STATE OF COLORADO

EnviroScan - DNR, OGCC <dnr_ogcc.enviroscan@state.co.us>

Fwd: sharing information on creek testing near Rangely

1 message

Fischer - DNR, Alex <alex.fischer@state.co.us> Thu, Aug 13, 2015 at 12:37 PM
To: OGCC EnviroScan - DNR <dnr_ogcc.enviroscan@state.co.us>
Cc: Stan Spencer - DNR <stan.spencer@state.co.us>

Please upload the email and attached as one PDF with the following information:

Unique identifier (REM/Spill/NOAV #, etc.): API #05-103-07015, 05-103-07236, 05-103-40300, 05-103-06373, and 05-103-07162
Document number (leave blank if one needs to be assigned):
Date received: 8/13/15
Is data entry needed (Y/N):
Notes: April 22, 2015 BLM Inspection and analytical

Thanks!

--

Alex Fischer, P.G.

Environmental Supervisor, Western Colorado

COLORADO
Oil & Gas Conservation Commission
Department of Natural Resources

P 303.894.2100 x5138 | F 303.894.2109

1120 Lincoln Street, Suite 801, Denver, CO 80203

|alex.fischer@state.co.us www.colorado.gov/cogcc

Good morning Stan,

First, let me "virtually" introduce myself - I'm Tracy Perfors, a new oil and gas NRS with the BLM in Meeker, CO. Before I took this job, I worked for the BLM in SW Colorado, and worked with Jim Hughes on a couple of projects.

I wanted to share some information on an inspection I did, just so your organization and mine don't repeat work. This spring, I noticed a red coloring in a creek near Rangely, downstream of a number of P&A wells. I was afraid

the coloring might be from the wells, so we had the water tested, and it came back below standards for hydrocarbons, so my worries were unfounded. :) I'm attaching a report (with API numbers) and the water testing results to this email - just in case you see the same coloring when you're doing inspections in the area, I wanted you to know this testing has already been done.

Thank you, and I look forward to working with you in the future.
- Tracy Perfors

--
Tracy Perfors
Natural Resource Specialist, BLM
White River Field Office

(970) 878-3811 office
(970) 317-1534 cell

--

Stan Spencer
Environmental Protection Specialist, NW Region

COLORADO
Oil & Gas Conservation Commission
Department of Natural Resources

Phone 970.625.2497 | Fax 3970.625.5682
Cell 970.987.2891

796 Megan Avenue, Suite 201, Rifle, CO 81650

stan.spencer@state.co.us www.colorado.gov/cogcc

--

Alex Fischer, P.G.

Environmental Supervisor, Western Colorado

COLORADO
Oil & Gas Conservation Commission
Department of Natural Resources

P 303.894.2100 x5138 | F 303.894.2109

1120 Lincoln Street, Suite 801, Denver, CO 80203

|alex.fischer@state.co.us www.colorado.gov/cogcc

2 attachments

Inspection 22 April 2015 red stream near Rangely.doc
1701K

water sample 21 May 2015.pdf
818K

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
White River Field Office
22o East Market St
Meeker, Colorado 81641

In Reply Refer To:

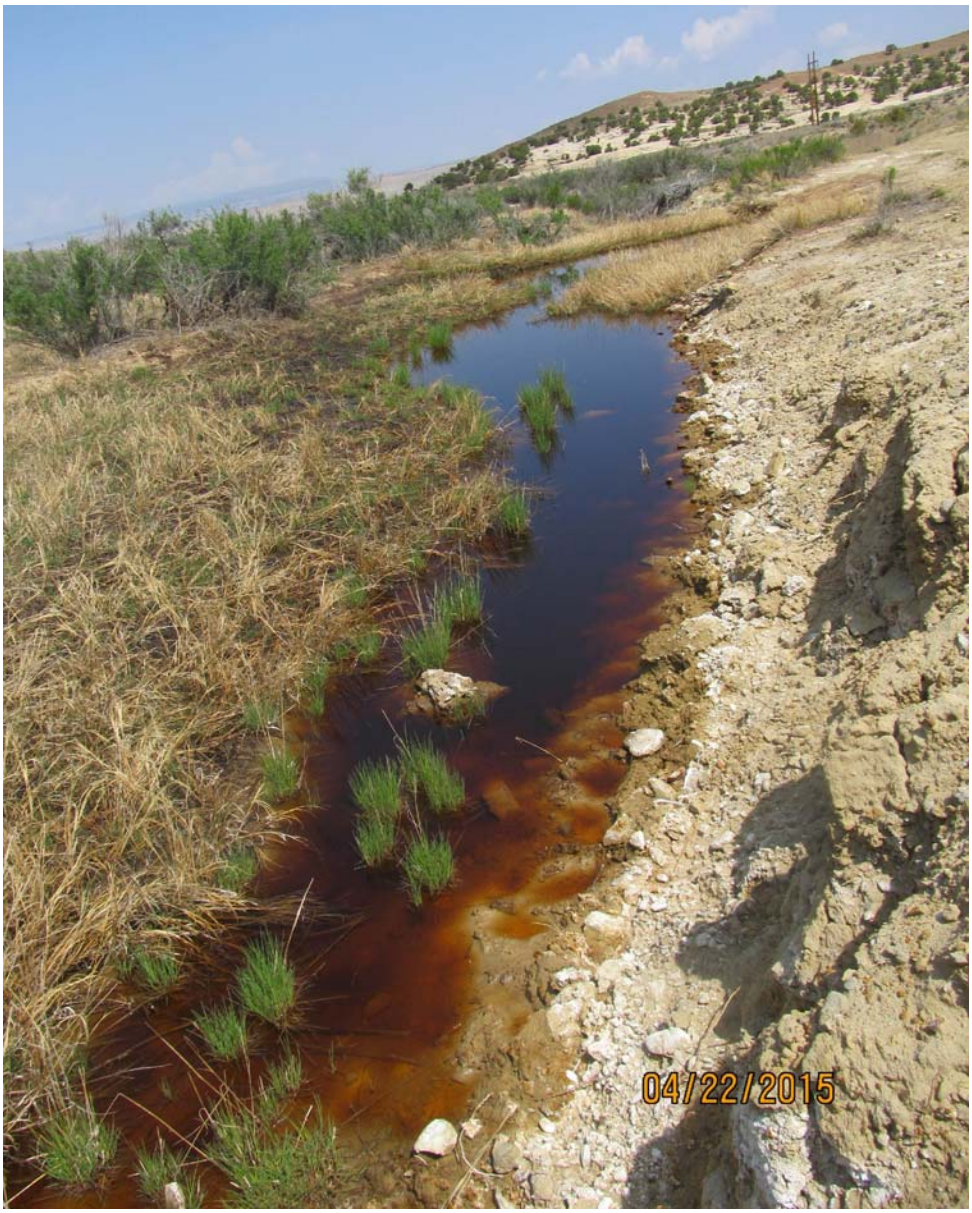
MEMORANDUM

22 Apr 2015

From: Tracy Perfors, NRS

Subject: Inspection of red stream near Rangely, T 1N, R 102W, Sec 11

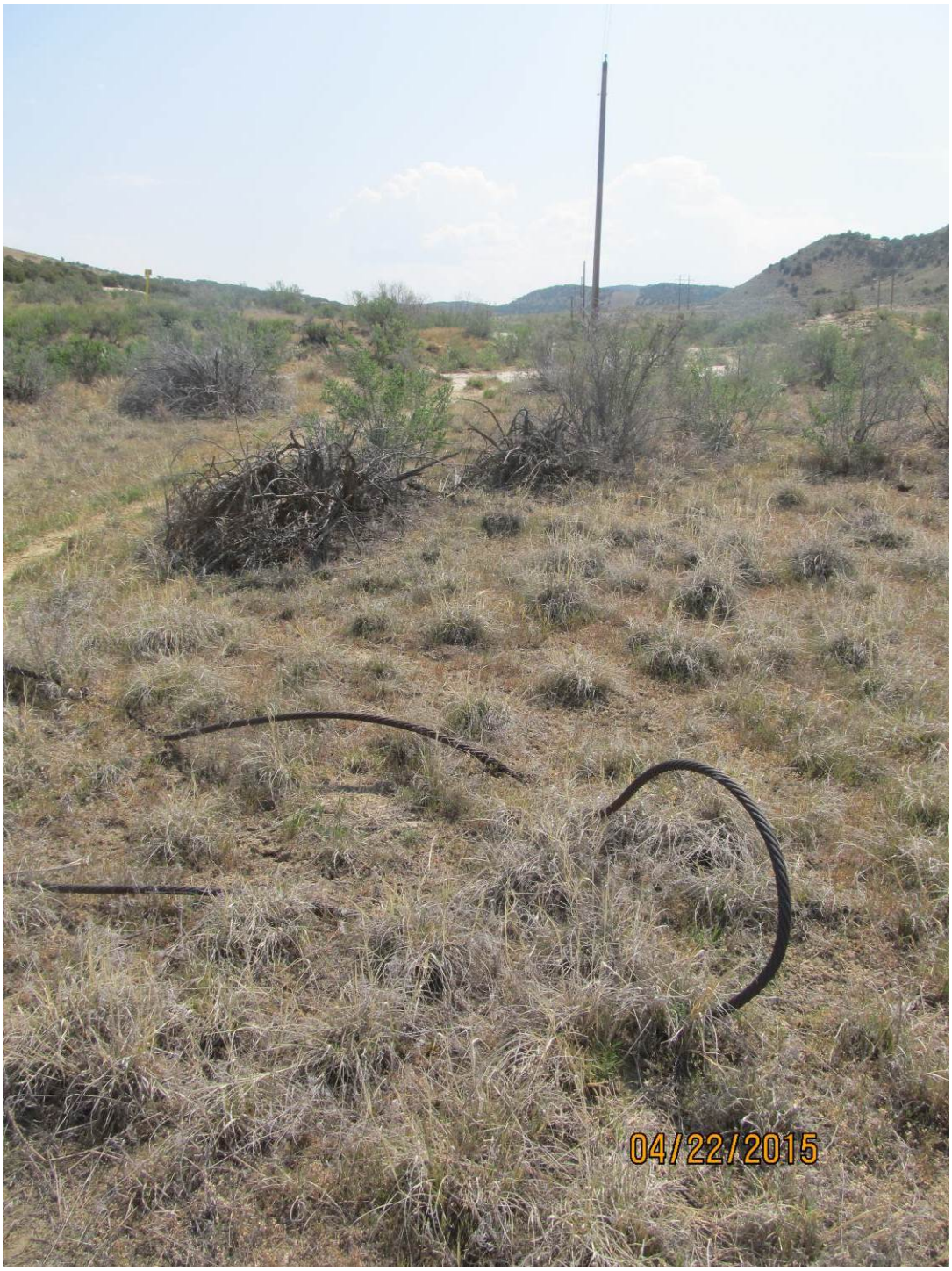
On 22 April 2015, Tracy Perfors, NRS, discovered a red-tinged creek near Rangely. Five plugged and abandoned wells were upstream of this creek: API #05-103-07015, 05-103-07236, 05-103-40300, 05-103-06373, and 05-103-07162.



On 21 May 2015, a water sample was collected and sent to ACZ Laboratories in Steamboat Springs, CO for analysis. All tests for petroleum hydrocarbons came back within standard, so we conclude the red stain is due to a natural phenomenon, and is not related to the upstream oil and gas wells.

In general, these wells about 1 acre well pads were not recontoured well, but did have thick native vegetation grown in. There is oil and gas

trash (old empty barrels, cables, etc) laying throughout this area. This would be a good area for a trash cleanup if we could get volunteers, but with the water sample being within standards, there is no imminent environmental problem.



Above, this is typical of the locations of each of the five wells – some random trash, native vegetation consisting of grasses and greasewood, no weeds seen.

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

Analytical Report

June 10, 2015

Report to:
Keith Sauter
BLM - White River
220 E. Market Street
Meeker, CO 81641

Bill to:
Keith Sauter
BLM-WRFO
220 E Market St.
Meeker, CO 81641

Project ID:
ACZ Project ID: L24487

Keith Sauter:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 21, 2015. This project has been assigned to ACZ's project number, L24487. 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 L24487. 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 July 10, 2015. 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.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

BLM - White River

June 10, 2015

Project ID:
ACZ Project ID: L24487

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 ground water sample from BLM - White River on May 21, 2015. The sample was received in good condition. Upon receipt, the sample custodian removed the sample from the cooler, inspected the contents, and logged the sample into ACZ's computerized Laboratory Information Management System (LIMS). The sample was assigned ACZ LIMS project number L24487. 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

This sample was 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:

1. (N1A) Vial was inadvertently opened briefly.

2. (N1) PQV1 (low level quantitation check) failed just above acceptance limits, however the sample concentration is over 20 times higher than the PQV true value and is much closer to the CCV concentration. Both CCVs associated with the sample are within acceptance limits. The high bias in the PQV does not impact sample quantitation.

BLM - White River
Project ID:
Sample ID: RANGELY RED STAIN

ACZ Sample ID: ***L24487-01***
Date Sampled: *05/21/15 11:50*
Date Received: *05/21/15*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH (Field)	Field Measurement	1	8.1			units			05/21/15 11:50	ks
Temperature (Field)	Field Measurement	1	17.7			C			05/21/15 11:50	ks

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phenol	420.4, Manual Distillation				*				05/29/15 15:00	thf
Phosphorus, total	M365.1 - Auto Ascorbic Acid Digestion				*				05/28/15 17:45	bsu
Total Hot Plate Digestion	M200.2 ICP				*				05/28/15 22:33	jjc
Total Hot Plate Digestion	M200.2 ICP-MS				*				05/31/15 19:48	scp

BLM - White River
Project ID:
Sample ID: RANGELY RED STAIN

ACZ Sample ID: ***L24487-01***
Date Sampled: *05/21/15 11:50*
Date Received: *05/21/15*
Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total	M200.7 ICP	5	2.2			mg/L	0.2	0.8	06/01/15 14:15	jjc
Antimony, total	M200.8 ICP-MS	2		U		mg/L	0.0008	0.004	06/02/15 0:37	msh
Arsenic, total	M200.8 ICP-MS	2	0.0020			mg/L	0.0004	0.002	06/02/15 0:37	msh
Barium, total	M200.7 ICP	5	0.15			mg/L	0.02	0.08	06/01/15 14:15	jjc
Beryllium, total	M200.8 ICP-MS	2		U		mg/L	0.0001	0.0005	06/02/15 0:37	msh
Bismuth, total	M200.7 ICP	5		U	*	mg/L	0.2	1	06/01/15 14:15	jjc
Boron, total	M200.7 ICP	5	0.55		*	mg/L	0.05	0.3	06/01/15 14:15	jjc
Cadmium, total	M200.8 ICP-MS	2		U		mg/L	0.0002	0.001	06/02/15 0:37	msh
Calcium, dissolved	M200.7 ICP	1	11.4		*	mg/L	0.1	0.5	05/28/15 17:57	jjc
Cesium, total	M200.8 ICP-MS	2		U	*	mg/L	0.0004	0.002	06/02/15 0:37	msh
Chromium, total	M200.7 ICP	5		U		mg/L	0.05	0.3	06/01/15 14:15	jjc
Cobalt, total	M200.7 ICP	5		U		mg/L	0.05	0.3	06/01/15 14:15	jjc
Copper, total	M200.7 ICP	5		U		mg/L	0.05	0.3	06/01/15 14:15	jjc
Gallium, total	M200.7 ICP	5		U	*	mg/L	0.5	3	06/01/15 14:15	jjc
Iron, Ferric	Calculation (Total Fe - Ferrous Fe)		2.2			mg/L	0.1	0.1	06/08/15 9:31	calc
Iron, total	M200.7 ICP	5	2.2			mg/L	0.1	0.3	06/01/15 14:15	jjc
Lead, total	M200.8 ICP-MS	2	0.0010			mg/L	0.0002	0.001	06/02/15 0:37	msh
Lithium, total	M200.7 ICP	5	0.09	B		mg/L	0.04	0.2	06/01/15 14:15	jjc
Magnesium, dissolved	M200.7 ICP	1	47.9		*	mg/L	0.2	1	05/28/15 17:57	jjc
Manganese, total	M200.7 ICP	5	0.15			mg/L	0.03	0.1	06/01/15 14:15	jjc
Mercury, total	M245.1 CVAA	1		U		mg/L	0.0002	0.001	06/05/15 16:29	nco
Molybdenum, total	M200.7 ICP	5		U		mg/L	0.1	0.5	06/01/15 14:15	jjc
Nickel, total	M200.7 ICP	5		U		mg/L	0.04	0.2	06/01/15 14:15	jjc
Phosphorus, total	M200.7 ICP	5		U		mg/L	0.5	3	06/02/15 10:32	jjc
Potassium, dissolved	M200.7 ICP	1	4.4		*	mg/L	0.2	1	05/28/15 17:57	jjc
Scandium, total	M200.7 ICP	5		U	*	mg/L	0.5	3	06/01/15 14:15	jjc
Selenium, total	M200.8 ICP-MS	2	0.0003	B		mg/L	0.0002	0.0005	06/02/15 0:37	msh
Silica, total	M200.7 ICP	5	21		*	mg/L	1	5	06/01/15 14:15	jjc
Silicon, total	M200.7 ICP	5	9.7		*	mg/L	0.5	3	06/01/15 14:15	jjc
Silver, total	M200.7 ICP	5		U		mg/L	0.05	0.1	06/01/15 14:15	jjc
Sodium, dissolved	M200.7 ICP	2	1110			mg/L	0.4	2	05/29/15 16:19	aeb
Strontium, total	M200.7 ICP	5	0.53			mg/L	0.03	0.1	06/01/15 14:15	jjc
Sulfur, total	M200.7 ICP	5	110		*	mg/L	1	6	06/01/15 14:15	jjc
Tellurium, total	M200.8 ICP-MS	2		U	*	mg/L	0.002	0.01	06/02/15 0:37	msh
Thallium, total	M200.8 ICP-MS	2		U		mg/L	0.0002	0.001	06/02/15 0:37	msh
Thorium, total	M200.8 ICP-MS	2		U		mg/L	0.002	0.01	06/02/15 0:37	msh
Tin, total	M200.7 ICP	5		U		mg/L	0.2	1	06/01/15 14:15	jjc
Titanium, total	M200.7 ICP	5	0.05	B		mg/L	0.03	0.1	06/01/15 14:15	jjc
Uranium, total	M200.8 ICP-MS	2	0.0056			mg/L	0.0002	0.001	06/02/15 0:37	msh
Vanadium, total	M200.7 ICP	5		U		mg/L	0.03	0.1	06/01/15 14:15	jjc
Zinc, total	M200.7 ICP	5		U		mg/L	0.05	0.3	06/01/15 14:15	jjc

BLM - White River
Project ID:
Sample ID: RANGELY RED STAIN

ACZ Sample ID: ***L24487-01***
Date Sampled: *05/21/15 11:50*
Date Received: *05/21/15*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acidity as CaCO3	SM2310B - Titration	1		U		mg/L	10	20	05/28/15 16:59	tms
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	2220			mg/L	2	20	06/03/15 0:00	id
Carbonate as CaCO3		1	145			mg/L	2	20	06/03/15 0:00	id
Hydroxide as CaCO3		1		U		mg/L	2	20	06/03/15 0:00	id
Total Alkalinity		1	2360			mg/L	2	20	06/03/15 0:00	id
Bromide	M300.0 - Ion Chromatography	50		U	*	mg/L	2.5	12.5	05/29/15 23:26	jlf
Carbon, total inorganic	SM5310B	5	565		*	mg/L	5	25	06/01/15 11:43	jlf
Carbon, total organic (TOC)	SM5310B	5	36.6		*	mg/L	5	25	05/29/15 15:36	jlf
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-0.9			%			06/08/15 9:31	calc
Sum of Anions			55			meq/L			06/08/15 9:31	calc
Sum of Cations			54			meq/L			06/08/15 9:31	calc
Chemical Oxygen Demand	M410.4	1	108		*	mg/L	10	20	06/01/15 11:50	enb
Chloride	M300.0 - Ion Chromatography	50	117	B	*	mg/L	25	125	05/29/15 23:26	jlf
Corrosivity (calc.)	SM 2330 - CaCO3 SI		0.8			SI Unit			06/08/15 9:31	calc
Cyanide, Total	D7511-09	1	0.006	B		mg/L	0.003	0.01	05/28/15 17:59	bsu
Iron, Ferrous	SM 3500 Fe-B	1	0.05		*	mg/L	0.01	0.05	05/22/15 9:21	abd/id
Phenol	420.4, Manual Distillation	11.3	0.05	B	*	mg/L	0.03	0.2	05/29/15 17:01	bsu
Phosphorus, total	M365.1 - Auto Ascorbic Acid (digest)	5	0.22	B	*	mg/L	0.05	0.3	05/29/15 23:07	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	3180		*	mg/L	10	20	05/27/15 11:03	id
Sulfate	M300.0 - Ion Chromatography	50	204			mg/L	25	125	05/29/15 23:26	jlf
Sulfide as S	SM4500S2-D	3.75		U	*	mg/L	0.08	0.4	05/28/15 12:37	eaa
Sulfite	M377.1 - Titrimetric	1	5	B	*	mg/L	2	10	05/22/15 9:17	abd

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 unless omitted or equal to the PQL (see comment #5). 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. Synonymous with the EPA term "minimum level".
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

REP001.03.15.02

BLM - White River

ACZ Project ID: ***L24487***

Acidity as CaCO3 SM2310B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384225													
WG384225PBW	PBW	05/28/15 8:50				12	mg/L		-20	20			
WG384225LCSW	LCSW	05/28/15 9:11	PCN48693	1090		1060	mg/L	97	90	110			
L24478-01DUP	DUP	05/28/15 16:38			1220	1290	mg/L				6	20	

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384571													
WG384571PBW	PBW	06/03/15 10:36				U	mg/L		-20	20			
WG384571LCSW1	LCSW	06/03/15 10:47	WC150318-9	32800		33200	mg/L	101	90	110			
L24487-01DUP	DUP	06/03/15 11:02			2360	2340	mg/L				1	20	
WG384571LCSW2	LCSW	06/03/15 11:13	WC150318-9	32800		33400	mg/L	102	90	110			

Aluminum, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.998	mg/L	100	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.09	0.09			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.066	0.066			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	1.0015		1.056	mg/L	105	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	1.0015	.47	1.727	mg/L	126	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	1.0015	.47	1.699	mg/L	123	70	130	2	20	

Antimony, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.02		.01969	mg/L	98	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.0012	0.0012			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00088	0.00088			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.01001		.01007	mg/L	101	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00088	0.00088			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.01001		.00997	mg/L	100	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.01001	U	.01008	mg/L	101	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.01001	U	.01007	mg/L	101	70	130	0	20	

Arsenic, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.04981	mg/L	100	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.0006	0.0006			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00044	0.00044			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.0501		.05075	mg/L	101	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00044	0.00044			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.0501		.05106	mg/L	102	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.0501	U	.05075	mg/L	101	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.0501	U	.04986	mg/L	100	70	130	2	20	

BLM - White River

ACZ Project ID: ***L24487***

Barium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.987	mg/L	99	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.009	0.009			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.0066	0.0066			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.5		.5001	mg/L	100	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.5	.054	.5618	mg/L	102	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.5	.054	.5644	mg/L	102	70	130	0	20	

Beryllium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.048889	mg/L	98	90	110			
WG384468ICB	ICB	06/01/15 23:12				.00009	mg/L		-0.00015	0.00015			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00011	0.00011			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05005		.050926	mg/L	102	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00011	0.00011			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05005		.052031	mg/L	104	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05005	U	.052091	mg/L	104	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05005	U	.051992	mg/L	104	70	130	0	20	

Bismuth, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.986	mg/L	99	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.12	0.12			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.088	0.088			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	1		1.022	mg/L	102	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	1	U	.979	mg/L	98	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	1	U	1.016	mg/L	102	70	130	4	20	

Boron, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.018	mg/L	101	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.03	0.03			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.022	0.022			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.5005		.511	mg/L	102	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.5005	13.3	14.032	mg/L	146	70	130			M3
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.5005	13.3	13.884	mg/L	117	70	130	1	20	

BLM - White River

ACZ Project ID: ***L24487***

Bromide M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG383372													
WG383372ICV	ICV	05/11/15 18:33	WI150331-4	4.004		4.01	mg/L	100	90	110			
WG383372ICB	ICB	05/11/15 18:51				U	mg/L		-0.15	0.15			
WG384366													
WG384366LFB1	LFB	05/29/15 18:21	WI150409-2	1.5		1.47	mg/L	98	90	110			
L24482-01DUP	DUP	05/29/15 23:08			U	U	mg/L				0	20	RA
L24579-01AS	AS	05/30/15 2:07	WI150409-2	1.5	U	1.52	mg/L	101	90	110			
WG384366LFB2	LFB	05/30/15 3:01	WI150409-2	1.5		1.48	mg/L	99	90	110			

Cadmium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.05077	mg/L	102	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.0003	0.0003			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00022	0.00022			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05005		.05149	mg/L	103	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00022	0.00022			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05005		.05289	mg/L	106	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05005	U	.0509	mg/L	102	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05005	U	.05103	mg/L	102	70	130	0	20	

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384293													
WG384293ICV	ICV	05/28/15 17:23	II150514-1	100		99.31	mg/L	99	95	105			
WG384293ICB	ICB	05/28/15 17:29				.11	mg/L		-0.3	0.3			
WG384293LFB	LFB	05/28/15 17:42	II150515-4	67.98862		74	mg/L	109	85	115			
L24350-01AS	AS	05/28/15 17:48	II150515-4	67.98862	4.4	77.71	mg/L	108	85	115			
L24350-01ASD	ASD	05/28/15 17:51	II150515-4	67.98862	4.4	77.58	mg/L	108	85	115	0	20	

Carbon, total inorganic SM5310B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384414													
WG384414ICV	ICV	06/01/15 11:43	WI150505-8	100		95.7	mg/L	96	90	110			
WG384414ICB	ICB	06/01/15 11:43				U	mg/L		-3	3			
WG384414LFB	LFB	06/01/15 11:43	WI150119-10	50		46.5	mg/L	93	90	110			
L24487-01AS	AS	06/01/15 11:43	WI150119-10	250	565	754	mg/L	76	90	110			M2
L24487-01DUP	DUP	06/01/15 11:43			565	516	mg/L				9	20	

BLM - White River

ACZ Project ID: ***L24487***

Carbon, total organic (TOC) SM5310B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG381786													
WG381786ICV	ICV	04/10/15 11:42	WI150206-1	100		108	mg/L	108	90	110			
WG381786ICB	ICB	04/10/15 11:42				U	mg/L		-3	3			
WG384344													
WG384344LFB1	LFB	05/29/15 15:36	WI150507-3	50		49.1	mg/L	98	90	110			
WG384344LFB2	LFB	05/29/15 15:36	WI150507-3	50		50.8	mg/L	102	90	110			
L24446-06DUP	DUP	05/29/15 15:36			6.7	6.9	mg/L				3	20	RA
L24487-01AS	AS	05/29/15 15:36	WI150507-3	250	36.6	286	mg/L	100	90	110			

Cesium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.05015	mg/L	100	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.0006	0.0006			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00044	0.00044			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05		.05131	mg/L	103	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00044	0.00044			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05		.05202	mg/L	104	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05	U	.05111	mg/L	102	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05	U	.0512	mg/L	102	70	130	0	20	

Chemical Oxygen Demand M410.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384409													
WG384409ICV	ICV	06/01/15 10:25	WC150107-2	200		189	mg/L	95	90	110			
WG384409ICB	ICB	06/01/15 10:34				U	mg/L		-20	20			
WG384409LRB	LRB	06/01/15 10:44				U	mg/L		-20	20			
WG384409LFB	LFB	06/01/15 10:53	WC150414-3	50		46	mg/L	92	90	110			
L24508-04DUP	DUP	06/01/15 12:57			U	U	mg/L				0	20	RA
L24508-04AS	AS	06/01/15 13:07	WC150414-3	50	U	46	mg/L	92	90	110			

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG383372													
WG383372ICV	ICV	05/11/15 18:33	WI150331-4	20		19.8	mg/L	99	90	110			
WG383372ICB	ICB	05/11/15 18:51				U	mg/L		-1.5	1.5			
WG384366													
WG384366LFB1	LFB	05/29/15 18:21	WI150409-2	30		31	mg/L	103	90	110			
L24482-01DUP	DUP	05/29/15 23:08			.56	U	mg/L				200	20	RA
L24579-01AS	AS	05/30/15 2:07	WI150409-2	30	1.25	31.7	mg/L	102	90	110			
WG384366LFB2	LFB	05/30/15 3:01	WI150409-2	30		31	mg/L	103	90	110			

BLM - White River

ACZ Project ID: ***L24487***

Chromium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.967	mg/L	98	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.03	0.03			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.022	0.022			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.5005		.499	mg/L	100	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.5005	U	.497	mg/L	99	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.5005	U	.502	mg/L	100	70	130	1	20	

Cobalt, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2.002		2.03	mg/L	101	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.03	0.03			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.022	0.022			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.5005		.503	mg/L	100	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.5005	U	.514	mg/L	103	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.5005	U	.511	mg/L	102	70	130	1	20	

Copper, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.993	mg/L	100	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.03	0.03			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.022	0.022			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.499		.515	mg/L	103	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.499	U	.517	mg/L	104	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.499	U	.516	mg/L	103	70	130	0	20	

Cyanide, Total D7511-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384244													
WG384244ICV	ICV	05/28/15 12:03	WI150519-2	.3003		.315	mg/L	105	90	110			
WG384244ICB	ICB	05/28/15 12:05				U	mg/L		-0.003	0.003			
WG384285													
WG384285LFB	LFB	05/28/15 17:47	WI150519-5	.1		.1112	mg/L	111	84	116			
L24440-03AS	AS	05/28/15 17:51	WI150519-5	.1	U	.1015	mg/L	102	84	116			
L24440-03ASD	ASD	05/28/15 17:53	WI150519-5	.1	U	.1063	mg/L	106	84	116	5	20	

Gallium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.1	mg/L	105	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.3	0.3			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.22	0.22			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	1		1.06	mg/L	106	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	1	U	1.06	mg/L	106	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	1	U	1.12	mg/L	112	70	130	6	20	

BLM - White River

ACZ Project ID: ***L24487***

Iron, Ferrous SM 3500 Fe-B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG383956													
WG383956ICV	ICV	05/22/15 9:00	WC150113-5	1		.994	mg/L	99	90	110			
WG383956ICB	ICB	05/22/15 9:07				U	mg/L		-0.03	0.03			
WG383956LFB	LFB	05/22/15 9:14	WC150113-7	.5		.506	mg/L	101	75	125			
L24487-01AS	AS	05/22/15 9:28	WC150113-7	.5	.05	.507	mg/L	91	75	125			
L24487-01DUP	DUP	05/22/15 9:35			.05	.102	mg/L				68	20	RA

Iron, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.975	mg/L	99	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.06	0.06			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.044	0.044			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	1.0001		1.014	mg/L	101	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	1.0001	.58	1.624	mg/L	104	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	1.0001	.58	1.626	mg/L	105	70	130	0	20	

Lead, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.0498	mg/L	100	90	110			
WG384468ICB	ICB	06/01/15 23:12				.00018	mg/L		-0.0003	0.0003			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00022	0.00022			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05005		.04861	mg/L	97	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00022	0.00022			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05005		.04944	mg/L	99	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05005	U	.04918	mg/L	98	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05005	U	.04901	mg/L	98	70	130	0	20	

Lithium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.0182	mg/L	101	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.024	0.024			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.0176	0.0176			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	1.001		1.013	mg/L	101	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	1.001	.85	1.886	mg/L	103	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	1.001	.85	1.897	mg/L	105	70	130	1	20	

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384293													
WG384293ICV	ICV	05/28/15 17:23	II150514-1	100		95.83	mg/L	96	95	105			
WG384293ICB	ICB	05/28/15 17:29				U	mg/L		-0.6	0.6			
WG384293LFB	LFB	05/28/15 17:42	II150515-4	50.00339		51.14	mg/L	102	85	115			
L24350-01AS	AS	05/28/15 17:48	II150515-4	50.00339	2.6	52.86	mg/L	101	85	115			
L24350-01ASD	ASD	05/28/15 17:51	II150515-4	50.00339	2.6	52.85	mg/L	100	85	115	0	20	

BLM - White River

ACZ Project ID: ***L24487***

Manganese, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.9752	mg/L	99	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.015	0.015			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.011	0.011			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.499		.5023	mg/L	101	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.499	.01	.523	mg/L	103	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.499	.01	.525	mg/L	103	70	130	0	20	

Mercury, total M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384708													
WG384708ICV	ICV	06/05/15 10:19	II150602-3	.005		.00512	mg/L	102	95	105			
WG384708ICB	ICB	06/05/15 10:21				U	mg/L		-0.0002	0.0002			
WG384770													
WG384770LRB	LRB	06/05/15 16:00				U	mg/L		-0.00044	0.00044			
L24462-02LFM	LFM	06/05/15 16:08	II150526-2	.002004	U	.00178	mg/L	89	85	115			
L24462-02LFMD	LFMD	06/05/15 16:10	II150526-2	.002004	U	.00185	mg/L	92	85	115	4	20	
WG384770LFB	LFB	06/05/15 16:18	II150526-2	.002004		.00187	mg/L	93	85	115			

Molybdenum, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.026	mg/L	101	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.06	0.06			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.044	0.044			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.4995		.51	mg/L	102	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.4995	.06	.579	mg/L	104	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.4995	.06	.583	mg/L	105	70	130	1	20	

Nickel, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.0053	mg/L	100	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.024	0.024			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.0176	0.0176			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.501		.5125	mg/L	102	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.501	U	.516	mg/L	103	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.501	U	.524	mg/L	105	70	130	2	20	

Phenol 420.4, Manual Distillation

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384378													
WG384378ICV	ICV	05/29/15 16:43	WI130808-6	.15		.1539	mg/L	103	90	110			
WG384378ICB	ICB	05/29/15 16:44				U	mg/L		-0.009	0.009			
WG384315LRB	LRB	05/29/15 16:45				.0088	mg/L		-0.009	0.009			
WG384315LFB	LFB	05/29/15 16:46	WI150529-2	.1		.1036	mg/L	104	90	110			
L24425-02LFM	LFM	05/29/15 16:51	WI150529-2	.1	.005	.1054	mg/L	100	90	110			
L24425-01DUP	DUP	05/29/15 17:05			.006	.0133	mg/L				76	20	RA

BLM - White River

ACZ Project ID: ***L24487***

Phosphorus, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384451													
WG384451ICV	ICV	06/02/15 9:58	II150512-4	5.003		5.12	mg/L	102	95	105			
WG384451ICB	ICB	06/02/15 10:04				U	mg/L		-0.3	0.3			
WG384296LRB	LRB	06/02/15 10:16				U	mg/L		-0.22	0.22			
WG384296LFB	LFB	06/02/15 10:20	II150515-4	1.002		1.08	mg/L	108	85	115			
L24486-03LFM	LFM	06/02/15 10:26	II150515-4	1.002	U	1.12	mg/L	112	70	130			
L24486-03LFMD	LFMD	06/02/15 10:29	II150515-4	1.002	U	1.11	mg/L	111	70	130	1	20	

Phosphorus, total M365.1 - Auto Ascorbic Acid (digest)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384381													
WG384381ICV	ICV	05/29/15 21:43	WI150416-1	.65228		.685	mg/L	105	90	110			
WG384381ICB	ICB	05/29/15 21:46				.018	mg/L		-0.03	0.03			
WG384383													
WG384261LRB	LRB	05/29/15 22:33				.024	mg/L		-0.03	0.03			
WG384261LFB	LFB	05/29/15 22:34	WI150523-2	.5		.499	mg/L	100	90	110			
L24460-01LFM	LFM	05/29/15 22:53	WI150523-2	.5	.04	.497	mg/L	91	90	110			
L24460-02DUP	DUP	05/29/15 22:55			.04	.039	mg/L				3	20	RA

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384293													
WG384293ICV	ICV	05/28/15 17:23	II150514-1	20		19.51	mg/L	98	95	105			
WG384293ICB	ICB	05/28/15 17:29				U	mg/L		-0.6	0.6			
WG384293LFB	LFB	05/28/15 17:42	II150515-4	99.93386		102	mg/L	102	85	115			
L24350-01AS	AS	05/28/15 17:48	II150515-4	99.93386	5.9	106	mg/L	100	85	115			
L24350-01ASD	ASD	05/28/15 17:51	II150515-4	99.93386	5.9	105.7	mg/L	100	85	115	0	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384146													
WG384146PBW	PBW	05/27/15 10:45				U	mg/L		-20	20			
WG384146LCSW	LCSW	05/27/15 10:46	PCN48734	260		270	mg/L	104	80	120			
L24515-03DUP	DUP	05/27/15 11:14			70	78	mg/L				11	10	RA

Scandium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.01	mg/L	101	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.3	0.3			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.22	0.22			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.999		1.03	mg/L	103	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.999	U	1.04	mg/L	104	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.999	U	1.05	mg/L	105	70	130	1	20	

BLM - White River

ACZ Project ID: ***L24487***

Selenium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.04837	mg/L	97	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.0003	0.0003			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00022	0.00022			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05015		.04935	mg/L	98	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00022	0.00022			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05015		.05092	mg/L	102	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05015	.0001	.0491	mg/L	98	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05015	.0001	.04973	mg/L	99	70	130	1	20	

Silica, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	42.8		42.87	mg/L	100	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.6	0.6			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.44	0.44			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	21.428		22.51	mg/L	105	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	21.428	19.4	39.64	mg/L	94	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	21.428	19.4	34.02	mg/L	68	70	130	15	20	MA

Silicon, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	20		20.03	mg/L	100	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.3	0.3			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.22	0.22			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	10.013		10.52	mg/L	105	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	10.013	9.1	18.52	mg/L	94	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	10.013	9.1	15.9	mg/L	68	70	130	15	20	MA

Silver, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	1.001		1.002	mg/L	100	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.03	0.03			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.022	0.022			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.502		.51	mg/L	102	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.502	U	.508	mg/L	101	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.502	U	.507	mg/L	101	70	130	0	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384359													
WG384359ICV	ICV	05/29/15 15:47	II150514-1	100		97.35	mg/L	97	95	105			
WG384359ICB	ICB	05/29/15 15:53				U	mg/L		-0.6	0.6			
WG384359LFB	LFB	05/29/15 16:06	II150515-4	100.0188		100.5	mg/L	100	85	115			
L24410-03AS	AS	05/29/15 16:12	II150515-4	100.0188	2.5	103	mg/L	100	85	115			
L24410-03ASD	ASD	05/29/15 16:16	II150515-4	100.0188	2.5	103	mg/L	100	85	115	0	20	

BLM - White River

ACZ Project ID: ***L24487***

Strontium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.9865	mg/L	99	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.015	0.015			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.011	0.011			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.5005		.5017	mg/L	100	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.5005	4.18	4.738	mg/L	111	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.5005	4.18	4.744	mg/L	113	70	130	0	20	

Sulfate M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG383372													
WG383372ICV	ICV	05/11/15 18:33	WI150331-4	50.05		50.9	mg/L	102	90	110			
WG383372ICB	ICB	05/11/15 18:51				U	mg/L		-1.5	1.5			
WG384366													
WG384366LFB1	LFB	05/29/15 18:21	WI150409-2	30		31	mg/L	103	90	110			
L24482-01DUP	DUP	05/29/15 23:08			11.3	11.2	mg/L				1	20	
L24579-01AS	AS	05/30/15 2:07	WI150409-2	30	9.02	39.3	mg/L	101	90	110			
WG384366LFB2	LFB	05/30/15 3:01	WI150409-2	30		30.8	mg/L	103	90	110			

Sulfide as S SM4500S2-D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384252													
WG384252ICV	ICV	05/28/15 11:25	WC150528-6	.26134		.265	mg/L	101	90	110			
WG384252ICB	ICB	05/28/15 11:28				U	mg/L		-0.06	0.06			
WG384252LFB	LFB	05/28/15 11:31	WC150528-9	.2382267		.275	mg/L	115	80	120			
L24514-04AS	AS	05/28/15 13:04	WC150528-9	.2382267	U	.278	mg/L	117	75	125			
L24514-04DUP	DUP	05/28/15 13:08			U	U	mg/L				0	20	RA

Sulfite M377.1 - Titrimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG383954													
WG383954PBW	PBW	05/22/15 9:00				U	mg/L		-6	6			
L24487-01DUP	DUP	05/22/15 9:34			5	5	mg/L				0	20	RA

Sulfur, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	49.97		49.33	mg/L	99	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.9	0.9			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.66	0.66			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	5.025		5.1	mg/L	101	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	5.025	356	366	mg/L	199	70	130			M3
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	5.025	356	366	mg/L	199	70	130	0	20	M3

BLM - White River

ACZ Project ID: ***L24487***

Tellurium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.0486	mg/L	97	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.003	0.003			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.0022	0.0022			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05		.0486	mg/L	97	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.0022	0.0022			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05		.0537	mg/L	107	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05	U	.051	mg/L	102	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05	U	.0514	mg/L	103	70	130	1	20	

Thallium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.04993	mg/L	100	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.0003	0.0003			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00022	0.00022			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.0501		.04864	mg/L	97	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00022	0.00022			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.0501		.04962	mg/L	99	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.0501	U	.04936	mg/L	99	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.0501	U	.04914	mg/L	98	70	130	0	20	

Thorium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.0497	mg/L	99	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.003	0.003			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.0022	0.0022			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05		.0507	mg/L	101	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.0022	0.0022			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05		.0512	mg/L	102	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05	U	.0516	mg/L	103	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05	U	.0515	mg/L	103	70	130	0	20	

Tin, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.052	mg/L	103	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.12	0.12			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.088	0.088			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	1.001		1.042	mg/L	104	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	1.001	U	1.079	mg/L	108	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	1.001	U	1.039	mg/L	104	70	130	4	20	

BLM - White River

ACZ Project ID: ***L24487***

Titanium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.0157	mg/L	101	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.015	0.015			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.011	0.011			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	1.005		1.04	mg/L	103	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	1.005	.01	1.063	mg/L	105	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	1.005	.01	1.061	mg/L	105	70	130	0	20	

Uranium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384468													
WG384468ICV	ICV	06/01/15 23:09	MS150601-9	.05		.05004	mg/L	100	90	110			
WG384468ICB	ICB	06/01/15 23:12				U	mg/L		-0.0003	0.0003			
WG384237LRB	LRB	06/01/15 23:14				U	mg/L		-0.00022	0.00022			
WG384237LFB	LFB	06/01/15 23:17	MS150522-2	.05		.04988	mg/L	100	85	115			
WG384395LRB	LRB	06/01/15 23:27				U	mg/L		-0.00022	0.00022			
WG384395LFB	LFB	06/01/15 23:29	MS150522-2	.05		.05051	mg/L	101	85	115			
L24447-02LFM	LFM	06/02/15 0:15	MS150522-2	.05	U	.05091	mg/L	102	70	130			
L24447-02LFMD	LFMD	06/02/15 0:17	MS150522-2	.05	U	.05105	mg/L	102	70	130	0	20	

Vanadium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		2.0188	mg/L	101	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.015	0.015			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.011	0.011			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.5		.5108	mg/L	102	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.5	U	.52	mg/L	104	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.5	U	.526	mg/L	105	70	130	1	20	

Zinc, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG384415													
WG384415ICV	ICV	06/01/15 12:36	II150512-4	2		1.954	mg/L	98	95	105			
WG384415ICB	ICB	06/01/15 12:42				U	mg/L		-0.03	0.03			
WG384296LRB	LRB	06/01/15 12:54				U	mg/L		-0.022	0.022			
WG384296LFB	LFB	06/01/15 12:57	II150515-4	.5005		.505	mg/L	101	85	115			
L24486-03LFM	LFM	06/01/15 13:50	II150515-4	.5005	U	.509	mg/L	102	70	130			
L24486-03LFMD	LFMD	06/01/15 13:53	II150515-4	.5005	U	.505	mg/L	101	70	130	1	20	

BLM - White River ACZ Project ID: ***L24487***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L24487-01	WG384315	Phenol	420.4, Manual Distillation	DF	Sample required dilution due to high sediment.
	WG384261	Phosphorus, total	M365.1 - Auto Ascorbic Acid Digestion	D1	Sample required dilution due to matrix.
			M365.1 - Auto Ascorbic Acid Digestion	DD	Sample required dilution due to matrix color or odor.
	WG384296	Total Hot Plate Digestion	M200.2 ICP	DA	Sample required dilution due to reactivity.
	WG384395		M200.2 ICP-MS	DD	Sample required dilution due to matrix color or odor.
			M200.2 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
	WG384415	Boron, total	M200.7 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.
	WG384293	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Magnesium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG384415	Silica, total	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
			M200.7 ICP	ZS	Digestion procedures have the potential to trigger silica polymerization and precipitation, leading to low biased results. Silica chemistry is complex and polymerization kinetics are unpredictable. Dissolved and/or acid soluble silica analyses may provide more accurate measurements.
		Silicon, total	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
			M200.7 ICP	ZS	Digestion procedures have the potential to trigger silica polymerization and precipitation, leading to low biased results. Silica chemistry is complex and polymerization kinetics are unpredictable. Dissolved and/or acid soluble silica analyses may provide more accurate measurements.
		Sulfur, total	M200.7 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.
	WG384366	Bromide	M300.0 - Ion Chromatography	D1	Sample required dilution due to matrix.
			M300.0 - Ion Chromatography	DD	Sample required dilution due to matrix color or odor.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG384414	Carbon, total inorganic	SM5310B	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM5310B	N1	See Case Narrative.
	WG384344	Carbon, total organic (TOC)	SM5310B	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG384409	Chemical Oxygen Demand	M410.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG384366	Chloride	M300.0 - Ion Chromatography	D1	Sample required dilution due to matrix.
			M300.0 - Ion Chromatography	DD	Sample required dilution due to matrix color or odor.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG383956	Iron, Ferrous	SM 3500 Fe-B	QD	Reported value is the background-corrected concentration, as described by the method.
			SM 3500 Fe-B	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			SM 3500 Fe-B	ZR	Fe 2+ data is estimated because samples should be analyzed within 1 hour from sampling. After 1 hour the

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					ferrous-ferric ratio changes in acidic solutions or with exposure to air.
	WG384378	Phenol	420.4, Manual Distillation	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG384383	Phosphorus, total	M365.1 - Auto Ascorbic Acid (digest)	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG384146	Residue, Filterable (TDS) @180C	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG384252	Sulfide as S	SM4500S2-D	DF	Sample required dilution due to high sediment.
			SM4500S2-D	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG383954	Sulfite	M377.1 - Titrimetric	DD	Sample required dilution due to matrix color or odor.
			M377.1 - Titrimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

BLM - White River
Project ID:
Sample ID: RANGELY RED STAIN

ACZ Sample ID: ***L24487-01***
Date Sampled: *05/21/15 11:50*
Date Received: *05/21/15*
Sample Matrix: *Ground Water*

Diesel Range Organics (C10-C28)

Analysis Method: **M8015D GC/FID**
Extract Method: **M3520**

Workgroup: WG384490
Analyst: drh
Extract Date: 05/29/15 0:39
Analysis Date: 06/01/15 17:30

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28			U	1	*	mg/L	0.1	0.5
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
OTP	84-15-1	71.5		1	*	%	70	130

BLM - White River
Project ID:
Sample ID: RANGELY RED STAIN

ACZ Sample ID: ***L24487-01***
Date Sampled: *05/21/15 11:50*
Date Received: *05/21/15*
Sample Matrix: *Ground Water*

Gasoline Range Organics (C6-C10)

Analysis Method: **M8015D GC/FID**
Extract Method: **5030C**

Workgroup: WG384347
Analyst: pml
Extract Date: 05/29/15 19:33
Analysis Date: 05/29/15 19:33

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TVH C6 to C10	TVH		U	1	*	mg/L	0.05	0.05
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene (TVH)	460-00 4	107.4		1	*	%	70	130

BLM - White River
Project ID:
Sample ID: RANGELY RED STAIN

ACZ Sample ID: ***L24487-01***
Date Sampled: *05/21/15 11:50*
Date Received: *05/21/15*
Sample Matrix: *Ground Water*

Oil & Grease, Total Recoverable

Analysis Method: **1664A - Gravimetric**
Extract Method:

Workgroup: WG384402
Analyst: DLE
Extract Date:
Analysis Date: 06/01/15 11:36

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Oil and Grease			U	1.11	*	mg/L	2.2	11.1

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 unless omitted or equal to the PQL (see comment #4) 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. Synonymous with the EPA term "minimum level".
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

BLM - White River

ACZ Project ID: ***L24487***

Diesel Range Organics (C10-C28)

M8015D GC/FID

WG384490

MS **Sample ID: L24487-01MS** **PCN/SCN: TPH150507-1** **Analyzed: 06/01/15 17:56**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500.9	U	1.49	mg/L	60.0	70	130			M2
OTP (surr)				%	53.4	70	130			M2 S7

LCSW **Sample ID: WG384238LCSW** **PCN/SCN: TPH150507-1** **Analyzed: 06/01/15 12:16**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500.9		2.19	mg/L	88.0	70	130			
OTP (surr)				%	88.6	70	130			

LCSWD **Sample ID: WG384238LCSWD** **PCN/SCN: TPH150507-1** **Analyzed: 06/01/15 12:43**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500.9		2.2	mg/L	88.0	70	130	0	20	
OTP (surr)				%	88.3	70	130			

PBW **Sample ID: WG384238PBW** **Analyzed: 06/01/15 11:50**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28			U	mg/L		-.5	.5			
OTP (surr)				%	79.3	70	130			

BLM - White River

ACZ Project ID: ***L24487***

Gasoline Range Organics (C6-C10)

M8015D GC/FID

WG384347

AS **Sample ID: L24457-01AS** **PCN/SCN: V150414-2-SPIK** **Analyzed: 05/29/15 18:04**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25.1	U	22.9	ug/L	91.0	70	130			
ETHYLBENZENE	25	U	23.7	ug/L	95.0	70	130			
M P XYLENE	50.4	U	50.9	ug/L	101.0	70	130			
O XYLENE	50.3	U	47.3	ug/L	94.0	70	130			
TOLUENE	75.3	U	69.8	ug/L	93.0	70	130			
BROMOFLUOROBENZENE (surr)				%	107.3	70	130			

DUP **Sample ID: L24458-01DUP** **Analyzed: 05/29/15 19:04**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE		U	U	ug/L				0	20	RA
ETHYLBENZENE		U	U	ug/L				0	20	RA
M P XYLENE		U	U	ug/L				0	20	RA
O XYLENE		U	U	ug/L				0	20	RA
TOLUENE		U	U	ug/L				0	20	RA
BROMOFLUOROBENZENE (surr)				%	106.9	70	130			RA

AS **Sample ID: L24487-01AS** **PCN/SCN: V150414-2-SPIK** **Analyzed: 05/29/15 20:03**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TVH C6 TO C10	.5	U	.369	mg/L	74.0	70	130			N1 Q3 R4
BROMOFLUOROBENZENE (TVH) (surr)				%	109.0	70	130			N1 Q3 R4

ASD **Sample ID: L24487-01ASD** **PCN/SCN: V150414-2-SPIK** **Analyzed: 05/29/15 20:32**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TVH C6 TO C10	.5	U	.556	mg/L	111.0	70	130	40	20	Q3 R4
BROMOFLUOROBENZENE (TVH) (surr)				%	109.7	70	130			Q3 R4

LCSW **Sample ID: WG384347LCSW** **PCN/SCN: V150414-2-SPIK** **Analyzed: 05/29/15 13:02**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25.1		23.2	ug/L	92.0	70	130			
ETHYLBENZENE	25		23.3	ug/L	93.0	70	130			
M P XYLENE	50.4		49.9	ug/L	99.0	70	130			
O XYLENE	50.3		47.2	ug/L	94.0	70	130			
TOLUENE	75.3		70.3	ug/L	93.0	70	130			
TVH C6 TO C10	.5		.46	mg/L	92.0	70	130			
BROMOFLUOROBENZENE (surr)				%	106.0	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	108.1	70	130			

LCSWD **Sample ID: WG384347LCSWD** **PCN/SCN: V150414-2-SPIK** **Analyzed: 05/29/15 13:33**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25.1		22.5	ug/L	90.0	70	130	3	20	
ETHYLBENZENE	25		22.4	ug/L	90.0	70	130	4	20	
M P XYLENE	50.4		48	ug/L	95.0	70	130	4	20	
O XYLENE	50.3		45.4	ug/L	90.0	70	130	4	20	
TOLUENE	75.3		67.9	ug/L	90.0	70	130	3	20	

TVH C6 TO C10	.5	.447	mg/L	89.0	70	130	3	20	
BROMOFLUOROBENZENE (surr)			%	105.5	70	130			
BROMOFLUOROBENZENE (TVH) (surr)			%	106.5	70	130			

PBW **Sample ID: WG384347PBW** **Analyzed: 05/29/15 14:02**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE			U	ug/L		-1	1			
ETHYLBENZENE			U	ug/L		-1	1			
M P XYLENE			U	ug/L		-2	2			
O XYLENE			U	ug/L		-1	1			
TOLUENE			U	ug/L		-1	1			
TVH C6 TO C10			U	mg/L		-.05	.05			
BROMOFLUOROBENZENE (surr)				%	105.2	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	108.2	70	130			

BLM - White River

ACZ Project ID: ***L24487***

Oil & Grease, Total Recoverable

1664A - Gravimetric

WG384402

MS **Sample ID: L24487-01MS** **PCN/SCN: OP150528-2** **Analyzed: 06/01/15 11:56**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
OIL AND GREASE	40	U	26.8	mg/L	67.0	78	114			M2 Q5

LCSW **Sample ID: WG384402LCSW** **PCN/SCN: OP150528-2** **Analyzed: 06/01/15 16:10**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
OIL AND GREASE	40		37.3	mg/L	93.0	78	114			

LCSWD **Sample ID: WG384402LCSWD** **PCN/SCN: OP150528-2** **Analyzed: 06/01/15 16:30**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
OIL AND GREASE	40		39.5	mg/L	99.0	78	114	6	18	

PBW **Sample ID: WG384402PBW** **Analyzed: 06/01/15 9:00**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
OIL AND GREASE			U	mg/L						

Organic Extended Qualifier Report

BLM - White River

ACZ Project ID: ***L24487***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L24487-01	WG384490	*All Compounds*	M8015D GC/FID	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M8015D GC/FID	Q9	Insufficient sample received to meet method QC requirements.
	WG384347		M8015D GC/FID	N1A	See Case Narrative.
			M8015D GC/FID	Q3	Sample received with improper or inadequate chemical preservation.
			M8015D GC/FID	R4	RPD for a spike and spike duplicate exceeded the method or laboratory acceptance limit. At a minimum, one spike recovery met acceptance criteria.
			M8015D GC/FID	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG384402	Oil and Grease	1664A - Gravimetric	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			1664A - Gravimetric	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

Metals Analysis

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

Bismuth, total	M200.7 ICP
Cesium, total	M200.8 ICP-MS
Gallium, total	M200.7 ICP
Scandium, total	M200.7 ICP
Silicon, total	M200.7 ICP
Sulfur, total	M200.7 ICP
Tellurium, total	M200.8 ICP-MS

Wet Chemistry

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

Carbon, total inorganic	SM5310B
Iron, Ferrous	SM 3500 Fe-B
Sulfide as S	SM4500S2-D
Sulfite	M377.1 - Titrimetric

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

Sample Receipt

BLM - White River

ACZ Project ID: L24487
Date Received: 05/21/2015 15:58
Received By: ddp
Date Printed: 5/22/2015

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	

The clinet ID's were entered per the information present on the sample containers for samples 1.

7) Were any changes made to the Chain of Custody prior to ACZ receiving the samples?		X	

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? [1]		X	

L24487-01 Container B1592693 (GREEN): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

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?
3121	4.8	15	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

BLM - White River

ACZ Project ID:	L24487
Date Received:	05/21/2015 15:58
Received By:	ddp
Date Printed:	5/22/2015

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. (24487)

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

CHAIN of CUSTODY

Report to:

Name: Keith Sauter	Address: 2202 Market St.
Company: BLM - WRFO	Meeker, CO 81641
E-mail: ksauter@blm.gov	Telephone: (970) 878-3803

Copy of Report to:

Name: Keith Sauter	E-mail: ksauter@blm.gov
Company: BLM - WRFO	Telephone: (970) 878-3803

Invoice to:

Name: Keith Sauter	Address: 2202 Market St.
Company: BLM	Meeker, CO 81641
E-mail: ksauter@blm.gov	Telephone: (970) 878-3803

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.

Sampler's Name: Keith Sauter Sampler's Site Information State CO Zip code 81641 Time Zone MT

*Sampler's Signature: K.A. Sauter

*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 #: BO 33326

PO#: — Credit Card

Reporting state for compliance testing: N/A

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	see BO 33326
Amber	5/21/15 : 1150	SW	2	
EDTA	5/21/15 : 1128	SW	1	
Green	: 1120	SW	1	
Orange	: 1155	SW	3	
Purple	: 1130	SW	1	
Raw	: 1140	SW	1	
Red PC	: 1132	SW	1	
Tan	: 1131	SW	1	
Vial P	: 1135	SW	3	
White	: 1125	SW	1	

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

REMARKS

→ Yellow Glass 5/21/15 : 1134 SW 1 { PH = 8.12, T water = 17.7°C

Samples collected from Rhoecrene Spring

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
K.A. Sauter	5/21/15 : 1555	[illegible]	5/21/15 1556

L24487 Chain of Custody

ACZ Laboratories, Inc.

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

Bottle Order Packing List

Account: BLMWHITE/BLM - White River
Bottle Order: BO33326

Bill to Account: Bill to ACZ
Ship Date Requested: 04/30/2015
Request Placed at: 04/28/2015 09:02
Service Requested: UPS Ground

Sampling supplies

PACK	Qty	ACZ ID	Type	Description
	1	COC	Chain of Custody	Chain of Custody, 1 for 10 samples.
	2	SEAL	Custody Seal	Custody seals for cooler, two for each cooler.
	1	RETURN	Return Address	Return Address label, one for each cooler.
	16	LABELS	Sample Labels	ACZ supplied labels for sample containers

ACZ Coolers

PACK	Qty	ACZ ID	Size	Weight	UPS Tracking Number
	1	3099	Large	15	1Z8101300375051181

Quote number: GW1
Sample Quantity: 1

One Groundwater Wet Chem, Metals, Organics

~~ACZ is responsible for necessary sample filtering~~ (Field Filtered

PACK	Qty	Type	Size	Filter/Raw/Preserve	Instructions
✓	2	AMBER	1000 ML	Raw	Organic analyses (other then VOA) - Completely fill container.
✓	1	EDTA	250 ML	Raw/EDTA	Do not overfill. There is EDTA in the bottle.
✓	1	GREEN	125 ML	Filtered/Nitric	Metals (dissolved except ICPMS) - This is a filtered sample. Completely fill container.
✓	3	ORANGE	1000 ML	Raw/Hydrochloric	Oil and Grease - Do not overfill as there is Hydrochloric Acid in the bottle.
✓	1	PURPLE	500 ML	Raw/NaOH	Cyanide - Do not overfill as there is Sodium Hydroxide in the bottle.
✓	1	RAW	500 ML	Raw	Wet Chemistry (analyses that do not require preservative or filtration) - Completely fill container.
✓	1	RED PC	250 ML	Red pre-cleaned Raw/Nitric	Metals (total including ICPMS) - Do not overfill as there is Nitric Acid in the bottle.
✓	1	TAN	125 ML	Raw/NaOH & Zinc Acetate	Sulfide - Do not overfill as there is Sodium Hydroxide and Zinc Acetate in the bottle.
✓	3	VIAL P	40 ML	Raw/HCl	VOA, BTEX, TVH - Do not overfill and make sure sample contains no bubbles.
✓	1	WHITE	250 ML	Filtered	Wet chemistry (dissolved) - This is a filtered sample. Completely fill container.
✓	1	YELLOW GLASS	250 ML	Raw/Sulfuric	COD, TOC, Phenols, and total wet chemistry analysis. Do not overfill as there is Sulfuric Acid in the bottle.

Prepared By/Date: _____

kmo