas 79424
El Paso, Texas 79922
Midland, Texas 79703
Carrollton, Texas 75006

800-378-1296

806-794-1296

FAX 806-794-1298

915-585-3443

FAX 915-585-4944

432-689-6301

FAX 432-689-6313

972-242-7750

E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Clint Ward
APEX Companies, LLC - Tulsa
4608 South Garnett
Suite 100
Tulsa, OK, 74146

Report Date: November 14, 2014

Work Order: 14111228



Project Location: Rifle Co.
Project Name: Federal 397 3G NE
Project Number: 452711.002

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
379252	Treated Soil	soil	2014-11-10	14:16	2014-11-12

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative	3
Analytical Report	4
Sample 379252 (Treated Soil)	4
Method Blanks	5
QC Batch 117155 - Method Blank (1)	5
QC Batch 117184 - Method Blank (1)	5
Laboratory Control Spikes	6
QC Batch 117155 - LCS (1)	6
QC Batch 117184 - LCS (1)	6
Matrix Spikes	8
QC Batch 117155 - MS (1)	8
QC Batch 117184 - MS (1)	8
Calibration Standards	10
QC Batch 117155 - CCV (1)	10
QC Batch 117155 - CCV (2)	10
QC Batch 117184 - CCV (1)	10
QC Batch 117184 - CCV (2)	10
Appendix	12
Report Definitions	12
Laboratory Certifications	12
Standard Flags	12
Attachments	13

Case Narrative

Samples for project Federal 397 3G NE were received by TraceAnalysis, Inc. on 2014-11-12 and assigned to work order 14111228. Samples for work order 14111228 were received intact at a temperature of 5.8 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	99077	2014-11-13 at 16:01	117184	2014-11-13 at 16:01
TX1005 Extended - NEW	TX1005	99050	2014-11-13 at 09:00	117155	2014-11-13 at 09:00

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 14111228 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: November 14, 2014
452711.002

Work Order: 14111228
Federal 397 3G NE

Page Number: 4 of 13
Rifle Co.

Analytical Report

Sample: 379252 - Treated Soil

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 117184
Prep Batch: 99077

Analytical Method: S 8021B
Date Analyzed: 2014-11-13
Sample Preparation: 2014-11-13

Prep Method: S 5035
Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	0.0335	mg/Kg	1	0.0200
Xylene		1,2,3,4,5	0.0763	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.99	mg/Kg	1	2.00	100	70 - 130

Sample: 379252 - Treated Soil

Laboratory: Lubbock
Analysis: TX1005 Extended - NEW
QC Batch: 117155
Prep Batch: 99050

Analytical Method: TX1005
Date Analyzed: 2014-11-13
Sample Preparation: 2014-11-13

Prep Method: N/A
Analyzed By: SM
Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35		1	149	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			94.1	mg/Kg	1	100	94	70 - 130
n-Octane			97.9	mg/Kg	1	100	98	70 - 130
n-Tricosane			96.0	mg/Kg	1	100	96	70 - 130

Method Blanks

Method Blank (1) QC Batch: 117155

QC Batch: 117155 Date Analyzed: 2014-11-13 Analyzed By: SM
Prep Batch: 99050 QC Preparation: 2014-11-13 Prepared By: SM

Parameter	Flag	Cert	MDL Result	Units	RL
C6-C12		1	11.3	mg/Kg	50
>C12-C35		1	<10.7	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			104	mg/Kg	1	100	104	70 - 130
n-Octane			113	mg/Kg	1	100	113	70 - 130
n-Tricosane			105	mg/Kg	1	100	105	70 - 130

Method Blank (1) QC Batch: 117184

QC Batch: 117184 Date Analyzed: 2014-11-13 Analyzed By: JS
Prep Batch: 99077 QC Preparation: 2014-11-13 Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1,2,3,4,5	<0.00296	mg/Kg	0.02
Toluene		1,2,3,4,5	<0.00351	mg/Kg	0.02
Ethylbenzene		1,2,3,4,5	<0.00312	mg/Kg	0.02
Xylene		1,2,3,4,5	<0.00310	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.91	mg/Kg	1	2.00	96	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 117155
Prep Batch: 99050

Date Analyzed: 2014-11-13
QC Preparation: 2014-11-13

Analyzed By: SM
Prepared By: SM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	225	mg/Kg	1	250	11.3	85	75 - 125
>C12-C35		1	229	mg/Kg	1	250	<10.7	92	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	218	mg/Kg	1	250	11.3	83	75 - 125	3	20
>C12-C35		1	233	mg/Kg	1	250	<10.7	93	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	95.5	94.9	mg/Kg	1	100	96	95	70 - 130
n-Octane	99.6	99.9	mg/Kg	1	100	100	100	70 - 130
n-Tricosane	95.9	95.6	mg/Kg	1	100	96	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 117184
Prep Batch: 99077

Date Analyzed: 2014-11-13
QC Preparation: 2014-11-13

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	1.89	mg/Kg	1	2.00	<0.00296	94	70 - 130
Toluene		1,2,3,4,5	1.95	mg/Kg	1	2.00	<0.00351	98	70 - 130
Ethylbenzene		1,2,3,4,5	1.94	mg/Kg	1	2.00	<0.00312	97	70 - 130
Xylene		1,2,3,4,5	5.96	mg/Kg	1	6.00	<0.00310	99	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	1.92	mg/Kg	1	2.00	<0.00296	96	70 - 130	2	20
Toluene		1,2,3,4,5	1.94	mg/Kg	1	2.00	<0.00351	97	70 - 130	0	20
Ethylbenzene		1,2,3,4,5	1.94	mg/Kg	1	2.00	<0.00312	97	70 - 130	0	20
Xylene		1,2,3,4,5	5.96	mg/Kg	1	6.00	<0.00310	99	70 - 130	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)		5	2.00	1.98	mg/Kg	1	2.00	100	99	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.91	1.90	mg/Kg	1	2.00	96	95	70 - 130

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 379235

QC Batch: 117155
Prep Batch: 99050

Date Analyzed: 2014-11-13
QC Preparation: 2014-11-13

Analyzed By: SM
Prepared By: SM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	2370	mg/Kg	1	250	2130	96	70 - 130
>C12-C35		1	1010	mg/Kg	1	250	791	88	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	2380	mg/Kg	1	250	2130	100	70 - 130	0	20
>C12-C35		1	1000	mg/Kg	1	250	791	84	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Triacontane	98.1	98.2	mg/Kg	1	100	98	98	70 - 130
n-Octane	113	114	mg/Kg	1	100	113	114	70 - 130
n-Tricosane	101	100	mg/Kg	1	100	101	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 379252

QC Batch: 117184
Prep Batch: 99077

Date Analyzed: 2014-11-13
QC Preparation: 2014-11-13

Analyzed By: JS
Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	1.98	mg/Kg	1	2.00	<0.00296	99	70 - 130
Toluene		1,2,3,4,5	2.00	mg/Kg	1	2.00	<0.00351	100	70 - 130
Ethylbenzene		1,2,3,4,5	2.08	mg/Kg	1	2.00	0.0335	102	70 - 130
Xylene		1,2,3,4,5	6.50	mg/Kg	1	6.00	0.0763	107	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	1.93	mg/Kg	1	2.00	<0.00296	96	70 - 130	3	20
Toluene		1,2,3,4,5	2.06	mg/Kg	1	2.00	<0.00351	103	70 - 130	3	20
Ethylbenzene		1,2,3,4,5	2.12	mg/Kg	1	2.00	0.0335	104	70 - 130	2	20
Xylene		1,2,3,4,5	6.57	mg/Kg	1	6.00	0.0763	108	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	2.04	2.04	mg/Kg	1	2	102	102	70 - 130
4-Bromofluorobenzene (4-BFB)	5	2.07	2.13	mg/Kg	1	2	104	106	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 117155

Date Analyzed: 2014-11-13

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	229	92	75 - 125	2014-11-13
>C12-C35		1	mg/Kg	250	237	95	75 - 125	2014-11-13

Standard (CCV-2)

QC Batch: 117155

Date Analyzed: 2014-11-13

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	216	86	75 - 125	2014-11-13
>C12-C35		1	mg/Kg	250	236	94	75 - 125	2014-11-13

Standard (CCV-1)

QC Batch: 117184

Date Analyzed: 2014-11-13

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.0974	97	80 - 120	2014-11-13
Toluene		1,2,3,4,5	mg/kg	0.100	0.0994	99	80 - 120	2014-11-13
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.0992	99	80 - 120	2014-11-13
Xylene		1,2,3,4,5	mg/kg	0.300	0.304	101	80 - 120	2014-11-13

Standard (CCV-2)

QC Batch: 117184

Date Analyzed: 2014-11-13

Analyzed By: JS

Report Date: November 14, 2014
452711.002

Work Order: 14111228
Federal 397 3G NE

Page Number: 11 of 13
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.102	102	80 - 120	2014-11-13
Toluene		1,2,3,4,5	mg/kg	0.100	0.102	102	80 - 120	2014-11-13
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.101	101	80 - 120	2014-11-13
Xylene		1,2,3,4,5	mg/kg	0.300	0.309	103	80 - 120	2014-11-13

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5		2014-018	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

Report Date: November 14, 2014
452711.002

Work Order: 14111228
Federal 397 3G NE

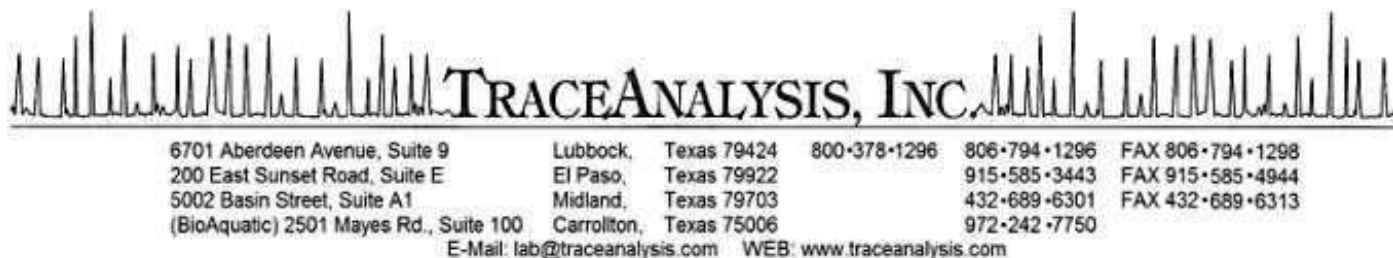
Page Number: 13 of 13
Rifle Co.

F	Description
---	-------------

U	The analyte is not detected above the SDL
---	---

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Mike Holder
Apex Companies, LLC
307 East Danforth Road
Suite 160
Edmond, OK, 73034

Report Date: November 4, 2014

Work Order: 14103108



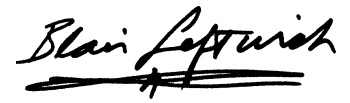
Project Location: Rifle Co.
Project Name: Federal 397-3G-G1
Project Number: 452711.002

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
378336	North Wall	soil	2014-10-30	09:20	2014-10-31
378337	South Wall	soil	2014-10-30	09:08	2014-10-31
378338	Dirty Pile 3k	soil	2014-10-29	14:49	2014-10-31

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 33 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a prominent horizontal stroke at the end.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative	5
Analytical Report	6
Sample 378336 (North Wall)	6
Sample 378337 (South Wall)	8
Sample 378338 (Dirty Pile 3k)	11
Method Blanks	15
QC Batch 116858 - Method Blank (1)	15
QC Batch 116879 - Method Blank (1)	15
QC Batch 116885 - Method Blank (1)	15
QC Batch 116897 - Method Blank (1)	16
QC Batch 116897 - Method Blank (1)	16
QC Batch 116897 - Method Blank (1)	16
QC Batch 116906 - Method Blank (1)	16
QC Batch 116907 - Method Blank (1)	17
Duplicates	18
QC Batch 116879 - Duplicate (1)	18
QC Batch 116881 - Duplicate (1)	18
Laboratory Control Spikes	19
QC Batch 116858 - LCS (1)	19
QC Batch 116885 - LCS (1)	19
QC Batch 116897 - LCS (1)	20
QC Batch 116897 - LCS (1)	20
QC Batch 116897 - LCS (1)	21
QC Batch 116906 - LCS (1)	21
QC Batch 116907 - LCS (1)	21
Matrix Spikes	23
QC Batch 116858 - MS (1)	23
QC Batch 116885 - xMS (1)	23
QC Batch 116897 - MS (1)	24
QC Batch 116897 - MS (1)	24
QC Batch 116897 - MS (1)	25
QC Batch 116906 - MS (1)	25
QC Batch 116907 - MS (1)	25
Calibration Standards	27
QC Batch 116858 - CCV (1)	27
QC Batch 116858 - CCV (2)	27
QC Batch 116879 - ICV (1)	27
QC Batch 116879 - CCV (1)	27
QC Batch 116881 - ICV (1)	28
QC Batch 116881 - CCV (1)	28
QC Batch 116885 - CCV (1)	28

QC Batch 116885 - CCV (2)	28
QC Batch 116897 - ICV (1)	29
QC Batch 116897 - ICV (1)	29
QC Batch 116897 - ICV (1)	29
QC Batch 116897 - CCV (1)	29
QC Batch 116897 - CCV (1)	30
QC Batch 116897 - CCV (1)	30
QC Batch 116906 - CCV (1)	30
QC Batch 116906 - CCV (2)	30
QC Batch 116907 - ICV (1)	31
QC Batch 116907 - CCV (1)	31
Appendix	32
Report Definitions	32
Laboratory Certifications	32
Standard Flags	32
Attachments	33

Case Narrative

Samples for project Federal 397-3G-G1 were received by TraceAnalysis, Inc. on 2014-10-31 and assigned to work order 14103108. Samples for work order 14103108 were received intact at a temperature of 2.3 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	98808	2014-11-02 at 17:38	116907	2014-11-03 at 13:08
As, Total	S 6010C	98808	2014-11-02 at 17:38	116907	2014-11-03 at 13:08
Ba, Total	S 6010C	98808	2014-11-02 at 17:38	116907	2014-11-03 at 13:08
BTEX	S 8021B	98796	2014-10-31 at 13:47	116858	2014-10-31 at 13:47
Ca, Extractable	S 6010C	98809	2014-11-02 at 18:05	116897	2014-11-03 at 10:52
Cd, Total	S 6010C	98808	2014-11-02 at 17:38	116907	2014-11-03 at 13:08
Conductivity	SM 2510B	98814	2014-11-03 at 09:00	116879	2014-11-03 at 10:01
Cr, Total	S 6010C	98808	2014-11-02 at 17:38	116907	2014-11-03 at 13:08
Hg, Total	S 7471 B	98825	2014-11-03 at 09:15	116906	2014-11-03 at 15:03
Mg, Extractable	S 6010C	98809	2014-11-02 at 18:05	116897	2014-11-03 at 10:52
Na, Extractable	S 6010C	98809	2014-11-02 at 18:05	116897	2014-11-03 at 10:52
Pb, Total	S 6010C	98808	2014-11-02 at 17:38	116907	2014-11-03 at 13:08
pH	S 9045C	98817	2014-11-03 at 10:20	116881	2014-11-03 at 10:25
SAR	USDA 60	98809	2014-11-02 at 18:05	116897	2014-11-03 at 10:52
Se, Total	S 6010C	98808	2014-11-02 at 17:38	116907	2014-11-03 at 13:08
TX1005 Extended - NEW	TX1005	98815	2014-11-01 at 16:00	116885	2014-11-03 at 10:45

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 14103108 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 6 of 33
Rifle Co.

Analytical Report

Sample: 378336 - North Wall

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 116858
Prep Batch: 98796

Analytical Method: S 8021B
Date Analyzed: 2014-10-31
Sample Preparation: 2014-10-31

Prep Method: S 5035
Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.14	mg/Kg	1	2.00	107	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.87	mg/Kg	1	2.00	94	70 - 130

Sample: 378336 - North Wall

Laboratory: Lubbock
Analysis: Ca, Extractable
QC Batch: 116897
Prep Batch: 98809

Analytical Method: S 6010C
Date Analyzed: 2014-11-03
Sample Preparation: 2014-11-02

Prep Method: S 3005A
Analyzed By: LM
Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium		4	52.9	mg/Kg	1	1.00

Sample: 378336 - North Wall

Laboratory: Lubbock
Analysis: Conductivity
QC Batch: 116879
Prep Batch: 98814

Analytical Method: SM 2510B
Date Analyzed: 2014-11-03
Sample Preparation:

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	699	uMHOS/cm	1	0.00

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 7 of 33
Rifle Co.

Sample: 378336 - North Wall

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116897	Date Analyzed:	2014-11-03
Prep Batch:	98809	Sample Preparation:	2014-11-02
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	6.42	mg/Kg	1	1.00

Sample: 378336 - North Wall

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116897	Date Analyzed:	2014-11-03
Prep Batch:	98809	Sample Preparation:	2014-11-02
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	36.6	mg/Kg	1	1.00

Sample: 378336 - North Wall

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	116881	Date Analyzed:	2014-11-03
Prep Batch:	98817	Sample Preparation:	2014-11-03
		Prep Method:	N/A
		Analyzed By:	AT
		Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.98	s.u.	1	2.00

Sample: 378336 - North Wall

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116897	Date Analyzed:	2014-11-03
Prep Batch:	98809	Sample Preparation:	2014-11-02
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			1.26		1	0.00

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 8 of 33
Rifle Co.

Sample: 378336 - North Wall

Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-11-03	Analyzed By:	TP
QC Batch:	116906	Sample Preparation:	2014-11-03	Prepared By:	TP
Prep Batch:	98825				
Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116907	Sample Preparation:	2014-11-03	Prepared By:	LM
Prep Batch:	98808				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	2.51	mg/Kg	1	2.00
Total Barium	Qs	1,2,3,4,5	1990	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.28	mg/Kg	1	0.500
Total Chromium		1,2,3,4,5	26.6	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	6.29	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378336 - North Wall

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-11-03	Analyzed By:	SM
QC Batch:	116885	Sample Preparation:	2014-11-01	Prepared By:	SM
Prep Batch:	98815				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			100	mg/Kg	1	100	100	70 - 130
n-Octane			90.1	mg/Kg	1	100	90	70 - 130
n-Tricosane			91.7	mg/Kg	1	100	92	70 - 130

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 9 of 33
Rifle Co.

Sample: 378337 - South Wall

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116858

Prep Batch: 98796

Analytical Method: S 8021B

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.22	mg/Kg	1	2.00	111	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.02	mg/Kg	1	2.00	101	70 - 130

Sample: 378337 - South Wall

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116897

Prep Batch: 98809

Analytical Method: S 6010C

Date Analyzed: 2014-11-03

Sample Preparation: 2014-11-02

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium		4	23.0	mg/Kg	1	1.00

Sample: 378337 - South Wall

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116879

Prep Batch: 98814

Analytical Method: SM 2510B

Date Analyzed: 2014-11-03

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	546	uMHOS/cm	1	0.00

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 10 of 33
Rifle Co.

Sample: 378337 - South Wall

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Mg, Extractable	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116897	Sample Preparation:	2014-11-02	Prepared By:	LM
Prep Batch:	98809				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	10.1	mg/Kg	1	1.00

Sample: 378337 - South Wall

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Na, Extractable	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116897	Sample Preparation:	2014-11-02	Prepared By:	LM
Prep Batch:	98809				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	31.9	mg/Kg	1	1.00

Sample: 378337 - South Wall

Laboratory:	Lubbock	Analytical Method:	S 9045C	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2014-11-03	Analyzed By:	AT
QC Batch:	116881	Sample Preparation:	2014-11-03	Prepared By:	AT
Prep Batch:	98817				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.66	s.u.	1	2.00

Sample: 378337 - South Wall

Laboratory:	Lubbock	Analytical Method:	USDA 60	Prep Method:	N/A
Analysis:	SAR	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116897	Sample Preparation:	2014-11-02	Prepared By:	LM
Prep Batch:	98809				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			1.39		1	0.00

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 11 of 33
Rifle Co.

Sample: 378337 - South Wall

Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 7471 B	Prep Method:	N/A
QC Batch:	116906	Date Analyzed:	2014-11-03	Analyzed By:	TP
Prep Batch:	98825	Sample Preparation:	2014-11-03	Prepared By:	TP
Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 6010C	Prep Method:	S 3050B
QC Batch:	116907	Date Analyzed:	2014-11-03	Analyzed By:	LM
Prep Batch:	98808	Sample Preparation:	2014-11-03	Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	3.32	mg/Kg	1	2.00
Total Barium	Qs	1,2,3,4,5	563	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.50	mg/Kg	1	0.500
Total Chromium		1,2,3,4,5	40.4	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	6.63	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378337 - South Wall

Laboratory:	Lubbock				
Analysis:	TX1005 Extended - NEW	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	116885	Date Analyzed:	2014-11-03	Analyzed By:	SM
Prep Batch:	98815	Sample Preparation:	2014-11-01	Prepared By:	SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			104	mg/Kg	1	100	104	70 - 130
n-Octane			92.0	mg/Kg	1	100	92	70 - 130
n-Tricosane			93.4	mg/Kg	1	100	93	70 - 130

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 12 of 33
Rifle Co.

Sample: 378338 - Dirty Pile 3k

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116858

Prep Batch: 98796

Analytical Method: S 8021B

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	0.0331	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	0.733	mg/Kg	1	0.0200
Xylene		1,2,3,4,5	1.02	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.19	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	3.52	mg/Kg	1	2.00	176	70 - 130

Sample: 378338 - Dirty Pile 3k

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116897

Prep Batch: 98809

Analytical Method: S 6010C

Date Analyzed: 2014-11-03

Sample Preparation: 2014-11-02

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium		4	70.4	mg/Kg	1	1.00

Sample: 378338 - Dirty Pile 3k

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116879

Prep Batch: 98814

Analytical Method: SM 2510B

Date Analyzed: 2014-11-03

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	696	uMHOS/cm	1	0.00

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 13 of 33
Rifle Co.

Sample: 378338 - Dirty Pile 3k

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Mg, Extractable	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116897	Sample Preparation:	2014-11-02	Prepared By:	LM
Prep Batch:	98809				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	30.0	mg/Kg	1	1.00

Sample: 378338 - Dirty Pile 3k

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Na, Extractable	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116897	Sample Preparation:	2014-11-02	Prepared By:	LM
Prep Batch:	98809				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	45.2	mg/Kg	1	1.00

Sample: 378338 - Dirty Pile 3k

Laboratory:	Lubbock	Analytical Method:	S 9045C	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2014-11-03	Analyzed By:	AT
QC Batch:	116881	Sample Preparation:	2014-11-03	Prepared By:	AT
Prep Batch:	98817				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.41	s.u.	1	2.00

Sample: 378338 - Dirty Pile 3k

Laboratory:	Lubbock	Analytical Method:	USDA 60	Prep Method:	N/A
Analysis:	SAR	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116897	Sample Preparation:	2014-11-02	Prepared By:	LM
Prep Batch:	98809				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			1.14		1	0.00

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 14 of 33
Rifle Co.

Sample: 378338 - Dirty Pile 3k

Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-11-03	Analyzed By:	TP
QC Batch:	116906	Sample Preparation:	2014-11-03	Prepared By:	TP
Prep Batch:	98825				
Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-11-03	Analyzed By:	LM
QC Batch:	116907	Sample Preparation:	2014-11-03	Prepared By:	LM
Prep Batch:	98808				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	3.41	mg/Kg	1	2.00
Total Barium	Qs	1,2,3,4,5	3950	mg/Kg	100	1.00
Total Cadmium		1,2,3,4,5	0.947	mg/Kg	1	0.500
Total Chromium		1,2,3,4,5	24.9	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	0.200	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	4.93	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378338 - Dirty Pile 3k

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-11-03	Analyzed By:	SM
QC Batch:	116885	Sample Preparation:	2014-11-01	Prepared By:	SM
Prep Batch:	98815				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<250	mg/Kg	5	50.0
>C12-C35	B	1	634	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			103	mg/Kg	5	100	103	70 - 130
n-Octane			73.6	mg/Kg	5	100	74	70 - 130
n-Tricosane			104	mg/Kg	5	100	104	70 - 130

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 15 of 33
Rifle Co.

Method Blanks

Method Blank (1) QC Batch: 116858

QC Batch: 116858 Date Analyzed: 2014-10-31 Analyzed By: JS
Prep Batch: 98796 QC Preparation: 2014-10-31 Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1,2,3,4,5	<0.00296	mg/Kg	0.02
Toluene		1,2,3,4,5	<0.00351	mg/Kg	0.02
Ethylbenzene		1,2,3,4,5	<0.00312	mg/Kg	0.02
Xylene		1,2,3,4,5	<0.00310	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.13	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.97	mg/Kg	1	2.00	98	70 - 130

Method Blank (1) QC Batch: 116879

QC Batch: 116879 Date Analyzed: 2014-11-03 Analyzed By: RL
Prep Batch: 98814 QC Preparation: 2014-11-03 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Specific Conductance		1,3,4,5	2.56	uMHOS/cm	

Method Blank (1) QC Batch: 116885

QC Batch: 116885 Date Analyzed: 2014-11-03 Analyzed By: SM
Prep Batch: 98815 QC Preparation: 2014-11-01 Prepared By: SM

Parameter	Flag	Cert	MDL Result	Units	RL
C6-C12		1	14.0	mg/Kg	50
>C12-C35		1	13.8	mg/Kg	50

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 16 of 33
Rifle Co.

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			104	mg/Kg	1	100	104	70 - 130
n-Octane			97.7	mg/Kg	1	100	98	70 - 130
n-Tricosane			97.5	mg/Kg	1	100	98	70 - 130

Method Blank (1) QC Batch: 116897

QC Batch: 116897 Date Analyzed: 2014-11-03 Analyzed By: LM
Prep Batch: 98809 QC Preparation: 2014-11-02 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Magnesium		4	<0.0225	mg/Kg	1

Method Blank (1) QC Batch: 116897

QC Batch: 116897 Date Analyzed: 2014-11-03 Analyzed By: LM
Prep Batch: 98809 QC Preparation: 2014-11-02 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Calcium		4	<0.0847	mg/Kg	1

Method Blank (1) QC Batch: 116897

QC Batch: 116897 Date Analyzed: 2014-11-03 Analyzed By: LM
Prep Batch: 98809 QC Preparation: 2014-11-02 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Sodium		4	<0.0184	mg/Kg	1

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 17 of 33
Rifle Co.

Method Blank (1) QC Batch: 116906

QC Batch: 116906
Prep Batch: 98825

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-03

Analyzed By: TP
Prepared By: TP

Parameter	Flag	Cert	MDL Result	Units	RL
Total Mercury		1,2,3,4,5	<0.00177	mg/Kg	0.025

Method Blank (1) QC Batch: 116907

QC Batch: 116907
Prep Batch: 98808

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Total Silver		1,2,3,4,5	<0.0344	mg/Kg	0.5
Total Arsenic		1,2,3,4,5	<0.432	mg/Kg	2
Total Barium		1,2,3,4,5	<0.0501	mg/Kg	1
Total Cadmium		1,2,3,4,5	<0.0320	mg/Kg	0.5
Total Chromium		1,2,3,4,5	<0.0512	mg/Kg	0.5
Total Lead		1,2,3,4,5	<0.263	mg/Kg	1
Total Selenium		1,2,3,4,5	<0.422	mg/Kg	2

Duplicates

Duplicates (1) Duplicated Sample: 378338

QC Batch: 116879
Prep Batch: 98814

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-03

Analyzed By: RL
Prepared By: RL

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance	1,3,4,5	655	696	uMHOS/cm	1	6	20

Duplicates (1) Duplicated Sample: 378338

QC Batch: 116881
Prep Batch: 98817

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-03

Analyzed By: AT
Prepared By: AT

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	1,2,3,4,5	9.39	9.41	s.u.	1	0	20

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 116858
Prep Batch: 98796

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	2.10	mg/Kg	1	2.00	<0.00296	105	70 - 130
Toluene		1,2,3,4,5	2.16	mg/Kg	1	2.00	<0.00351	108	70 - 130
Ethylbenzene		1,2,3,4,5	2.14	mg/Kg	1	2.00	<0.00312	107	70 - 130
Xylene		1,2,3,4,5	6.56	mg/Kg	1	6.00	<0.00310	109	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	2.16	mg/Kg	1	2.00	<0.00296	108	70 - 130	3	20
Toluene		1,2,3,4,5	2.19	mg/Kg	1	2.00	<0.00351	110	70 - 130	1	20
Ethylbenzene		1,2,3,4,5	2.18	mg/Kg	1	2.00	<0.00312	109	70 - 130	2	20
Xylene		1,2,3,4,5	6.69	mg/Kg	1	6.00	<0.00310	112	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)		5	2.18	2.16	mg/Kg	1	2.00	109	108	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.99	2.00	mg/Kg	1	2.00	100	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 116885
Prep Batch: 98815

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-01

Analyzed By: SM
Prepared By: SM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	243	mg/Kg	1	250	14	92	75 - 125
>C12-C35		1	240	mg/Kg	1	250	13.8	90	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 20 of 33
Rifle Co.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	243	mg/Kg	1	250	14	92	75 - 125	0	20
>C12-C35		1	245	mg/Kg	1	250	13.8	92	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Triacontane	101	101	mg/Kg	1	100	101	101	70 - 130
n-Octane	94.2	94.6	mg/Kg	1	100	94	95	70 - 130
n-Tricosane	94.3	94.2	mg/Kg	1	100	94	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 116897
Prep Batch: 98809

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Magnesium		4	51.8	mg/Kg	1	50.0	<0.0225	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Magnesium		4	51.9	mg/Kg	1	50.0	<0.0225	104	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116897
Prep Batch: 98809

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Calcium		4	50.7	mg/Kg	1	50.0	<0.0847	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Calcium		4	50.2	mg/Kg	1	50.0	<0.0847	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 21 of 33
Rifle Co.

Laboratory Control Spike (LCS-1)

QC Batch: 116897
Prep Batch: 98809

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Sodium		4	50.7	mg/Kg	1	50.0	<0.0184	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Sodium		4	50.4	mg/Kg	1	50.0	<0.0184	101	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116906
Prep Batch: 98825

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-03

Analyzed By: TP
Prepared By: TP

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,5	0.256	mg/Kg	1	0.250	<0.00177	102	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,5	0.253	mg/Kg	1	0.250	<0.00177	101	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116907
Prep Batch: 98808

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver		1,2,3,4,5	12.4	mg/Kg	1	12.5	<0.0344	99	85 - 115
Total Arsenic		1,2,3,4,5	50.2	mg/Kg	1	50.0	<0.432	100	85 - 115
Total Barium		1,2,3,4,5	108	mg/Kg	1	100	<0.0501	108	85 - 115

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cadmium		1,2,3,4,5	25.3	mg/Kg	1	25.0	<0.0320	101	85 - 115
Total Chromium		1,2,3,4,5	9.26	mg/Kg	1	10.0	<0.0512	93	85 - 115
Total Lead		1,2,3,4,5	55.1	mg/Kg	1	50.0	<0.263	110	85 - 115
Total Selenium		1,2,3,4,5	48.8	mg/Kg	1	50.0	<0.422	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver		1,2,3,4,5	12.4	mg/Kg	1	12.5	<0.0344	99	85 - 115	0	20
Total Arsenic		1,2,3,4,5	49.6	mg/Kg	1	50.0	<0.432	99	85 - 115	1	20
Total Barium		1,2,3,4,5	107	mg/Kg	1	100	<0.0501	107	85 - 115	1	20
Total Cadmium		1,2,3,4,5	25.3	mg/Kg	1	25.0	<0.0320	101	85 - 115	0	20
Total Chromium		1,2,3,4,5	9.40	mg/Kg	1	10.0	<0.0512	94	85 - 115	2	20
Total Lead		1,2,3,4,5	54.7	mg/Kg	1	50.0	<0.263	109	85 - 115	1	20
Total Selenium		1,2,3,4,5	48.0	mg/Kg	1	50.0	<0.422	96	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 378336

QC Batch: 116858
Prep Batch: 98796

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: JS
Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	2.17	mg/Kg	1	2.00	<0.00296	108	70 - 130
Toluene		1,2,3,4,5	2.23	mg/Kg	1	2.00	<0.00351	112	70 - 130
Ethylbenzene		1,2,3,4,5	2.34	mg/Kg	1	2.00	<0.00312	117	70 - 130
Xylene		1,2,3,4,5	7.20	mg/Kg	1	6.00	<0.00310	120	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	2.05	mg/Kg	1	2.00	<0.00296	102	70 - 130	6	20
Toluene		1,2,3,4,5	2.15	mg/Kg	1	2.00	<0.00351	108	70 - 130	4	20
Ethylbenzene		1,2,3,4,5	2.24	mg/Kg	1	2.00	<0.00312	112	70 - 130	4	20
Xylene		1,2,3,4,5	6.87	mg/Kg	1	6.00	<0.00310	114	70 - 130	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	2.23	2.25	mg/Kg	1	2	112	112	70 - 130
4-Bromofluorobenzene (4-BFB)	5	1.97	1.99	mg/Kg	1	2	98	100	70 - 130

Matrix Spike (xMS-1) Spiked Sample: 378326

QC Batch: 116885
Prep Batch: 98815

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-01

Analyzed By: SM
Prepared By: SM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	227	mg/Kg	1	250	13.8	85	75 - 125
>C12-C35		1	245	mg/Kg	1	250	14	92	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 24 of 33
Rifle Co.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	237	mg/Kg	1	250	13.8	89	75 - 125	4	20
>C12-C35		1	250	mg/Kg	1	250	14	94	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Triacontane	104	103	mg/Kg	1	100	104	103	70 - 130
n-Octane	94.5	95.7	mg/Kg	1	100	94	96	70 - 130
n-Tricosane	95.2	95.0	mg/Kg	1	100	95	95	70 - 130

Matrix Spike (MS-1) Spiked Sample: 378351

QC Batch: 116897
Prep Batch: 98809

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Magnesium		4	522	mg/Kg	1	500	2.611	104	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Magnesium		4	548	mg/Kg	1	500	2.611	109	75 - 125	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378351

QC Batch: 116897
Prep Batch: 98809

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Calcium		4	541	mg/Kg	1	500	18.48	104	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Calcium		4	567	mg/Kg	1	500	18.48	110	75 - 125	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 25 of 33
Rifle Co.

Matrix Spike (MS-1) Spiked Sample: 378351

QC Batch: 116897
Prep Batch: 98809

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Sodium		4	533	mg/Kg	1	500	28.9	101	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Sodium		4	552	mg/Kg	1	500	28.9	105	75 - 125	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378326

QC Batch: 116906
Prep Batch: 98825

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-03

Analyzed By: TP
Prepared By: TP

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,5	0.249	mg/Kg	1	0.250	0.00246	99	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,5	0.268	mg/Kg	1	0.250	0.00246	106	80 - 120	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378337

QC Batch: 116907
Prep Batch: 98808

Date Analyzed: 2014-11-03
QC Preparation: 2014-11-02

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver		1,2,3,4,5	10.7	mg/Kg	1	12.5	<0.0344	86	75 - 125
Total Arsenic		1,2,3,4,5	49.4	mg/Kg	1	50.0	3.32	92	75 - 125
Total Barium		1,2,3,4,5	650	mg/Kg	1	100	563.1	87	75 - 125

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cadmium		1,2,3,4,5	24.5	mg/Kg	1	25.0	1.5	92	75 - 125
Total Chromium		1,2,3,4,5	50.8	mg/Kg	1	10.0	40.4	104	75 - 125
Total Lead		1,2,3,4,5	54.3	mg/Kg	1	50.0	6.63	95	75 - 125
Total Selenium		1,2,3,4,5	47.1	mg/Kg	1	50.0	<0.422	94	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver		1,2,3,4,5	10.0	mg/Kg	1	12.5	<0.0344	80	75 - 125	7	20
Total Arsenic		1,2,3,4,5	48.2	mg/Kg	1	50.0	3.32	90	75 - 125	2	20
Total Barium	Qs	Qs	601	mg/Kg	1	100	563.1	38	75 - 125	8	20
Total Cadmium		1,2,3,4,5	23.7	mg/Kg	1	25.0	1.5	89	75 - 125	3	20
Total Chromium		1,2,3,4,5	51.6	mg/Kg	1	10.0	40.4	112	75 - 125	2	20
Total Lead		1,2,3,4,5	54.1	mg/Kg	1	50.0	6.63	95	75 - 125	0	20
Total Selenium		1,2,3,4,5	45.2	mg/Kg	1	50.0	<0.422	90	75 - 125	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 116858

Date Analyzed: 2014-10-31

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.106	106	80 - 120	2014-10-31
Toluene		1,2,3,4,5	mg/kg	0.100	0.108	108	80 - 120	2014-10-31
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.107	107	80 - 120	2014-10-31
Xylene		1,2,3,4,5	mg/kg	0.300	0.328	109	80 - 120	2014-10-31

Standard (CCV-2)

QC Batch: 116858

Date Analyzed: 2014-10-31

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.109	109	80 - 120	2014-10-31
Toluene		1,2,3,4,5	mg/kg	0.100	0.111	111	80 - 120	2014-10-31
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.110	110	80 - 120	2014-10-31
Xylene		1,2,3,4,5	mg/kg	0.300	0.335	112	80 - 120	2014-10-31

Standard (ICV-1)

QC Batch: 116879

Date Analyzed: 2014-11-03

Analyzed By: RL

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		1,3,4,5	uMHOS/cm	1410	1440	102	90 - 110	2014-11-03

Standard (CCV-1)

QC Batch: 116879

Date Analyzed: 2014-11-03

Analyzed By: RL

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 28 of 33
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		1,3,4,5	uMHOS/cm	1410	1420	100	90 - 110	2014-11-03

Standard (ICV-1)

QC Batch: 116881

Date Analyzed: 2014-11-03

Analyzed By: AT

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,3,4,5	s.u.	7.00	7.01	100	98 - 102	2014-11-03

Standard (CCV-1)

QC Batch: 116881

Date Analyzed: 2014-11-03

Analyzed By: AT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,3,4,5	s.u.	7.00	7.01	100	98 - 102	2014-11-03

Standard (CCV-1)

QC Batch: 116885

Date Analyzed: 2014-11-03

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	246	98	75 - 125	2014-11-03
>C12-C35		1	mg/Kg	250	236	94	75 - 125	2014-11-03

Standard (CCV-2)

QC Batch: 116885

Date Analyzed: 2014-11-03

Analyzed By: SM

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 29 of 33
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	236	94	75 - 125	2014-11-03
>C12-C35		1	mg/Kg	250	253	101	75 - 125	2014-11-03

Standard (ICV-1)

QC Batch: 116897

Date Analyzed: 2014-11-03

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Magnesium		4	mg/Kg	51.0	51.9	102	90 - 110	2014-11-03

Standard (ICV-1)

QC Batch: 116897

Date Analyzed: 2014-11-03

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Calcium		4	mg/Kg	51.0	51.9	102	90 - 110	2014-11-03

Standard (ICV-1)

QC Batch: 116897

Date Analyzed: 2014-11-03

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Sodium		4	mg/Kg	51.0	50.2	98	90 - 110	2014-11-03

Standard (CCV-1)

QC Batch: 116897

Date Analyzed: 2014-11-03

Analyzed By: LM

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 30 of 33
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Magnesium		4	mg/Kg	51.0	51.3	100	90 - 110	2014-11-03

Standard (CCV-1)

QC Batch: 116897

Date Analyzed: 2014-11-03

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Calcium		4	mg/Kg	51.0	51.5	101	90 - 110	2014-11-03

Standard (CCV-1)

QC Batch: 116897

Date Analyzed: 2014-11-03

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Sodium		4	mg/Kg	51.0	49.9	98	90 - 110	2014-11-03

Standard (CCV-1)

QC Batch: 116906

Date Analyzed: 2014-11-03

Analyzed By: TP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.0104	104	90 - 110	2014-11-03

Standard (CCV-2)

QC Batch: 116906

Date Analyzed: 2014-11-03

Analyzed By: TP

Report Date: November 4, 2014
452711.002

Work Order: 14103108
Federal 397-3G-G1

Page Number: 31 of 33
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.00990	99	90 - 110	2014-11-03

Standard (ICV-1)

QC Batch: 116907

Date Analyzed: 2014-11-03

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		1,2,3,4,5	mg/Kg	0.125	0.122	98	90 - 110	2014-11-03
Total Arsenic		1,2,3,4,5	mg/Kg	1.00	1.00	100	90 - 110	2014-11-03
Total Barium		1,2,3,4,5	mg/Kg	1.00	0.993	99	90 - 110	2014-11-03
Total Cadmium		1,2,3,4,5	mg/Kg	1.00	0.992	99	90 - 110	2014-11-03
Total Chromium		1,2,3,4,5	mg/Kg	1.00	1.03	103	90 - 110	2014-11-03
Total Lead		1,2,3,4,5	mg/Kg	1.00	1.06	106	90 - 110	2014-11-03
Total Selenium		1,2,3,4,5	mg/Kg	1.00	1.01	101	90 - 110	2014-11-03

Standard (CCV-1)

QC Batch: 116907

Date Analyzed: 2014-11-03

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		1,2,3,4,5	mg/Kg	0.125	0.117	94	90 - 110	2014-11-03
Total Arsenic		1,2,3,4,5	mg/Kg	1.00	0.959	96	90 - 110	2014-11-03
Total Barium		1,2,3,4,5	mg/Kg	1.00	0.974	97	90 - 110	2014-11-03
Total Cadmium		1,2,3,4,5	mg/Kg	1.00	0.954	95	90 - 110	2014-11-03
Total Chromium		1,2,3,4,5	mg/Kg	1.00	0.990	99	90 - 110	2014-11-03
Total Lead		1,2,3,4,5	mg/Kg	1.00	1.02	102	90 - 110	2014-11-03
Total Selenium		1,2,3,4,5	mg/Kg	1.00	0.962	96	90 - 110	2014-11-03

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5		2014-018	Lubbock

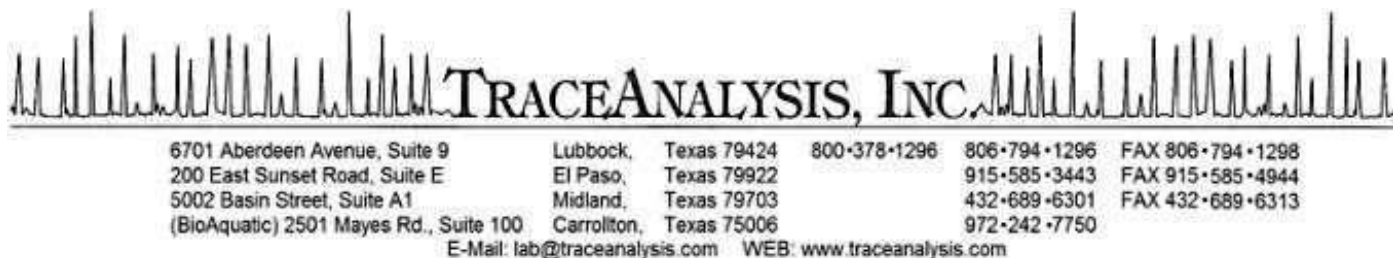
Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

F	Description
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Mike Holder
Apex Companies, LLC
307 East Danforth Road
Suite 160
Edmond, OK, 73034

Report Date: November 3, 2014

Work Order: 14103017



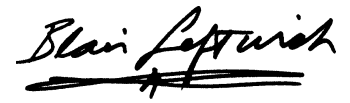
Project Location: Rifle Co.
Project Name: Federal 397-36-61 NE
Project Number: 452711.002

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
378249	Background 1	soil	2014-10-28	10:58	2014-10-30
378250	Background 2	soil	2014-10-28	11:19	2014-10-30
378251	Background 3	soil	2014-10-28	11:34	2014-10-30
378252	East Wall	soil	2014-10-28	14:40	2014-10-30
378253	Top Soil 1	soil	2014-10-28	13:47	2014-10-30
378254	Top Soil 2	soil	2014-10-28	13:55	2014-10-30
378255	Dirty 1K	soil	2014-10-28	13:25	2014-10-30
378256	Dirty 2K	soil	2014-10-28	13:33	2014-10-30
378257	Clean 1K	soil	2014-10-28	14:14	2014-10-30
378258	Clean 2K	soil	2014-10-28	14:24	2014-10-30

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 55 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a prominent horizontal line underneath the name.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative	5
Analytical Report	6
Sample 378249 (Background 1)	6
Sample 378250 (Background 2)	8
Sample 378251 (Background 3)	11
Sample 378252 (East Wall)	14
Sample 378253 (Top Soil 1)	17
Sample 378254 (Top Soil 2)	20
Sample 378255 (Dirty 1K)	23
Sample 378256 (Dirty 2K)	26
Sample 378257 (Clean 1K)	29
Sample 378258 (Clean 2K)	32
Method Blanks	36
QC Batch 116809 - Method Blank (1)	36
QC Batch 116822 - Method Blank (1)	36
QC Batch 116840 - Method Blank (1)	36
QC Batch 116849 - Method Blank (1)	37
QC Batch 116849 - Method Blank (1)	37
QC Batch 116849 - Method Blank (1)	37
QC Batch 116862 - Method Blank (1)	37
QC Batch 116864 - Method Blank (1)	38
QC Batch 116865 - Method Blank (1)	38
Duplicates	39
QC Batch 116809 - Duplicate (1)	39
QC Batch 116814 - Duplicate (1)	39
Laboratory Control Spikes	40
QC Batch 116822 - LCS (1)	40
QC Batch 116840 - LCS (1)	40
QC Batch 116849 - LCS (1)	41
QC Batch 116849 - LCS (1)	41
QC Batch 116849 - LCS (1)	42
QC Batch 116862 - LCS (1)	42
QC Batch 116864 - LCS (1)	42
QC Batch 116865 - LCS (1)	43
Matrix Spikes	44
QC Batch 116822 - MS (1)	44
QC Batch 116840 - MS (1)	44
QC Batch 116849 - MS (1)	45
QC Batch 116849 - MS (1)	45
QC Batch 116849 - MS (1)	46
QC Batch 116862 - MS (1)	46

QC Batch 116864 - MS (1)	46
QC Batch 116865 - MS (1)	47
Calibration Standards	48
QC Batch 116809 - ICV (1)	48
QC Batch 116809 - CCV (1)	48
QC Batch 116814 - ICV (1)	48
QC Batch 116814 - CCV (1)	48
QC Batch 116822 - CCV (1)	48
QC Batch 116822 - CCV (2)	49
QC Batch 116840 - CCV (1)	49
QC Batch 116840 - CCV (2)	49
QC Batch 116840 - CCV (3)	50
QC Batch 116849 - ICV (1)	50
QC Batch 116849 - ICV (1)	50
QC Batch 116849 - ICV (1)	50
QC Batch 116849 - CCV (1)	51
QC Batch 116849 - CCV (1)	51
QC Batch 116849 - CCV (1)	51
QC Batch 116862 - ICV (1)	51
QC Batch 116862 - CCV (1)	52
QC Batch 116864 - CCV (1)	52
QC Batch 116864 - CCV (2)	52
QC Batch 116865 - CCV (1)	53
QC Batch 116865 - CCV (2)	53
Appendix	54
Report Definitions	54
Laboratory Certifications	54
Standard Flags	54
Attachments	55

Case Narrative

Samples for project Federal 397-36-61 NE were received by TraceAnalysis, Inc. on 2014-10-30 and assigned to work order 14103017. Samples for work order 14103017 were received intact at a temperature of 5.9 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	98763	2014-10-30 at 14:42	116862	2014-10-31 at 12:03
As, Total	S 6010C	98763	2014-10-30 at 14:42	116862	2014-10-31 at 12:03
Ba, Total	S 6010C	98763	2014-10-30 at 14:42	116862	2014-10-31 at 12:03
BTEX	S 8021B	98773	2014-10-30 at 14:23	116822	2014-10-30 at 14:23
Ca, Extractable	S 6010C	98764	2014-10-30 at 14:59	116849	2014-10-31 at 12:03
Cd, Total	S 6010C	98763	2014-10-30 at 14:42	116862	2014-10-31 at 12:03
Conductivity	SM 2510B	98758	2014-10-30 at 13:00	116809	2014-10-30 at 14:28
Cr, Total	S 6010C	98763	2014-10-30 at 14:42	116862	2014-10-31 at 12:03
Hg, Total	S 7471 B	98801	2014-10-31 at 09:45	116864	2014-10-31 at 16:12
Hg, Total	S 7471 B	98801	2014-10-31 at 09:45	116865	2014-10-31 at 16:23
Mg, Extractable	S 6010C	98764	2014-10-30 at 14:59	116849	2014-10-31 at 12:03
Na, Extractable	S 6010C	98764	2014-10-30 at 14:59	116849	2014-10-31 at 12:03
Pb, Total	S 6010C	98763	2014-10-30 at 14:42	116862	2014-10-31 at 12:03
pH	S 9045C	98768	2014-10-30 at 02:00	116814	2014-10-30 at 15:24
SAR	USDA 60	98764	2014-10-30 at 14:59	116849	2014-10-31 at 12:03
Se, Total	S 6010C	98763	2014-10-30 at 14:42	116862	2014-10-31 at 12:03
TX1005 Extended - NEW	TX1005	98780	2014-10-30 at 14:00	116840	2014-10-31 at 11:13

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 14103017 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 6 of 55
Rifle Co.

Analytical Report

Sample: 378249 - Background 1

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 116822
Prep Batch: 98773

Analytical Method: S 8021B
Date Analyzed: 2014-10-30
Sample Preparation: 2014-10-30

Prep Method: S 5035
Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.21	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.83	mg/Kg	1	2.00	92	70 - 130

Sample: 378249 - Background 1

Laboratory: Lubbock
Analysis: Ca, Extractable
QC Batch: 116849
Prep Batch: 98764

Analytical Method: S 6010C
Date Analyzed: 2014-10-31
Sample Preparation: 2014-10-31

Prep Method: S 3005A
Analyzed By: LM
Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	26500	mg/Kg	100	1.00

Sample: 378249 - Background 1

Laboratory: Lubbock
Analysis: Conductivity
QC Batch: 116809
Prep Batch: 98758

Analytical Method: SM 2510B
Date Analyzed: 2014-10-30
Sample Preparation:

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	314	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 7 of 55
Rifle Co.

Sample: 378249 - Background 1

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	884	mg/Kg	10	1.00

Sample: 378249 - Background 1

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	755	mg/Kg	10	1.00

Sample: 378249 - Background 1

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	116814	Date Analyzed:	2014-10-30
Prep Batch:	98768	Sample Preparation:	2014-10-30
		Prep Method:	N/A
		Analyzed By:	AT
		Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.40	s.u.	1	2.00

Sample: 378249 - Background 1

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			1.24		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 8 of 55
Rifle Co.

Sample: 378249 - Background 1

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116864	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	<2.00	mg/Kg	1	2.00
Total Barium	Qr, Qs	1,2,3,4,5	267	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	0.983	mg/Kg	1	0.500
Total Chromium	Qr, Qs	1,2,3,4,5	23.5	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	4.22	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378249 - Background 1

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			103	mg/Kg	1	100	103	70 - 130
n-Octane			90.5	mg/Kg	1	100	90	70 - 130
n-Tricosane			91.7	mg/Kg	1	100	92	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 9 of 55
Rifle Co.

Sample: 378250 - Background 2

Laboratory:	Lubbock		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	116822	Date Analyzed:	2014-10-30
Prep Batch:	98773	Sample Preparation:	2014-10-30
		Prep Method:	S 5035
		Analyzed By:	JS
		Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.22	mg/Kg	1	2.00	111	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.01	mg/Kg	1	2.00	100	70 - 130

Sample: 378250 - Background 2

Laboratory:	Lubbock		
Analysis:	Ca, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	666	mg/Kg	10	1.00

Sample: 378250 - Background 2

Laboratory:	Lubbock		
Analysis:	Conductivity	Analytical Method:	SM 2510B
QC Batch:	116809	Date Analyzed:	2014-10-30
Prep Batch:	98758	Sample Preparation:	
		Prep Method:	N/A
		Analyzed By:	RL
		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	73.7	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 10 of 55
Rifle Co.

Sample: 378250 - Background 2

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Mg, Extractable	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	621	mg/Kg	10	1.00

Sample: 378250 - Background 2

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Na, Extractable	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	131	mg/Kg	10	1.00

Sample: 378250 - Background 2

Laboratory:	Lubbock	Analytical Method:	S 9045C	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2014-10-30	Analyzed By:	AT
QC Batch:	116814	Sample Preparation:	2014-10-30	Prepared By:	AT
Prep Batch:	98768				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.32	s.u.	1	2.00

Sample: 378250 - Background 2

Laboratory:	Lubbock	Analytical Method:	USDA 60	Prep Method:	N/A
Analysis:	SAR	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			0.878		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 11 of 55
Rifle Co.

Sample: 378250 - Background 2

Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 6010C	Prep Method:	S 3050B
QC Batch:	116862	Date Analyzed:	2014-10-31	Analyzed By:	LM
Prep Batch:	98763	Sample Preparation:	2014-10-31	Prepared By:	LM
Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 7471 B	Prep Method:	N/A
QC Batch:	116864	Date Analyzed:	2014-10-31	Analyzed By:	TP
Prep Batch:	98801	Sample Preparation:	2014-10-31	Prepared By:	TP

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	3.92	mg/Kg	1	2.00
Total Barium	Qr, Qs	1,2,3,4,5	212	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.11	mg/Kg	1	0.500
Total Chromium	Qr, Qs	1,2,3,4,5	33.3	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	8.99	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378250 - Background 2

Laboratory:	Lubbock				
Analysis:	TX1005 Extended - NEW	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	116840	Date Analyzed:	2014-10-31	Analyzed By:	SM
Prep Batch:	98780	Sample Preparation:	2014-10-30	Prepared By:	SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			92.7	mg/Kg	1	100	93	70 - 130
n-Octane			82.7	mg/Kg	1	100	83	70 - 130
n-Tricosane			83.5	mg/Kg	1	100	84	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 12 of 55
Rifle Co.

Sample: 378251 - Background 3

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.21	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.10	mg/Kg	1	2.00	105	70 - 130

Sample: 378251 - Background 3

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	1780	mg/Kg	10	1.00

Sample: 378251 - Background 3

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	141	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 13 of 55
Rifle Co.

Sample: 378251 - Background 3

Laboratory:	Lubbock				
Analysis:	Mg, Extractable	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	116849	Date Analyzed:	2014-10-31	Analyzed By:	LM
Prep Batch:	98764	Sample Preparation:	2014-10-31	Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	273	mg/Kg	10	1.00

Sample: 378251 - Background 3

Laboratory:	Lubbock				
Analysis:	Na, Extractable	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	116849	Date Analyzed:	2014-10-31	Analyzed By:	LM
Prep Batch:	98764	Sample Preparation:	2014-10-31	Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	132	mg/Kg	10	1.00

Sample: 378251 - Background 3

Laboratory:	Lubbock				
Analysis:	pH	Analytical Method:	S 9045C	Prep Method:	N/A
QC Batch:	116814	Date Analyzed:	2014-10-30	Analyzed By:	AT
Prep Batch:	98768	Sample Preparation:	2014-10-30	Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.06	s.u.	1	2.00

Sample: 378251 - Background 3

Laboratory:	Lubbock				
Analysis:	SAR	Analytical Method:	USDA 60	Prep Method:	N/A
QC Batch:	116849	Date Analyzed:	2014-10-31	Analyzed By:	LM
Prep Batch:	98764	Sample Preparation:	2014-10-31	Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			0.769		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 14 of 55
Rifle Co.

Sample: 378251 - Background 3

Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 6010C	Prep Method:	S 3050B
QC Batch:	116862	Date Analyzed:	2014-10-31	Analyzed By:	LM
Prep Batch:	98763	Sample Preparation:	2014-10-31	Prepared By:	LM
Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 7471 B	Prep Method:	N/A
QC Batch:	116864	Date Analyzed:	2014-10-31	Analyzed By:	TP
Prep Batch:	98801	Sample Preparation:	2014-10-31	Prepared By:	TP

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	<2.00	mg/Kg	1	2.00
Total Barium	Qr, Qs	1,2,3,4,5	315	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.12	mg/Kg	1	0.500
Total Chromium	Qr, Qs	1,2,3,4,5	24.4	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	6.42	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378251 - Background 3

Laboratory:	Lubbock				
Analysis:	TX1005 Extended - NEW	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	116840	Date Analyzed:	2014-10-31	Analyzed By:	SM
Prep Batch:	98780	Sample Preparation:	2014-10-30	Prepared By:	SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			114	mg/Kg	1	100	114	70 - 130
n-Octane			101	mg/Kg	1	100	101	70 - 130
n-Tricosane			103	mg/Kg	1	100	103	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 15 of 55
Rifle Co.

Sample: 378252 - East Wall

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.21	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.08	mg/Kg	1	2.00	104	70 - 130

Sample: 378252 - East Wall

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	3620	mg/Kg	10	1.00

Sample: 378252 - East Wall

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	373	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 16 of 55
Rifle Co.

Sample: 378252 - East Wall

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	772	mg/Kg	10	1.00

Sample: 378252 - East Wall

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	443	mg/Kg	10	1.00

Sample: 378252 - East Wall

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	116814	Date Analyzed:	2014-10-30
Prep Batch:	98768	Sample Preparation:	2014-10-30
		Prep Method:	N/A
		Analyzed By:	AT
		Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.36	s.u.	1	2.00

Sample: 378252 - East Wall

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			1.74		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 17 of 55
Rifle Co.

Sample: 378252 - East Wall

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116864	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	<2.00	mg/Kg	1	2.00
Total Barium	Qr, Qs	1,2,3,4,5	730	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.13	mg/Kg	1	0.500
Total Chromium	Qr, Qs	1,2,3,4,5	30.4	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	5.57	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378252 - East Wall

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			90.7	mg/Kg	1	100	91	70 - 130
n-Octane			81.8	mg/Kg	1	100	82	70 - 130
n-Tricosane			82.1	mg/Kg	1	100	82	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 18 of 55
Rifle Co.

Sample: 378253 - Top Soil 1

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.20	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.03	mg/Kg	1	2.00	102	70 - 130

Sample: 378253 - Top Soil 1

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	2520	mg/Kg	10	1.00

Sample: 378253 - Top Soil 1

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	317	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 19 of 55
Rifle Co.

Sample: 378253 - Top Soil 1

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	398	mg/Kg	10	1.00

Sample: 378253 - Top Soil 1

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	255	mg/Kg	10	1.00

Sample: 378253 - Top Soil 1

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	116814	Date Analyzed:	2014-10-30
Prep Batch:	98768	Sample Preparation:	2014-10-30
		Prep Method:	N/A
		Analyzed By:	AT
		Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.96	s.u.	1	2.00

Sample: 378253 - Top Soil 1

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			1.24		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 20 of 55
Rifle Co.

Sample: 378253 - Top Soil 1

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116864	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	2.70	mg/Kg	1	2.00
Total Barium	Qr, Qs	1,2,3,4,5	1740	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.09	mg/Kg	1	0.500
Total Chromium	Qr, Qs	1,2,3,4,5	28.9	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	7.17	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378253 - Top Soil 1

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			112	mg/Kg	1	100	112	70 - 130
n-Octane			100	mg/Kg	1	100	100	70 - 130
n-Tricosane			101	mg/Kg	1	100	101	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 21 of 55
Rifle Co.

Sample: 378254 - Top Soil 2

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.24	mg/Kg	1	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.06	mg/Kg	1	2.00	103	70 - 130

Sample: 378254 - Top Soil 2

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	2580	mg/Kg	10	1.00

Sample: 378254 - Top Soil 2

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	371	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 22 of 55
Rifle Co.

Sample: 378254 - Top Soil 2

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Mg, Extractable	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	416	mg/Kg	10	1.00

Sample: 378254 - Top Soil 2

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Na, Extractable	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	287	mg/Kg	10	1.00

Sample: 378254 - Top Soil 2

Laboratory:	Lubbock	Analytical Method:	S 9045C	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2014-10-30	Analyzed By:	AT
QC Batch:	116814	Sample Preparation:	2014-10-30	Prepared By:	AT
Prep Batch:	98768				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.91	s.u.	1	2.00

Sample: 378254 - Top Soil 2

Laboratory:	Lubbock	Analytical Method:	USDA 60	Prep Method:	N/A
Analysis:	SAR	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			1.38		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 23 of 55
Rifle Co.

Sample: 378254 - Top Soil 2

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116864	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	<2.00	mg/Kg	1	2.00
Total Barium	Qr, Qs	1,2,3,4,5	458	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.27	mg/Kg	1	0.500
Total Chromium	Qr, Qs	1,2,3,4,5	26.8	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	7.45	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378254 - Top Soil 2

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			110	mg/Kg	1	100	110	70 - 130
n-Octane			98.9	mg/Kg	1	100	99	70 - 130
n-Tricosane			100	mg/Kg	1	100	100	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 24 of 55
Rifle Co.

Sample: 378255 - Dirty 1K

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	0.0636	mg/Kg	1	0.0200
Xylene		1,2,3,4,5	0.108	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.22	mg/Kg	1	2.00	111	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.18	mg/Kg	1	2.00	109	70 - 130

Sample: 378255 - Dirty 1K

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	3560	mg/Kg	10	1.00

Sample: 378255 - Dirty 1K

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	1220	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 25 of 55
Rifle Co.

Sample: 378255 - Dirty 1K

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Mg, Extractable	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	74.9	mg/Kg	10	1.00

Sample: 378255 - Dirty 1K

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Na, Extractable	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	702	mg/Kg	10	1.00

Sample: 378255 - Dirty 1K

Laboratory:	Lubbock	Analytical Method:	S 9045C	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2014-10-30	Analyzed By:	AT
QC Batch:	116814	Sample Preparation:	2014-10-30	Prepared By:	AT
Prep Batch:	98768				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.80	s.u.	1	2.00

Sample: 378255 - Dirty 1K

Laboratory:	Lubbock	Analytical Method:	USDA 60	Prep Method:	N/A
Analysis:	SAR	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116849	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			2.79		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 26 of 55
Rifle Co.

Sample: 378255 - Dirty 1K

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116864	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	2.68	mg/Kg	1	2.00
Total Barium	Qr,Qs	1,2,3,4,5	2810	mg/Kg	100	1.00
Total Cadmium		1,2,3,4,5	1.25	mg/Kg	1	0.500
Total Chromium	Qr,Qs	1,2,3,4,5	30.3	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	0.0266	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	5.98	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378255 - Dirty 1K

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	B	1	77.1	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			99.5	mg/Kg	1	100	100	70 - 130
n-Octane			86.9	mg/Kg	1	100	87	70 - 130
n-Tricosane			88.9	mg/Kg	1	100	89	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 27 of 55
Rifle Co.

Sample: 378256 - Dirty 2K

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	0.0732	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.22	mg/Kg	1	2.00	111	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.19	mg/Kg	1	2.00	110	70 - 130

Sample: 378256 - Dirty 2K

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	2040	mg/Kg	10	1.00

Sample: 378256 - Dirty 2K

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	1120	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 28 of 55
Rifle Co.

Sample: 378256 - Dirty 2K

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	483	mg/Kg	10	1.00

Sample: 378256 - Dirty 2K

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	689	mg/Kg	10	1.00

Sample: 378256 - Dirty 2K

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	116814	Date Analyzed:	2014-10-30
Prep Batch:	98768	Sample Preparation:	2014-10-30
		Prep Method:	N/A
		Analyzed By:	AT
		Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.91	s.u.	1	2.00

Sample: 378256 - Dirty 2K

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			3.56		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 29 of 55
Rifle Co.

Sample: 378256 - Dirty 2K

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116864	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	2.14	mg/Kg	1	2.00
Total Barium	Qr,Qs	1,2,3,4,5	2300	mg/Kg	100	1.00
Total Cadmium		1,2,3,4,5	1.27	mg/Kg	1	0.500
Total Chromium	Qr,Qs	1,2,3,4,5	31.4	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	0.0292	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	6.78	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378256 - Dirty 2K

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	B	1	64.4	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			96.9	mg/Kg	1	100	97	70 - 130
n-Octane			89.4	mg/Kg	1	100	89	70 - 130
n-Tricosane			89.0	mg/Kg	1	100	89	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 30 of 55
Rifle Co.

Sample: 378257 - Clean 1K

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.20	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.23	mg/Kg	1	2.00	112	70 - 130

Sample: 378257 - Clean 1K

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	3130	mg/Kg	10	1.00

Sample: 378257 - Clean 1K

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	1020	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 31 of 55
Rifle Co.

Sample: 378257 - Clean 1K

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	538	mg/Kg	10	1.00

Sample: 378257 - Clean 1K

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	610	mg/Kg	10	1.00

Sample: 378257 - Clean 1K

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	116814	Date Analyzed:	2014-10-30
Prep Batch:	98768	Sample Preparation:	2014-10-30
		Prep Method:	N/A
		Analyzed By:	AT
		Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.78	s.u.	1	2.00

Sample: 378257 - Clean 1K

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			2.65		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 32 of 55
Rifle Co.

Sample: 378257 - Clean 1K

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116865	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	2.34	mg/Kg	1	2.00
Total Barium	Qr,Qs	1,2,3,4,5	2460	mg/Kg	100	1.00
Total Cadmium		1,2,3,4,5	1.46	mg/Kg	1	0.500
Total Chromium	Qr,Qs	1,2,3,4,5	30.0	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	—	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	7.73	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378257 - Clean 1K

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			101	mg/Kg	1	100	101	70 - 130
n-Octane			92.0	mg/Kg	1	100	92	70 - 130
n-Tricosane			91.2	mg/Kg	1	100	91	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 33 of 55
Rifle Co.

Sample: 378258 - Clean 2K

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116822

Prep Batch: 98773

Analytical Method: S 8021B

Date Analyzed: 2014-10-30

Sample Preparation: 2014-10-30

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.21	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.11	mg/Kg	1	2.00	106	70 - 130

Sample: 378258 - Clean 2K

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116849

Prep Batch: 98764

Analytical Method: S 6010C

Date Analyzed: 2014-10-31

Sample Preparation: 2014-10-31

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	2660	mg/Kg	10	1.00

Sample: 378258 - Clean 2K

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116809

Prep Batch: 98758

Analytical Method: SM 2510B

Date Analyzed: 2014-10-30

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	874	uMHOS/cm	1	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 34 of 55
Rifle Co.

Sample: 378258 - Clean 2K

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium		4	574	mg/Kg	10	1.00

Sample: 378258 - Clean 2K

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium		4	621	mg/Kg	10	1.00

Sample: 378258 - Clean 2K

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	116814	Date Analyzed:	2014-10-30
Prep Batch:	98768	Sample Preparation:	2014-10-30
		Prep Method:	N/A
		Analyzed By:	AT
		Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	8.99	s.u.	1	2.00

Sample: 378258 - Clean 2K

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116849	Date Analyzed:	2014-10-31
Prep Batch:	98764	Sample Preparation:	2014-10-31
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			2.84		10	0.00

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 35 of 55
Rifle Co.

Sample: 378258 - Clean 2K

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	LM
QC Batch:	116862	Sample Preparation:	2014-10-31	Prepared By:	LM
Prep Batch:	98763				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-10-31	Analyzed By:	TP
QC Batch:	116864	Sample Preparation:	2014-10-31	Prepared By:	TP
Prep Batch:	98801				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	3.55	mg/Kg	1	2.00
Total Barium	Qr,Qs	1,2,3,4,5	3070	mg/Kg	100	1.00
Total Cadmium		1,2,3,4,5	1.66	mg/Kg	1	0.500
Total Chromium	Qr,Qs	1,2,3,4,5	31.3	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	0.0252	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	10.8	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378258 - Clean 2K

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-10-31	Analyzed By:	SM
QC Batch:	116840	Sample Preparation:	2014-10-30	Prepared By:	SM
Prep Batch:	98780				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			95.8	mg/Kg	1	100	96	70 - 130
n-Octane			85.5	mg/Kg	1	100	86	70 - 130
n-Tricosane			86.8	mg/Kg	1	100	87	70 - 130

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 36 of 55
Rifle Co.

Method Blanks

Method Blank (1) QC Batch: 116809

QC Batch: 116809 Date Analyzed: 2014-10-30 Analyzed By: RL
Prep Batch: 98758 QC Preparation: 2014-10-30 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Specific Conductance		1,3,4,5	2.51	uMHOS/cm	

Method Blank (1) QC Batch: 116822

QC Batch: 116822 Date Analyzed: 2014-10-30 Analyzed By: JS
Prep Batch: 98773 QC Preparation: 2014-10-30 Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1,2,3,4,5	<0.00296	mg/Kg	0.02
Toluene		1,2,3,4,5	<0.00351	mg/Kg	0.02
Ethylbenzene		1,2,3,4,5	<0.00312	mg/Kg	0.02
Xylene		1,2,3,4,5	<0.00310	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.13	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.97	mg/Kg	1	2.00	98	70 - 130

Method Blank (1) QC Batch: 116840

QC Batch: 116840 Date Analyzed: 2014-10-31 Analyzed By: SM
Prep Batch: 98780 QC Preparation: 2014-10-30 Prepared By: SM

Parameter	Flag	Cert	MDL Result	Units	RL
C6-C12		1	14.5	mg/Kg	50
>C12-C35		1	11.0	mg/Kg	50

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 37 of 55
Rifle Co.

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			104	mg/Kg	1	100	104	70 - 130
n-Octane			93.8	mg/Kg	1	100	94	70 - 130
n-Tricosane			94.4	mg/Kg	1	100	94	70 - 130

Method Blank (1) QC Batch: 116849

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Magnesium		4	<0.0225	mg/Kg	1

Method Blank (1) QC Batch: 116849

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Calcium		4	<0.0847	mg/Kg	1

Method Blank (1) QC Batch: 116849

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Sodium		4	<0.0184	mg/Kg	1

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 38 of 55
Rifle Co.

Method Blank (1) QC Batch: 116862

QC Batch: 116862
Prep Batch: 98763

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Total Silver		1,2,3,4,5	<0.0344	mg/Kg	0.5
Total Arsenic		1,2,3,4,5	<0.432	mg/Kg	2
Total Barium		1,2,3,4,5	<0.0501	mg/Kg	1
Total Cadmium		1,2,3,4,5	<0.0320	mg/Kg	0.5
Total Chromium		1,2,3,4,5	<0.0512	mg/Kg	0.5
Total Lead		1,2,3,4,5	<0.263	mg/Kg	1
Total Selenium		1,2,3,4,5	<0.422	mg/Kg	2

Method Blank (1) QC Batch: 116864

QC Batch: 116864
Prep Batch: 98801

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: TP
Prepared By: TP

Parameter	Flag	Cert	MDL Result	Units	RL
Total Mercury		1,2,3,4,5	<0.00177	mg/Kg	0.025

Method Blank (1) QC Batch: 116865

QC Batch: 116865
Prep Batch: 98801

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: TP
Prepared By: TP

Parameter	Flag	Cert	MDL Result	Units	RL
Total Mercury		1,2,3,4,5	<0.00177	mg/Kg	0.025

Duplicates

Duplicates (1) Duplicated Sample: 378258

QC Batch: 116809
Prep Batch: 98758

Date Analyzed: 2014-10-30
QC Preparation: 2014-10-30

Analyzed By: RL
Prepared By: RL

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance	1,3,4,5	973	874	uMHOS/cm	1	11	20

Duplicates (1) Duplicated Sample: 378258

QC Batch: 116814
Prep Batch: 98768

Date Analyzed: 2014-10-30
QC Preparation: 2014-10-30

Analyzed By: AT
Prepared By: AT

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	1,2,3,4,5	8.97	8.99	s.u.	1	0	20

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 40 of 55
Rifle Co.

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 116822
Prep Batch: 98773

Date Analyzed: 2014-10-30
QC Preparation: 2014-10-30

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	2.04	mg/Kg	1	2.00	<0.00296	102	70 - 130
Toluene		1,2,3,4,5	2.10	mg/Kg	1	2.00	<0.00351	105	70 - 130
Ethylbenzene		1,2,3,4,5	2.09	mg/Kg	1	2.00	<0.00312	104	70 - 130
Xylene		1,2,3,4,5	6.39	mg/Kg	1	6.00	<0.00310	106	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	2.06	mg/Kg	1	2.00	<0.00296	103	70 - 130	1	20
Toluene		1,2,3,4,5	2.12	mg/Kg	1	2.00	<0.00351	106	70 - 130	1	20
Ethylbenzene		1,2,3,4,5	2.12	mg/Kg	1	2.00	<0.00312	106	70 - 130	1	20
Xylene		1,2,3,4,5	6.48	mg/Kg	1	6.00	<0.00310	108	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)		5	2.12	2.13	mg/Kg	1	2.00	106	106	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.93	1.94	mg/Kg	1	2.00	96	97	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 116840
Prep Batch: 98780

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: SM
Prepared By: SM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	242	mg/Kg	1	250	14.5	91	75 - 125
>C12-C35		1	248	mg/Kg	1	250	11	95	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 41 of 55
Rifle Co.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	231	mg/Kg	1	250	14.5	87	75 - 125	5	20
>C12-C35		1	241	mg/Kg	1	250	11	92	75 - 125	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Triacontane	102	102	mg/Kg	1	100	102	102	70 - 130
n-Octane	92.8	93.1	mg/Kg	1	100	93	93	70 - 130
n-Tricosane	93.2	92.6	mg/Kg	1	100	93	93	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Magnesium		4	53.0	mg/Kg	1	50.0	<0.0225	106	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Magnesium		4	53.6	mg/Kg	1	50.0	<0.0225	107	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Calcium		4	50.8	mg/Kg	1	50.0	<0.0847	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Calcium		4	51.0	mg/Kg	1	50.0	<0.0847	102	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 42 of 55
Rifle Co.

Laboratory Control Spike (LCS-1)

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Sodium		4	51.8	mg/Kg	1	50.0	<0.0184	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Sodium		4	52.2	mg/Kg	1	50.0	<0.0184	104	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116862
Prep Batch: 98763

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver		1,2,3,4,5	12.9	mg/Kg	1	12.5	<0.0344	103	85 - 115
Total Arsenic		1,2,3,4,5	52.0	mg/Kg	1	50.0	<0.432	104	85 - 115
Total Barium		1,2,3,4,5	110	mg/Kg	1	100	<0.0501	110	85 - 115
Total Cadmium		1,2,3,4,5	25.8	mg/Kg	1	25.0	<0.0320	103	85 - 115
Total Chromium		1,2,3,4,5	9.23	mg/Kg	1	10.0	<0.0512	92	85 - 115
Total Lead		1,2,3,4,5	56.8	mg/Kg	1	50.0	<0.263	114	85 - 115
Total Selenium		1,2,3,4,5	51.0	mg/Kg	1	50.0	<0.422	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver		1,2,3,4,5	13.0	mg/Kg	1	12.5	<0.0344	104	85 - 115	1	20
Total Arsenic		1,2,3,4,5	51.4	mg/Kg	1	50.0	<0.432	103	85 - 115	1	20
Total Barium		1,2,3,4,5	112	mg/Kg	1	100	<0.0501	112	85 - 115	2	20
Total Cadmium		1,2,3,4,5	26.4	mg/Kg	1	25.0	<0.0320	106	85 - 115	2	20
Total Chromium		1,2,3,4,5	9.42	mg/Kg	1	10.0	<0.0512	94	85 - 115	2	20
Total Lead		1,2,3,4,5	56.9	mg/Kg	1	50.0	<0.263	114	85 - 115	0	20
Total Selenium		1,2,3,4,5	50.3	mg/Kg	1	50.0	<0.422	101	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 43 of 55
Rifle Co.

Laboratory Control Spike (LCS-1)

QC Batch: 116864
Prep Batch: 98801

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: TP
Prepared By: TP

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,5	0.252	mg/Kg	1	0.250	<0.00177	101	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,5	0.262	mg/Kg	1	0.250	<0.00177	105	80 - 120	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116865
Prep Batch: 98801

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: TP
Prepared By: TP

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,5	0.252	mg/Kg	1	0.250	<0.00177	101	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,5	0.262	mg/Kg	1	0.250	<0.00177	105	80 - 120	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 378249

QC Batch: 116822
Prep Batch: 98773

Date Analyzed: 2014-10-30
QC Preparation: 2014-10-30

Analyzed By: JS
Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	2.00	mg/Kg	1	2.00	<0.00296	100	70 - 130
Toluene		1,2,3,4,5	2.12	mg/Kg	1	2.00	<0.00351	106	70 - 130
Ethylbenzene		1,2,3,4,5	2.21	mg/Kg	1	2.00	<0.00312	110	70 - 130
Xylene		1,2,3,4,5	6.78	mg/Kg	1	6.00	<0.00310	113	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	2.04	mg/Kg	1	2.00	<0.00296	102	70 - 130	2	20
Toluene		1,2,3,4,5	2.15	mg/Kg	1	2.00	<0.00351	108	70 - 130	1	20
Ethylbenzene		1,2,3,4,5	2.26	mg/Kg	1	2.00	<0.00312	113	70 - 130	2	20
Xylene		1,2,3,4,5	6.97	mg/Kg	1	6.00	<0.00310	116	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	2.24	2.25	mg/Kg	1	2	112	112	70 - 130
4-Bromofluorobenzene (4-BFB)	5	1.96	2.06	mg/Kg	1	2	98	103	70 - 130

Matrix Spike (MS-1) Spiked Sample: 378249

QC Batch: 116840
Prep Batch: 98780

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: SM
Prepared By: SM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	219	mg/Kg	1	250	16.2	81	70 - 130
>C12-C35		1	240	mg/Kg	1	250	13.1	91	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 45 of 55
Rifle Co.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	247	mg/Kg	1	250	16.2	92	70 - 130	12	20
>C12-C35		1	253	mg/Kg	1	250	13.1	96	70 - 130	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Triacontane	102	104	mg/Kg	1	100	102	104	70 - 130
n-Octane	93.8	98.3	mg/Kg	1	100	94	98	70 - 130
n-Tricosane	92.0	94.5	mg/Kg	1	100	92	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 378249

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Magnesium		4	6070	mg/Kg	10	5000	884	104	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Magnesium		4	6290	mg/Kg	10	5000	884	108	75 - 125	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378249

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param			F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Calcium	Qs	Qs		4	23400	mg/Kg	10	5000	26510	-62	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

				MSD			Spike	Matrix		Rec.		RPD
Param		F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Extractable Calcium	Q _s	Q _s	4	23400	mg/Kg	10	5000	26510	-62	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 46 of 55
Rifle Co.

Matrix Spike (MS-1) Spiked Sample: 378249

QC Batch: 116849
Prep Batch: 98764

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Sodium		4	5960	mg/Kg	10	5000	755	104	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Sodium		4	6100	mg/Kg	10	5000	755	107	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378254

QC Batch: 116862
Prep Batch: 98763

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-30

Analyzed By: LM
Prepared By: PM

Param			MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver			11.8	mg/Kg	1	12.5	<0.0344	94	75 - 125
Total Arsenic			49.2	mg/Kg	1	50.0	1.62	95	75 - 125
Total Barium	Qs	Qs	333	mg/Kg	1	100	458.5	-124	75 - 125
Total Cadmium			24.2	mg/Kg	1	25.0	1.27	92	75 - 125
Total Chromium	Qs	Qs	22.9	mg/Kg	1	10.0	26.8	-39	75 - 125
Total Lead			55.0	mg/Kg	1	50.0	7.45	95	75 - 125
Total Selenium			54.8	mg/Kg	1	50.0	<0.422	110	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param			MSD			Spike	Matrix		Rec.		RPD
	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Silver		1,2,3,4,5	10.7	mg/Kg	1	12.5	<0.0344	86	75 - 125	10	20
Total Arsenic		1,2,3,4,5	46.8	mg/Kg	1	50.0	1.62	90	75 - 125	5	20
Total Barium	Qr, Qs	Qr, Qs	520	mg/Kg	1	100	458.5	62	75 - 125	44	20
Total Cadmium		1,2,3,4,5	23.6	mg/Kg	1	25.0	1.27	89	75 - 125	2	20
Total Chromium	Qr	Qr	38.4	mg/Kg	1	10.0	26.8	116	75 - 125	51	20
Total Lead		1,2,3,4,5	52.8	mg/Kg	1	50.0	7.45	91	75 - 125	4	20
Total Selenium		1,2,3,4,5	45.1	mg/Kg	1	50.0	<0.422	90	75 - 125	19	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 47 of 55
Rifle Co.

Matrix Spike (MS-1) Spiked Sample: 378249

QC Batch: 116864
Prep Batch: 98801

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: TP
Prepared By: TP

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,5	0.264	mg/Kg	1	0.250	0.00857	102	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,5	0.258	mg/Kg	1	0.250	0.00857	100	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378257

QC Batch: 116865
Prep Batch: 98801

Date Analyzed: 2014-10-31
QC Preparation: 2014-10-31

Analyzed By: TP
Prepared By: TP

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,5	0.282	mg/Kg	1	0.250	0.01833	105	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,5	0.284	mg/Kg	1	0.250	0.01833	106	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (ICV-1)

QC Batch: 116809			Date Analyzed: 2014-10-30			Analyzed By: RL		
Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		1,3,4,5	uMHOS/cm	1410	1390	99	90 - 110	2014-10-30

Standard (CCV-1)

QC Batch: 116809			Date Analyzed: 2014-10-30			Analyzed By: RL		
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		1,3,4,5	uMHOS/cm	1410	1420	100	90 - 110	2014-10-30

Standard (ICV-1)

QC Batch: 116814			Date Analyzed: 2014-10-30			Analyzed By: AT		
Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,3,4,5	s.u.	7.00	7.01	100	98 - 102	2014-10-30

Standard (CCV-1)

QC Batch: 116814			Date Analyzed: 2014-10-30			Analyzed By: AT		
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,3,4,5	s.u.	7.00	7.01	100	98 - 102	2014-10-30

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 49 of 55
Rifle Co.

Standard (CCV-1)

QC Batch: 116822

Date Analyzed: 2014-10-30

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.105	105	80 - 120	2014-10-30
Toluene		1,2,3,4,5	mg/kg	0.100	0.107	107	80 - 120	2014-10-30
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.107	107	80 - 120	2014-10-30
Xylene		1,2,3,4,5	mg/kg	0.300	0.326	109	80 - 120	2014-10-30

Standard (CCV-2)

QC Batch: 116822

Date Analyzed: 2014-10-30

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.106	106	80 - 120	2014-10-30
Toluene		1,2,3,4,5	mg/kg	0.100	0.108	108	80 - 120	2014-10-30
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.108	108	80 - 120	2014-10-30
Xylene		1,2,3,4,5	mg/kg	0.300	0.331	110	80 - 120	2014-10-30

Standard (CCV-1)

QC Batch: 116840

Date Analyzed: 2014-10-31

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	267	107	75 - 125	2014-10-31
>C12-C35		1	mg/Kg	250	274	110	75 - 125	2014-10-31

Standard (CCV-2)

QC Batch: 116840

Date Analyzed: 2014-10-31

Analyzed By: SM

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 50 of 55
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	236	94	75 - 125	2014-10-31
>C12-C35		1	mg/Kg	250	242	97	75 - 125	2014-10-31

Standard (CCV-3)

QC Batch: 116840

Date Analyzed: 2014-10-31

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	236	94	75 - 125	2014-10-31
>C12-C35		1	mg/Kg	250	238	95	75 - 125	2014-10-31

Standard (ICV-1)

QC Batch: 116849

Date Analyzed: 2014-10-31

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Magnesium		4	mg/Kg	51.0	51.4	101	90 - 110	2014-10-31

Standard (ICV-1)

QC Batch: 116849

Date Analyzed: 2014-10-31

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Calcium		4	mg/Kg	51.0	51.8	102	90 - 110	2014-10-31

Standard (ICV-1)

QC Batch: 116849

Date Analyzed: 2014-10-31

Analyzed By: LM

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 51 of 55
Rifle Co.

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Sodium		4	mg/Kg	51.0	50.6	99	90 - 110	2014-10-31

Standard (CCV-1)

QC Batch: 116849

Date Analyzed: 2014-10-31

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Magnesium		4	mg/Kg	51.0	52.1	102	90 - 110	2014-10-31

Standard (CCV-1)

QC Batch: 116849

Date Analyzed: 2014-10-31

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Calcium		4	mg/Kg	51.0	52.1	102	90 - 110	2014-10-31

Standard (CCV-1)

QC Batch: 116849

Date Analyzed: 2014-10-31

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Sodium		4	mg/Kg	51.0	52.4	103	90 - 110	2014-10-31

Standard (ICV-1)

QC Batch: 116862

Date Analyzed: 2014-10-31

Analyzed By: LM

Report Date: November 3, 2014
452711.002

Work Order: 14103017
Federal 397-36-61 NE

Page Number: 52 of 55
Rifle Co.

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		1,2,3,4,5	mg/Kg	0.125	0.123	98	90 - 110	2014-10-31
Total Arsenic		1,2,3,4,5	mg/Kg	1.00	0.999	100	90 - 110	2014-10-31
Total Barium		1,2,3,4,5	mg/Kg	1.00	0.979	98	90 - 110	2014-10-31
Total Cadmium		1,2,3,4,5	mg/Kg	1.00	0.992	99	90 - 110	2014-10-31
Total Chromium		1,2,3,4,5	mg/Kg	1.00	1.04	104	90 - 110	2014-10-31
Total Lead		1,2,3,4,5	mg/Kg	1.00	1.07	107	90 - 110	2014-10-31
Total Selenium		1,2,3,4,5	mg/Kg	1.00	1.01	101	90 - 110	2014-10-31

Standard (CCV-1)

QC Batch: 116862

Date Analyzed: 2014-10-31

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		1,2,3,4,5	mg/Kg	0.125	0.126	101	90 - 110	2014-10-31
Total Arsenic		1,2,3,4,5	mg/Kg	1.00	1.03	103	90 - 110	2014-10-31
Total Barium		1,2,3,4,5	mg/Kg	1.00	1.07	107	90 - 110	2014-10-31
Total Cadmium		1,2,3,4,5	mg/Kg	1.00	1.01	101	90 - 110	2014-10-31
Total Chromium		1,2,3,4,5	mg/Kg	1.00	1.06	106	90 - 110	2014-10-31
Total Lead		1,2,3,4,5	mg/Kg	1.00	1.10	110	90 - 110	2014-10-31
Total Selenium		1,2,3,4,5	mg/Kg	1.00	1.02	102	90 - 110	2014-10-31

Standard (CCV-1)

QC Batch: 116864

Date Analyzed: 2014-10-31

Analyzed By: TP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.0100	100	90 - 110	2014-10-31

Standard (CCV-2)

QC Batch: 116864

Date Analyzed: 2014-10-31

Analyzed By: TP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.0105	105	90 - 110	2014-10-31

Standard (CCV-1)

QC Batch: 116865

Date Analyzed: 2014-10-31

Analyzed By: TP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.0100	100	90 - 110	2014-10-31

Standard (CCV-2)

QC Batch: 116865

Date Analyzed: 2014-10-31

Analyzed By: TP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.0105	105	90 - 110	2014-10-31

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5		2014-018	Lubbock

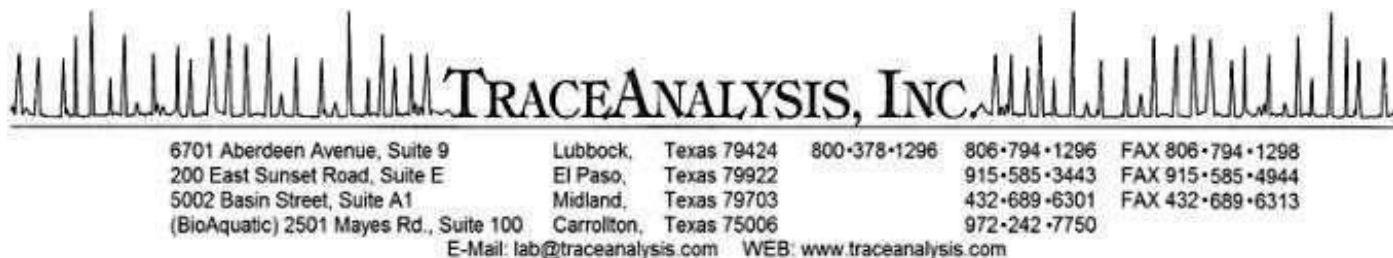
Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

F	Description
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Clint Ward
APEX Companies, LLC - Tulsa
4608 South Garnett
Suite 100
Tulsa, OK, 74146

Report Date: November 6, 2014

Work Order: 14110513



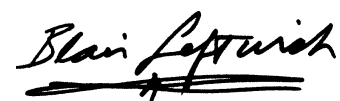
Project Location: Rifle Co.
Project Name: Federal 397 3G NE
Project Number: 452711.002

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
378649	N. Floor	soil	2014-11-03	15:00	2014-11-05
378650	S. Floor	soil	2014-11-03	15:38	2014-11-05
378651	West Wall	soil	2014-11-03	15:15	2014-11-05

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 33 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a prominent flourish at the end.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative	5
Analytical Report	6
Sample 378649 (N. Floor)	6
Sample 378650 (S. Floor)	8
Sample 378651 (West Wall)	11
Method Blanks	15
QC Batch 116965 - Method Blank (1)	15
QC Batch 116975 - Method Blank (1)	15
QC Batch 116983 - Method Blank (1)	15
QC Batch 116983 - Method Blank (1)	15
QC Batch 116983 - Method Blank (1)	16
QC Batch 116986 - Method Blank (1)	16
QC Batch 116991 - Method Blank (1)	16
QC Batch 117015 - Method Blank (1)	17
Duplicates	18
QC Batch 116965 - Duplicate (1)	18
QC Batch 117001 - Duplicate (1)	18
Laboratory Control Spikes	19
QC Batch 116975 - LCS (1)	19
QC Batch 116983 - LCS (1)	19
QC Batch 116983 - LCS (1)	20
QC Batch 116983 - LCS (1)	20
QC Batch 116986 - LCS (1)	20
QC Batch 116991 - LCS (1)	21
QC Batch 117015 - LCS (1)	22
Matrix Spikes	23
QC Batch 116975 - MS (1)	23
QC Batch 116983 - MS (1)	23
QC Batch 116983 - MS (1)	24
QC Batch 116983 - MS (1)	24
QC Batch 116986 - MS (1)	24
QC Batch 116991 - xMS (1)	25
QC Batch 117015 - MS (1)	26
Calibration Standards	27
QC Batch 116965 - ICV (1)	27
QC Batch 116965 - CCV (1)	27
QC Batch 116975 - CCV (1)	27
QC Batch 116975 - CCV (2)	27
QC Batch 116983 - ICV (1)	28
QC Batch 116983 - ICV (1)	28
QC Batch 116983 - ICV (1)	28

QC Batch 116983 - CCV (1)	28
QC Batch 116983 - CCV (1)	29
QC Batch 116983 - CCV (1)	29
QC Batch 116986 - CCV (1)	29
QC Batch 116986 - CCV (2)	29
QC Batch 116991 - ICV (1)	30
QC Batch 116991 - CCV (1)	30
QC Batch 117001 - ICV (1)	30
QC Batch 117001 - CCV (1)	31
QC Batch 117015 - CCV (1)	31
QC Batch 117015 - CCV (2)	31
Appendix	32
Report Definitions	32
Laboratory Certifications	32
Standard Flags	32
Attachments	33

Case Narrative

Samples for project Federal 397 3G NE were received by TraceAnalysis, Inc. on 2014-11-05 and assigned to work order 14110513. Samples for work order 14110513 were received intact at a temperature of 5.7 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	98883	2014-11-05 at 13:33	116991	2014-11-06 at 09:54
As, Total	S 6010C	98883	2014-11-05 at 13:33	116991	2014-11-06 at 09:54
Ba, Total	S 6010C	98883	2014-11-05 at 13:33	116991	2014-11-06 at 09:54
BTEX	S 8021B	98894	2014-11-05 at 14:47	116975	2014-11-05 at 14:47
Ca, Extractable	S 6010C	98886	2014-11-05 at 14:51	116983	2014-11-05 at 15:59
Cd, Total	S 6010C	98883	2014-11-05 at 13:33	116991	2014-11-06 at 09:54
Conductivity	SM 2510B	98884	2014-11-05 at 12:00	116965	2014-11-05 at 13:52
Cr, Total	S 6010C	98883	2014-11-05 at 13:33	116991	2014-11-06 at 09:54
Hg, Total	S 7471 B	98903	2014-11-06 at 12:45	117015	2014-11-06 at 16:53
Mg, Extractable	S 6010C	98886	2014-11-05 at 14:51	116983	2014-11-05 at 15:59
Na, Extractable	S 6010C	98886	2014-11-05 at 14:51	116983	2014-11-05 at 15:59
Pb, Total	S 6010C	98883	2014-11-05 at 13:33	116991	2014-11-06 at 09:54
pH	S 9045C	98910	2014-11-06 at 14:30	117001	2014-11-06 at 14:30
SAR	USDA 60	98886	2014-11-05 at 14:51	116983	2014-11-05 at 15:59
Se, Total	S 6010C	98883	2014-11-05 at 13:33	116991	2014-11-06 at 09:54
TX1005 Extended - NEW	TX1005	98900	2014-11-05 at 12:00	116986	2014-11-06 at 10:49

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 14110513 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 6 of 33
Rifle Co.

Analytical Report

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2014-11-05	Analyzed By:	JS
QC Batch:	116975	Sample Preparation:	2014-11-05	Prepared By:	JS
Prep Batch:	98894				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.17	mg/Kg	1	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.82	mg/Kg	1	2.00	91	70 - 130

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Ca, Extractable	Date Analyzed:	2014-11-05	Analyzed By:	LM
QC Batch:	116983	Sample Preparation:	2014-11-05	Prepared By:	LM
Prep Batch:	98886				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	20.2	mg/Kg	10	1.00

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	SM 2510B	Prep Method:	N/A
Analysis:	Conductivity	Date Analyzed:	2014-11-05	Analyzed By:	RL
QC Batch:	116965	Sample Preparation:		Prepared By:	RL
Prep Batch:	98884				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	216	uMHOS/cm	1	0.00

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 7 of 33
Rifle Co.

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Mg, Extractable	Date Analyzed:	2014-11-05	Analyzed By:	LM
QC Batch:	116983	Sample Preparation:	2014-11-05	Prepared By:	LM
Prep Batch:	98886				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium	Qs	4	32.8	mg/Kg	10	1.00

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3005A
Analysis:	Na, Extractable	Date Analyzed:	2014-11-05	Analyzed By:	LM
QC Batch:	116983	Sample Preparation:	2014-11-05	Prepared By:	LM
Prep Batch:	98886				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium	Qs	4	270	mg/Kg	10	1.00

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	S 9045C	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2014-11-06	Analyzed By:	JP
QC Batch:	117001	Sample Preparation:		Prepared By:	JP
Prep Batch:	98910				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.55	s.u.	1	2.00

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	USDA 60	Prep Method:	N/A
Analysis:	SAR	Date Analyzed:	2014-11-05	Analyzed By:	LM
QC Batch:	116983	Sample Preparation:	2014-11-05	Prepared By:	LM
Prep Batch:	98886				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			8.63		10	0.00

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 8 of 33
Rifle Co.

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3050B
Analysis:	Total 8 Metals	Date Analyzed:	2014-11-06	Analyzed By:	LM
QC Batch:	116991	Sample Preparation:	2014-11-05	Prepared By:	LM
Prep Batch:	98883				
Laboratory:	Lubbock	Analytical Method:	S 7471 B	Prep Method:	N/A
Analysis:	Total 8 Metals	Date Analyzed:	2014-11-06	Analyzed By:	TP
QC Batch:	117015	Sample Preparation:	2014-11-06	Prepared By:	TP
Prep Batch:	98903				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00
Total Barium	Qs	1,2,3,4,5	1750	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	2.80	mg/Kg	1	0.500
Total Chromium		1,2,3,4,5	28.6	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	0.0275	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	19.6	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378649 - N. Floor

Laboratory:	Lubbock	Analytical Method:	TX1005	Prep Method:	N/A
Analysis:	TX1005 Extended - NEW	Date Analyzed:	2014-11-06	Analyzed By:	SM
QC Batch:	116986	Sample Preparation:	2014-11-05	Prepared By:	SM
Prep Batch:	98900				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35		1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			80.0	mg/Kg	1	100	80	70 - 130
n-Octane			78.3	mg/Kg	1	100	78	70 - 130
n-Tricosane			77.4	mg/Kg	1	100	77	70 - 130

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 9 of 33
Rifle Co.

Sample: 378650 - S. Floor

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116975

Prep Batch: 98894

Analytical Method: S 8021B

Date Analyzed: 2014-11-05

Sample Preparation: 2014-11-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Qs	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.17	mg/Kg	1	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.95	mg/Kg	1	2.00	98	70 - 130

Sample: 378650 - S. Floor

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116983

Prep Batch: 98886

Analytical Method: S 6010C

Date Analyzed: 2014-11-05

Sample Preparation: 2014-11-05

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	29.3	mg/Kg	10	1.00

Sample: 378650 - S. Floor

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116965

Prep Batch: 98884

Analytical Method: SM 2510B

Date Analyzed: 2014-11-05

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	149	uMHOS/cm	1	0.00

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 10 of 33
Rifle Co.

Sample: 378650 - S. Floor

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116983	Date Analyzed:	2014-11-05
Prep Batch:	98886	Sample Preparation:	2014-11-05
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium	Qs	4	31.1	mg/Kg	10	1.00

Sample: 378650 - S. Floor

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116983	Date Analyzed:	2014-11-05
Prep Batch:	98886	Sample Preparation:	2014-11-05
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium	Qs	4	174	mg/Kg	10	1.00

Sample: 378650 - S. Floor

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	117001	Date Analyzed:	2014-11-06
Prep Batch:	98910	Sample Preparation:	
		Prep Method:	N/A
		Analyzed By:	JP
		Prepared By:	JP

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.31	s.u.	1	2.00

Sample: 378650 - S. Floor

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116983	Date Analyzed:	2014-11-05
Prep Batch:	98886	Sample Preparation:	2014-11-05
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			5.34		10	0.00

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 11 of 33
Rifle Co.

Sample: 378650 - S. Floor

Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 6010C	Prep Method:	S 3050B
QC Batch:	116991	Date Analyzed:	2014-11-06	Analyzed By:	LM
Prep Batch:	98883	Sample Preparation:	2014-11-05	Prepared By:	LM
Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 7471 B	Prep Method:	N/A
QC Batch:	117015	Date Analyzed:	2014-11-06	Analyzed By:	TP
Prep Batch:	98903	Sample Preparation:	2014-11-06	Prepared By:	TP

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	<2.00	mg/Kg	1	2.00
Total Barium	Qs	1,2,3,4,5	1530	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.97	mg/Kg	1	0.500
Total Chromium		1,2,3,4,5	30.6	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	7.75	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378650 - S. Floor

Laboratory:	Lubbock				
Analysis:	TX1005 Extended - NEW	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	116986	Date Analyzed:	2014-11-06	Analyzed By:	SM
Prep Batch:	98900	Sample Preparation:	2014-11-05	Prepared By:	SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			99.6	mg/Kg	1	100	100	70 - 130
n-Octane	Qsr	Qsr	0.00	mg/Kg	1	100	0	70 - 130
n-Tricosane			96.5	mg/Kg	1	100	96	70 - 130

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 12 of 33
Rifle Co.

Sample: 378651 - West Wall

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116975

Prep Batch: 98894

Analytical Method: S 8021B

Date Analyzed: 2014-11-05

Sample Preparation: 2014-11-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.18	mg/Kg	1	2.00	109	70 - 130
4-Bromofluorobenzene (4-BFB)		5	2.02	mg/Kg	1	2.00	101	70 - 130

Sample: 378651 - West Wall

Laboratory: Lubbock

Analysis: Ca, Extractable

QC Batch: 116983

Prep Batch: 98886

Analytical Method: S 6010C

Date Analyzed: 2014-11-05

Sample Preparation: 2014-11-05

Prep Method: S 3005A

Analyzed By: LM

Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Calcium	Qs	4	256	mg/Kg	10	1.00

Sample: 378651 - West Wall

Laboratory: Lubbock

Analysis: Conductivity

QC Batch: 116965

Prep Batch: 98884

Analytical Method: SM 2510B

Date Analyzed: 2014-11-05

Sample Preparation:

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Conductance		1,3,4,5	348	uMHOS/cm	1	0.00

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 13 of 33
Rifle Co.

Sample: 378651 - West Wall

Laboratory:	Lubbock		
Analysis:	Mg, Extractable	Analytical Method:	S 6010C
QC Batch:	116983	Date Analyzed:	2014-11-05
Prep Batch:	98886	Sample Preparation:	2014-11-05
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Magnesium	Qs	4	47.0	mg/Kg	10	1.00

Sample: 378651 - West Wall

Laboratory:	Lubbock		
Analysis:	Na, Extractable	Analytical Method:	S 6010C
QC Batch:	116983	Date Analyzed:	2014-11-05
Prep Batch:	98886	Sample Preparation:	2014-11-05
		Prep Method:	S 3005A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Extractable Sodium	Qs	4	312	mg/Kg	10	1.00

Sample: 378651 - West Wall

Laboratory:	Lubbock		
Analysis:	pH	Analytical Method:	S 9045C
QC Batch:	117001	Date Analyzed:	2014-11-06
Prep Batch:	98910	Sample Preparation:	
		Prep Method:	N/A
		Analyzed By:	JP
		Prepared By:	JP

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,3,4,5	9.36	s.u.	1	2.00

Sample: 378651 - West Wall

Laboratory:	Lubbock		
Analysis:	SAR	Analytical Method:	USDA 60
QC Batch:	116983	Date Analyzed:	2014-11-05
Prep Batch:	98886	Sample Preparation:	2014-11-05
		Prep Method:	N/A
		Analyzed By:	LM
		Prepared By:	LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
SAR			4.70		10	0.00

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 14 of 33
Rifle Co.

Sample: 378651 - West Wall

Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 6010C	Prep Method:	S 3050B
QC Batch:	116991	Date Analyzed:	2014-11-06	Analyzed By:	LM
Prep Batch:	98883	Sample Preparation:	2014-11-05	Prepared By:	LM
Laboratory:	Lubbock				
Analysis:	Total 8 Metals	Analytical Method:	S 7471 B	Prep Method:	N/A
QC Batch:	117015	Date Analyzed:	2014-11-06	Analyzed By:	TP
Prep Batch:	98903	Sample Preparation:	2014-11-06	Prepared By:	TP

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Silver	U	1,2,3,4,5	<0.500	mg/Kg	1	0.500
Total Arsenic		1,2,3,4,5	4.30	mg/Kg	1	2.00
Total Barium	Qs	1,2,3,4,5	974	mg/Kg	10	1.00
Total Cadmium		1,2,3,4,5	1.72	mg/Kg	1	0.500
Total Chromium		1,2,3,4,5	28.8	mg/Kg	1	0.500
Total Mercury		1,2,3,4,5	<0.0250	mg/Kg	1	0.0250
Total Lead		1,2,3,4,5	7.68	mg/Kg	1	1.00
Total Selenium	U	1,2,3,4,5	<2.00	mg/Kg	1	2.00

Sample: 378651 - West Wall

Laboratory:	Lubbock				
Analysis:	TX1005 Extended - NEW	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	116986	Date Analyzed:	2014-11-06	Analyzed By:	SM
Prep Batch:	98900	Sample Preparation:	2014-11-05	Prepared By:	SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			108	mg/Kg	1	100	108	70 - 130
n-Octane			104	mg/Kg	1	100	104	70 - 130
n-Tricosane			104	mg/Kg	1	100	104	70 - 130

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 15 of 33
Rifle Co.

Method Blanks

Method Blank (1) QC Batch: 116965

QC Batch: 116965 Date Analyzed: 2014-11-05 Analyzed By: RL
Prep Batch: 98884 QC Preparation: 2014-11-05 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Specific Conductance		1,3,4,5	1.41	uMHOS/cm	

Method Blank (1) QC Batch: 116975

QC Batch: 116975 Date Analyzed: 2014-11-05 Analyzed By: JS
Prep Batch: 98894 QC Preparation: 2014-11-05 Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1,2,3,4,5	<0.00296	mg/Kg	0.02
Toluene		1,2,3,4,5	<0.00351	mg/Kg	0.02
Ethylbenzene		1,2,3,4,5	<0.00312	mg/Kg	0.02
Xylene		1,2,3,4,5	<0.00310	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.06	mg/Kg	1	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)		5	1.87	mg/Kg	1	2.00	94	70 - 130

Method Blank (1) QC Batch: 116983

QC Batch: 116983 Date Analyzed: 2014-11-05 Analyzed By: LM
Prep Batch: 98886 QC Preparation: 2014-11-05 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Magnesium		4	<0.0225	mg/Kg	1

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 16 of 33
Rifle Co.

Method Blank (1) QC Batch: 116983

QC Batch: 116983 Date Analyzed: 2014-11-05 Analyzed By: LM
Prep Batch: 98886 QC Preparation: 2014-11-05 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Calcium		4	<0.0847	mg/Kg	1

Method Blank (1) QC Batch: 116983

QC Batch: 116983 Date Analyzed: 2014-11-05 Analyzed By: LM
Prep Batch: 98886 QC Preparation: 2014-11-05 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Extractable Sodium		4	<0.0184	mg/Kg	1

Method Blank (1) QC Batch: 116986

QC Batch: 116986 Date Analyzed: 2014-11-06 Analyzed By: SM
Prep Batch: 98900 QC Preparation: 2014-11-05 Prepared By: SM

Parameter	Flag	Cert	MDL Result	Units	RL
C6-C12		1	14.1	mg/Kg	50
>C12-C35		1	<10.7	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			90.0	mg/Kg	1	100	90	70 - 130
n-Octane			86.1	mg/Kg	1	100	86	70 - 130
n-Tricosane			86.7	mg/Kg	1	100	87	70 - 130

Method Blank (1) QC Batch: 116991

QC Batch: 116991 Date Analyzed: 2014-11-06 Analyzed By: LM
Prep Batch: 98883 QC Preparation: 2014-11-05 Prepared By: PM

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 17 of 33
Rifle Co.

Parameter	Flag	Cert	MDL Result	Units	RL
Total Silver		1,2,3,4,5	<0.0344	mg/Kg	0.5
Total Arsenic		1,2,3,4,5	<0.432	mg/Kg	2
Total Barium		1,2,3,4,5	<0.0501	mg/Kg	1
Total Cadmium		1,2,3,4,5	<0.0320	mg/Kg	0.5
Total Chromium		1,2,3,4,5	<0.0512	mg/Kg	0.5
Total Lead		1,2,3,4,5	<0.263	mg/Kg	1
Total Selenium		1,2,3,4,5	<0.422	mg/Kg	2

Method Blank (1) QC Batch: 117015

QC Batch: 117015
Prep Batch: 98903

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-06

Analyzed By: TP
Prepared By: TP

Parameter	Flag	Cert	MDL Result	Units	RL
Total Mercury		1,2,3,4,5	<0.00177	mg/Kg	0.025

Duplicates

Duplicates (1) Duplicated Sample: 378651

QC Batch: 116965
Prep Batch: 98884

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: RL
Prepared By: RL

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance	1,3,4,5	410	348	uMHOS/cm	1	16	20

Duplicates (1) Duplicated Sample: 378651

QC Batch: 117001
Prep Batch: 98910

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-06

Analyzed By: JP
Prepared By: JP

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	1,2,3,4,5	9.27	9.36	s.u.	1	1	20

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 116975
Prep Batch: 98894

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	2.03	mg/Kg	1	2.00	<0.00296	102	70 - 130
Toluene		1,2,3,4,5	2.07	mg/Kg	1	2.00	<0.00351	104	70 - 130
Ethylbenzene		1,2,3,4,5	2.04	mg/Kg	1	2.00	<0.00312	102	70 - 130
Xylene		1,2,3,4,5	6.25	mg/Kg	1	6.00	<0.00310	104	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	2.10	mg/Kg	1	2.00	<0.00296	105	70 - 130	3	20
Toluene		1,2,3,4,5	2.13	mg/Kg	1	2.00	<0.00351	106	70 - 130	3	20
Ethylbenzene		1,2,3,4,5	2.11	mg/Kg	1	2.00	<0.00312	106	70 - 130	3	20
Xylene		1,2,3,4,5	6.46	mg/Kg	1	6.00	<0.00310	108	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	2.12	2.10	mg/Kg	1	2.00	106	105	70 - 130
4-Bromofluorobenzene (4-BFB)	5	1.93	1.93	mg/Kg	1	2.00	96	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 116983
Prep Batch: 98886

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Magnesium		4	48.8	mg/Kg	1	50.0	<0.0225	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 20 of 33
Rifle Co.

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Magnesium		4	48.1	mg/Kg	1	50.0	<0.0225	96	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116983
Prep Batch: 98886

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Calcium		4	47.0	mg/Kg	1	50.0	<0.0847	94	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Calcium		4	46.1	mg/Kg	1	50.0	<0.0847	92	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 116983
Prep Batch: 98886

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Extractable Sodium		4	46.5	mg/Kg	1	50.0	<0.0184	93	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Extractable Sodium		4	45.9	mg/Kg	1	50.0	<0.0184	92	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 21 of 33
Rifle Co.

Laboratory Control Spike (LCS-1)

QC Batch: 116986
Prep Batch: 98900

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-05

Analyzed By: SM
Prepared By: SM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	206	mg/Kg	1	250	14.1	77	75 - 125
>C12-C35		1	223	mg/Kg	1	250	<10.7	89	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	209	mg/Kg	1	250	14.1	78	75 - 125	1	20
>C12-C35		1	220	mg/Kg	1	250	<10.7	88	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	103	104	mg/Kg	1	100	103	104	70 - 130
n-Octane	102	103	mg/Kg	1	100	102	103	70 - 130
n-Tricosane	102	103	mg/Kg	1	100	102	103	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 116991
Prep Batch: 98883

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver		1,2,3,4,5	12.1	mg/Kg	1	12.5	<0.0344	97	85 - 115
Total Arsenic		1,2,3,4,5	47.1	mg/Kg	1	50.0	<0.432	94	85 - 115
Total Barium		1,2,3,4,5	94.9	mg/Kg	1	100	<0.0501	95	85 - 115
Total Cadmium		1,2,3,4,5	24.0	mg/Kg	1	25.0	<0.0320	96	85 - 115
Total Chromium		1,2,3,4,5	10.1	mg/Kg	1	10.0	<0.0512	101	85 - 115
Total Lead		1,2,3,4,5	49.8	mg/Kg	1	50.0	<0.263	100	85 - 115
Total Selenium		1,2,3,4,5	44.9	mg/Kg	1	50.0	<0.422	90	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver		1,2,3,4,5	12.2	mg/Kg	1	12.5	<0.0344	98	85 - 115	1	20
Total Arsenic		1,2,3,4,5	47.5	mg/Kg	1	50.0	<0.432	95	85 - 115	1	20

continued ...

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 22 of 33
Rifle Co.

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Barium		1,2,3,4,5	97.7	mg/Kg	1	100	<0.0501	98	85 - 115	3	20
Total Cadmium		1,2,3,4,5	24.3	mg/Kg	1	25.0	<0.0320	97	85 - 115	1	20
Total Chromium		1,2,3,4,5	10.4	mg/Kg	1	10.0	<0.0512	104	85 - 115	2	20
Total Lead		1,2,3,4,5	50.3	mg/Kg	1	50.0	<0.263	101	85 - 115	1	20
Total Selenium		1,2,3,4,5	45.9	mg/Kg	1	50.0	<0.422	92	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 117015
Prep Batch: 98903

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-06

Analyzed By: TP
Prepared By: TP

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,5	0.253	mg/Kg	1	0.250	<0.00177	101	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,5	0.257	mg/Kg	1	0.250	<0.00177	103	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 378651

QC Batch: 116975
Prep Batch: 98894

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: JS
Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	2.37	mg/Kg	1	2.00	<0.00296	118	70 - 130
Toluene		1,2,3,4,5	2.47	mg/Kg	1	2.00	0.0055	123	70 - 130
Ethylbenzene		1,2,3,4,5	2.56	mg/Kg	1	2.00	<0.00312	128	70 - 130
Xylene	Qs	Qs	7.87	mg/Kg	1	6.00	<0.00310	131	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	2.23	mg/Kg	1	2.00	<0.00296	112	70 - 130	6	20
Toluene		1,2,3,4,5	2.30	mg/Kg	1	2.00	0.0055	115	70 - 130	7	20
Ethylbenzene		1,2,3,4,5	2.38	mg/Kg	1	2.00	<0.00312	119	70 - 130	7	20
Xylene		1,2,3,4,5	7.33	mg/Kg	1	6.00	<0.00310	122	70 - 130	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	2.22	2.24	mg/Kg	1	2	111	112	70 - 130
4-Bromofluorobenzene (4-BFB)	5	1.98	2.05	mg/Kg	1	2	99	102	70 - 130

Matrix Spike (MS-1) Spiked Sample: 378649

QC Batch: 116983
Prep Batch: 98886

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	
Extractable Magnesium	Qs	Qs	4	368	mg/Kg	1	500	32.8	67	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 24 of 33
Rifle Co.

matrix spikes continued ...

Table 1.1: Quality Control Data												
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit	
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit	
Extractable Magnesium	Q _s	Q _s	4	378	mg/Kg	1	500	32.8	69	75 - 125	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378649

QC Batch: 116983
Prep Batch: 98886

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	
Extractable Calcium	Q _s	Q _s	4	352	mg/Kg	1	500	20.2	66	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param				MSD			Spike	Matrix		Rec.		RPD
	F	C		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Extractable Calcium	Q _s	Q _s	4	375	mg/Kg	1	500	20.2	71	75 - 125	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378649

QC Batch: 116983
Prep Batch: 98886

Date Analyzed: 2014-11-05
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

				MS			Spike	Matrix		Rec.
Param		F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Extractable Sodium	Q _s	Q _s	4	375	mg/Kg	1	500	270	21	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param				MSD			Spike	Matrix		Rec.		RPD
		F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Extractable Sodium	Q _s	Q _s	4	394	mg/Kg	1	500	270	25	75 - 125	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 25 of 33
Rifle Co.

Matrix Spike (MS-1) Spiked Sample: 378651

QC Batch: 116986
Prep Batch: 98900

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-05

Analyzed By: SM
Prepared By: SM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	204	mg/Kg	1	250	15.9	75	70 - 130
>C12-C35		1	228	mg/Kg	1	250	<10.7	91	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	205	mg/Kg	1	250	15.9	76	70 - 130	0	20
>C12-C35		1	228	mg/Kg	1	250	<10.7	91	70 - 130	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Triacontane	107	108	mg/Kg	1	100	107	108	70 - 130
n-Octane	110	112	mg/Kg	1	100	110	112	70 - 130
n-Tricosane	106	107	mg/Kg	1	100	106	107	70 - 130

Matrix Spike (xMS-1) Spiked Sample: 378326

QC Batch: 116991
Prep Batch: 98883

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-05

Analyzed By: LM
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver		1,2,3,4,5	12.4	mg/Kg	1	12.5	0.3995	96	75 - 125
Total Arsenic		1,2,3,4,5	46.9	mg/Kg	1	50.0	2.255	89	75 - 125
Total Barium	Qs	Qs	349	mg/Kg	1	100	291.9	57	75 - 125
Total Cadmium		1,2,3,4,5	23.6	mg/Kg	1	25.0	<0.0320	94	75 - 125
Total Chromium		1,2,3,4,5	12.6	mg/Kg	1	10.0	1.884	107	75 - 125
Total Lead		1,2,3,4,5	41.1	mg/Kg	1	50.0	<0.263	82	75 - 125
Total Selenium		1,2,3,4,5	41.1	mg/Kg	1	50.0	<0.422	82	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver		1,2,3,4,5	11.7	mg/Kg	1	12.5	0.3995	90	75 - 125	6	20
Total Arsenic		1,2,3,4,5	44.7	mg/Kg	1	50.0	2.255	85	75 - 125	5	20

continued ...

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 26 of 33
Rifle Co.

matrix spikes continued ...

Param			MSD		Dil.	Spike	Matrix	Rec.		RPD		
	F	C	Result	Units		Amount	Result	Rec.	Limit	RPD	Limit	
Total Barium	Qs	Qs	1,2,3,4,5	424	mg/Kg	1	100	291.9	132	75 - 125	19	20
Total Cadmium			1,2,3,4,5	22.2	mg/Kg	1	25.0	<0.0320	89	75 - 125	6	20
Total Chromium			1,2,3,4,5	10.9	mg/Kg	1	10.0	1.884	90	75 - 125	14	20
Total Lead			1,2,3,4,5	38.3	mg/Kg	1	50.0	<0.263	77	75 - 125	7	20
Total Selenium			1,2,3,4,5	38.2	mg/Kg	1	50.0	<0.422	76	75 - 125	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 378651

QC Batch: 117015
Prep Batch: 98903

Date Analyzed: 2014-11-06
QC Preparation: 2014-11-06

Analyzed By: TP
Prepared By: TP

			MS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Mercury		1,2,3,4,5	0.274	mg/Kg	1	0.250	0.011	105	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike		Matrix	Rec.		RPD		
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Mercury		1,2,3,4,5	0.278	mg/Kg	1	0.250	0.011	107	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (ICV-1)

QC Batch: 116965

Date Analyzed: 2014-11-05

Analyzed By: RL

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		1,3,4,5	uMHOS/cm	1410	1390	99	90 - 110	2014-11-05

Standard (CCV-1)

QC Batch: 116965

Date Analyzed: 2014-11-05

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		1,3,4,5	uMHOS/cm	1410	1410	100	90 - 110	2014-11-05

Standard (CCV-1)

QC Batch: 116975

Date Analyzed: 2014-11-05

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.0972	97	80 - 120	2014-11-05
Toluene		1,2,3,4,5	mg/kg	0.100	0.101	101	80 - 120	2014-11-05
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.101	101	80 - 120	2014-11-05
Xylene		1,2,3,4,5	mg/kg	0.300	0.309	103	80 - 120	2014-11-05

Standard (CCV-2)

QC Batch: 116975

Date Analyzed: 2014-11-05

Analyzed By: JS

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 28 of 33
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.107	107	80 - 120	2014-11-05
Toluene		1,2,3,4,5	mg/kg	0.100	0.108	108	80 - 120	2014-11-05
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.108	108	80 - 120	2014-11-05
Xylene		1,2,3,4,5	mg/kg	0.300	0.332	111	80 - 120	2014-11-05

Standard (ICV-1)

QC Batch: 116983

Date Analyzed: 2014-11-05

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Magnesium		4	mg/Kg	51.0	51.2	100	90 - 110	2014-11-05

Standard (ICV-1)

QC Batch: 116983

Date Analyzed: 2014-11-05

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Calcium		4	mg/Kg	51.0	51.2	100	90 - 110	2014-11-05

Standard (ICV-1)

QC Batch: 116983

Date Analyzed: 2014-11-05

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Sodium		4	mg/Kg	51.0	50.8	100	90 - 110	2014-11-05

Standard (CCV-1)

QC Batch: 116983

Date Analyzed: 2014-11-05

Analyzed By: LM

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 29 of 33
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Magnesium		4	mg/Kg	51.0	47.7	94	90 - 110	2014-11-05

Standard (CCV-1)

QC Batch: 116983

Date Analyzed: 2014-11-05

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Calcium		4	mg/Kg	51.0	47.9	94	90 - 110	2014-11-05

Standard (CCV-1)

QC Batch: 116983

Date Analyzed: 2014-11-05

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Extractable Sodium		4	mg/Kg	51.0	46.6	91	90 - 110	2014-11-05

Standard (CCV-1)

QC Batch: 116986

Date Analyzed: 2014-11-06

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	213	85	75 - 125	2014-11-06
>C12-C35		1	mg/Kg	250	225	90	75 - 125	2014-11-06

Standard (CCV-2)

QC Batch: 116986

Date Analyzed: 2014-11-06

Analyzed By: SM

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 30 of 33
Rifle Co.

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	206	82	75 - 125	2014-11-06
>C12-C35		1	mg/Kg	250	230	92	75 - 125	2014-11-06

Standard (ICV-1)

QC Batch: 116991

Date Analyzed: 2014-11-06

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		1,2,3,4,5	mg/Kg	0.125	0.123	98	90 - 110	2014-11-06
Total Arsenic		1,2,3,4,5	mg/Kg	1.00	0.999	100	90 - 110	2014-11-06
Total Barium		1,2,3,4,5	mg/Kg	1.00	0.993	99	90 - 110	2014-11-06
Total Cadmium		1,2,3,4,5	mg/Kg	1.00	0.998	100	90 - 110	2014-11-06
Total Chromium		1,2,3,4,5	mg/Kg	1.00	1.04	104	90 - 110	2014-11-06
Total Lead		1,2,3,4,5	mg/Kg	1.00	1.06	106	90 - 110	2014-11-06
Total Selenium		1,2,3,4,5	mg/Kg	1.00	1.00	100	90 - 110	2014-11-06

Standard (CCV-1)

QC Batch: 116991

Date Analyzed: 2014-11-06

Analyzed By: LM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		1,2,3,4,5	mg/Kg	0.125	0.120	96	90 - 110	2014-11-06
Total Arsenic		1,2,3,4,5	mg/Kg	1.00	0.959	96	90 - 110	2014-11-06
Total Barium		1,2,3,4,5	mg/Kg	1.00	0.935	94	90 - 110	2014-11-06
Total Cadmium		1,2,3,4,5	mg/Kg	1.00	0.964	96	90 - 110	2014-11-06
Total Chromium		1,2,3,4,5	mg/Kg	1.00	1.01	101	90 - 110	2014-11-06
Total Lead		1,2,3,4,5	mg/Kg	1.00	1.03	103	90 - 110	2014-11-06
Total Selenium		1,2,3,4,5	mg/Kg	1.00	0.952	95	90 - 110	2014-11-06

Standard (ICV-1)

QC Batch: 117001

Date Analyzed: 2014-11-06

Analyzed By: JP

Report Date: November 6, 2014
452711.002

Work Order: 14110513
Federal 397 3G NE

Page Number: 31 of 33
Rifle Co.

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,3,4,5	s.u.	7.00	7.01	100	98 - 102	2014-11-06

Standard (CCV-1)

QC Batch: 117001

Date Analyzed: 2014-11-06

Analyzed By: JP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,3,4,5	s.u.	7.00	7.01	100	98 - 102	2014-11-06

Standard (CCV-1)

QC Batch: 117015

Date Analyzed: 2014-11-06

Analyzed By: TP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.0104	104	90 - 110	2014-11-06

Standard (CCV-2)

QC Batch: 117015

Date Analyzed: 2014-11-06

Analyzed By: TP

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,5	mg/L	0.0100	0.0101	101	90 - 110	2014-11-06

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5		2014-018	Lubbock

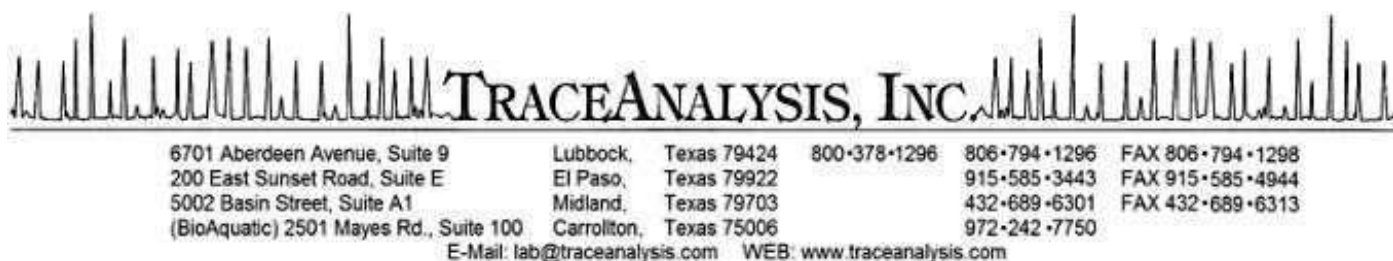
Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

F	Description
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Mike Holder
Apex Companies, LLC
307 East Danforth Road
Suite 160
Edmond, OK, 73034

Report Date: October 21, 2014

Work Order: 14101714



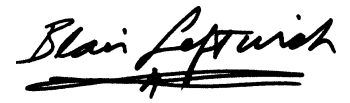
Project Location: Rifle, Co.
Project Name: 397-36-G1 Pad
Project Number: 425711.02

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
377168	US-1	soil	2014-10-15	10:01	2014-10-17
377169	US-2	soil	2014-10-15	16:00	2014-10-17
377170	TS-1	soil	2014-10-15	16:06	2014-10-17
377171	EF-1	soil	2014-10-15	16:11	2014-10-17
377172	WW-1	soil	2014-10-15	16:20	2014-10-17
377173	SW-1	soil	2014-10-15	16:28	2014-10-17
377174	EW-1	soil	2014-10-15	16:36	2014-10-17
377175	NW-1	soil	2014-10-15	00:00	2014-10-17

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 21 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a prominent horizontal stroke at the end.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative	4
Analytical Report	5
Sample 377168 (US-1)	5
Sample 377169 (US-2)	5
Sample 377170 (TS-1)	6
Sample 377171 (EF-1)	7
Sample 377172 (WW-1)	8
Sample 377173 (SW-1)	9
Sample 377174 (EW-1)	10
Sample 377175 (NW-1)	11
Method Blanks	13
QC Batch 116431 - Method Blank (1)	13
QC Batch 116489 - Method Blank (1)	13
Laboratory Control Spikes	14
QC Batch 116431 - LCS (1)	14
QC Batch 116489 - LCS (1)	14
Matrix Spikes	16
QC Batch 116431 - MS (1)	16
QC Batch 116489 - xMS (1)	16
Calibration Standards	18
QC Batch 116431 - CCV (1)	18
QC Batch 116431 - CCV (2)	18
QC Batch 116489 - CCV (1)	18
QC Batch 116489 - CCV (2)	18
QC Batch 116489 - CCV (3)	19
Appendix	20
Report Definitions	20
Laboratory Certifications	20
Standard Flags	20
Attachments	21

Case Narrative

Samples for project 397-36-G1 Pad were received by TraceAnalysis, Inc. on 2014-10-17 and assigned to work order 14101714. Samples for work order 14101714 were received intact at a temperature of 4.2 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	98466	2014-10-17 at 15:36	116431	2014-10-17 at 15:36
MTBE	S 8021B	98466	2014-10-17 at 15:36	116431	2014-10-17 at 15:36
TX1005 Extended - NEW	TX1005	98499	2014-10-20 at 14:00	116489	2014-10-21 at 10:57

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 14101714 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 5 of 21
Rifle, Co.

Analytical Report

Sample: 377168 - US-1

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 116431
Prep Batch: 98466

Analytical Method: S 8021B
Date Analyzed: 2014-10-17
Sample Preparation: 2014-10-17

Prep Method: S 5035
Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene		1,2,3,4,5	0.0691	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	0.208	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	0.427	mg/Kg	1	0.0200
Xylene		1,2,3,4,5	0.672	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.75	mg/Kg	1	2.00	88	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.92	mg/Kg	1	2.00	96	59.5 - 120

Sample: 377168 - US-1

Laboratory: Lubbock
Analysis: TX1005 Extended - NEW
QC Batch: 116489
Prep Batch: 98499

Analytical Method: TX1005
Date Analyzed: 2014-10-21
Sample Preparation:

Prep Method: N/A
Analyzed By: SM
Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Qs	1	166	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			114	mg/Kg	1	100	114	70 - 130
n-Octane			105	mg/Kg	1	100	105	70 - 130
n-Tricosane			102	mg/Kg	1	100	102	70 - 130

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 6 of 21
Rifle, Co.

Sample: 377169 - US-2

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116431

Prep Batch: 98466

Analytical Method: S 8021B

Date Analyzed: 2014-10-17

Sample Preparation: 2014-10-17

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	0.0297	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	0.0745	mg/Kg	1	0.0200
Xylene		1,2,3,4,5	0.0895	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.80	mg/Kg	1	2.00	90	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	2.19	mg/Kg	1	2.00	110	59.5 - 120

Sample: 377169 - US-2

Laboratory: Lubbock

Analysis: TX1005 Extended - NEW

QC Batch: 116489

Prep Batch: 98499

Analytical Method: TX1005

Date Analyzed: 2014-10-21

Sample Preparation:

Prep Method: N/A

Analyzed By: SM

Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	B, Qs	1	58.2	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			114	mg/Kg	1	100	114	70 - 130
n-Octane			106	mg/Kg	1	100	106	70 - 130
n-Tricosane			103	mg/Kg	1	100	103	70 - 130

Sample: 377170 - TS-1

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116431

Prep Batch: 98466

Analytical Method: S 8021B

Date Analyzed: 2014-10-17

Sample Preparation: 2014-10-17

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 7 of 21
Rifle, Co.

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	0.0267	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	0.0725	mg/Kg	1	0.0200
Xylene		1,2,3,4,5	0.0895	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.74	mg/Kg	1	2.00	87	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	2.06	mg/Kg	1	2.00	103	59.5 - 120

Sample: 377170 - TS-1

Laboratory: Lubbock
Analysis: TX1005 Extended - NEW
QC Batch: 116489
Prep Batch: 98499

Analytical Method: TX1005
Date Analyzed: 2014-10-21
Sample Preparation:

Prep Method: N/A
Analyzed By: SM
Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	B,Qs	1	97.6	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			121	mg/Kg	1	100	121	70 - 130
n-Octane			113	mg/Kg	1	100	113	70 - 130
n-Tricosane			111	mg/Kg	1	100	111	70 - 130

Sample: 377171 - EF-1

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 116431
Prep Batch: 98466

Analytical Method: S 8021B
Date Analyzed: 2014-10-17
Sample Preparation: 2014-10-17

Prep Method: S 5035
Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

continued ...

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 8 of 21
Rifle, Co.

sample 377171 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Ethylbenzene		1,2,3,4,5	0.0296	mg/Kg	1	0.0200
Xylene	B	1,2,3,4,5	0.0267	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.86	mg/Kg	1	2.00	93	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	2.00	mg/Kg	1	2.00	100	59.5 - 120

Sample: 377171 - EF-1

Laboratory: Lubbock
Analysis: TX1005 Extended - NEW
QC Batch: 116489
Prep Batch: 98499

Analytical Method: TX1005
Date Analyzed: 2014-10-21
Sample Preparation:

Prep Method: N/A
Analyzed By: SM
Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb, Qs	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			114	mg/Kg	1	100	114	70 - 130
n-Octane			107	mg/Kg	1	100	107	70 - 130
n-Tricosane			103	mg/Kg	1	100	103	70 - 130

Sample: 377172 - WW-1

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 116431
Prep Batch: 98466

Analytical Method: S 8021B
Date Analyzed: 2014-10-17
Sample Preparation: 2014-10-17

Prep Method: S 5035
Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

continued ...

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 9 of 21
Rifle, Co.

sample 377172 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene		1,2,3,4,5	0.0411	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.76	mg/Kg	1	2.00	88	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.93	mg/Kg	1	2.00	96	59.5 - 120

Sample: 377172 - WW-1

Laboratory: Lubbock
Analysis: TX1005 Extended - NEW
QC Batch: 116489
Prep Batch: 98499

Analytical Method: TX1005
Date Analyzed: 2014-10-21
Sample Preparation:

Prep Method: N/A
Analyzed By: SM
Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb, Qs	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			113	mg/Kg	1	100	113	70 - 130
n-Octane			106	mg/Kg	1	100	106	70 - 130
n-Tricosane			102	mg/Kg	1	100	102	70 - 130

Sample: 377173 - SW-1

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 116431
Prep Batch: 98466

Analytical Method: S 8021B
Date Analyzed: 2014-10-17
Sample Preparation: 2014-10-17

Prep Method: S 5035
Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Jb	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 10 of 21
Rifle, Co.

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.80	mg/Kg	1	2.00	90	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.95	mg/Kg	1	2.00	98	59.5 - 120

Sample: 377173 - SW-1

Laboratory: Lubbock

Analysis: TX1005 Extended - NEW

QC Batch: 116489

Prep Batch: 98499

Analytical Method: TX1005

Date Analyzed: 2014-10-21

Sample Preparation:

Prep Method: N/A

Analyzed By: SM

Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb, Qs	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			109	mg/Kg	1	100	109	70 - 130
n-Octane			102	mg/Kg	1	100	102	70 - 130
n-Tricosane			98.2	mg/Kg	1	100	98	70 - 130

Sample: 377174 - EW-1

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116431

Prep Batch: 98466

Analytical Method: S 8021B

Date Analyzed: 2014-10-17

Sample Preparation: 2014-10-17

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Jb	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.80	mg/Kg	1	2.00	90	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.96	mg/Kg	1	2.00	98	59.5 - 120

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 11 of 21
Rifle, Co.

Sample: 377174 - EW-1

Laboratory: Lubbock

Analysis: TX1005 Extended - NEW

QC Batch: 116489

Prep Batch: 98499

Analytical Method: TX1005

Date Analyzed: 2014-10-21

Sample Preparation:

Prep Method: N/A

Analyzed By: SM

Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb, Qs	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			114	mg/Kg	1	100	114	70 - 130
n-Octane			113	mg/Kg	1	100	113	70 - 130
n-Tricosane			105	mg/Kg	1	100	105	70 - 130

Sample: 377175 - NW-1

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 116431

Prep Batch: 98466

Analytical Method: S 8021B

Date Analyzed: 2014-10-17

Sample Preparation: 2014-10-17

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
MTBE	U	1,3,4,5	<0.0200	mg/Kg	1	0.0200
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene		1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Jb	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.78	mg/Kg	1	2.00	89	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.95	mg/Kg	1	2.00	98	59.5 - 120

Sample: 377175 - NW-1

Laboratory: Lubbock

Analysis: TX1005 Extended - NEW

QC Batch: 116489

Prep Batch: 98499

Analytical Method: TX1005

Date Analyzed: 2014-10-21

Sample Preparation:

Prep Method: N/A

Analyzed By: SM

Prepared By: SM

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 12 of 21
Rifle, Co.

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	Jb	1	<50.0	mg/Kg	1	50.0
>C12-C35	Jb, Qs	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			112	mg/Kg	1	100	112	70 - 130
n-Octane			105	mg/Kg	1	100	105	70 - 130
n-Tricosane			102	mg/Kg	1	100	102	70 - 130

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 13 of 21
Rifle, Co.

Method Blanks

Method Blank (1) QC Batch: 116431

QC Batch: 116431
Prep Batch: 98466

Date Analyzed: 2014-10-17
QC Preparation: 2014-10-17

Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
MTBE		1,3,4,5	<0.00513	mg/Kg	0.02
Benzene		1,2,3,4,5	<0.00487	mg/Kg	0.02
Toluene		1,2,3,4,5	<0.00358	mg/Kg	0.02
Ethylbenzene		1,2,3,4,5	<0.00283	mg/Kg	0.02
Xylene		1,2,3,4,5	0.00380	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.62	mg/Kg	1	2.00	81	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.72	mg/Kg	1	2.00	86	59.5 - 120

Method Blank (1) QC Batch: 116489

QC Batch: 116489
Prep Batch: 98499

Date Analyzed: 2014-10-21
QC Preparation: 2014-10-20

Analyzed By: SM
Prepared By: SM

Parameter	Flag	Cert	MDL Result	Units	RL
C6-C12		1	15.8	mg/Kg	50
>C12-C35		1	15.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			116	mg/Kg	1	100	116	70 - 130
n-Octane			112	mg/Kg	1	100	112	70 - 130
n-Tricosane			106	mg/Kg	1	100	106	70 - 130

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 14 of 21
Rifle, Co.

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 116431
Prep Batch: 98466

Date Analyzed: 2014-10-17
QC Preparation: 2014-10-17

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
MTBE		1,3,4,5	1.70	mg/Kg	1	2.00	<0.00513	85	67.8 - 121
Benzene		1,2,3,4,5	1.74	mg/Kg	1	2.00	<0.00487	87	69.3 - 120
Toluene		1,2,3,4,5	1.74	mg/Kg	1	2.00	<0.00358	87	70.5 - 120
Ethylbenzene		1,2,3,4,5	1.78	mg/Kg	1	2.00	<0.00283	89	70.6 - 120
Xylene		1,2,3,4,5	5.32	mg/Kg	1	6.00	0.0038	89	70.7 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
MTBE		1,3,4,5	1.69	mg/Kg	1	2.00	<0.00513	84	67.8 - 121	1	20
Benzene		1,2,3,4,5	1.74	mg/Kg	1	2.00	<0.00487	87	69.3 - 120	0	20
Toluene		1,2,3,4,5	1.77	mg/Kg	1	2.00	<0.00358	88	70.5 - 120	2	20
Ethylbenzene		1,2,3,4,5	1.81	mg/Kg	1	2.00	<0.00283	90	70.6 - 120	2	20
Xylene		1,2,3,4,5	5.40	mg/Kg	1	6.00	0.0038	90	70.7 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	1.64	1.61	mg/Kg	1	2.00	82	80	66.2 - 120
4-Bromofluorobenzene (4-BFB)	5	1.76	1.80	mg/Kg	1	2.00	88	90	59.5 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 116489
Prep Batch: 98499

Date Analyzed: 2014-10-21
QC Preparation: 2014-10-20

Analyzed By: SM
Prepared By: SM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	257	mg/Kg	1	250	15.8	96	75 - 125
>C12-C35		1	293	mg/Kg	1	250	15.2	111	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 15 of 21
Rifle, Co.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		1	256	mg/Kg	1	250	15.8	96	75 - 125	0	20
>C12-C35		1	289	mg/Kg	1	250	15.2	110	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	116	116	mg/Kg	1	100	116	116	70 - 130
n-Octane	113	113	mg/Kg	1	100	113	113	70 - 130
n-Tricosane	107	108	mg/Kg	1	100	107	108	70 - 130

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 16 of 21
Rifle, Co.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 376944

QC Batch: 116431
Prep Batch: 98466

Date Analyzed: 2014-10-17
QC Preparation: 2014-10-17

Analyzed By: JS
Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
MTBE		1,3,4,5	1.80	mg/Kg	1	2.00	<0.00513	90	55.6 - 137
Benzene		1,2,3,4,5	1.60	mg/Kg	1	2.00	0.0062	80	63.6 - 120
Toluene		1,2,3,4,5	1.73	mg/Kg	1	2.00	<0.00358	86	67.8 - 128
Ethylbenzene		1,2,3,4,5	1.78	mg/Kg	1	2.00	<0.00283	89	69.5 - 136
Xylene		1,2,3,4,5	5.26	mg/Kg	1	6.00	0.0053	88	69.3 - 139

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
MTBE		1,3,4,5	1.88	mg/Kg	1	2.00	<0.00513	94	55.6 - 137	4	20
Benzene		1,2,3,4,5	1.72	mg/Kg	1	2.00	0.0062	86	63.6 - 120	7	20
Toluene		1,2,3,4,5	1.87	mg/Kg	1	2.00	<0.00358	94	67.8 - 128	8	20
Ethylbenzene		1,2,3,4,5	1.94	mg/Kg	1	2.00	<0.00283	97	69.5 - 136	9	20
Xylene		1,2,3,4,5	5.76	mg/Kg	1	6.00	0.0053	96	69.3 - 139	9	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)		5	1.78	1.80	mg/Kg	1	2	89	90	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.88	1.90	mg/Kg	1	2	94	95	59.5 - 120

Matrix Spike (xMS-1) Spiked Sample: 377195

QC Batch: 116489
Prep Batch: 98499

Date Analyzed: 2014-10-21
QC Preparation: 2014-10-20

Analyzed By: SM
Prepared By: SM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		1	318	mg/Kg	1	250	15	121	75 - 125
>C12-C35	Qs	Qs	357	mg/Kg	1	250	20.5	135	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 17 of 21
Rifle, Co.

Param	F	C	MSD	Units	Dil.	Spike	Matrix	Rec.	Rec.	RPD	RPD
			Result			Amount	Result		Limit		Limit
C6-C12		1	309	mg/Kg	1	250	15	118	75 - 125	3	20
>C12-C35	Q _s	Q _s	350	mg/Kg	1	250	20.5	132	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Triacontane	124	125	mg/Kg	1	100	124	125	70 - 130
n-Octane	127	122	mg/Kg	1	100	127	122	70 - 130
n-Tricosane	117	116	mg/Kg	1	100	117	116	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 116431

Date Analyzed: 2014-10-17

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		1,3,4,5	mg/Kg	0.100	0.0868	87	80 - 120	2014-10-17
Benzene		1,2,3,4,5	mg/kg	0.100	0.0887	89	80 - 120	2014-10-17
Toluene		1,2,3,4,5	mg/kg	0.100	0.0885	88	80 - 120	2014-10-17
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.0893	89	80 - 120	2014-10-17
Xylene		1,2,3,4,5	mg/kg	0.300	0.268	89	80 - 120	2014-10-17

Standard (CCV-2)

QC Batch: 116431

Date Analyzed: 2014-10-17

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		1,3,4,5	mg/Kg	0.100	0.0971	97	80 - 120	2014-10-17
Benzene		1,2,3,4,5	mg/kg	0.100	0.0888	89	80 - 120	2014-10-17
Toluene		1,2,3,4,5	mg/kg	0.100	0.0905	90	80 - 120	2014-10-17
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.0895	90	80 - 120	2014-10-17
Xylene		1,2,3,4,5	mg/kg	0.300	0.272	91	80 - 120	2014-10-17

Standard (CCV-1)

QC Batch: 116489

Date Analyzed: 2014-10-21

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	248	99	75 - 125	2014-10-21
>C12-C35		1	mg/Kg	250	284	114	75 - 125	2014-10-21

Report Date: October 21, 2014
425711.02

Work Order: 14101714
397-36-G1 Pad

Page Number: 19 of 21
Rifle, Co.

Standard (CCV-2)

QC Batch: 116489

Date Analyzed: 2014-10-21

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	296	118	75 - 125	2014-10-21
>C12-C35		1	mg/Kg	250	312	125	75 - 125	2014-10-21

Standard (CCV-3)

QC Batch: 116489

Date Analyzed: 2014-10-21

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		1	mg/Kg	250	286	114	75 - 125	2014-10-21
>C12-C35		1	mg/Kg	250	300	120	75 - 125	2014-10-21

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5		2014-018	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

F	Description
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

5002 Basin Street, Suite A1
Midland, Texas 79703
Tel (432) 689-6301
Fax (432) 689-6313

200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

BioAquaic Testing
2501 Mayes Rd., Ste. 100
Carrollton, Texas 75006
Tel (972) 242-7750
Fax (972) 242-7750

Brandon & Clark
3403 Industrial Blvd.
Hobbs, NM 88240
Tel (575) 392-7561
Fax (575) 392-4508

Company Name: Apex Cos. LLC
Address: 307 Danforth Rd #160 Edmond, OK, 73034
Contact Person: Mike Holder
E-mail: Mholder@apexcos.com
Phone #: (918) 740-2766
Fax #: 730-3443
Project #: 425711.002
Project Name: 397-36-B1 Ped
Project Location (including state): R. & E, CO
Project Location (including state): R. & E, CO

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX			PRESERVATIVE METHOD					SAMPLING	
				WATER	AIR	SLUDGE	HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	DATE	TIME
37768	US-1	1	4oz	X							X	10/15/01	10:01
169	US-2	1	4oz	X							X	10/15	4:00
170	TS-1												4:06
171	EF-1												4:11
172	WW-1												4:20
173	SW-1												4:28
174	EW-1												4:36
175	NW-1												

Relinquished by: Company: Apex Date: 10/14/01 Time: 8:32 AM
Relinquished by: Company: Apex Date: 10-17-14 Time: 10:30 AM
Relinquished by: Company: Apex Date: 10-17-14 Time: 10:30 AM

Received by: Company: Date: Time: INST OBS COR
Received by: Company: Date: Time: INST OBS COR
Received by: Company: Date: Time: INST OBS COR

LAB USE ONLY
Infect Y / N
Headspace Y / N / NA
Log-In-Review

REMARKS: 24 Hr. Rush!!!
Call: Mike Holder

Dry Weight Basis Required
TRRP Report Required
Check if Special Reporting Limits Are Needed