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

Analytical Report

December 27, 2016

Report to:
Rochelle Destrampe
Golder Associates
1430 W Broadway Road
Suite 108
Tempe, AZ 85282

Bill to:
Rochelle Destrampe
Golder Associates
1430 W Broadway Road Suite 108

Tempe, AZ 85282

Project ID: 1547878.300
ACZ Project ID: L34208

Rochelle Destrampe:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 17, 2016. This project has been assigned to ACZ's project number, L34208. 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 L34208. 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 January 26, 2017. 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.

Golder Associates

December 27, 2016

Project ID: 1547878.300
ACZ Project ID: L34208

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 ground water sample from Golder Associates on November 17, 2016. 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 L34208. 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, radiochemistry 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. The cation-anion balance was accepted at > 10%. Suspect analytes (Sulfate) were re-analyzed for verification.

2. (R1) Relative Percent Difference exceeded the method or laboratory acceptance limit for the Control samples. Both Control samples showed passing recoveries, but failing RPDs.

Golder Associates
Project ID: 1547878.300
Sample ID: DW-05

ACZ Sample ID: ***L34208-01***
Date Sampled: *11/16/16 08:15*
Date Received: *11/17/16*
Sample Matrix: *Ground Water*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS								11/22/16 16:40	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	2	406			mg/L	0.06	0.3	11/19/16 0:39	aeb
Antimony, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0008	0.004	11/21/16 22:59	enb
Arsenic, dissolved	M200.8 ICP-MS	2	0.0025			mg/L	0.0004	0.002	11/21/16 22:59	enb
Barium, dissolved	M200.7 ICP	2	0.024	B		mg/L	0.006	0.03	11/19/16 0:39	aeb
Beryllium, dissolved	M200.8 ICP-MS	2	1.27			mg/L	0.0001	0.0005	11/22/16 16:23	mfm
Cadmium, dissolved	M200.8 ICP-MS	2	0.0978			mg/L	0.0002	0.001	11/21/16 22:59	enb
Calcium, dissolved	M200.7 ICP	2	594			mg/L	0.2	1	11/19/16 0:39	aeb
Chromium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.001	0.004	11/21/16 22:59	enb
Cobalt, dissolved	M200.7 ICP	2	0.06	B		mg/L	0.02	0.1	11/19/16 0:39	aeb
Copper, dissolved	M200.7 ICP	2	6.97			mg/L	0.02	0.1	11/19/16 0:39	aeb
Iron, dissolved	M200.7 ICP	2	0.18			mg/L	0.04	0.1	11/19/16 0:39	aeb
Lead, dissolved	M200.8 ICP-MS	2	0.0089			mg/L	0.0002	0.001	11/21/16 22:59	enb
Magnesium, dissolved	M200.7 ICP	2	222			mg/L	0.4	2	11/19/16 0:39	aeb
Manganese, dissolved	M200.7 ICP	2	20.6			mg/L	0.01	0.05	11/19/16 0:39	aeb
Mercury, dissolved	M245.1 CVAA	1	0.003			mg/L	0.0002	0.001	11/29/16 12:24	pta
Molybdenum, dissolved	M200.7 ICP	2		U		mg/L	0.04	0.2	11/19/16 0:39	aeb
Nickel, dissolved	M200.7 ICP	2	0.22			mg/L	0.02	0.08	11/19/16 0:39	aeb
Potassium, dissolved	M200.7 ICP	2	7.0			mg/L	0.4	2	11/19/16 0:39	aeb
Selenium, dissolved	M200.8 ICP-MS	2	0.0307			mg/L	0.0002	0.0005	11/21/16 22:59	enb
Silica, dissolved	M200.7 ICP	2	47.3			mg/L	0.4	2	11/19/16 0:39	aeb
Silver, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0001	0.0005	11/21/16 22:59	enb
Sodium, dissolved	M200.7 ICP	2	186			mg/L	0.4	2	11/19/16 0:39	aeb
Thallium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0002	0.001	11/21/16 22:59	enb
Uranium, total	M200.8 ICP-MS	2	0.0494			mg/L	0.0002	0.001	11/28/16 13:40	mfm
Zinc, dissolved	M200.7 ICP	2	12.0			mg/L	0.02	0.1	11/19/16 0:39	aeb

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

Inorganic Analytical Results

Golder Associates
Project ID: 1547878.300
Sample ID: DW-05

ACZ Sample ID: ***L34208-01***
Date Sampled: *11/16/16 08:15*
Date Received: *11/17/16*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	28.1			mg/L	2	20	11/18/16 0:00	emk
Carbonate as CaCO3		1		U		mg/L	2	20	11/18/16 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/18/16 0:00	emk
Total Alkalinity		1	28.1			mg/L	2	20	11/18/16 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			13.2			%			12/27/16 0:00	calc
Sum of Anions			79			meq/L			12/27/16 0:00	calc
Sum of Cations			103			meq/L			12/27/16 0:00	calc
Chloride	M300.0 - Ion Chromatography	50	75.2	B	*	mg/L	25	125	11/21/16 13:23	bsu
Conductivity @25C	SM2510B	1	4110			umhos/cm	1	10	11/19/16 1:42	sck
Fluoride	SM4500F-C	1	10.6		*	mg/L	0.05	0.3	11/18/16 14:48	abd
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2		7.84			mg/L	0.08	0.4	12/27/16 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	4	7.85		*	mg/L	0.08	0.4	11/17/16 21:24	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.01	B	*	mg/L	0.01	0.05	11/17/16 20:55	pjb
pH (lab)	SM4500H+ B									
pH		1	5.1	H		units	0.1	0.1	11/18/16 0:00	emk
pH measured at		1	22.7			C	0.1	0.1	11/18/16 0:00	emk
Phosphate	Calculation based on dissolved Ortho Phosphorus		0.06	B		mg/L	0.06	0.2	12/27/16 0:00	calc
Phosphorus, ortho dissolved	M365.1 - Automated Ascorbic Acid	1	0.02	B	*	mg/L	0.02	0.05	11/17/16 21:13	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6490			mg/L	20	40	11/22/16 10:15	emk
Sulfate	M300.0 - Ion Chromatography	50	3600	H	*	mg/L	25	125	12/20/16 17:51	krh
TDS (calculated)	Calculation		5250			mg/L			12/27/16 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.24						12/27/16 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

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

Golder Associates

ACZ Project ID: ***L34208***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413432													
WG413432PBW1	PBW	11/17/16 16:30				U	mg/L		-20	20			
WG413432LCSW3	LCSW	11/17/16 16:46	WC161109-1	820.0001		782	mg/L	95	90	110			
WG413432LCSW6	LCSW	11/17/16 20:17	WC161109-1	820.0001		801	mg/L	98	90	110			
WG413432PBW2	PBW	11/17/16 20:24				U	mg/L		-20	20			
WG413432LCSW9	LCSW	11/17/16 23:50	WC161109-1	820.0001		805	mg/L	98	90	110			
WG413432PBW3	PBW	11/17/16 23:56				U	mg/L		-20	20			
L34210-03DUP	DUP	11/18/16 3:05			169	182	mg/L				7	20	
WG413432LCSW12	LCSW	11/18/16 3:21	WC161109-1	820.0001		796	mg/L	97	90	110			
WG413432PBW4	PBW	11/18/16 3:27				U	mg/L		-20	20			
WG413432LCSW15	LCSW	11/18/16 7:27	WC161109-1	820.0001		809	mg/L	99	90	110			

Aluminum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2		2.042	mg/L	102	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.09	0.09			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	1.0013		1.024	mg/L	102	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	1.0013	U	1.025	mg/L	102	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	1.0013	U	1.042	mg/L	104	85	115	2	20	

Antimony, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.02		.02151	mg/L	108	90	110			
WG413613ICB	ICB	11/21/16 21:27				.00051	mg/L		-0.0012	0.0012			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.009980001		.01	mg/L	100	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.019960002	U	.02042	mg/L	102	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.019960002	U	.02058	mg/L	103	70	130	1	20	

Arsenic, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.05		.05483	mg/L	110	90	110			
WG413613ICB	ICB	11/21/16 21:27				U	mg/L		-0.0006	0.0006			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.0501		.04655	mg/L	93	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.1002	.0005	.10412	mg/L	103	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.1002	.0005	.1049	mg/L	104	70	130	1	20	

Barium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2		1.9602	mg/L	98	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.009	0.009			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	.5005		.4897	mg/L	98	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	.5005	U	.4916	mg/L	98	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	.5005	U	.4947	mg/L	99	85	115	1	20	

Golder Associates

ACZ Project ID: ***L34208***

Beryllium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413685													
WG413685ICV	ICV	11/22/16 15:27	MS160920-1	.05		.04678	mg/L	94	90	110			
WG413685ICB	ICB	11/22/16 15:30				U	mg/L		-0.00015	0.00015			
WG413685LFB	LFB	11/22/16 15:33	MS160928-2	.0501		.05471	mg/L	109	85	115			
L34236-03AS	AS	11/22/16 16:35	MS160928-2	.0501	U	.05109	mg/L	102	70	130			
L34236-03ASD	ASD	11/22/16 16:38	MS160928-2	.0501	U	.04683	mg/L	93	70	130	9	20	

Cadmium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.05		.0491	mg/L	98	90	110			
WG413613ICB	ICB	11/21/16 21:27				U	mg/L		-0.0003	0.0003			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.05005		.04588	mg/L	92	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.1001	U	.0949	mg/L	95	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.1001	U	.09528	mg/L	95	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
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	100		100.12	mg/L	100	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.3	0.3			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	67.9908		69.54	mg/L	102	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	67.9908	8.9	78.31	mg/L	102	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	67.9908	8.9	78.98	mg/L	103	85	115	1	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG412356													
WG412356ICV	ICV	10/28/16 12:19	WI160818-1	20.02		18.9	mg/L	94	90	110			
WG412356ICB	ICB	10/28/16 12:37				U	mg/L		-0.5	0.5			
WG413517													
WG413517LFB1	LFB	11/18/16 16:31	WI160802-5	30		29.1	mg/L	97	90	110			
L34191-09DUP	DUP	11/21/16 11:53			1.1	1.1	mg/L				0	20	RA
WG413517LFB2	LFB	11/21/16 19:03	WI160802-5	30		30.1	mg/L	100	90	110			
L34193-01AS	AS	11/21/16 19:57	WI160802-5	60	112	158	mg/L	77	90	110			M2

Chromium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.05		.05351	mg/L	107	90	110			
WG413613ICB	ICB	11/21/16 21:27				U	mg/L		-0.0015	0.0015			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.05005		.04743	mg/L	95	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.1001	U	.0986	mg/L	99	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.1001	U	.0976	mg/L	98	70	130	1	20	

Golder Associates

ACZ Project ID: ***L34208***

Cobalt, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2.002		1.917	mg/L	96	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.03	0.03			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	.5025		.492	mg/L	98	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	.5025	U	.484	mg/L	96	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	.5025	U	.488	mg/L	97	85	115	1	20	

Conductivity @25C SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413518													
WG413518LCSW2	LCSW	11/18/16 17:28	PCN50213	1409		1460	umhos/cm	104	90	110			
WG413518LCSW5	LCSW	11/18/16 20:22	PCN50213	1409		1400	umhos/cm	99	90	110			
WG413518LCSW8	LCSW	11/18/16 23:39	PCN50213	1409		1380	umhos/cm	98	90	110			
L34227-06DUP	DUP	11/19/16 3:31			2670	2750	umhos/cm				3	20	
WG413518LCSW11	LCSW	11/19/16 3:35	PCN50213	1409		1310	umhos/cm	93	90	110			
WG413518LCSW14	LCSW	11/19/16 7:52	PCN50213	1409		1330	umhos/cm	94	90	110			

Copper, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2		1.991	mg/L	100	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.03	0.03			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	.5005		.49	mg/L	98	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	.5005	U	.493	mg/L	99	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	.5005	U	.496	mg/L	99	85	115	1	20	

Fluoride SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413474													
WG413474ICV	ICV	11/18/16 11:04	WC161110-1	2.006		1.927	mg/L	96	95	105			
WG413474ICB	ICB	11/18/16 11:09				.059	mg/L		-0.15	0.15			
WG413474LFB1	LFB	11/18/16 11:16	WC160923-7	4.995		4.689	mg/L	94	90	110			
L34204-03AS	AS	11/18/16 14:10	WC160923-7	4.995	.66	4.976	mg/L	86	90	110			M2
L34204-03DUP	DUP	11/18/16 14:18			.66	.632	mg/L				4	20	
WG413474LFB2	LFB	11/18/16 14:37	WC160923-7	4.995		4.666	mg/L	93	90	110			

Iron, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2		1.972	mg/L	99	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.06	0.06			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	1.0017		1.004	mg/L	100	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	1.0017	U	1.01	mg/L	101	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	1.0017	U	1.021	mg/L	102	85	115	1	20	

Golder Associates

ACZ Project ID: ***L34208***

Lead, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.05		.05093	mg/L	102	90	110			
WG413613ICB	ICB	11/21/16 21:27				U	mg/L		-0.0003	0.0003			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.0501		.04736	mg/L	95	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.1002	U	.10162	mg/L	101	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.1002	U	.10052	mg/L	100	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
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	100		98.95	mg/L	99	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.6	0.6			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	50.01003		46.76	mg/L	94	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	50.01003	1.5	48.55	mg/L	94	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	50.01003	1.5	48.96	mg/L	95	85	115	1	20	

Manganese, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2		1.944	mg/L	97	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.015	0.015			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	.5		.5111	mg/L	102	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	.5	U	.5128	mg/L	103	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	.5	U	.5151	mg/L	103	85	115	0	20	

Mercury, dissolved M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413716													
WG413716ICV1	ICV	11/29/16 10:54	HG161031-2	.005005		.00522	mg/L	104	95	105			
WG413716ICB	ICB	11/29/16 10:55				U	mg/L		-0.0002	0.0002			
WG413768													
WG413768LRB	LRB	11/29/16 12:11				U	mg/L		-0.00044	0.00044			
WG413768LFB	LFB	11/29/16 12:12	HG161107-2	.002002		.00223	mg/L	111	85	115			
L34161-06LFM	LFM	11/29/16 12:15	HG161107-2	.002002	U	.00223	mg/L	111	85	115			
L34161-06LFMD	LFMD	11/29/16 12:16	HG161107-2	.002002	U	.00218	mg/L	109	85	115	2	20	

Molybdenum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2		1.992	mg/L	100	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.06	0.06			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	.4995		.493	mg/L	99	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	.4995	U	.498	mg/L	100	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	.4995	U	.499	mg/L	100	85	115	0	20	

Golder Associates

ACZ Project ID: ***L34208***

Nickel, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2.002		2.007	mg/L	100	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.024	0.024			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	.498		.491	mg/L	99	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	.498	U	.4917	mg/L	99	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	.498	U	.4903	mg/L	98	85	115	0	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413442													
WG413442ICV	ICV	11/17/16 19:53	WI160908-7	2.416		2.399	mg/L	99	90	110			
WG413442ICB	ICB	11/17/16 19:55				U	mg/L		-0.02	0.02			
WG413442LFB1	LFB	11/17/16 20:13	WI160616-3	2		2.059	mg/L	103	90	110			
WG413442LFB2	LFB	11/17/16 20:39	WI160616-3	2		2.076	mg/L	104	90	110			
L34201-03AS	AS	11/17/16 20:46	WI160616-3	2	U	2.076	mg/L	104	90	110			
L34204-01DUP	DUP	11/17/16 20:48			U	U	mg/L				0	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413442													
WG413442ICV	ICV	11/17/16 19:53	WI160908-7	.609		.607	mg/L	100	90	110			
WG413442ICB	ICB	11/17/16 19:55				U	mg/L		-0.01	0.01			
WG413442LFB1	LFB	11/17/16 20:13	WI160616-3	1		1.061	mg/L	106	90	110			
WG413442LFB2	LFB	11/17/16 20:39	WI160616-3	1		1.071	mg/L	107	90	110			
L34201-03AS	AS	11/17/16 20:46	WI160616-3	1	U	1.052	mg/L	105	90	110			
L34204-01DUP	DUP	11/17/16 20:48			U	U	mg/L				0	20	RA

pH (lab) SM4500H+ B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413432													
WG413432LCSW1	LCSW	11/17/16 16:33	PCN49792	5.99		6	units	100	5.9	6.1			
WG413432LCSW4	LCSW	11/17/16 20:03	PCN49792	5.99		6	units	100	5.9	6.1			
WG413432LCSW7	LCSW	11/17/16 23:36	PCN49792	5.99		6	units	100	5.9	6.1			
L34210-03DUP	DUP	11/18/16 3:05			8.3	8.3	units				0	20	
WG413432LCSW10	LCSW	11/18/16 3:08	PCN49792	5.99		6	units	100	5.9	6.1			
WG413432LCSW13	LCSW	11/18/16 7:12	PCN49792	5.99		6	units	100	5.9	6.1			

Phosphorus, ortho dissolved M365.1 - Automated Ascorbic Acid

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413443													
WG413443ICV	ICV	11/17/16 21:01	WI160503-9	.6523		.675	mg/L	103	90	110			
WG413443ICB	ICB	11/17/16 21:02				U	mg/L		-0.02	0.02			
WG413443LFB1	LFB	11/17/16 21:05	WI161105-2	.5		.495	mg/L	99	90	110			
L34186-01AS	AS	11/17/16 21:07	WI161105-2	.5	.02	.505	mg/L	97	90	110			
L34187-01DUP	DUP	11/17/16 21:09			.03	.029	mg/L				3	20	RA
WG413443LFB2	LFB	11/17/16 21:38	WI161105-2	.5		.521	mg/L	104	90	110			

Golder Associates

ACZ Project ID: ***L34208***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	20		19.85	mg/L	99	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.6	0.6			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	99.95693		99.26	mg/L	99	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	99.95693	.7	100.5	mg/L	100	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	99.95693	.7	101.1	mg/L	100	85	115	1	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413639													
WG413639PBW	PBW	11/22/16 10:00				U	mg/L		-20	20			
WG413639LCSW	LCSW	11/22/16 10:02	PCN51583	260		254	mg/L	98	80	120			
L34227-05DUP	DUP	11/22/16 10:31			18700	18400	mg/L				2	10	

Selenium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.05		.05278	mg/L	106	90	110			
WG413613ICB	ICB	11/21/16 21:27				U	mg/L		-0.0003	0.0003			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.05005		.04862	mg/L	97	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.1001	U	.10706	mg/L	107	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.1001	U	.10826	mg/L	108	70	130	1	20	

Silica, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	42.8		40.59	mg/L	95	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.6	0.6			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	21.415		21.65	mg/L	101	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	21.415	11.8	33.12	mg/L	100	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	21.415	11.8	33.27	mg/L	100	85	115	0	20	

Silver, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.02004		.01956	mg/L	98	90	110			
WG413613ICB	ICB	11/21/16 21:27				U	mg/L		-0.00015	0.00015			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.01001		.009843	mg/L	98	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.02002	U	.016	mg/L	80	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.02002	U	.01638	mg/L	82	70	130	2	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	100		97.46	mg/L	97	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.6	0.6			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	100.0322		97.66	mg/L	98	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	100.0322	2	99.61	mg/L	98	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	100.0322	2	100.7	mg/L	99	85	115	1	20	

Golder Associates

ACZ Project ID: ***L34208***

Sulfate M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG412356													
WG412356ICV	ICV	10/28/16 12:19	WI160818-1	50		48.9	mg/L	98	90	110			
WG412356ICB	ICB	10/28/16 12:37				U	mg/L		-0.5	0.5			
WG415070													
WG415070LFB	LFB	12/20/16 17:33	WI160802-5	30		29.3	mg/L	98	90	110			
L34208-01DUP	DUP	12/20/16 18:08			3600	3620	mg/L				1	20	
L34610-01AS	AS	12/20/16 18:44	WI160802-5	30	21	49.8	mg/L	96	90	110			

Thallium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413613													
WG413613ICV	ICV	11/21/16 21:24	MS160920-1	.05		.05113	mg/L	102	90	110			
WG413613ICB	ICB	11/21/16 21:27				U	mg/L		-0.0003	0.0003			
WG413613LFB	LFB	11/21/16 21:30	MS160928-2	.0501		.04935	mg/L	99	85	115			
L34160-06AS	AS	11/21/16 22:27	MS160928-2	.1002	U	.10692	mg/L	107	70	130			
L34160-06ASD	ASD	11/21/16 22:30	MS160928-2	.1002	U	.10584	mg/L	106	70	130	1	20	

Uranium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413773													
WG413773ICV	ICV	11/28/16 12:47	MS161128-3	.05		.04597	mg/L	92	90	110			
WG413773ICB	ICB	11/28/16 12:50				U	mg/L		-0.0003	0.0003			
WG413658LRB	LRB	11/28/16 12:54				U	mg/L		-0.00022	0.00022			
WG413658LFB	LFB	11/28/16 12:57	MS160928-2	.05		.04588	mg/L	92	85	115			
L34204-01LFM	LFM	11/28/16 13:15	MS160928-2	.05	.0122	.05866	mg/L	93	70	130			
L34204-01LFMD	LFMD	11/28/16 13:18	MS160928-2	.05	.0122	.0585	mg/L	93	70	130	0	20	

Zinc, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG413480													
WG413480ICV	ICV	11/18/16 22:50	II161117-1	2		1.974	mg/L	99	95	105			
WG413480ICB	ICB	11/18/16 22:56				U	mg/L		-0.03	0.03			
WG413480LFB	LFB	11/18/16 23:09	II161111-2	.4995		.502	mg/L	101	85	115			
L34184-02AS	AS	11/19/16 0:16	II161111-2	.4995	U	.514	mg/L	103	85	115			
L34184-02ASD	ASD	11/19/16 0:26	II161111-2	.4995	U	.53	mg/L	106	85	115	3	20	

Inorganic Extended Qualifier Report

Golder Associates

ACZ Project ID: ***L34208***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34208-01	WG413517	Chloride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG413474	Fluoride	SM4500F-C	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG413442	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG413443	Phosphorus, ortho dissolved	M365.1 - Automated Ascorbic Acid	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415070	Sulfate	M300.0 - Ion Chromatography	C4	Confirmatory analysis was past holding time.

Golder Associates
Project ID: 1547878.300
Sample ID: DW-05

ACZ Sample ID: ***L34208-01***
Date Sampled: *11/16/16 8:15*
Date Received: *11/17/16*
Sample Matrix: *Ground Water*

Diesel Range Organics (C10-C28)

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

Workgroup: WG413931
Analyst: mmn
Extract Date: 11/21/16 13:18
Analysis Date: 11/30/16 14:09

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		0.12	J	0.93	*	mg/L	0.09	0.5

Surrogate Recoveries	CAS	% Recovery	Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	93	0.93		%	70	130

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

Golder Associates
Project ID: 1547878.300
Sample ID: DW-05

ACZ Sample ID: ***L34208-01***
Date Sampled: *11/16/16 8:15*
Date Received: *11/17/16*
Sample Matrix: *Ground Water*

Volatile Organics by GC/MS

Analysis Method: **M8260B GC/MS**
Extract Method:

Workgroup: WG413738
Analyst: rgt
Extract Date:
Analysis Date: 11/22/16 20:07

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
1,1,1,2-Tetrachloroethane	630-20-6		U	1	*	ug/L	4	4
1,1,1-Trichloroethane	71-55-6		U	1	*	ug/L	10	10
1,1,2,2-Tetrachloroethane	79-34-5		U	1	*	ug/L	3	3
1,1,2-Trichloroethane	79-00-5		U	1	*	ug/L	4	4
1,1-Dichloroethane	75-34-3		U	1	*	ug/L	4	4
1,1-Dichloroethene	75-35-4		U	1	*	ug/L	4	4
1,1-Dichloropropene	563-58-6		U	1	*	ug/L	4	4
1,2,3-Trichlorobenzene	87-61-6		U	1	*	ug/L	4	4
1,2,3-Trichloropropane	96-18-4		U	1	*	ug/L	4	4
1,2,4-Trichlorobenzene	120-82-1		U	1	*	ug/L	4	4
1,2,4-Trimethylbenzene	95-63-6		U	1	*	ug/L	4	4
1,2-Dibromo-3-chloropropane	96-12-8		U	1	*	ug/L	4	4
1,2-Dibromoethane	106-93-4		U	1	*	ug/L	4	4
1,2-Dichlorobenzene	95-50-1		U	1	*	ug/L	4	4
1,2-Dichloroethane	107-06-2		U	1	*	ug/L	4	4
1,2-Dichloropropane	78-87-5		U	1	*	ug/L	4	4
1,3,5-Trimethylbenzene	108-67-8		U	1	*	ug/L	4	4
1,3-Dichlorobenzene	541-73-1		U	1	*	ug/L	4	4
1,3-Dichloropropane	142-28-9		U	1	*	ug/L	4	4
1,4-Dichlorobenzene	106-46-7		U	1	*	ug/L	4	4
2,2-Dichloropropane	594-20-7		U	1	*	ug/L	4	4
2-Butanone	78-93-3		U	1	*	ug/L	10	10
2-Chlorotoluene	95-49-8		U	1	*	ug/L	4	4
2-Hexanone	591-78-6		U	1	*	ug/L	10	10
4-Chlorotoluene	106-43-4		U	1	*	ug/L	4	4
4-Isopropyltoluene	99-87-6		U	1	*	ug/L	4	4
4-Methyl-2-Pentanone	108-10-1		U	1	*	ug/L	10	10
Acetone	67-64-1		U	1	*	ug/L	10	10
Acrylonitrile	107-13-1		U	1	*	ug/L	4	4
Benzene	71-43-2		U	1	*	ug/L	4	4
Bromobenzene	108-86-1		U	1	*	ug/L	4	4
Bromochloromethane	74-97-5		U	1	*	ug/L	4	4
Bromodichloromethane	75-27-4		U	1	*	ug/L	4	4
Bromoform	75-25-2		U	1	*	ug/L	4	4
Bromomethane	74-83-9		U	1	*	ug/L	4	4
Carbon Disulfide	75-15-0		U	1	*	ug/L	4	4
Carbon Tetrachloride	56-23-5		U	1	*	ug/L	10	10
Chlorobenzene	108-90-7		U	1	*	ug/L	4	4

** Please refer to Qualifier Reports for details.*

Golder Associates
Project ID: 1547878.300
Sample ID: DW-05

ACZ Sample ID: ***L34208-01***
Date Sampled: *11/16/16 8:15*
Date Received: *11/17/16*
Sample Matrix: *Ground Water*

Chloroethane	75-00-3	U	1	*	ug/L	4	4
Chloroform	67-66-3	U	1	*	ug/L	4	4
Chloromethane	74-87-3	U	1	*	ug/L	4	4
cis-1,2-Dichloroethene	156-59-2	U	1	*	ug/L	4	4
cis-1,3-Dichloropropene	10061-01-5	U	1	*	ug/L	4	4
Dibromochloromethane	124-48-1	U	1	*	ug/L	4	4
Dibromomethane	74-95-3	U	1	*	ug/L	4	4
Dichlorodifluoromethane	75-71-8	U	1	*	ug/L	5	5
Ethylbenzene	100-41-4	U	1	*	ug/L	4	4
Hexachlorobutadiene	87-68-3	U	1	*	ug/L	4	4
Isopropylbenzene	98-82-8	U	1	*	ug/L	4	4
m p Xylene	1330-20-7	U	1	*	ug/L	10	10
Methyl Tert Butyl Ether	1634-04-4	U	1	*	ug/L	4	4
Methylene Chloride	75-09-2	U	1	*	ug/L	4	4
Naphthalene	91-20-3	U	1	*	ug/L	4	4
n-Butylbenzene	104-51-8	U	1	*	ug/L	4	4
n-Propylbenzene	103-65-1	U	1	*	ug/L	4	4
o Xylene	95-47- 6	U	1	*	ug/L	4	4
sec-Butylbenzene	135-98-8	U	1	*	ug/L	4	4
Styrene	100-42-5	U	1	*	ug/L	4	4
tert-Butylbenzene	98-06-6	U	1	*	ug/L	4	4
Tetrachloroethene	127-18-4	U	1	*	ug/L	4	4
Toluene	108-88-3	U	1	*	ug/L	4	4
trans-1,2-Dichloroethene	156-60-5	U	1	*	ug/L	4	4
trans-1,3-Dichloropropene	10061-02-6	U	1	*	ug/L	3	3
Trichloroethene	79-01-6	U	1	*	ug/L	5	5
Trichlorofluoromethane	75-69-4	U	1	*	ug/L	4	4
Vinyl Acetate	108-05-4	U	1	*	ug/L	4	4
Vinyl Chloride	75-01-4	U	1	*	ug/L	4	4

Surrogate Recoveries	CAS	% Recovery	Dilution	XQ	Units	LCL	UCL
Bromofluorobenzene	460-00-4	111	1	*	%	70	130
Dibromofluoromethane	1868-53-7	102.6	1	*	%	70	130
Toluene-d8	2037-26-5	97.1	1	*	%	70	130

Arizona license number: AZ0102

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

Golder Associates

ACZ Project ID: ***L34208***

Diesel Range Organics (C10-C28)

M8015D GC/FID

WG413931

MS **Sample ID: L34162-01MS** **PCN/SCN: OPTPH161109-1** **Analyzed: 11/30/16 12:46**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500	.17	2.329	mg/L	93.0	70	130			
OTP (surr)				%	105.7	70	130			

DUP **Sample ID: L34163-01DUP** **Analyzed: 11/30/16 13:41**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28		.11	.12	mg/L				9	20	RA
OTP (surr)				%	97.3	70	130			

LCSW **Sample ID: WG413569LCSW** **PCN/SCN: OPTPH161109-1** **Analyzed: 11/30/16 11:24**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500		2.42	mg/L	97.0	70	130			
OTP (surr)				%	105.4	70	130			

LCSWD **Sample ID: WG413569LCSWD** **PCN/SCN: OPTPH161109-1** **Analyzed: 11/30/16 11:51**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500		2.62	mg/L	105.0	70	130	8	20	
OTP (surr)				%	107.7	70	130			

PBW **Sample ID: WG413569PBW** **Analyzed: 11/30/16 10:56**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28			U	mg/L		-.5	.5			
OTP (surr)				%	91.4	70	130			

Golder Associates

ACZ Project ID: ***L34208***

Volatile Organics by GC/MS

M8260B GC/MS

WG413738

DUP **Sample ID: L34178-01DUP** **Analyzed: 11/22/16 16:21**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE		U	U	ug/L				0	20	RA
1,1,1-TRICHLOROETHANE		U	U	ug/L				0	20	RA
1,1,2,2-TETRACHLOROETHANE		U	U	ug/L				0	20	RA
1,1,2-TRICHLOROETHANE		U	U	ug/L				0	20	RA
1,1-DICHLOROETHANE		U	U	ug/L				0	20	RA
1,1-DICHLOROETHENE		U	U	ug/L				0	20	RA
1,1-DICHLOROPROPENE			U	ug/L				0	20	RA
1,2,3-TRICHLOROBENZENE			U	ug/L				0	20	RA
1,2,3-TRICHLOROPROPANE		U	U	ug/L				0	20	RA
1,2,4-TRICHLOROBENZENE			U	ug/L				0	20	RA
1,2,4-TRIMETHYLBENZENE			U	ug/L				0	20	RA
1,2-DIBROMO-3-CHLOROPROPANE		U	U	ug/L				0	20	RA
1,2-DIBROMOETHANE		U	U	ug/L				0	20	RA
1,2-DICHLOROBENZENE		U	U	ug/L				0	20	RA
1,2-DICHLOROETHANE		U	U	ug/L				0	20	RA
1,2-DICHLOROPROPANE		U	U	ug/L				0	20	RA
1,3,5-TRIMETHYLBENZENE			U	ug/L				0	20	RA
1,3-DICHLOROBENZENE			U	ug/L				0	20	RA
1,3-DICHLOROPROPANE			U	ug/L				0	20	RA
1,4-DICHLOROBENZENE		U	U	ug/L				0	20	RA
2,2-DICHLOROPROPANE			U	ug/L				0	20	RA
2-BUTANONE		U	U	ug/L				0	20	RA
2-CHLOROETHYL VINYL ETHER			U	ug/L				0	20	RA
2-CHLOROTOLUENE			U	ug/L				0	20	RA
2-HEXANONE		U	U	ug/L				0	20	RA
4-CHLOROTOLUENE			U	ug/L				0	20	RA
4-ISOPROPYLTOLUENE			U	ug/L				0	20	RA
4-METHYL-2-PENTANONE		U	U	ug/L				0	20	RA
ACETONE		U	U	ug/L				0	20	RA
ACRYLONITRILE		U	U	ug/L				0	20	RA
BENZENE		U	U	ug/L				0	20	RA
BROMOBENZENE			U	ug/L				0	20	RA
BROMOCHLOROMETHANE		U	U	ug/L				0	20	RA
BROMODICHLOROMETHANE		U	U	ug/L				0	20	RA
BROMOFORM		U	U	ug/L				0	20	RA
BROMOMETHANE		U	U	ug/L				0	20	RA
CARBON DISULFIDE		U	U	ug/L				0	20	RA
CARBON TETRACHLORIDE		U	U	ug/L				0	20	RA
CHLOROBENZENE		U	U	ug/L				0	20	RA
CHLOROETHANE		U	U	ug/L				0	20	RA
CHLOROFORM		U	U	ug/L				0	20	RA
CHLOROMETHANE		U	U	ug/L				0	20	RA
CIS-1,2-DICHLOROETHENE		U	U	ug/L				0	20	RA
CIS-1,3-DICHLOROPROPENE		U	U	ug/L				0	20	RA

DIBROMOCHLOROMETHANE	U	U	ug/L				0	20	RA
DIBROMOMETHANE	U	U	ug/L				0	20	RA
DICHLORODIFLUOROMETHANE		U	ug/L				0	20	
ETHYLBENZENE	U	U	ug/L				0	20	RA
HEXACHLOROBUTADIENE		U	ug/L				0	20	RA
IODOMETHANE	U	U	ug/L				0	20	RA
ISOPROPYLBENZENE		U	ug/L				0	20	RA
M P XYLENE	U	U	ug/L				0	20	RA
METHYL TERT BUTYL ETHER		U	ug/L				0	20	RA
METHYLENE CHLORIDE	U	U	ug/L				0	20	RA
NAPHTHALENE		U	ug/L				0	20	RA
N-BUTYLBENZENE		U	ug/L				0	20	RA
N-PROPYLBENZENE		U	ug/L				0	20	RA
O XYLENE	U	U	ug/L				0	20	RA
SEC-BUTYLBENZENE		U	ug/L				0	20	RA
STYRENE	U	U	ug/L				0	20	RA
TERT-BUTYLBENZENE		U	ug/L				0	20	RA
TETRACHLOROETHENE	U	U	ug/L				0	20	RA
TOLUENE	U	U	ug/L				0	20	RA
TRANS-1,2-DICHLOROETHENE	U	U	ug/L				0	20	RA
TRANS-1,3-DICHLOROPROPENE	U	U	ug/L				0	20	RA
TRANS-1,4-DICHLORO-2-BUTENE	U	U	ug/L				0	20	RA
TRICHLOROETHENE	U	U	ug/L				0	20	RA
TRICHLOROFLUOROMETHANE	U	U	ug/L				0	20	RA
VINYL ACETATE	U	U	ug/L				0	20	RA
VINYL CHLORIDE	U	U	ug/L				0	20	RA
BROMOFLUOROBENZENE (surr)			%	109.3	70	130			
DIBROMOFLUOROMETHANE (surr)			%	101.6	70	130			
TOLUENE-D8 (surr)			%	96.5	70	130			

AS **Sample ID: L34178-02AS** **PCN/SCN: V161112-02-LFIC** **Analyzed: 11/22/16 21:03**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE	10.1	U	10.68	ug/L	106.0	70	130			
1,1,1-TRICHLOROETHANE	10	U	12.14	ug/L	121.0	70	130			
1,1,2,2-TETRACHLOROETHANE	10.1	U	9.162	ug/L	91.0	70	130			
1,1,2-TRICHLOROETHANE	10.1	U	9.65	ug/L	95.0	70	130			
1,1-DICHLOROETHANE	10	U	10.52	ug/L	105.0	70	130			
1,1-DICHLOROETHENE	10	U	11.62	ug/L	116.0	70	130			
1,1-DICHLOROPROPENE	10.1		10.75	ug/L	107.0	70	130			
1,2,3-TRICHLOROBENZENE	10		9.4	ug/L	94.0	70	130			
1,2,3-TRICHLOROPROPANE	10.1	U	9.68	ug/L	96.0	70	130			
1,2,4-TRICHLOROBENZENE	10.1		9.2	ug/L	91.0	70	130			
1,2,4-TRIMETHYLBENZENE	10		9.72	ug/L	97.0	70	130			
1,2-DIBROMO-3-CHLOROPROPANE	10.1	U	8.99	ug/L	89.0	70	130			
1,2-DIBROMOETHANE	10.1	U	9.934	ug/L	99.0	70	130			
1,2-DICHLOROBENZENE	10.2	U	9.4	ug/L	92.0	70	130			
1,2-DICHLOROETHANE	10.1	U	11.95	ug/L	118.0	70	130			
1,2-DICHLOROPROPANE	10	U	10.3	ug/L	103.0	70	130			
1,3,5-TRIMETHYLBENZENE	10		9.86	ug/L	99.0	70	130			

1,3-DICHLOROBENZENE	10		9.59	ug/L	96.0	70	130	
1,3-DICHLOROPROPANE	10.1		10.1	ug/L	100.0	70	130	
1,4-DICHLOROBENZENE	9.9	U	9.58	ug/L	97.0	70	130	
2,2-DICHLOROPROPANE	10.1		11.06	ug/L	110.0	70	130	
2-BUTANONE	10	U	11.59	ug/L	116.0	70	130	
2-CHLOROETHYL VINYL ETHER	10		10.02	ug/L	101.0	70	130	
2-CHLOROTOLUENE	10		9.69	ug/L	97.0	70	130	
2-HEXANONE	10.1	U	10.21	ug/L	101.0	70	130	
4-CHLOROTOLUENE	9.9		9.98	ug/L	100.0	70	130	
4-ISOPROPYLTOLUENE	10.1		10.1	ug/L	100.0	70	130	
4-METHYL-2-PENTANONE	10	U	10.07	ug/L	100.0	70	130	
ACETONE	10	U	13.4	ug/L	134.0	70	130	M1
ACRYLONITRILE	10	U	9.798	ug/L	98.0	70	130	
BENZENE	10	U	10.4	ug/L	104.0	70	130	
BROMOBENZENE	10.1		9.29	ug/L	92.0	70	130	
BROMOCHLOROMETHANE	10	U	10.06	ug/L	101.0	70	130	
BROMODICHLOROMETHANE	10	U	11.86	ug/L	119.0	70	130	
BROMOFORM	10	U	10.63	ug/L	106.0	70	130	
BROMOMETHANE	10.2	U	9.17	ug/L	90.0	70	130	
CARBON DISULFIDE	10.1	U	10.27	ug/L	102.0	70	130	
CARBON TETRACHLORIDE	10	U	12.28	ug/L	122.0	70	130	
CHLOROBENZENE	9.9	U	10.14	ug/L	102.0	70	130	
CHLOROETHANE	10.2	U	9.12	ug/L	89.0	70	130	
CHLOROFORM	10	U	11.34	ug/L	113.0	70	130	
CHLOROMETHANE	10.1	U	8.12	ug/L	81.0	70	130	
CIS-1,2-DICHLOROETHENE	10	U	11	ug/L	110.0	70	130	
CIS-1,3-DICHLOROPROPENE	10.1	U	10.85	ug/L	108.0	70	130	
DIBROMOCHLOROMETHANE	10	U	10.86	ug/L	109.0	70	130	
DIBROMOMETHANE	10	U	11.152	ug/L	111.0	70	130	
DICHLORODIFLUOROMETHANE	10		8.54	ug/L	85.0	70	130	
ETHYLBENZENE	10.1	U	10.62	ug/L	105.0	70	130	
HEXACHLOROBUTADIENE	10.1		10.3	ug/L	102.0	70	130	
IODOMETHANE	10	U	10.78	ug/L	108.0	70	130	
ISOPROPYLBENZENE	10.1		10.82	ug/L	107.0	70	130	
M P XYLENE	20.3	U	21.49	ug/L	106.0	70	130	
METHYL TERT BUTYL ETHER	10		10.67	ug/L	107.0	70	130	
METHYLENE CHLORIDE	10	U	9.72	ug/L	97.0	70	130	
NAPHTHALENE	10		8.9	ug/L	89.0	70	130	
N-BUTYLBENZENE	10		9.82	ug/L	98.0	70	130	
N-PROPYLBENZENE	10.2		9.73	ug/L	95.0	70	130	
O XYLENE	10.1	U	10.82	ug/L	107.0	70	130	
SEC-BUTYLBENZENE	10.2		9.78	ug/L	96.0	70	130	
STYRENE	10.1	U	10.28	ug/L	102.0	70	130	
TERT-BUTYLBENZENE	10.2		9.97	ug/L	98.0	70	130	
TETRACHLOROETHENE	10	U	10.65	ug/L	106.0	71	130	
TOLUENE	10.1	U	10.09	ug/L	100.0	70	130	
TRANS-1,2-DICHLOROETHENE	10	U	10.89	ug/L	109.0	70	130	
TRANS-1,3-DICHLOROPROPENE	9.9	U	10.31	ug/L	104.0	70	130	
TRANS-1,4-DICHLORO-2-BUTENE	10	U	9.3	ug/L	93.0	70	130	

TRICHLOROETHENE	10	U	11.32	ug/L	113.0	71	130
TRICHLOROFLUOROMETHANE	10	U	10.8	ug/L	108.0	70	130
VINYL ACETATE	10	U	9.68	ug/L	97.0	70	130
VINYL CHLORIDE	10	U	9.172	ug/L	92.0	70	130
BROMOFLUOROBENZENE (surr)				%	112.2	70	130
DIBROMOFLUOROMETHANE (surr)				%	104.4	70	130
TOLUENE-D8 (surr)				%	96.8	70	130

LCSW **Sample ID: WG413738LCSW** **PCN/SCN: V161112-02-LFIC** **Analyzed: 11/22/16 12:36**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE	10.1		9.58	ug/L	95.0	70	130			
1,1,1-TRICHLOROETHANE	10		10.93	ug/L	109.0	70	130			
1,1,2,2-TETRACHLOROETHANE	10.1		10.294	ug/L	102.0	70	130			
1,1,2-TRICHLOROETHANE	10.1		10.09	ug/L	100.0	70	130			
1,1-DICHLOROETHANE	10		10.08	ug/L	101.0	70	130			
1,1-DICHLOROETHENE	10		10.26	ug/L	102.0	70	130			
1,1-DICHLOROPROPENE	10.1		9.92	ug/L	99.0	70	130			
1,2,3-TRICHLOROBENZENE	10		9.1	ug/L	91.0	70	130			
1,2,3-TRICHLOROPROPANE	10.1		10.34	ug/L	102.0	70	130			
1,2,4-TRICHLOROBENZENE	10.1		9.1	ug/L	91.0	70	130			
1,2,4-TRIMETHYLBENZENE	10		9.57	ug/L	96.0	70	130			
1,2-DIBROMO-3-CHLOROPROPANE	10.1		9.16	ug/L	91.0	70	130			
1,2-DIBROMOETHANE	10.1		9.709	ug/L	97.0	70	130			
1,2-DICHLOROBENZENE	10.2		9.29	ug/L	91.0	70	130			
1,2-DICHLOROETHANE	10.1		11.11	ug/L	110.0	70	130			
1,2-DICHLOROPROPANE	10		10.31	ug/L	103.0	70	130			
1,3,5-TRIMETHYLBENZENE	10		10.35	ug/L	104.0	70	130			
1,3-DICHLOROBENZENE	10		9.18	ug/L	92.0	70	130			
1,3-DICHLOROPROPANE	10.1		10.13	ug/L	100.0	70	130			
1,4-DICHLOROBENZENE	9.9		9.34	ug/L	95.0	70	130			
2,2-DICHLOROPROPANE	10.1		10.42	ug/L	104.0	70	130			
2-BUTANONE	10		11.69	ug/L	117.0	70	130			
2-CHLOROETHYL VINYL ETHER	10		10.44	ug/L	105.0	70	130			
2-CHLOROTOLUENE	10		9.97	ug/L	100.0	70	130			
2-HEXANONE	10.1		10.56	ug/L	105.0	70	130			
4-CHLOROTOLUENE	9.9		10.38	ug/L	104.0	70	130			
4-ISOPROPYLTOLUENE	10.1		9.46	ug/L	94.0	70	130			
4-METHYL-2-PENTANONE	10		10.11	ug/L	101.0	70	130			
ACETONE	10		11.9	ug/L	119.0	70	130			
ACRYLONITRILE	10		10.808	ug/L	108.0	70	130			
BENZENE	10		10.04	ug/L	100.0	70	130			
BROMOBENZENE	10.1		10.15	ug/L	101.0	70	130			
BROMOCHLOROMETHANE	10		10.04	ug/L	101.0	70	130			
BROMODICHLOROMETHANE	10		10.92	ug/L	109.0	70	130			
BROMOFORM	10		9.95	ug/L	99.0	70	130			
BROMOMETHANE	10.2		9.72	ug/L	96.0	70	130			
CARBON DISULFIDE	10.1		8.9	ug/L	88.0	70	130			
CARBON TETRACHLORIDE	10		10.64	ug/L	106.0	70	130			
CHLOROBENZENE	9.9		9.63	ug/L	97.0	70	130			

CHLOROETHANE	10.2		9.6	ug/L	94.0	70	130
CHLOROFORM	10		10.48	ug/L	105.0	70	130
CHLOROMETHANE	10.1		8.45	ug/L	84.0	70	130
CIS-1,2-DICHLOROETHENE	10		10.66	ug/L	107.0	70	130
CIS-1,3-DICHLOROPROPENE	10.1		10.26	ug/L	102.0	70	130
DIBROMOCHLOROMETHANE	10		10.86	ug/L	109.0	70	130
DIBROMOMETHANE	10		10.602	ug/L	106.0	70	130
DICHLORODIFLUOROMETHANE	10		8.11	ug/L	81.0	70	130
ETHYLBENZENE	10.1		9.73	ug/L	96.0	70	130
HEXACHLOROBUTADIENE	10.1		9.5	ug/L	94.0	70	130
IODOMETHANE	10		10.2	ug/L	102.0	70	130
ISOPROPYLBENZENE	10.1		9.89	ug/L	98.0	70	130
M P XYLENE	20.3		19.73	ug/L	97.0	70	130
METHYL TERT BUTYL ETHER	10		10.49	ug/L	105.0	70	130
METHYLENE CHLORIDE	10		9.71	ug/L	97.0	70	130
NAPHTHALENE	10		9.2	ug/L	92.0	70	130
N-BUTYLBENZENE	10		9.49	ug/L	94.0	70	130
N-PROPYLBENZENE	10.2		10.24	ug/L	100.0	70	130
O XYLENE	10.1		9.94	ug/L	98.0	70	130
SEC-BUTYLBENZENE	10.2		9.42	ug/L	93.0	70	130
STYRENE	10.1		9.66	ug/L	96.0	70	130
TERT-BUTYLBENZENE	10.2		9.48	ug/L	93.0	70	130
TETRACHLOROETHENE	10		10.34	ug/L	103.0	71	130
TOLUENE	10.1		10.19	ug/L	101.0	70	130
TRANS-1,2-DICHLOROETHENE	10		10.1	ug/L	101.0	70	130
TRANS-1,3-DICHLOROPROPENE	9.9		10.23	ug/L	103.0	70	130
TRANS-1,4-DICHLORO-2-BUTENE	10		11.1	ug/L	111.0	70	130
TRICHLOROETHENE	10		10.35	ug/L	103.0	71	130
TRICHLOROFLUOROMETHANE	10		10.27	ug/L	102.0	70	130
VINYL ACETATE	10		9.72	ug/L	97.0	70	130
VINYL CHLORIDE	10		9.405	ug/L	94.0	70	130
BROMOFLUOROBENZENE (surr)				%	107.4	70	130
DIBROMOFLUOROMETHANE (surr)				%	101.5	70	130
TOLUENE-D8 (surr)				%	100.6	70	130

LCSWD **Sample ID: WG413738LCSWD** **PCN/SCN: V161112-02-LFIC** **Analyzed: 11/22/16 13:03**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE	10.1		9.82	ug/L	97.0	70	130	2	20	
1,1,1-TRICHLOROETHANE	10		10.48	ug/L	105.0	70	130	4	20	
1,1,2,2-TETRACHLOROETHANE	10.1		8.034	ug/L	80.0	70	130	25	20	R1
1,1,2-TRICHLOROETHANE	10.1		9.7	ug/L	96.0	70	130	4	20	
1,1-DICHLOROETHANE	10		9.81	ug/L	98.0	70	130	3	20	
1,1-DICHLOROETHENE	10		9.52	ug/L	95.0	70	130	7	20	
1,1-DICHLOROPROPENE	10.1		9.94	ug/L	99.0	70	130	0	20	
1,2,3-TRICHLOROBENZENE	10		9.5	ug/L	95.0	70	130	4	20	
1,2,3-TRICHLOROPROPANE	10.1		8.18	ug/L	81.0	70	130	23	20	R1
1,2,4-TRICHLOROBENZENE	10.1		9.6	ug/L	95.0	70	130	5	20	
1,2,4-TRIMETHYLBENZENE	10		8.15	ug/L	81.0	70	130	16	20	
1,2-DIBROMO-3-CHLOROPROPANE	10.1		9.99	ug/L	99.0	70	130	9	20	

1,2-DIBROMOETHANE	10.1	9.716	ug/L	97.0	70	130	0	20	
1,2-DICHLOROBENZENE	10.2	8.7	ug/L	86.0	70	130	7	20	
1,2-DICHLOROETHANE	10.1	10.94	ug/L	108.0	70	130	2	20	
1,2-DICHLOROPROPANE	10	9.98	ug/L	99.0	70	130	3	20	
1,3,5-TRIMETHYLBENZENE	10	7.77	ug/L	78.0	70	130	28	20	R1
1,3-DICHLOROBENZENE	10	9.19	ug/L	92.0	70	130	0	20	
1,3-DICHLOROPROPANE	10.1	10.18	ug/L	100.0	70	130	0	20	
1,4-DICHLOROBENZENE	9.9	9.33	ug/L	95.0	70	130	0	20	
2,2-DICHLOROPROPANE	10.1	9.65	ug/L	96.0	70	130	8	20	
2-BUTANONE	10	11.2	ug/L	112.0	70	130	4	20	
2-CHLOROETHYL VINYL ETHER	10	10.23	ug/L	103.0	70	130	2	20	
2-CHLOROTOLUENE	10	7.95	ug/L	80.0	70	130	23	20	R1
2-HEXANONE	10.1	10.99	ug/L	109.0	70	130	4	20	
4-CHLOROTOLUENE	9.9	8.05	ug/L	81.0	70	130	25	20	R1
4-ISOPROPYLTOLUENE	10.1	9.45	ug/L	94.0	70	130	0	20	
4-METHYL-2-PENTANONE	10	10.07	ug/L	100.0	70	130	0	20	
ACETONE	10	11.9	ug/L	119.0	70	130	0	20	
ACRYLONITRILE	10	10.614	ug/L	106.0	70	130	2	20	
BENZENE	10	9.82	ug/L	98.0	70	130	2	20	
BROMOBENZENE	10.1	7.92	ug/L	79.0	70	130	25	20	R1
BROMOCHLOROMETHANE	10	9.6	ug/L	96.0	70	130	4	20	
BROMODICHLOROMETHANE	10	10.68	ug/L	107.0	70	130	2	20	
BROMOFORM	10	10.38	ug/L	104.0	70	130	4	20	
BROMOMETHANE	10.2	9.49	ug/L	93.0	70	130	2	20	
CARBON DISULFIDE	10.1	7.4	ug/L	73.0	70	130	18	20	
CARBON TETRACHLORIDE	10	10.19	ug/L	102.0	70	130	4	20	
CHLOROBENZENE	9.9	9.36	ug/L	94.0	70	130	3	20	
CHLOROETHANE	10.2	9.28	ug/L	91.0	70	130	3	20	
CHLOROFORM	10	9.74	ug/L	97.0	70	130	7	20	
CHLOROMETHANE	10.1	8.56	ug/L	85.0	70	130	1	20	
CIS-1,2-DICHLOROETHENE	10	9.88	ug/L	99.0	70	130	8	20	
CIS-1,3-DICHLOROPROPENE	10.1	9.8	ug/L	97.0	70	130	5	20	
DIBROMOCHLOROMETHANE	10	10.09	ug/L	101.0	70	130	7	20	
DIBROMOMETHANE	10	10.521	ug/L	105.0	70	130	1	20	
DICHLORODIFLUOROMETHANE	10	7.67	ug/L	77.0	70	130	6	20	
ETHYLBENZENE	10.1	9.54	ug/L	94.0	70	130	2	20	
HEXACHLOROBUTADIENE	10.1	10	ug/L	99.0	70	130	5	20	
IODOMETHANE	10	9.81	ug/L	98.0	70	130	4	20	
ISOPROPYLBENZENE	10.1	9.74	ug/L	96.0	70	130	2	20	
M P XYLENE	20.3	19.62	ug/L	97.0	70	130	1	20	
METHYL TERT BUTYL ETHER	10	10.52	ug/L	105.0	70	130	0	20	
METHYLENE CHLORIDE	10	9.46	ug/L	95.0	70	130	3	20	
NAPHTHALENE	10	9.5	ug/L	95.0	70	130	3	20	
N-BUTYLBENZENE	10	9.18	ug/L	91.0	70	130	3	20	
N-PROPYLBENZENE	10.2	7.81	ug/L	76.0	70	130	27	20	R1
O XYLENE	10.1	9.97	ug/L	99.0	70	130	0	20	
SEC-BUTYLBENZENE	10.2	8.24	ug/L	81.0	70	130	13	20	
STYRENE	10.1	9.61	ug/L	96.0	70	130	1	20	
TERT-BUTYLBENZENE	10.2	8.28	ug/L	82.0	70	130	14	20	

TETRACHLOROETHENE	10	9.42	ug/L	94.0	70	130	9	20
TOLUENE	10.1	10.26	ug/L	102.0	70	130	1	20
TRANS-1,2-DICHLOROETHENE	10	9.86	ug/L	98.0	70	130	2	20
TRANS-1,3-DICHLOROPROPENE	9.9	10.6	ug/L	107.0	70	130	4	20
TRANS-1,4-DICHLORO-2-BUTENE	10	9.26	ug/L	93.0	70	130	18	20
TRICHLOROETHENE	10	10.13	ug/L	101.0	71	130	2	20
TRICHLOROFLUOROMETHANE	10	9.84	ug/L	98.0	70	130	4	20
VINYL ACETATE	10	9.75	ug/L	97.0	70	130	0	20
VINYL CHLORIDE	10	9.174	ug/L	92.0	70	130	2	20
BROMOFLUOROBENZENE (surr)			%	110.0	70	130		
DIBROMOFLUOROMETHANE (surr)			%	101.7	70	130		
TOLUENE-D8 (surr)			%	107.2	70	130		

PBW **Sample ID: WG413738PBW** **Analyzed: 11/22/16 14:28**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE			U	ug/L		-1	1			
1,1,1-TRICHLOROETHANE			U	ug/L		-2	2			
1,1,2,2-TETRACHLOROETHANE			U	ug/L		-.01	.01			
1,1,2-TRICHLOROETHANE			U	ug/L		-1	1			
1,1-DICHLOROETHANE			U	ug/L		-1	1			
1,1-DICHLOROETHENE			U	ug/L		-1	1			
1,1-DICHLOROPROPENE			U	ug/L		-1	1			
1,2,3-TRICHLOROBENZENE			U	ug/L		-4	4			
1,2,3-TRICHLOROPROPANE			U	ug/L		-1	1			
1,2,4-TRICHLOROBENZENE			U	ug/L		-4	4			
1,2,4-TRIMETHYLBENZENE			U	ug/L		-1	1			
1,2-DIBROMO-3-CHLOROPROPANE			U	ug/L		-1	1			
1,2-DIBROMOETHANE			U	ug/L		-.01	.01			
1,2-DICHLOROBENZENE			U	ug/L		-1	1			
1,2-DICHLOROETHANE			U	ug/L		-1	1			
1,2-DICHLOROPROPANE			U	ug/L		-1	1			
1,3,5-TRIMETHYLBENZENE			U	ug/L		-1	1			
1,3-DICHLOROBENZENE			U	ug/L		-1	1			
1,3-DICHLOROPROPANE			U	ug/L		-1	1			
1,4-DICHLOROBENZENE			U	ug/L		-1	1			
2,2-DICHLOROPROPANE			U	ug/L		-1	1			
2-BUTANONE			U	ug/L		-2	2			
2-CHLOROETHYL VINYL ETHER			U	ug/L		-1	1			
2-CHLOROTOLUENE			U	ug/L		-1	1			
2-HEXANONE			U	ug/L		-2	2			
4-CHLOROTOLUENE			U	ug/L		-1	1			
4-ISOPROPYLTOLUENE			U	ug/L		-1	1			
4-METHYL-2-PENTANONE			U	ug/L		-2	2			
ACETONE			U	ug/L		-4	4			
ACRYLONITRILE			U	ug/L		-.05	.05			
BENZENE			U	ug/L		-1	1			
BROMOBENZENE			U	ug/L		-1	1			
BROMOCHLOROMETHANE			U	ug/L		-1	1			
BROMODICHLOROMETHANE			U	ug/L		-1	1			

BROMOFORM	U	ug/L		-1	1
BROMOMETHANE	U	ug/L		-2	2
CARBON DISULFIDE	U	ug/L		-1	1
CARBON TETRACHLORIDE	U	ug/L		-1	1
CHLOROBENZENE	U	ug/L		-1	1
CHLOROETHANE	U	ug/L		-2	2
CHLOROFORM	U	ug/L		-1	1
CHLOROMETHANE	U	ug/L		-1	1
CIS-1,2-DICHLOROETHENE	U	ug/L		-1	1
CIS-1,3-DICHLOROPROPENE	U	ug/L		-1	1
DIBROMOCHLOROMETHANE	U	ug/L		-1	1
DIBROMOMETHANE	U	ug/L		-.01	.01
DICHLORODIFLUOROMETHANE	U	ug/L		-1	1
ETHYLBENZENE	U	ug/L		-1	1
HEXACHLOROBUTADIENE	U	ug/L		-4	4
IODOMETHANE	U	ug/L		-1	1
ISOPROPYLBENZENE	U	ug/L		-1	1
M P XYLENE	U	ug/L		-2	2
METHYL TERT BUTYL ETHER	U	ug/L		-1	1
METHYLENE CHLORIDE	U	ug/L		-1	1
NAPHTHALENE	U	ug/L		-4	4
N-BUTYLBENZENE	U	ug/L		-1	1
N-PROPYLBENZENE	U	ug/L		-1	1
O XYLENE	U	ug/L		-1	1
SEC-BUTYLBENZENE	U	ug/L		-1	1
STYRENE	U	ug/L		-1	1
TERT-BUTYLBENZENE	U	ug/L		-1	1
TETRACHLOROETHENE	U	ug/L		-1	1
TOLUENE	U	ug/L		-1	1
TRANS-1,2-DICHLOROETHENE	U	ug/L		-1	1
TRANS-1,3-DICHLOROPROPENE	U	ug/L		-1	1
TRANS-1,4-DICHLORO-2-BUTENE	U	ug/L		-1	1
TRICHLOROETHENE	U	ug/L		-1	1
TRICHLOROFLUOROMETHANE	U	ug/L		-1	1
VINYL ACETATE	U	ug/L		-2	2
VINYL CHLORIDE	U	ug/L		-.05	.05
BROMOFLUOROBENZENE (surr)		%	110.1	70	130
DIBROMOFLUOROMETHANE (surr)		%	103.4	70	130
TOLUENE-D8 (surr)		%	97.1	70	130

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

Organic Extended Qualifier Report

ACZ Project ID: ***L34208***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34208-01	WG413931	TPH C10 to C28	M8015D GC/FID	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG413738	*All Compounds*	M8260B GC/MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		1,1,2,2-Tetrachloroethane	M8260B GC/MS	R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.
		1,2,3-Trichloropropane	M8260B GC/MS	R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.
		1,3,5-Trimethylbenzene	M8260B GC/MS	R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.
		2-Chlorotoluene	M8260B GC/MS	R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.
		4-Chlorotoluene	M8260B GC/MS	R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.
		Acetone	M8260B GC/MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Bromobenzene	M8260B GC/MS	R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.
		n-Propylbenzene	M8260B GC/MS	R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.

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

RadioChemistry Analytical Results

Golder Associates
Project ID: 1547878.300
Sample ID: DW-05
Locator:

ACZ Sample ID: ***L34208-01***
Date Sampled: *11/16/16 8:15*
Date Received: *11/17/16*
Sample Matrix: *Ground Water*

Combined Radium
Calculation (RA226 + RA228)
Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Combined Radium	12/20/16 10:55		0.28			pCi/L		calc

Gross Alpha - Corrected
Calculation
Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	12/20/16 10:55		-3.1			pCi/L		calc

Gross Alpha & Beta, dissolved
M900.0
Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/01/16 0:31		30	32	42	pCi/L		ism
Gross Beta	12/01/16 0:31		33	36	110	pCi/L		ism

Radium 226
M903.1
Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/19/16 0:27		0.28	0.12	0.08	pCi/L		mns

Radium 228
M904.0
Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/09/16 15:28		0.24	0.54	0.57	pCi/L		jjo

Arizona license number: AZ0102

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Error(+/-)	Calculated sample specific uncertainty
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
LCL	Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD	Calculated sample specific Lower Limit of Detection
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit
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)
RER	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
UCL	Upper Control Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

DUP	Sample Duplicate	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	*PBS*	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	*PBW*	Prep Blank - Water

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

(1) Solid matrices are reported on a dry weight basis.

(2) Preparation method: "Method" indicates preparation defined in analytical method.

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

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

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

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

Radiochemistry QC Summary

Golder Associates

ACZ Project ID: ***L34208***

Alpha

M900.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG414085																
WG413538LCSW	LCSW	12/01/16	PCN52271	100				110	9.3	3.7	110	83	133			
L34136-03DUP	DUP-RER	12/01/16			1.3	1.7	3.5	1.1	1.7	3.5				0.08	2	
L34164-01DUP	DUP-RER	12/01/16			2.9	2.5	7.3	-1.5	1.7	4.2				1.46	2	
L34136-06MS	MS	12/01/16	PCN52271	100	0.1	1.4	2.9	130	9.9	2.4	130	83	133			

Beta

M900.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG414085																
WG413538LCSW	LCSW	12/01/16	PCN51813	100				120	7.3	5.5	120	70	129			
L34164-01DUP	DUP-RER	12/01/16			5.6	3.2	5.8	1.7	3.1	16				0.88	2	
L34164-01MS	MS	12/01/16	PCN51813	100	5.6	3.2	5.8	120	7.6	19	114	70	129			

Radium 226

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG415039																
WG414571PBW	PBW	12/19/16						.05	0.1	0.29			0.58			
WG414571LCSW	LCSW	12/19/16	PCN51073	20				18	0.56	0.15	90	43	148			
L34080-01DUP	DUP-RER	12/19/16			0.26	0.13	0.12	.2	0.11	0.15				0.35	2	
L34208-01DUP	DUP-RER	12/19/16			0.28	0.12	0.08	.11	0.12	0.14				1	2	
L34080-02MS	MS	12/19/16	PCN51073	20	0.21	0.14	0.15	20	0.67	0.17	99	43	148			

ACZ Laboratories, Inc.
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Radiochemistry QC Summary

Golder Associates

ACZ Project ID: ***L34208***

Radium 228 M904.0 **Units:** pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG414539																
WG414145PBW	PBW	12/09/16						.26	0.31	0.32			0.64			
WG414145LCSW	LCSW	12/09/16	PCN52272	19.68				13	1.3	0.69	66	47	123			
L34052-01DUP	DUP-RER	12/09/16			0.98	0.59	0.56	.4	0.54	0.55				0.73	2	
L34063-01DUP	DUP-RER	12/09/16			0.83	1.3	1.3	1.5	1.3	1.3				0.36	2	
L34070-01MS	MS	12/09/16	PCN52272	19.67	0.48	0.56	0.57	13	1.1	0.5	64	47	123			

ACZ Laboratories, Inc.
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RadChem Extended Qualifier Report

Golder Associates

ACZ Project ID: ***L34208***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION

No extended qualifiers associated with this analysis

No certification qualifiers associated with this analysis

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

Sample Receipt

Golder Associates
1547878.300

ACZ Project ID: L34208
Date Received: 11/17/2016 10:27
Received By:
Date Printed: 11/17/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form 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 form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form 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 form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]	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)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
4167	1.6	<=6.0	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

Golder Associates
1547878.300

ACZ Project ID:	L34208
Date Received:	11/17/2016 10:27
Received By:	
Date Printed:	11/17/2016

[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).

DURHAM WELL

ACZ Laboratories, Inc. L34208

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

CHAIN of CUSTODY

Report to:

Name: Rochelle Destrampe
Company: Golder Associates
E-mail: rdestrampe@golder.com
Address: 1430 W. Broadway Road, Suite 108
Tempe, AZ 85282
Telephone: 480-966-0153

Copy of Report to:

Name: Rochelle Destrampe
Company: Golder Associates
E-mail: rdestrampe@golder.com
Telephone: 480-966-0153

Invoice to:

Name: Rochelle Destrampe
Company: Golder Associates
E-mail: rdestrampe@golder.com
Address: 1430 W. Broadway Road, Suite 108
Tempe, AZ 85282
Telephone: 480-966-0153

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: Destrampe **Sampler's Site Information** **State** AZ **Zip code** 85609 **Time Zone** AZ

***Sampler's Signature:** [signature] *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 #: JCM-GW
PO#: 1547878.300
Reporting state for compliance testing:
Check box if samples include NRC licensed material? [ ]

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

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Wet Chemistry, Raw, 500 mL - 1	Diss Wet Chem - 250 mL (FILTERED) -1 (white)	Organic analysis, raw, 1000 mL - Amber - 2	Total Metals - 250mL Nitric, unfiltered -1 (red)	Diss Metals - 125mL Nitric (FILTERED) -1 grn	Total Radiochem - 4L Nitric, unfiltered - 1 cube	Diss Radiochem - 1L Nitric (FILTERED) -1 grn	VOA, BTEX, TVH -40mL HCl, unfiltered - 3 vials
DW-05	11.16.16 0815	GW	11	X	X	X	X	X	X	X	X

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

REMARKS

UPS TRACKING: J460 239 2196

See attached list of requested analytes (Table 1)

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11.16.16 0900	[signature]	11/17/16 1027

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L34208 Chain of Custody

Table 1: Ambient Groundwater Monitoring Analytes

Analyte	Method[a]	MRL[b,c]	AWQS[d]	Units
Field Parameters				
Specific Conductance	Field Instrument	NA	NS	umhos/cm
Temperature	Field Instrument	NA	NS	°C
pH	Field Instrument	NA	NS	SU
Indicator Parameters				
Total Dissolved Solids (TDS)	SM 2540C	1	NS	mg/L
Specific Conductance	SM 2510B	1	NS	umhos/cm
Temperature	EPA 170.1	--	NS	°C
pH	SM 4500H+	1	NS	SU
Major Cations				
Calcium (Ca)	EPA 200.7	1	NS	mg/L
Magnesium (Mg)	EPA 200.7	2	NS	mg/L
Potassium (K)	EPA 200.7	2	NS	mg/L
Sodium (Na)	EPA 200.7	2	NS	mg/L
Major Anions				
Carbonate (as $CaCO_3$)	SM2320B	10	NS	mg/L
Bicarbonate (as $CaCO_3$)	SM2320B	10	NS	mg/L
Hydroxide (as $CaCO_3$)	SM2320B	10	NS	mg/L
Total Alkalinity (as $CaCO_3$)	SM2320B	10	NS	mg/L
Chloride (Cl)	EPA 300.0	0	NS	mg/L
Fluoride (F)	SM 4500 F C	0.1	4.0	mg/L
Sulfate (SO_4)	EPA 300.0	5	NS	mg/L
Nitrogen				
Nitrate + Nitrite (as N)	EPA 353.2	0.2	10	mg/L
Nitrate (as N)	Calculation	0.3	10	mg/L
Nitrite (as N)	EPA 353.2	0.1	1	mg/L
Phosphate (PO_4)	EPA 365.3	0.1	NS	mg/L
Metals (Dissolved)				
Aluminum (Al)	EPA 200.7	0.2	NS	mg/L
Antimony (Sb)	EPA 200.8	0.003	0.006	mg/L
Arsenic (As)	EPA 200.8	0.001	0.05	mg/L
Barium (Ba)	EPA 200.7	0.01	2	mg/L
Beryllium (Be)	EPA 200.7	0.002	0.004	mg/L
Cadmium (Cd)	EPA 200.8	0.001	0.005	mg/L
Chromium (Cr)	EPA 200.7	0.001	0.1	mg/L
Cobalt (Co)	EPA 200.7	0.02	NS	mg/L
Copper (Cu)	EPA 200.7	0.01	NS	mg/L
Iron (Fe)	EPA 200.7	0.05	NS	mg/L
Lead (Pb)	EPA 200.8	0.001	0.05	mg/L
Manganese (Mn)	EPA 200.7	0.02	NS	mg/L
Mercury (Hg)	EPA 245.1	0.0002	0.002	mg/L
Molybdenum (Mo)	EPA 200.7	0.02	NS	mg/L
Nickel (Ni)	EPA 200.7	0.02	0.1	mg/L
Selenium (Se)	EPA 200.8	0.002	0.05	mg/L

Table 1: Ambient Groundwater Monitoring Analytes

Analyte	Method[a]	MRL[b,c]	AWQS[d]	Units
Silicon (Si, as SiO_2)	EPA 200.7	0.1	NS	mg/L
Silver (Ag)	EPA 200.8	0.0001	NS	mg/L
Thallium (Tl)	EPA 200.8	0.0005	0.002	mg/L
Zinc (Zn)	EPA 200.7	0.02	NS	mg/L
Radiochemicals				
Gross Alpha Particle Activity	EPA 900.0	1	NS	pCi/L
Adjusted Gross Alpha Particle Activity	EPA 900.0	1	15	pCi/L
Gross Beta Particle Activity	EPA 900.0	4 pCi/L	4	mrem/yr
Radium 226	EPA 903.1	0.3	NS	pCi/L
Radium 228	EPA 904.0	0.4	NS	pCi/L
Radium 226+228	Calculation	0.4	5	pCi/L
Uranium (total)	EPA 200.8	0.5	NS	ug/L
Organic Compounds				
Volatile Organic Compounds	EPA 8260/624	Various	Various	ug/L
Total Petroleum Hydrocarbons (TPH)				
Total Petroleum Hydrocarbons (TPH)	EPA 8015	Various	Various	ug/L

Notes:

a Or equivalent analytical method.

b MRL = Minimum Reporting Limit. MRLs may vary due to matrix interference/dilution.

c MRLs may be difficult to achieve in groundwater with high total dissolved solids.

d AWQS = Aquifer Water Quality Standard.

e AWQS applies to free cyanide. Free cyanide will be analyzed only if cyanide is detected.

NA = Not applicable. NS = no numeric AWQS.

mg/L = milligrams per liter. umhos/cm = micromhos per centimeter.

°C = degrees Celsius. SU = standard units.

pCi/L = picoCuries per liter. mrem/yr = millirems per year. ug/L = micrograms per liter.

EPA = Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, USEPA - EMSL, Revised March 1993.

SM = Standard Methods for the Examination of Water and Wastewater, 18th Edition, APHA-AWWA-WPCF, 1992.