ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

October 22, 2014

received 10/27/2014
Project 8737
DOC 2142483
Pit Facility 285604
E&P waste Facility 292833

Report to:
Jack Sosebee
Watpro Inc.
9407 East Chenango Avenue
Greenwood Village, CO 80111

Bill to:
Jennifer Lujan
Red River Ranch
15850 County Ro
Weston, CO 81090

Project ID:
ACZ Project ID: L20852

Jack Sosebee:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 01, 2014. This project has been assigned to ACZ's project number, L20852. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L20852. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 21, 2014. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

Red River Ranch

October 22, 2014

Project ID:
ACZ Project ID: L20852

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 7 soil samples from Red River Ranch on October 1, 2014. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L20852. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic, organic parameters. The individual methods are referenced on both the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

The Total Metals (via 3050 digestion) results for L20852 have been qualified with the N1 flag on the extended qualifier report. The chemist noted that a Laboratory Control Sample Duplicate (LCSSD) was not prepared with the prep workgroup. The RPD from the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) was used to demonstrate acceptable precision (RPD < 20%). Accuracy is also demonstrated by acceptable LCSS recovery.

The Hexavalent Chromium results for L20852 have been qualified with the N1 flag on the extended qualifier report. The chemist noted that the reported values may be biased low due to interferences associated with the sample matrix/color; comparison of results to historical levels and/or data qualification may be necessary.

Red River Ranch
Project ID:
Sample ID: B-EAST

ACZ Sample ID: ***L20852-01***
Date Sampled: *09/29/14 11:45*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	3.5		*	mg/Kg	0.1	0.5	10/14/14 13:49	las
Barium, total (3050)	M6010B ICP	101	252		*	mg/Kg	0.3	2	10/08/14 16:35	jjc
Boron, total (3050)	M6010B ICP	101	5		*	mg/Kg	1	5	10/08/14 16:35	jjc
Cadmium, total (3050)	M6010B ICP	101		U	*	mg/Kg	0.5	2	10/08/14 16:35	jjc
Calcium, soluble (Sat. Paste)	M6010B ICP	1	4.02			meq/L	0.005	0.025	10/10/14 10:56	aeb
Chromium, total (3050)	M6010B ICP	101	11		*	mg/Kg	1	5	10/08/14 16:35	jjc
Chromium, Trivalent	Calculation (Total - Hexavalent)		11			mg/Kg	1	5	10/22/14 9:12	calc
Copper, total (3050)	M6010B ICP	101	11		*	mg/Kg	1	5	10/08/14 16:35	jjc
Lead, total (3050)	M6010B ICP	101	16	B	*	mg/Kg	3	20	10/08/14 16:35	jjc
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.795			meq/L	0.017	0.082	10/10/14 10:56	aeb
Mercury by Direct Combustion AA	M7473	1	27.9			ng/g	2.04	10.2	10/20/14 14:15	mfm
Nickel, total (3050)	M6010B ICP	101	8.9		*	mg/Kg	0.8	4	10/08/14 16:35	jjc
Selenium, total (3050)	M6010B ICP	101		U	*	mg/Kg	5	30	10/08/14 16:35	jjc
Silver, total (3050)	M6010B ICP	101		U	*	mg/Kg	1	3	10/08/14 16:35	jjc
Sodium Adsorption Ratio	Calculation		0.13						10/22/14 9:12	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.205			meq/L	0.0087	0.0435	10/10/14 10:56	aeb
Zinc, total (3050)	M6010B ICP	101	51		*	mg/Kg	1	5	10/08/14 16:35	jjc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.485		*	mmhos/cm	0.001	0.01	10/09/14 0:00	pta
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
Temperature		1	21.6		*	C	0.1	0.1	10/09/14 0:00	pta
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
pH		1	6.6		*	units	0.1	0.1	10/09/14 0:00	pta
Solids, Percent	D2216-80	1	87.8		*	%	0.1	0.5	10/05/14 17:44	mns

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								10/03/14 10:55	mns
Digestion - Alkaline	M3060A								10/14/14 11:12	cra
Digestion - Hot Plate	M3050B ICP								10/07/14 23:24	pta
Digestion - Hot Plate	M3050B ICP-MS								10/07/14 23:24	pta
Saturated Paste Extraction	USDA No. 60 (2)								10/08/14 13:59	pta
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								10/06/14 12:47	mns

Red River Ranch
Project ID:
Sample ID: B-EAST

ACZ Sample ID: ***L20852-01***
Date Sampled: *09/29/14 11:45*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	230		U	*	mg/Kg	1.15	4.6	10/15/14 10:20	enb

Red River Ranch
Project ID:
Sample ID: B-WEST

ACZ Sample ID: ***L20852-02***
Date Sampled: *09/29/14 12:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	2.9		*	mg/Kg	0.1	0.5	10/14/14 13:53	las
Barium, total (3050)	M6010B ICP	100	147		*	mg/Kg	0.3	2	10/08/14 16:38	jjc
Boron, total (3050)	M6010B ICP	100	3	B	*	mg/Kg	1	5	10/08/14 16:38	jjc
Cadmium, total (3050)	M6010B ICP	100		U	*	mg/Kg	0.5	2	10/08/14 16:38	jjc
Calcium, soluble (Sat. Paste)	M6010B ICP	1	3.35			meq/L	0.005	0.025	10/10/14 10:59	aeb
Chromium, total (3050)	M6010B ICP	100	9		*	mg/Kg	1	5	10/08/14 16:38	jjc
Chromium, Trivalent	Calculation (Total - Hexavalent)		9			mg/Kg	1	5	10/22/14 9:12	calc
Copper, total (3050)	M6010B ICP	100	10		*	mg/Kg	1	5	10/08/14 16:38	jjc
Lead, total (3050)	M6010B ICP	100	16	B	*	mg/Kg	3	20	10/08/14 16:38	jjc
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.753			meq/L	0.017	0.082	10/10/14 10:59	aeb
Mercury by Direct Combustion AA	M7473	1	15.7			ng/g	1.73	8.65	10/20/14 14:22	mfm
Nickel, total (3050)	M6010B ICP	100	8.5		*	mg/Kg	0.8	4	10/08/14 16:38	jjc
Selenium, total (3050)	M6010B ICP	100		U	*	mg/Kg	5	30	10/08/14 16:38	jjc
Silver, total (3050)	M6010B ICP	100		U	*	mg/Kg	1	3	10/08/14 16:38	jjc
Sodium Adsorption Ratio	Calculation		0.075						10/22/14 9:12	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.107			meq/L	0.0087	0.0435	10/10/14 10:59	aeb
Zinc, total (3050)	M6010B ICP	100	46		*	mg/Kg	1	5	10/08/14 16:38	jjc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.424		*	mmhos/cm	0.001	0.01	10/09/14 0:00	pta
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
Temperature		1	21.6		*	C	0.1	0.1	10/09/14 0:00	pta
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
pH		1	6.5		*	units	0.1	0.1	10/09/14 0:00	pta
Solids, Percent	D2216-80	1	93.3		*	%	0.1	0.5	10/05/14 21:21	mns

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								10/03/14 10:59	mns
Digestion - Alkaline	M3060A								10/14/14 11:45	cra
Digestion - Hot Plate	M3050B ICP								10/08/14 2:16	pta
Digestion - Hot Plate	M3050B ICP-MS								10/08/14 2:16	pta
Saturated Paste Extraction	USDA No. 60 (2)								10/08/14 14:16	pta
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								10/06/14 12:54	mns

Red River Ranch
Project ID:
Sample ID: B-WEST

ACZ Sample ID: ***L20852-02***
Date Sampled: *09/29/14 12:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	215		U	*	mg/Kg	1.08	4.3	10/15/14 10:23	enb

Red River Ranch
Project ID:
Sample ID: E-CENTER

ACZ Sample ID: ***L20852-03***
Date Sampled: *09/29/14 13:35*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	2.1		*	mg/Kg	0.1	0.5	10/14/14 13:57	las
Barium, total (3050)	M6010B ICP	101	195		*	mg/Kg	0.3	2	10/08/14 16:47	jjc
Boron, total (3050)	M6010B ICP	101	3	B	*	mg/Kg	1	5	10/08/14 16:47	jjc
Cadmium, total (3050)	M6010B ICP	101		U	*	mg/Kg	0.5	2	10/08/14 16:47	jjc
Calcium, soluble (Sat. Paste)	M6010B ICP	5	1.01			meq/L	0.025	0.125	10/10/14 11:28	aeb
Chromium, total (3050)	M6010B ICP	101	16		*	mg/Kg	1	5	10/08/14 16:47	jjc
Chromium, Trivalent	Calculation (Total - Hexavalent)		16			mg/Kg	1	5	10/22/14 9:13	calc
Copper, total (3050)	M6010B ICP	101	16			mg/Kg	1	5	10/08/14 16:47	jjc
Lead, total (3050)	M6010B ICP	101	14	B	*	mg/Kg	3	20	10/08/14 16:47	jjc
Magnesium, soluble (Sat. Paste)	M6010B ICP	5	0.991			meq/L	0.082	0.411	10/10/14 11:28	aeb
Mercury by Direct Combustion AA	M7473	1	19.6			ng/g	1.96	9.8	10/20/14 14:37	mfm
Nickel, total (3050)	M6010B ICP	101	12.5		*	mg/Kg	0.8	4	10/08/14 16:47	jjc
Selenium, total (3050)	M6010B ICP	101		U	*	mg/Kg	5	30	10/08/14 16:47	jjc
Silver, total (3050)	M6010B ICP	101		U	*	mg/Kg	1	3	10/08/14 16:47	jjc
Sodium Adsorption Ratio	Calculation		8.2						10/22/14 9:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	5	8.20			meq/L	0.0435	0.218	10/10/14 11:28	aeb
Zinc, total (3050)	M6010B ICP	101	66		*	mg/Kg	1	5	10/08/14 16:47	jjc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.856		*	mmhos/cm	0.001	0.01	10/09/14 0:00	pta
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
Temperature		1	21.6		*	C	0.1	0.1	10/09/14 0:00	pta
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
pH		1	7.9		*	units	0.1	0.1	10/09/14 0:00	pta
Solids, Percent	D2216-80	1	75.9		*	%	0.1	0.5	10/06/14 0:59	mns

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								10/03/14 11:02	mns
Digestion - Alkaline	M3060A								10/14/14 12:17	cra
Digestion - Hot Plate	M3050B ICP								10/08/14 3:14	pta
Digestion - Hot Plate	M3050B ICP-MS								10/08/14 3:14	pta
Saturated Paste Extraction	USDA No. 60 (2)								10/08/14 14:33	pta
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								10/06/14 13:01	mns

Red River Ranch
Project ID:
Sample ID: E-CENTER

ACZ Sample ID: ***L20852-03***
Date Sampled: *09/29/14 13:35*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	265		U	*	mg/Kg	1.33	5.3	10/15/14 10:27	enb

Red River Ranch
Project ID:
Sample ID: E-EAST

ACZ Sample ID: ***L20852-04***
Date Sampled: *09/29/14 13:10*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	2		*	mg/Kg	0.1	0.5	10/14/14 13:58	las
Barium, total (3050)	M6010B ICP	101	175		*	mg/Kg	0.3	2	10/08/14 16:50	jjc
Boron, total (3050)	M6010B ICP	101	3	B	*	mg/Kg	1	5	10/08/14 16:50	jjc
Cadmium, total (3050)	M6010B ICP	101		U	*	mg/Kg	0.5	2	10/08/14 16:50	jjc
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.83			meq/L	0.005	0.025	10/10/14 11:06	aeb
Chromium, total (3050)	M6010B ICP	101	14		*	mg/Kg	1	5	10/08/14 16:50	jjc
Chromium, Trivalent	Calculation (Total - Hexavalent)		14			mg/Kg	1	5	10/22/14 9:13	calc
Copper, total (3050)	M6010B ICP	101	13		*	mg/Kg	1	5	10/08/14 16:50	jjc
Lead, total (3050)	M6010B ICP	101	13	B	*	mg/Kg	3	20	10/08/14 16:50	jjc
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.692			meq/L	0.017	0.082	10/10/14 11:06	aeb
Mercury by Direct Combustion AA	M7473	1	20.4			ng/g	2.06	10.3	10/20/14 14:44	mfm
Nickel, total (3050)	M6010B ICP	101	11		*	mg/Kg	0.8	4	10/08/14 16:50	jjc
Selenium, total (3050)	M6010B ICP	101		U	*	mg/Kg	5	30	10/08/14 16:50	jjc
Silver, total (3050)	M6010B ICP	101		U	*	mg/Kg	1	3	10/08/14 16:50	jjc
Sodium Adsorption Ratio	Calculation		0.24						10/22/14 9:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.264			meq/L	0.0087	0.0435	10/10/14 11:06	aeb
Zinc, total (3050)	M6010B ICP	101	58		*	mg/Kg	1	5	10/08/14 16:50	jjc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.308		*	mmhos/cm	0.001	0.01	10/09/14 0:00	pta
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
Temperature		1	21.6		*	C	0.1	0.1	10/09/14 0:00	pta
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
pH		1	6.5		*	units	0.1	0.1	10/09/14 0:00	pta
Solids, Percent	D2216-80	1	86		*	%	0.1	0.5	10/06/14 4:37	mns

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								10/03/14 11:05	mns
Digestion - Alkaline	M3060A								10/14/14 12:49	cra
Digestion - Hot Plate	M3050B ICP-MS								10/08/14 4:12	pta
Digestion - Hot Plate	M3050B ICP								10/08/14 4:12	pta
Saturated Paste Extraction	USDA No. 60 (2)								10/08/14 14:51	pta
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								10/06/14 13:08	mns

Red River Ranch
Project ID:
Sample ID: E-EAST

ACZ Sample ID: ***L20852-04***
Date Sampled: *09/29/14 13:10*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	235		U	*	mg/Kg	1.18	4.7	10/15/14 10:30	enb

Red River Ranch
Project ID:
Sample ID: E-WEST

ACZ Sample ID: ***L20852-05***
Date Sampled: *09/29/14 13:25*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	2.7		*	mg/Kg	0.1	0.5	10/14/14 14:00	las
Barium, total (3050)	M6010B ICP	101	235		*	mg/Kg	0.3	2	10/08/14 16:53	jjc
Boron, total (3050)	M6010B ICP	101	2	B	*	mg/Kg	1	5	10/08/14 16:53	jjc
Cadmium, total (3050)	M6010B ICP	101		U	*	mg/Kg	0.5	2	10/08/14 16:53	jjc
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.93			meq/L	0.005	0.025	10/10/14 11:12	aeb
Chromium, total (3050)	M6010B ICP	101	18		*	mg/Kg	1	5	10/08/14 16:53	jjc
Chromium, Trivalent	Calculation (Total - Hexavalent)		18			mg/Kg	1	5	10/22/14 9:13	calc
Copper, total (3050)	M6010B ICP	101	23		*	mg/Kg	1	5	10/08/14 16:53	jjc
Lead, total (3050)	M6010B ICP	101	15	B	*	mg/Kg	3	20	10/08/14 16:53	jjc
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.701			meq/L	0.017	0.082	10/10/14 11:12	aeb
Mercury by Direct Combustion AA	M7473	1	37.3			ng/g	2.12	10.6	10/20/14 14:51	mfm
Nickel, total (3050)	M6010B ICP	101	17.8		*	mg/Kg	0.8	4	10/08/14 16:53	jjc
Selenium, total (3050)	M6010B ICP	101		U	*	mg/Kg	5	30	10/08/14 16:53	jjc
Silver, total (3050)	M6010B ICP	101		U	*	mg/Kg	1	3	10/08/14 16:53	jjc
Sodium Adsorption Ratio	Calculation		0.05						10/22/14 9:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.0571			meq/L	0.0087	0.0435	10/10/14 11:12	aeb
Zinc, total (3050)	M6010B ICP	101	72		*	mg/Kg	1	5	10/08/14 16:53	jjc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.307		*	mmhos/cm	0.001	0.01	10/09/14 0:00	pta
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
Temperature		1	21.6		*	C	0.1	0.1	10/09/14 0:00	pta
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
pH		1	6.3		*	units	0.1	0.1	10/09/14 0:00	pta
Solids, Percent	D2216-80	1	86.7		*	%	0.1	0.5	10/06/14 8:14	mns

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								10/03/14 11:08	mns
Digestion - Alkaline	M3060A								10/14/14 13:21	cra
Digestion - Hot Plate	M3050B ICP-MS								10/08/14 5:09	pta
Digestion - Hot Plate	M3050B ICP								10/08/14 5:09	pta
Saturated Paste Extraction	USDA No. 60 (2)								10/08/14 15:25	pta
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								10/06/14 13:15	mns

Red River Ranch
Project ID:
Sample ID: E-WEST

ACZ Sample ID: ***L20852-05***
Date Sampled: *09/29/14 13:25*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	230		U	*	mg/Kg	1.15	4.6	10/15/14 10:34	enb

Red River Ranch
Project ID:
Sample ID: E-NORTH

ACZ Sample ID: ***L20852-06***
Date Sampled: *09/29/14 13:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	2.7		*	mg/Kg	0.1	0.5	10/14/14 14:01	las
Barium, total (3050)	M6010B ICP	101	196		*	mg/Kg	0.3	2	10/08/14 16:56	jjc
Boron, total (3050)	M6010B ICP	101	5		*	mg/Kg	1	5	10/08/14 16:56	jjc
Cadmium, total (3050)	M6010B ICP	101		U	*	mg/Kg	0.5	2	10/08/14 16:56	jjc
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.11			meq/L	0.005	0.025	10/10/14 11:15	aeb
Chromium, total (3050)	M6010B ICP	101	12		*	mg/Kg	1	5	10/08/14 16:56	jjc
Chromium, Trivalent	Calculation (Total - Hexavalent)		12			mg/Kg	1	5	10/22/14 9:13	calc
Copper, total (3050)	M6010B ICP	101	12		*	mg/Kg	1	5	10/08/14 16:56	jjc
Lead, total (3050)	M6010B ICP	101	18	B	*	mg/Kg	3	20	10/08/14 16:56	jjc
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.776			meq/L	0.017	0.082	10/10/14 11:15	aeb
Mercury by Direct Combustion AA	M7473	1	21.1			ng/g	1.61	8.05	10/20/14 14:59	mfm
Nickel, total (3050)	M6010B ICP	101	9		*	mg/Kg	0.8	4	10/08/14 16:56	jjc
Selenium, total (3050)	M6010B ICP	101		U	*	mg/Kg	5	30	10/08/14 16:56	jjc
Silver, total (3050)	M6010B ICP	101		U	*	mg/Kg	1	3	10/08/14 16:56	jjc
Sodium Adsorption Ratio	Calculation		0.3						10/22/14 9:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.291			meq/L	0.0087	0.0435	10/10/14 11:15	aeb
Zinc, total (3050)	M6010B ICP	101	69		*	mg/Kg	1	5	10/08/14 16:56	jjc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.190		*	mmhos/cm	0.001	0.01	10/09/14 0:00	pta
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
Temperature		1	21.6		*	C	0.1	0.1	10/09/14 0:00	pta
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
pH		1	7.0		*	units	0.1	0.1	10/09/14 0:00	pta
Solids, Percent	D2216-80	1	89.5		*	%	0.1	0.5	10/06/14 11:52	mns

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								10/03/14 11:11	mns
Digestion - Alkaline	M3060A								10/14/14 13:53	cra
Digestion - Hot Plate	M3050B ICP								10/08/14 6:07	pta
Digestion - Hot Plate	M3050B ICP-MS								10/08/14 6:07	pta
Saturated Paste Extraction	USDA No. 60 (2)								10/08/14 15:42	pta
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								10/06/14 13:22	mns

Red River Ranch
Project ID:
Sample ID: E-NORTH

ACZ Sample ID: ***L20852-06***
Date Sampled: *09/29/14 13:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	225		U	*	mg/Kg	1.13	4.5	10/15/14 10:37	enb

Red River Ranch
Project ID:
Sample ID: E-SOUTH

ACZ Sample ID: ***L20852-07***
Date Sampled: *09/29/14 13:00*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	2.4		*	mg/Kg	0.1	0.5	10/14/14 14:02	las
Barium, total (3050)	M6010B ICP	100	190		*	mg/Kg	0.3	2	10/08/14 16:59	jjc
Boron, total (3050)	M6010B ICP	100	3	B	*	mg/Kg	1	5	10/08/14 16:59	jjc
Cadmium, total (3050)	M6010B ICP	100		U	*	mg/Kg	0.5	2	10/08/14 16:59	jjc
Calcium, soluble (Sat. Paste)	M6010B ICP	1	2.52			meq/L	0.005	0.025	10/10/14 11:25	aeb
Chromium, total (3050)	M6010B ICP	100	13		*	mg/Kg	1	5	10/08/14 16:59	jjc
Chromium, Trivalent	Calculation (Total - Hexavalent)		13			mg/Kg	1	5	10/22/14 9:14	calc
Copper, total (3050)	M6010B ICP	100	17		*	mg/Kg	1	5	10/08/14 16:59	jjc
Lead, total (3050)	M6010B ICP	100	13	B	*	mg/Kg	3	20	10/08/14 16:59	jjc
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.711			meq/L	0.017	0.082	10/10/14 11:25	aeb
Mercury by Direct Combustion AA	M7473	1	13.8			ng/g	1.57	7.85	10/20/14 15:06	mfm
Nickel, total (3050)	M6010B ICP	100	11.8		*	mg/Kg	0.8	4	10/08/14 16:59	jjc
Selenium, total (3050)	M6010B ICP	100		U	*	mg/Kg	5	30	10/08/14 16:59	jjc
Silver, total (3050)	M6010B ICP	100		U	*	mg/Kg	1	3	10/08/14 16:59	jjc
Sodium Adsorption Ratio	Calculation		0.058						10/22/14 9:14	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.0742			meq/L	0.0087	0.0435	10/10/14 11:25	aeb
Zinc, total (3050)	M6010B ICP	100	62		*	mg/Kg	1	5	10/08/14 16:59	jjc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.333		*	mmhos/cm	0.001	0.01	10/09/14 0:00	pta
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
Temperature		1	21.6		*	C	0.1	0.1	10/09/14 0:00	pta
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			10/09/14 0:00	pta
pH		1	6.9		*	units	0.1	0.1	10/09/14 0:00	pta
Solids, Percent	D2216-80	1	89.4		*	%	0.1	0.5	10/06/14 15:30	mns

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								10/03/14 11:14	mns
Digestion - Alkaline	M3060A								10/14/14 14:25	cra
Digestion - Hot Plate	M3050B ICP-MS								10/08/14 7:04	pta
Digestion - Hot Plate	M3050B ICP								10/08/14 7:04	pta
Saturated Paste Extraction	USDA No. 60 (2)								10/08/14 16:00	pta
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								10/06/14 13:29	mns

Red River Ranch
Project ID:
Sample ID: E-SOUTH

ACZ Sample ID: ***L20852-07***
Date Sampled: *09/29/14 13:00*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	225		U	*	mg/Kg	1.13	4.5	10/15/14 10:41	enb

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.

(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.

(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.

(4) EPA SW-846. Test Methods for Evaluating Solid Waste.

(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.

(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.

(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.

(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Red River Ranch

ACZ Project ID: ***L20852***

Arsenic, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372799													
WG372799ICV	ICV	10/14/14 13:17	MS141001-1	.05		.05189	mg/L	103.8	90	110			
WG372799ICB	ICB	10/14/14 13:18				U	mg/L		-0.0006	0.0006			
WG372424PBS	PBS	10/14/14 13:24				U	mg/Kg		-0.3	0.3			
WG372424LCSS	LCSS	10/14/14 13:25	PCN46657	88.4		82.9	mg/Kg		71.5	105			
L20852-01MS	MS	10/14/14 13:50	MS140916-3	25.3005	3.5	28.02	mg/Kg	96.9	75	125			
L20852-01MSD	MSD	10/14/14 13:51	MS140916-3	25.3005	3.5	28.34	mg/Kg	98.2	75	125	1.14	20	

Barium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	2		2	mg/L	100	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.009	0.009			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-0.9	0.9			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	210		194.1	mg/Kg		176	245			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.5	341	424.3	mg/Kg	165	75	125			M3
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.5	341	460.86	mg/Kg	237.3	75	125	8.26	20	M3

Boron, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	2		2.056	mg/L	102.8	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.03	0.03			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-3	3			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	101		99.8	mg/Kg		73.8	128			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.5505	2	50.6	mg/Kg	96.1	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.5505	2	50	mg/Kg	95	75	125	1.19	20	

Cadmium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	2		1.966	mg/L	98.3	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.015	0.015			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-1.5	1.5			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	143		130.1	mg/Kg		116	169			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.601	U	44.89	mg/Kg	88.7	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.601	U	44.59	mg/Kg	88.1	75	125	0.67	20	

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372635													
WG372635ICV	ICV	10/10/14 9:53	II141008-12	100		98.2	mg/L	98.2	90	110			
WG372635ICB	ICB	10/10/14 9:56				U	mg/L		-0.3	0.3			
L20852-04DUP	DUP	10/10/14 11:09			1.834823	1.81	meq/L				1.5	20	

Red River Ranch

ACZ Project ID: ***L20852***

Chromium, Hexavalent (3060) M7196A

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372889													
WG372889ICV	ICV	10/15/14 9:42	WC140603-	.05		.0492	mg/L	98.4	90	110			
WG372889ICB	ICB	10/15/14 9:45				U	mg/L		-0.015	0.015			
L20851-06MS1	MS	10/15/14 9:52	SI140922-51	34.413932	U	17	mg/Kg	49.4	75	125			N1
L20851-07DUP	DUP	10/15/14 10:06			U	U	mg/Kg				0	20	RA
WG372775LCSS	LCSS	10/15/14 10:44	PCN46664	223		161	mg/Kg		118	255			
WG372775PBS	PBS	10/15/14 10:48				U	mg/Kg		-3	3			

Chromium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	2		1.993	mg/L	99.7	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.03	0.03			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-3	3			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	86.8		80.6	mg/Kg		69.3	104			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.601	24	76.6	mg/Kg	104	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.601	24	76.2	mg/Kg	103.2	75	125	0.52	20	

Conductivity @25C SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372558													
L20852-04DUP	DUP	10/09/14 14:42			.308	.313	nmhos/cn				1.6	20	

Copper, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	2		2.017	mg/L	100.9	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.03	0.03			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-3	3			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	268		251.7	mg/Kg		219	317			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.4495	20	68.9	mg/Kg	96.9	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.4495	20	68.5	mg/Kg	96.1	75	125	0.58	20	

Lead, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	4		3.987	mg/L	99.7	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.09	0.09			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-9	9			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	97.9		91.9	mg/Kg		80	116			
L20851-01MS	MS	10/08/14 16:01	II141006-2	101.101	17	113.4	mg/Kg	95.4	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	101.101	17	110.1	mg/Kg	92.1	75	125	2.95	20	

Red River Ranch

ACZ Project ID: ***L20852***

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372635													
WG372635ICV	ICV	10/10/14 9:53	II141008-12	100		95.7	mg/L	95.7	90	110			
WG372635ICB	ICB	10/10/14 9:56				U	mg/L		-0.6	0.6			
L20852-04DUP	DUP	10/10/14 11:09			.69230016	.683	meq/L				1.4	20	

Mercury by Direct Combustion AA M7473

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG373010													
WG373010ICV1	ICV	10/16/14 8:43	HG141007-2	100		98.7	ng/g	98.7	90	110			
WG373010ICV2	ICV	10/16/14 9:00	HG141007-3	100		93.3	ng/g	93.3	90	110			
WG373010ICV3	ICV	10/16/14 9:19	HG141007-1	1000		1080	ng/g	108	90	110			
WG373010ICV4	ICV	10/16/14 9:28	HG141007-1	1000		1050	ng/g	105	90	110			
WG373164													
WG373164ICV1	ICV	10/20/14 7:49	HG141007-2	100		98.7	ng/g	98.7	90	110			
WG373164ICV2	ICV	10/20/14 8:01	HG141007-3	100		92.8	ng/g	92.8	90	110			
WG373164ICV3	ICV	10/20/14 8:15	HG141007-1	1000		1060	ng/g	106	90	110			
WG373164ICV4	ICV	10/20/14 8:25	HG141007-1	1000		1100	ng/g	110	90	110			
WG373164PBS	PBS	10/20/14 11:43				U	ng/g		-2	2			
WG373164LCSS	LCSS	10/20/14 11:52	PCN46720	447.4		452	ng/g		80	120			
WG373164LCSSD	LCSSD	10/20/14 11:59	PCN46720	447.4		482	ng/g		80	120	6.4	20	
L20850-01MS	MS	10/20/14 12:17	PCN46720				ng/g	106.1	80	120			
L20850-02DUP	DUP	10/20/14 12:32			39.8	44	ng/g				10	20	

Nickel, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	2		2.006	mg/L	100.3	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.024	0.024			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-2.4	2.4			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	236		225	mg/Kg		194	279			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.6515	15.5	62.81	mg/Kg	93.4	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.6515	15.5	67.65	mg/Kg	103	75	125	7.42	20	

pH, Saturated Paste EPA 600/2-78-054 section 3.2.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372558													
WG372558ICV	ICV	10/09/14 9:46	PCN45365	4		4	units	100	3.9	4.1			
L20852-04DUP	DUP	10/09/14 14:42			6.5	6.4	units				1.6	20	

Red River Ranch

ACZ Project ID: ***L20852***

Selenium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	4		4.128	mg/L	103.2	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.15	0.15			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-15	15			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	127		127.4	mg/Kg		98.4	156			
L20851-01MS	MS	10/08/14 16:01	II141006-2	101.101	U	98.6	mg/Kg	97.5	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	101.101	U	95.3	mg/Kg	94.3	75	125	3.4	20	

Silver, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	1.001		1.027	mg/L	102.6	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.03	0.03			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-3	3			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	66.2		60	mg/Kg		49.6	82.8			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.601	U	45.7	mg/Kg	90.3	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.601	U	45.6	mg/Kg	90.1	75	125	0.22	20	

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372635													
WG372635ICV	ICV	10/10/14 9:53	II141008-12	100		97.8	mg/L	97.8	90	110			
WG372635ICB	ICB	10/10/14 9:56				U	mg/L		-0.6	0.6			
L20852-04DUP	DUP	10/10/14 11:09			.264219	.258	meq/L				2.6	20	

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372282													
WG372282PBS	PBS	10/03/14 11:19				U	%		99.9	100.1			
L20850-01DUP	DUP	10/03/14 18:34			84.5	84.57	%				0.1	20	

Zinc, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG372526													
WG372526ICV	ICV	10/08/14 15:18	II140929-3	2		1.976	mg/L	98.8	90	110			
WG372526ICB	ICB	10/08/14 15:21				U	mg/L		-0.03	0.03			
WG372424PBS	PBS	10/08/14 15:34				U	mg/Kg		-3	3			
WG372424LCSS	LCSS	10/08/14 15:37	PCN46657	130		121.6	mg/Kg		106	155			
L20851-01MS	MS	10/08/14 16:01	II141006-2	50.5505	77	124	mg/Kg	96.9	75	125			
L20851-01MSD	MSD	10/08/14 16:10	II141006-2	50.5505	77	124	mg/Kg	96.9	75	125	0	20	

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-01	WG372799	Arsenic, total (3050)	M6020 ICP-MS	N1	See Case Narrative.
			M6020 ICP-MS	ZB	The ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 100 times the MDL.
	WG372526	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	N1	See Case Narrative.
		Boron, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Chromium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Copper, total (3050)	M6010B ICP	N1	See Case Narrative.
		Lead, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Nickel, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Selenium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Silver, total (3050)	M6010B ICP	N1	See Case Narrative.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG372889	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	N1	See Case Narrative.
			M7196A	QD	Reported value is the background-corrected concentration, as described by the method.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-02	WG372799	Arsenic, total (3050)	M6020 ICP-MS	N1	See Case Narrative.
			M6020 ICP-MS	ZB	The ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 100 times the MDL.
	WG372526	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	N1	See Case Narrative.
		Boron, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Chromium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Copper, total (3050)	M6010B ICP	N1	See Case Narrative.
		Lead, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Nickel, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Selenium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Silver, total (3050)	M6010B ICP	N1	See Case Narrative.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG372889	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	N1	See Case Narrative.
			M7196A	QD	Reported value is the background-corrected concentration, as described by the method.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-03	WG372799	Arsenic, total (3050)	M6020 ICP-MS	N1	See Case Narrative.
			M6020 ICP-MS	ZB	The ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 100 times the MDL.
	WG372526	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	N1	See Case Narrative.
		Boron, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Chromium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Lead, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Nickel, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Selenium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Silver, total (3050)	M6010B ICP	N1	See Case Narrative.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG372889	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	N1	See Case Narrative.
			M7196A	QD	Reported value is the background-corrected concentration, as described by the method.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-04	WG372799	Arsenic, total (3050)	M6020 ICP-MS	N1	See Case Narrative.
			M6020 ICP-MS	ZB	The ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 100 times the MDL.
	WG372526	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	N1	See Case Narrative.
		Boron, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Chromium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Copper, total (3050)	M6010B ICP	N1	See Case Narrative.
		Lead, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Nickel, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Selenium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Silver, total (3050)	M6010B ICP	N1	See Case Narrative.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG372889	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	N1	See Case Narrative.
			M7196A	QD	Reported value is the background-corrected concentration, as described by the method.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-05	WG372799	Arsenic, total (3050)	M6020 ICP-MS	N1	See Case Narrative.
			M6020 ICP-MS	ZB	The ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 100 times the MDL.
	WG372526	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	N1	See Case Narrative.
		Boron, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Chromium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Copper, total (3050)	M6010B ICP	N1	See Case Narrative.
		Lead, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Nickel, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Selenium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Silver, total (3050)	M6010B ICP	N1	See Case Narrative.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG372889	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	N1	See Case Narrative.
			M7196A	QD	Reported value is the background-corrected concentration, as described by the method.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-06	WG372799	Arsenic, total (3050)	M6020 ICP-MS	N1	See Case Narrative.
			M6020 ICP-MS	ZB	The ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 100 times the MDL.
	WG372526	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	N1	See Case Narrative.
		Boron, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Chromium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Copper, total (3050)	M6010B ICP	N1	See Case Narrative.
		Lead, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Nickel, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Selenium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Silver, total (3050)	M6010B ICP	N1	See Case Narrative.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG372889	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	N1	See Case Narrative.
			M7196A	QD	Reported value is the background-corrected concentration, as described by the method.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-07	WG372799	Arsenic, total (3050)	M6020 ICP-MS	N1	See Case Narrative.
			M6020 ICP-MS	ZB	The ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 100 times the MDL.
	WG372526	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	N1	See Case Narrative.
		Boron, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Chromium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Copper, total (3050)	M6010B ICP	N1	See Case Narrative.
		Lead, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Nickel, total (3050)	M6010B ICP	N1	See Case Narrative.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Selenium, total (3050)	M6010B ICP	N1	See Case Narrative.
		Silver, total (3050)	M6010B ICP	N1	See Case Narrative.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG372889	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	N1	See Case Narrative.
			M7196A	QD	Reported value is the background-corrected concentration, as described by the method.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Red River Ranch
Project ID:
Sample ID: B-EAST

ACZ Sample ID: ***L20852-01***
Date Sampled: *09/29/14 11:45*
Date Received: *10/01/14*
Sample Matrix: *Soil*

BTEX/Gasoline Range Organics (C6-C10)

Analysis Method: **M8021B/8015D GC/PID/FID**
Extract Method: **5035A**

Workgroup: WG372567
Analyst: pml
Extract Date: 10/09/14 21:09
Analysis Date: 10/09/14 21:09

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	1	*	ug/Kg	1	1
Ethylbenzene	100-41-4		U	1	*	ug/Kg	1	1
m p Xylene	1330-20-7		U	1	*	ug/Kg	2	2
o Xylene	95-47- 6		U	1	*	ug/Kg	1	1
Toluene	108-88-3		U	1	*	ug/Kg	1	1
TVH C6 to C10	TVH		U	1	*	mg/Kg	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	460-00-4	62.2		1	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	61.9		1	*	%	70	130

Red River Ranch
Project ID:
Sample ID: B-EAST

ACZ Sample ID: ***L20852-01***
Date Sampled: *09/29/14 11:45*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3540**

Workgroup: WG372599
Analyst: rjv
Extract Date: 10/07/14 7:25
Analysis Date: 10/08/14 3:10

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		20		33.3		mg/Kg	3	20
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	77.6		33.3		%	70	130

Red River Ranch
Project ID:
Sample ID: B-WEST

ACZ Sample ID: ***L20852-02***
Date Sampled: *09/29/14 12:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

BTEX/Gasoline Range Organics (C6-C10)

Analysis Method: **M8021B/8015D GC/PID/FID**
Extract Method: **5035A**

Workgroup: WG372567
Analyst: pml
Extract Date: 10/09/14 21:40
Analysis Date: 10/09/14 21:40

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	1	*	ug/Kg	1	1
Ethylbenzene	100-41-4		U	1	*	ug/Kg	1	1
m p Xylene	1330-20-7		U	1	*	ug/Kg	2	2
o Xylene	95-47- 6		U	1	*	ug/Kg	1	1
Toluene	108-88-3		U	1	*	ug/Kg	1	1
TVH C6 to C10	TVH		U	1	*	mg/Kg	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	460-00-4	97.6		1	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	97.8		1	*	%	70	130

Red River Ranch
Project ID:
Sample ID: B-WEST

ACZ Sample ID: ***L20852-02***
Date Sampled: *09/29/14 12:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3540**

Workgroup: WG372599
Analyst: rjv
Extract Date: 10/07/14 8:10
Analysis Date: 10/08/14 3:37

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		15	J	33.3		mg/Kg	3	20
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	84.7		33.3		%	70	130

Red River Ranch
Project ID:
Sample ID: E-CENTER

ACZ Sample ID: ***L20852-03***
Date Sampled: *09/29/14 13:35*
Date Received: *10/01/14*
Sample Matrix: *Soil*

BTEX/Gasoline Range Organics (C6-C10)

Analysis Method: **M8021B/8015D GC/PID/FID**
Extract Method: **5035A**

Workgroup: WG372567
Analyst: pml
Extract Date: 10/09/14 22:11
Analysis Date: 10/09/14 22:11

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	1	*	ug/Kg	1	1
Ethylbenzene	100-41-4		U	1	*	ug/Kg	1	1
m p Xylene	1330-20-7		U	1	*	ug/Kg	2	2
o Xylene	95-47- 6		U	1	*	ug/Kg	1	1
Toluene	108-88-3		U	1	*	ug/Kg	1	1
TVH C6 to C10	TVH		U	1	*	mg/Kg	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	460-00-4	69.2		1	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	67.6		1	*	%	70	130

Red River Ranch
Project ID:
Sample ID: E-CENTER

ACZ Sample ID: ***L20852-03***
Date Sampled: *09/29/14 13:35*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3540**

Workgroup: WG372599
Analyst: rjv
Extract Date: 10/07/14 8:56
Analysis Date: 10/08/14 4:29

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		20	J	100	*	mg/Kg	10	50
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	85.1		100	*	%	70	130

Red River Ranch
Project ID:
Sample ID: E-EAST

ACZ Sample ID: ***L20852-04***
Date Sampled: *09/29/14 13:10*
Date Received: *10/01/14*
Sample Matrix: *Soil*

BTEX/Gasoline Range Organics (C6-C10)

Analysis Method: **M8021B/8015D GC/PID/FID**
Extract Method: **5035A**

Workgroup: WG372567
Analyst: pml
Extract Date: 10/09/14 22:42
Analysis Date: 10/09/14 22:42

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	1	*	ug/Kg	1	1
Ethylbenzene	100-41-4		U	1	*	ug/Kg	1	1
m p Xylene	1330-20-7		U	1	*	ug/Kg	2	2
o Xylene	95-47- 6		U	1	*	ug/Kg	1	1
Toluene	108-88-3		U	1	*	ug/Kg	1	1
TVH C6 to C10	TVH		U	1	*	mg/Kg	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	460-00-4	71.5		1	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	69.7		1	*	%	70	130

Red River Ranch
Project ID:
Sample ID: E-EAST

ACZ Sample ID: ***L20852-04***
Date Sampled: *09/29/14 13:10*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3540**

Workgroup: WG372599
Analyst: rjv
Extract Date: 10/07/14 9:42
Analysis Date: 10/08/14 4:56

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		21	J	66.7	*	mg/Kg	7	30
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	88.6		66.7	*	%	70	130

Red River Ranch
Project ID:
Sample ID: E-WEST

ACZ Sample ID: ***L20852-05***
Date Sampled: *09/29/14 13:25*
Date Received: *10/01/14*
Sample Matrix: *Soil*

BTEX/Gasoline Range Organics (C6-C10)

Analysis Method: **M8021B/8015D GC/PID/FID**
Extract Method: **5035A**

Workgroup: WG372567
Analyst: pml
Extract Date: 10/09/14 23:13
Analysis Date: 10/09/14 23:13

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	1	*	ug/Kg	1	1
Ethylbenzene	100-41-4		U	1	*	ug/Kg	1	1
m p Xylene	1330-20-7		U	1	*	ug/Kg	2	2
o Xylene	95-47- 6		U	1	*	ug/Kg	1	1
Toluene	108-88-3		U	1	*	ug/Kg	1	1
TVH C6 to C10	TVH		U	1	*	mg/Kg	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	460-00-4	96.5		1	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	96.8		1	*	%	70	130

Red River Ranch
Project ID:
Sample ID: E-WEST

ACZ Sample ID: ***L20852-05***
Date Sampled: *09/29/14 13:25*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3540**

Workgroup: WG372599
Analyst: rjv
Extract Date: 10/07/14 10:28
Analysis Date: 10/08/14 5:22

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		25		33.3		mg/Kg	3	20
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	85.8		33.3		%	70	130

Red River Ranch
Project ID:
Sample ID: E-NORTH

ACZ Sample ID: ***L20852-06***
Date Sampled: *09/29/14 13:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

BTEX/Gasoline Range Organics (C6-C10)

Analysis Method: **M8021B/8015D GC/PID/FID**
Extract Method: **5035A**

Workgroup: WG372567
Analyst: pml
Extract Date: 10/09/14 23:43
Analysis Date: 10/09/14 23:43

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	1	*	ug/Kg	1	1
Ethylbenzene	100-41-4		U	1	*	ug/Kg	1	1
m p Xylene	1330-20-7		U	1	*	ug/Kg	2	2
o Xylene	95-47- 6		U	1	*	ug/Kg	1	1
Toluene	108-88-3		U	1	*	ug/Kg	1	1
TVH C6 to C10	TVH		U	1	*	mg/Kg	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	460-00-4	79.3		1	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	79.6		1	*	%	70	130

Red River Ranch
Project ID:
Sample ID: E-NORTH

ACZ Sample ID: ***L20852-06***
Date Sampled: *09/29/14 13:15*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3540**

Workgroup: WG372599
Analyst: rjv
Extract Date: 10/07/14 11:14
Analysis Date: 10/08/14 5:49

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		32		33.3		mg/Kg	3	20
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	83.1		33.3		%	70	130

Red River Ranch
Project ID:
Sample ID: E-SOUTH

ACZ Sample ID: ***L20852-07***
Date Sampled: *09/29/14 13:00*
Date Received: *10/01/14*
Sample Matrix: *Soil*

BTEX/Gasoline Range Organics (C6-C10)

Analysis Method: **M8021B/8015D GC/PID/FID**
Extract Method: **5035A**

Workgroup: WG372567
Analyst: pml
Extract Date: 10/10/14 0:14
Analysis Date: 10/10/14 0:14

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	1	*	ug/Kg	1	1
Ethylbenzene	100-41-4		U	1	*	ug/Kg	1	1
m p Xylene	1330-20-7		U	1	*	ug/Kg	2	2
o Xylene	95-47- 6		U	1	*	ug/Kg	1	1
Toluene	108-88-3		U	1	*	ug/Kg	1	1
TVH C6 to C10	TVH		U	1	*	mg/Kg	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	460-00-4	77.5		1	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	77.1		1	*	%	70	130

Red River Ranch
Project ID:
Sample ID: E-SOUTH

ACZ Sample ID: ***L20852-07***
Date Sampled: *09/29/14 13:00*
Date Received: *10/01/14*
Sample Matrix: *Soil*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3540**

Workgroup: WG372599
Analyst: rjv
Extract Date: 10/07/14 12:00
Analysis Date: 10/08/14 6:15

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		14	J	33.3		mg/Kg	3	20
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	85.7		33.3		%	70	130

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
LCL	Lower Control Limit
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
UCL	Upper Control Limit
Sample	Value of the Sample of interest

QC Sample Types

SURR	Surrogate	*LFM*	Laboratory Fortified Matrix
INTS	Internal Standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
LCSS	Laboratory Control Sample - Soil	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSW	Laboratory Control Sample - Water	*PBS*	Prep Blank - Soil
LFB	Laboratory Fortified Blank	*PBW*	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
O	Analyte concentration is estimated due to result exceeding calibration range.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
J	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.
(3)	EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Excluding Oil & Grease, solid & biological matrices for organic analyses are reported on a wet weight basis.
(3)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(4)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Red River Ranch

ACZ Project ID: ***L20852***

BTEX/Gasoline Range Organics (C6-C10)

M8021B/8015D GC/PID/FID

WG372567

AS **Sample ID: L20850-01AS** **PCN/SCN: B140918-1-SPIK** **Analyzed: 10/09/14 12:37**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25	U	23.1	ug/Kg	92.4	70	130			
ETHYLBENZENE	25	U	17.4	ug/Kg	69.6	70	130			
M P XYLENE	50	U	33.7	ug/Kg	67.4	70	130			M2
O XYLENE	50	U	32.3	ug/Kg	64.6	70	130			M2
TOLUENE	75	U	57.7	ug/Kg	76.9	70	130			
TVH C6 TO C10	.5	U	.349	mg/Kg	69.8	70	130			
BROMOFLUOROBENZENE (surr)				%	66.2	70	130			S7
BROMOFLUOROBENZENE (TVH) (surr)				%	66.3	70	130			S7

ASD **Sample ID: L20850-01ASD** **PCN/SCN: B140918-1-SPIK** **Analyzed: 10/09/14 13:09**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25	U	18	ug/Kg	72.0	70	130	24.82	20	RD
ETHYLBENZENE	25	U	13.9	ug/Kg	55.6	70	130	22.36	20	M2 RD
M P XYLENE	50	U	27.4	ug/Kg	54.8	70	130	20.62	20	M2 RD
O XYLENE	50	U	26.6	ug/Kg	53.2	70	130	19.35	20	M2
TOLUENE	75	U	45.3	ug/Kg	60.4	70	130	24.08	20	M2 RD
TVH C6 TO C10	.5	U	.287	mg/Kg	57.4	70	130	19.5	20	M2
BROMOFLUOROBENZENE (surr)				%	80.2	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	79.7	70	130			

LCSS **Sample ID: WG372567LCSS** **PCN/SCN: B140918-1-SPIK** **Analyzed: 10/09/14 10:34**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25		28.4	ug/Kg	113.6	70	130			
ETHYLBENZENE	25		27.2	ug/Kg	108.8	70	130			
M P XYLENE	50		54.9	ug/Kg	109.8	70	130			
O XYLENE	50		52	ug/Kg	104.0	70	130			
TOLUENE	75		80.5	ug/Kg	107.3	70	130			
TVH C6 TO C10	.5		.554	mg/Kg	110.8	70	130			
BROMOFLUOROBENZENE (surr)				%	105.5	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	104.4	70	130			

LCSSD **Sample ID: WG372567LCSSD** **PCN/SCN: B140918-1-SPIK** **Analyzed: 10/09/14 11:05**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25		27.8	ug/Kg	111.2	70	130	2.1	20	
ETHYLBENZENE	25		26.7	ug/Kg	106.8	70	130	1.9	20	
M P XYLENE	50		54.1	ug/Kg	108.2	70	130	1.5	20	
O XYLENE	50		51.7	ug/Kg	103.4	70	130	0.6	20	
TOLUENE	75		79.2	ug/Kg	105.6	70	130	1.6	20	
TVH C6 TO C10	.5		.542	mg/Kg	108.4	70	130	2.2	20	
BROMOFLUOROBENZENE (surr)				%	105.6	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	104.2	70	130			

Red River Ranch

ACZ Project ID: ***L20852***

PBS **Sample ID: WG372567PBS** **Analyzed: 10/09/14 11:36**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE			U	ug/Kg		-1	1			
ETHYLBENZENE			U	ug/Kg		-1	1			
M P XYLENE			U	ug/Kg		-2	2			
O XYLENE			U	ug/Kg		-1	1			
TOLUENE			U	ug/Kg		-1	1			
TVH C6 TO C10			U	mg/Kg		-.05	.05			
BROMOFLUOROBENZENE (surr)				%	104.1	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	103.1	70	130			

Red River Ranch

ACZ Project ID: ***L20852***

Diesel Range Organics (C10-C28)

M8015D GC/FID

WG372599

MS **Sample ID: L20850-01MS** **PCN/SCN: TPH140806-1-15** **Analyzed: 10/07/14 20:34**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	166.7	40	190.2	mg/Kg	90.1	70	130			
OTP (surr)				%	84.5	70	130			

MSD **Sample ID: L20850-01MSD** **PCN/SCN: TPH140806-1-15** **Analyzed: 10/07/14 21:01**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	166.7	40	184.7	mg/Kg	86.8	70	130	2.93	20	
OTP (surr)				%	86.6	70	130			

LCSS **Sample ID: WG372390LCSS** **PCN/SCN: TPH140806-1-30** **Analyzed: 10/07/14 19:15**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	83.3		76.6	mg/Kg	91.9	70	130			
OTP (surr)				%	85.8	70	130			

LCSSD **Sample ID: WG372390LCSSD** **PCN/SCN: TPH140806-1-30** **Analyzed: 10/07/14 19:41**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	83.3		78.1	mg/Kg	93.7	70	130	1.9	20	
OTP (surr)				%	86.5	70	130			

PBS **Sample ID: WG372390PBS** **Analyzed: 10/07/14 18:48**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28			U	mg/Kg		-20	20			
OTP (surr)				%	82.0	70	130			

Red River Ranch ACZ Project ID: ***L20852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L20852-01	WG372567	*All Compounds*	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Benzene	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Bromofluorobenzene	M8021B/8015D GC/PID/FID	S7	Surrogate recovery was below laboratory and method acceptance limits. Unable to confirm matrix effect.
		Bromofluorobenzene (TVH)	M8021B/8015D GC/PID/FID	S7	Surrogate recovery was below laboratory and method acceptance limits. Unable to confirm matrix effect.
		Ethylbenzene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		m p Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		o Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Toluene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L20852-02	WG372567	*All Compounds*	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Benzene	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Ethylbenzene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		m p Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		o Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Toluene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L20852-03	WG372567	*All Compounds*	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Benzene	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Bromofluorobenzene	M8021B/8015D GC/PID/FID	S7	Surrogate recovery was below laboratory and method acceptance limits. Unable to confirm matrix effect.
		Bromofluorobenzene (TVH)	M8021B/8015D GC/PID/FID	S7	Surrogate recovery was below laboratory and method acceptance limits. Unable to confirm matrix effect.

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Ethylbenzene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		m p Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		o Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Toluene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG372599	*All Compounds*	M8015D GC/FID	D1	Sample required dilution due to matrix.
	WG372390		M3540	D1	Sample required dilution due to matrix.
L20852-04	WG372567	*All Compounds*	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Benzene	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Ethylbenzene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		m p Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		o Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Toluene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG372599	*All Compounds*	M8015D GC/FID	D1	Sample required dilution due to matrix.
	WG372390		M3540	D1	Sample required dilution due to matrix.
L20852-05	WG372567	*All Compounds*	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Benzene	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Ethylbenzene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		m p Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		o Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Toluene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L20852-06	WG372567	*All Compounds*	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Benzene	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Ethylbenzene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		m p Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		o Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Toluene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L20852-07	WG372567	*All Compounds*	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Benzene	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Ethylbenzene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		m p Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		o Xylene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Toluene	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Conductivity @25C	SM2510B
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2
Solids, Percent	D2216-80

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Red River Ranch

ACZ Project ID: L20852
Date Received: 10/01/2014 09:50
Received By: ear
Date Printed: 10/1/2014

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody complete and accurate?	X		
7) Were any changes made to the Chain of Custody prior to ACZ receiving the samples?	X		

A change was made in the Sampler's Site Information and Date:Time Line 1 section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits?			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?		X	
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/Hr)	Custody Seal Intact?
3632	5.4	7	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Red River Ranch

ACZ Project ID:	L20852
Date Received:	10/01/2014 09:50
Received By:	ear
Date Printed:	10/1/2014

ACZ Laboratories, Inc. L20852

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Jack Sosebee	Address: 9407 E. Chenango Ave.
Company: Watpro, Inc.	Greenwood Village, CO 80111
E-mail: jack.sosebee@comcast.net	Telephone: 303-921-9176

Copy of Report to:

Name:	E-mail:
Company:	Telephone:

Invoice to:

Name: Jennifer Lujan	Address: Tercio Ranch, 15850 County Road 13
Company: Red River Ranch	Weston CO 81091
E-mail: jennifer.lujan@tercioranch.com	Telephone: 719-868-2223

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]
If yes, please include state forms. Results will be reported to PQL for Colorado. 81091

Sampler's Name: Jack Sosebee **Sampler's Site Information** **State** CO **Zip code** ~~80111~~ **Time Zone** Mountain

***Sampler's Signature:** Jack Sosebee

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: RED-RIVER-RANCH (Max Janicek)

PO#:

Reporting state for compliance testing:

Check box if samples include NRC licensed material?

ANALYSES REQUESTED *(attach list or use quote number)*: Use QUOTE NO.

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers
B-East	9/29/14 1145	SO	3
B-West	9/29/14 1215	SO	3
E-Center	9/29/14 1335	SO	3
E-East	9/29/14 1310	SO	3
E-West	9/29/14 1325	SO	3
E-North	9/29/14 1315	SO	3
E-South	9/29/14 1300	SO	3

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

L20852 Chain of Custody

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Jack Sosebee	9/30/14 1300	WPC	10/1/14 0950