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

Analytical Report

April 05, 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: L29391

Rochelle Destrampe:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 14, 2016. This project has been assigned to ACZ's project number, L29391. 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 L29391. 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 May 05, 2016. 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

April 05, 2016

Project ID: 1547878.300
ACZ Project ID: L29391

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 ground water sample from Golder Associates on March 14, 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 L29391. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

Any analyses not performed within EPA recommended holding times have been qualified with an "H" flag.

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. (Q1) Instrument stopped sampling after sample 6, recalibrated and reran QC and started WG over the following morning. Samples were not repoured to save sample volume, so samples were kept at room temperature before analysis was performed. No significant impact would be expected.

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Golder Associates
Project ID: 1547878.300
Sample ID: DW-02

ACZ Sample ID: ***L29391-01***
Date Sampled: *03/09/16 10:29*
Date Received: *03/14/16*
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								03/31/16 12:19	scp

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	5	323			mg/L	0.2	0.8	03/24/16 13:55	aeb
Antimony, dissolved	M200.8 ICP-MS	5		U		mg/L	0.002	0.01	03/30/16 0:30	msh
Arsenic, dissolved	M200.8 ICP-MS	5	0.002	B		mg/L	0.001	0.005	03/30/16 0:30	msh
Barium, dissolved	M200.7 ICP	5	0.04	B		mg/L	0.02	0.08	03/24/16 13:55	aeb
Beryllium, dissolved	M200.8 ICP-MS	5	1.2500			mg/L	0.0003	0.001	03/30/16 0:30	msh
Cadmium, dissolved	M200.8 ICP-MS	5	0.0686			mg/L	0.0005	0.003	03/30/16 0:30	msh
Calcium, dissolved	M200.7 ICP	5	652			mg/L	0.5	3	03/24/16 13:55	aeb
Chromium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	03/30/16 0:30	msh
Cobalt, dissolved	M200.7 ICP	5	0.05	B		mg/L	0.05	0.3	03/25/16 12:48	aeb
Copper, dissolved	M200.7 ICP	5	4.44			mg/L	0.05	0.3	03/24/16 13:55	aeb
Iron, dissolved	M200.7 ICP	5	0.1	B		mg/L	0.1	0.3	03/24/16 13:55	aeb
Lead, dissolved	M200.8 ICP-MS	5	0.0082			mg/L	0.0005	0.003	03/30/16 0:30	msh
Magnesium, dissolved	M200.7 ICP	5	190			mg/L	1	5	03/24/16 13:55	aeb
Manganese, dissolved	M200.7 ICP	5	13.10			mg/L	0.03	0.1	03/24/16 13:55	aeb
Mercury, dissolved	M245.1 CVAA	1	0.0021			mg/L	0.0002	0.001	04/01/16 15:06	pta
Molybdenum, dissolved	M200.7 ICP	5		U		mg/L	0.1	0.5	03/24/16 13:55	aeb
Nickel, dissolved	M200.7 ICP	5	0.18	B		mg/L	0.04	0.2	03/24/16 13:55	aeb
Potassium, dissolved	M200.7 ICP	5	7			mg/L	1	5	03/24/16 13:55	aeb
Selenium, dissolved	M200.8 ICP-MS	5	0.0262			mg/L	0.0005	0.001	03/30/16 0:30	msh
Silica, dissolved	M200.7 ICP	5	48			mg/L	1	5	03/24/16 13:55	aeb
Silver, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0003	0.001	03/30/16 0:30	msh
Sodium, dissolved	M200.7 ICP	5	178			mg/L	1	5	03/24/16 13:55	aeb
Thallium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0005	0.003	03/30/16 0:30	msh
Uranium, total	M200.8 ICP-MS	5	0.0370			mg/L	0.0005	0.003	04/04/16 18:16	scp
Zinc, dissolved	M200.7 ICP	5	8.33			mg/L	0.05	0.3	03/24/16 13:55	aeb

** Please refer to Qualifier Reports for details.*

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-02

ACZ Sample ID: ***L29391-01***
Date Sampled: *03/09/16 10:29*
Date Received: *03/14/16*
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	37.2		*	mg/L	2	20	03/18/16 0:00	emk
Carbonate as CaCO3		1		U	*	mg/L	2	20	03/18/16 0:00	emk
Hydroxide as CaCO3		1		U	*	mg/L	2	20	03/18/16 0:00	emk
Total Alkalinity		1	37.2		*	mg/L	2	20	03/18/16 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			10.7			%			04/05/16 0:00	calc
Sum of Anions			75			meq/L			04/05/16 0:00	calc
Sum of Cations			93			meq/L			04/05/16 0:00	calc
Chloride	M300.0 - Ion Chromatography	100		U	*	mg/L	50	250	03/22/16 17:59	bsu
Conductivity @25C	SM2510B	1	4160		*	umhos/cm	1	10	03/16/16 20:06	abd
Fluoride	SM4500F-C	1	12.60		*	mg/L	0.05	0.3	03/19/16 12:55	sck
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2		1.14	H		mg/L	0.02	0.1	04/05/16 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	1.14	H	*	mg/L	0.02	0.1	03/16/16 0:24	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		UH	*	mg/L	0.01	0.05	03/16/16 0:24	pjb
pH (lab)	SM4500H+ B									
pH		1	5.3	H	*	units	0.1	0.1	03/18/16 0:00	emk
pH measured at		1	23.7		*	C	0.1	0.1	03/18/16 0:00	emk
Phosphate	Calculation based on dissolved Ortho Phosphorus		0.06	B		mg/L	0.06	0.2	04/05/16 0:00	calc
Phosphorus, ortho dissolved	M365.1 - Automated Ascorbic Acid	1	0.02	BH	*	mg/L	0.02	0.05	03/15/16 23:39	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5400		*	mg/L	20	40	03/14/16 17:00	emk
Sulfate	M300.0 - Ion Chromatography	100	3480		*	mg/L	50	250	03/22/16 17:59	bsu
TDS (calculated)	Calculation		4960			mg/L			04/05/16 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.09						04/05/16 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: ***L29391***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400165													
WG400165PBW1	PBW	03/18/16 12:00				4.4	mg/L		-20	20			
WG400165LCSW2	LCSW	03/18/16 12:16	WC160316-15	820.0001		776	mg/L	95	90	110			
L29406-02DUP	DUP	03/18/16 14:08			492	496	mg/L				1	20	
WG400165LCSW4	LCSW	03/18/16 16:06	WC160316-15	820.0001		795	mg/L	97	90	110			
WG400165PBW2	PBW	03/18/16 16:15				U	mg/L		-20	20			
WG400165LCSW8	LCSW	03/18/16 22:58	WC160316-15	820.0001		817	mg/L	100	90	110			
WG400165PBW4	PBW	03/18/16 23:07				U	mg/L		-20	20			
WG400165LCSW10	LCSW	03/19/16 2:24	WC160316-15	820.0001		821	mg/L	100	90	110			

Aluminum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		2.021	mg/L	101	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.09	0.09			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	1.0013		1.038	mg/L	104	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	1.0013	U	1.052	mg/L	105	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	1.0013	U	1.021	mg/L	102	85	115	3	20	

Antimony, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.02		.02172	mg/L	109	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.0012	0.0012			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.01001		.00889	mg/L	89	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	.5005	U	.501	mg/L	100	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	.5005	U	.467	mg/L	93	70	130	7	20	

Arsenic, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.05		.05347	mg/L	107	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.0006	0.0006			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.0501		.0484	mg/L	97	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	2.505	.11	2.735	mg/L	105	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	2.505	.11	2.516	mg/L	96	70	130	8	20	

Barium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		1.9798	mg/L	99	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.009	0.009			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	.5005		.5065	mg/L	101	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	.5005	.022	.5193	mg/L	99	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	.5005	.022	.5152	mg/L	99	85	115	1	20	

Golder Associates

ACZ Project ID: ***L29391***

Beryllium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.05		.04992	mg/L	100	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.00015	0.00015			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.0501		.04381	mg/L	87	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	2.505	2.91	5.715	mg/L	112	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	2.505	2.91	5.425	mg/L	100	70	130	5	20	

Cadmium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.05		.05313	mg/L	106	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.0003	0.0003			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.05005		.04513	mg/L	90	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	2.5025	1.8	4.4305	mg/L	105	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	2.5025	1.8	4.155	mg/L	94	70	130	6	20	

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	100		100.65	mg/L	101	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.3	0.3			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	67.97118		71.99	mg/L	106	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	67.97118	71.4	140.4	mg/L	102	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	67.97118	71.4	138.8	mg/L	99	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
WG400298													
WG400298ICV	ICV	03/14/16 19:12	WI160202-2	20.02		20.3	mg/L	101	90	110			
WG400298ICB	ICB	03/14/16 19:30				U	mg/L		-0.5	0.5			
WG400298LFB	LFB	03/22/16 12:01	WI151103-3	30		30.6	mg/L	102	90	110			
L29383-04DUP	DUP	03/22/16 16:47			66.7	66.6	mg/L				0	20	RA
L29383-05AS	AS	03/22/16 17:23	WI151103-3	600	13.4	623	mg/L	102	90	110			

Chromium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.05		.05189	mg/L	104	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.0015	0.0015			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.05005		.04786	mg/L	96	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	2.5025	.15	2.663	mg/L	100	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	2.5025	.15	2.455	mg/L	92	70	130	8	20	

Golder Associates

ACZ Project ID: ***L29391***

Cobalt, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400532													
WG400532ICV	ICV	03/25/16 12:10	II160305-1	2.002		1.92	mg/L	96	95	105			
WG400532ICB	ICB	03/25/16 12:16				U	mg/L		-0.03	0.03			
WG400532LFB	LFB	03/25/16 12:29	II160319-2	.498		.491	mg/L	99	85	115			
L29393-01AS	AS	03/25/16 12:57	II160319-2	.498	U	.5	mg/L	100	85	115			
L29393-01ASD	ASD	03/25/16 13:07	II160319-2	.498	U	.493	mg/L	99	85	115	1	20	

Conductivity @25C SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400082													
WG400082LCSW2	LCSW	03/16/16 15:21	PCN48848	1408		1510	umhos/cm	107	90	110			
WG400082LCSW5	LCSW	03/16/16 19:22	PCN48848	1408		1490	umhos/cm	106	90	110			
L29406-01DUP	DUP	03/16/16 21:23			5630	5600	umhos/cm				1	20	
WG400082LCSW8	LCSW	03/16/16 22:41	PCN48848	1408		1460	umhos/cm	104	90	110			
WG400082LCSW11	LCSW	03/17/16 1:49	PCN48848	1408		1390	umhos/cm	99	90	110			
WG400082LCSW14	LCSW	03/17/16 4:39	PCN48848	1408		1380	umhos/cm	98	90	110			

Copper, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		1.93	mg/L	97	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.03	0.03			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	.501		.504	mg/L	101	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	.501	U	.495	mg/L	99	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	.501	U	.491	mg/L	98	85	115	1	20	

Fluoride SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400242													
WG400242ICV	ICV	03/19/16 12:16	WC160311-7	2		1.913	mg/L	96	95	105			
WG400242ICB	ICB	03/19/16 12:20				.056	mg/L		-0.15	0.15			
WG400242LFB1	LFB	03/19/16 12:27	WC151103-7	5		4.929	mg/L	99	90	110			
L29387-01AS	AS	03/19/16 12:34	WC151103-7	5	.54	5.33	mg/L	96	90	110			
L29387-01DUP	DUP	03/19/16 12:39			.54	.482	mg/L				11	20	
WG400242LFB2	LFB	03/19/16 14:47	WC151103-7	5		4.769	mg/L	95	90	110			

Iron, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		1.914	mg/L	96	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.06	0.06			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	1.0001		1.043	mg/L	104	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	1.0001	U	1.011	mg/L	101	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	1.0001	U	.997	mg/L	100	85	115	1	20	

Golder Associates

ACZ Project ID: ***L29391***

Lead, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.05		.0531	mg/L	106	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.0003	0.0003			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.05005		.04464	mg/L	89	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	2.5025	U	2.5585	mg/L	102	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	2.5025	U	2.3995	mg/L	96	70	130	6	20	

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	100		99.61	mg/L	100	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.6	0.6			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	50.00605		51.04	mg/L	102	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	50.00605	17.5	67.92	mg/L	101	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	50.00605	17.5	66.57	mg/L	98	85	115	2	20	

Manganese, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		1.9158	mg/L	96	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.015	0.015			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	.5		.5077	mg/L	102	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	.5	U	.4961	mg/L	99	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	.5	U	.4912	mg/L	98	85	115	1	20	

Mercury, dissolved M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400779													
WG400779ICV	ICV	04/01/16 11:27	HG160307-3	.005		.00496	mg/L	99	95	105			
WG400779ICB	ICB	04/01/16 11:29				U	mg/L		-0.0002	0.0002			
WG400866													
WG400866LRB	LRB	04/01/16 14:59				U	mg/L		-0.00044	0.00044			
WG400866LFB	LFB	04/01/16 15:00	HG160330-2	.002002		.0019	mg/L	95	85	115			
L29392-01LFM	LFM	04/01/16 15:11	HG160330-2	.002002	.0002	.00194	mg/L	87	85	115			
L29392-01LFMD	LFMD	04/01/16 15:12	HG160330-2	.002002	.0002	.00198	mg/L	89	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
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		1.979	mg/L	99	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.06	0.06			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	.4995		.518	mg/L	104	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	.4995	U	.511	mg/L	102	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	.4995	U	.503	mg/L	101	85	115	2	20	

Golder Associates

ACZ Project ID: ***L29391***

Nickel, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		1.964	mg/L	98	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.024	0.024			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	.501		.5081	mg/L	101	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	.501	U	.4928	mg/L	98	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	.501	U	.4843	mg/L	97	85	115	2	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
WG400030													
WG400030ICV	ICV	03/15/16 22:44	WI160304-5	2.416		2.432	mg/L	101	90	110			
WG400030ICB	ICB	03/15/16 22:45				U	mg/L		-0.02	0.02			
WG400030LFB1	LFB	03/15/16 22:47	WI151215-9	2		2.023	mg/L	101	90	110			
L29361-01AS	AS	03/15/16 22:49	WI151215-9	2	U	2.125	mg/L	106	90	110			
WG400030LFB2	LFB	03/15/16 23:26	WI151215-9	2		1.889	mg/L	94	90	110			
L29380-08DUP	DUP	03/15/16 23:45			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
WG400030													
WG400030ICV	ICV	03/15/16 22:44	WI160304-5	.609		.643	mg/L	106	90	110			
WG400030ICB	ICB	03/15/16 22:45				U	mg/L		-0.01	0.01			
WG400030LFB1	LFB	03/15/16 22:47	WI151215-9	1		.996	mg/L	100	90	110			
L29361-01AS	AS	03/15/16 22:49	WI151215-9	1	U	1.039	mg/L	104	90	110			
WG400030LFB2	LFB	03/15/16 23:26	WI151215-9	1		.997	mg/L	100	90	110			
L29380-08DUP	DUP	03/15/16 23:45			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
WG400165													
WG400165LCSW1	LCSW	03/18/16 12:04	PCN48559	6.01		6	units	100	5.9	6.1			
L29406-02DUP	DUP	03/18/16 14:08			8.3	8.3	units				0	20	
WG400165LCSW3	LCSW	03/18/16 15:53	PCN48559	6.01		6	units	100	5.9	6.1			
WG400165LCSW7	LCSW	03/18/16 22:45	PCN48559	6.01		6	units	100	5.9	6.1			
WG400165LCSW9	LCSW	03/19/16 2:11	PCN48559	6.01		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
WG400031													
WG400031ICV	ICV	03/15/16 23:25	WI150411-1	.6523		.672	mg/L	103	90	110			
WG400031ICB	ICB	03/15/16 23:26				U	mg/L		-0.02	0.02			
WG400031LFB	LFB	03/15/16 23:28	WI160302-4	.5		.503	mg/L	101	90	110			
L29378-03AS	AS	03/15/16 23:31	WI160302-4	.5	U	.501	mg/L	100	90	110			
L29379-01DUP	DUP	03/15/16 23:33			U	U	mg/L				0	20	RA

Golder Associates

ACZ Project ID: ***L29391***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	20		19.86	mg/L	99	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.6	0.6			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	100.0377		100.7	mg/L	101	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	100.0377	3	104.4	mg/L	101	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	100.0377	3	101.8	mg/L	99	85	115	3	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG399963													
WG399963PBW	PBW	03/14/16 16:15				U	mg/L		-20	20			
WG399963LCSW	LCSW	03/14/16 16:20	PCN50243	260		250	mg/L	96	80	120			
L29393-01DUP	DUP	03/14/16 17:15			404	386	mg/L				5	10	

Selenium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.05		.05155	mg/L	103	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.0003	0.0003			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.0501		.04794	mg/L	96	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	2.505	.07	2.7885	mg/L	109	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	2.505	.07	2.664	mg/L	104	70	130	5	20	

Silica, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	42.8		40.52	mg/L	95	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.6	0.6			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	21.428		21.62	mg/L	101	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	21.428	24.9	45.1	mg/L	94	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	21.428	24.9	44.85	mg/L	93	85	115	1	20	

Silver, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.02004		.02055	mg/L	103	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.00015	0.00015			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.01001		.008855	mg/L	88	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	.5005	U	.4697	mg/L	94	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	.5005	U	.4379	mg/L	87	70	130	7	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	100		96.26	mg/L	96	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.6	0.6			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	100.0235		96.99	mg/L	97	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	100.0235	28.1	125.4	mg/L	97	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	100.0235	28.1	123.4	mg/L	95	85	115	2	20	

Golder Associates

ACZ Project ID: ***L29391***

Sulfate M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400298													
WG400298ICV	ICV	03/14/16 19:12	WI160202-2	50.05		51.4	mg/L	103	90	110			
WG400298ICB	ICB	03/14/16 19:30				U	mg/L		-0.5	0.5			
WG400298LFB	LFB	03/22/16 12:01	WI151103-3	30		30.6	mg/L	102	90	110			
L29383-05AS	AS	03/22/16 17:23	WI151103-3	600	1190	1780	mg/L	98	90	110			
L29383-04DUP	DUP	03/24/16 16:12			2310	2300	mg/L				0	20	

Thallium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400718													
WG400718ICV	ICV	03/30/16 0:12	MS160302-3	.05		.05518	mg/L	110	90	110			
WG400718ICB	ICB	03/30/16 0:15				U	mg/L		-0.0003	0.0003			
WG400718LFB	LFB	03/30/16 0:18	MS160303-3	.0501		.04634	mg/L	92	85	115			
L29392-01AS	AS	03/30/16 0:36	MS160303-3	2.505	U	2.664	mg/L	106	70	130			
L29392-01ASD	ASD	03/30/16 0:39	MS160303-3	2.505	U	2.5195	mg/L	101	70	130	6	20	

Uranium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400947													
WG400947ICV	ICV	04/04/16 18:07	MS160302-3	.05		.05487	mg/L	110	90	110			
WG400947ICB	ICB	04/04/16 18:09				U	mg/L		-0.0003	0.0003			
WG400807LRB	LRB	04/04/16 18:12				.00013	mg/L		-0.00022	0.00022			
WG400807LFB	LFB	04/04/16 18:14	MS160303-3	.05		.05132	mg/L	103	85	115			
L29456-01LFM	LFM	04/04/16 18:25	MS160303-3	.05	.0023	.05209	mg/L	100	70	130			
L29456-01LFMD	LFMD	04/04/16 18:27	MS160303-3	.05	.0023	.05603	mg/L	107	70	130	7	20	

Zinc, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG400498													
WG400498ICV	ICV	03/24/16 13:07	II160305-1	2		1.958	mg/L	98	95	105			
WG400498ICB	ICB	03/24/16 13:14				U	mg/L		-0.03	0.03			
WG400498LFB	LFB	03/24/16 13:26	II160319-2	.4995		.516	mg/L	103	85	115			
L29383-01AS	AS	03/24/16 13:33	II160319-2	.4995	.02	.549	mg/L	106	85	115			
L29383-01ASD	ASD	03/24/16 13:36	II160319-2	.4995	.02	.534	mg/L	103	85	115	3	20	

Golder Associates ACZ Project ID: ***L29391***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L29391-01	WG400165	Bicarbonate as CaCO3	SM2320B - Titration	Q6	Sample was received above recommended temperature.
		Carbonate as CaCO3	SM2320B - Titration	Q6	Sample was received above recommended temperature.
	WG400298	Chloride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	Q6	Sample was received above recommended temperature.
			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).
	WG400082	Conductivity @25C	SM2510B	Q6	Sample was received above recommended temperature.
	WG400242	Fluoride	SM4500F-C	Q6	Sample was received above recommended temperature.
	WG400165	Hydroxide as CaCO3	SM2320B - Titration	Q6	Sample was received above recommended temperature.
	WG400030	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			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	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			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).
	WG400165	pH	SM4500H+ B	Q1	Sample integrity was not maintained. See Case Narrative.
			SM4500H+ B	Q6	Sample was received above recommended temperature.
		pH measured at	SM4500H+ B	Q6	Sample was received above recommended temperature.
	WG400031	Phosphorus, ortho dissolved	M365.1 - Automated Ascorbic Acid	H3	Sample was received and analyzed past holding time.
			M365.1 - Automated Ascorbic Acid	Q6	Sample was received above recommended temperature.
			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).
	WG399963	Residue, Filterable (TDS) @180C	SM2540C	Q6	Sample was received above recommended temperature.
	WG400298	Sulfate	M300.0 - Ion Chromatography	Q6	Sample was received above recommended temperature.
	WG400165	Total Alkalinity	SM2320B - Titration	Q1	Sample integrity was not maintained. See Case Narrative.
			SM2320B - Titration	Q6	Sample was received above recommended temperature.

Golder Associates
Project ID: 1547878.300
Sample ID: DW-02

ACZ Sample ID: ***L29391-01***
Date Sampled: *03/09/16 10:29*
Date Received: *03/14/16*
Sample Matrix: *Ground Water*

Diesel Range Organics (C10-C28)

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

Workgroup: WG400054
Analyst: itm
Extract Date: 03/14/16 17:24
Analysis Date: 03/17/16 19:12

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28			U	0.94	*	mg/L	0.09	0.5

Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	86.3		0.94	*	%	70	130

Arizona license number: AZ0102

Golder Associates
Project ID: 1547878.300
Sample ID: DW-02

ACZ Sample ID: ***L29391-01***
Date Sampled: *03/09/16 10:29*
Date Received: *03/14/16*
Sample Matrix: *Ground Water*

Volatile Organics by GC/MS

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

Workgroup: WG400071
Analyst: rgt
Extract Date:
Analysis Date: 03/15/16 21:41

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-02

ACZ Sample ID: ***L29391-01***
Date Sampled: *03/09/16 10:29*
Date Received: *03/14/16*
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	99.7		1	*	%	70	130
Dibromofluoromethane	1868-53-7	100.3		1	*	%	70	130
Toluene-d8	2037-26-5	99.1		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: ***L29391***

Diesel Range Organics (C10-C28)

M8015D GC/FID

WG400054

MS **Sample ID: L29390-01MS** **PCN/SCN: OPTPH160212-1** **Analyzed: 03/17/16 18:44**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500.3	U	2.14	mg/L	90.0	70	130			
OTP (surr)				%	85.4	70	130			

DUP **Sample ID: L29391-01DUP** **Analyzed: 03/17/16 19:39**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28		U	U	mg/L		70	130	0	20	RA
OTP (surr)				%	84.6	70	130			

LCSW **Sample ID: WG399942LCSW** **PCN/SCN: OPTPH160212-1** **Analyzed: 03/17/16 12:46**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500.3		2.36	mg/L	94.0	70	130			
OTP (surr)				%	89.0	70	130			

LCSWD **Sample ID: WG399942LCSWD** **PCN/SCN: OPTPH160212-1** **Analyzed: 03/17/16 13:13**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28	2500.3		2.53	mg/L	101.0	70	130	7	20	
OTP (surr)				%	91.2	70	130			

PBW **Sample ID: WG399942PBW** **Analyzed: 03/17/16 12:18**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
TPH C10 TO C28			U	mg/L		-.5	.5			
OTP (surr)				%	84.1	70	130			

Golder Associates

ACZ Project ID: ***L29391***

Volatile Organics by GC/MS

M8260B GC/MS

WG400071

AS **Sample ID: L29320-03AS** **PCN/SCN: V160311-1-CCV** **Analyzed: 03/15/16 18:53**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE	6271.9	U	6310	ug/L	101.0	70	130			
1,1,1-TRICHLOROETHANE	6265.6	U	6280	ug/L	100.0	70	130			
1,1,2,2-TETRACHLOROETHANE	6234.4	U	6410	ug/L	103.0	70	130			
1,1,2-TRICHLOROETHANE	6256.3	U	6200	ug/L	99.0	70	130			
1,1-DICHLOROETHANE	6221.9	U	6200	ug/L	100.0	70	130			
1,1-DICHLOROETHENE	6246.9	U	6240	ug/L	100.0	70	130			
1,1-DICHLOROPROPENE	6290.6	U	6380	ug/L	101.0	70	130			
1,2,3-TRICHLOROBENZENE	6265.6	U	6400	ug/L	102.0	70	130			
1,2,3-TRICHLOROPROPANE	6281.3	U	6140	ug/L	98.0	70	130			
1,2,4-TRICHLOROBENZENE	6256.3	U	6400	ug/L	102.0	70	130			
1,2,4-TRIMETHYLBENZENE	6271.9	300	6760	ug/L	103.0	70	130			
1,2-DIBROMO-3-CHLOROPROPANE	6231.3	U	6290	ug/L	101.0	70	130			
1,2-DIBROMOETHANE	6284.4	U	6290	ug/L	100.0	70	130			
1,2-DICHLOROBENZENE	6115.6	U	6300	ug/L	103.0	70	130			
1,2-DICHLOROETHANE	6296.9	U	6480	ug/L	103.0	70	130			
1,2-DICHLOROPROPANE	6278.1	U	6300	ug/L	100.0	70	130			
1,3,5-TRIMETHYLBENZENE	6221.9	U	6630	ug/L	106.0	70	130			
1,3-DICHLOROBENZENE	6162.5	U	6340	ug/L	103.0	70	130			
1,3-DICHLOROPROPANE	6256.3	U	6200	ug/L	99.0	70	130			
1,4-DICHLOROBENZENE	6178.1	U	6260	ug/L	101.0	70	130			
1,4-DIOXANE	6256.3	U	6340	ug/L	101.0	70	130			
1-CHLOROHEXANE	6215.6	U	6590	ug/L	106.0	70	130			
2,2-DICHLOROPROPANE	6253.1	U	6380	ug/L	102.0	70	130			
2-BUTANONE	12515.6	U	14240	ug/L	114.0	70	130			
2-CHLOROTOLUENE	6165.6	U	6330	ug/L	103.0	70	130			
2-HEXANONE	12500	U	12900	ug/L	103.0	70	130			
4-CHLOROTOLUENE	6165.6	U	6400	ug/L	104.0	70	130			
4-ISOPROPYLTOLUENE	6256.3	U	6590	ug/L	105.0	70	130			
4-METHYL-2-PENTANONE	12509.4	U	12850	ug/L	103.0	70	130			
ACETONE	12503.1	12000	26660	ug/L	117.0	70	130			
ACRYLONITRILE	6250	U	6460	ug/L	103.0	70	130			
BENZENE	6259.4	12000	18478	ug/L	103.0	70	130			
BROMOBENZENE	6262.5	U	6220	ug/L	99.0	70	130			
BROMOCHLOROMETHANE	6218.8	U	6180	ug/L	99.0	70	130			
BROMODICHLOROMETHANE	6153.1	U	6310	ug/L	103.0	70	130			
BROMOFORM	6287.5	U	6130	ug/L	97.0	70	130			
BROMOMETHANE	6243.8	U	6120	ug/L	98.0	70	130			
CARBON DISULFIDE	6331.3	U	6120	ug/L	97.0	70	130			
CARBON TETRACHLORIDE	6271.9	U	6320	ug/L	101.0	70	130			
CHLOROBENZENE	6187.5	U	6230	ug/L	101.0	70	130			
CHLOROETHANE	6256.3	U	6220	ug/L	99.0	70	130			
CHLOROFORM	6256.3	U	6120	ug/L	98.0	70	130			
CHLOROMETHANE	6281.3	U	6040	ug/L	96.0	70	130			
CIS-1,2-DICHLOROETHENE	6253.1	U	6250	ug/L	100.0	70	130			

CIS-1,3-DICHLOROPROPENE	6278.1	U	6290	ug/L	100.0	70	130
DIBROMOCHLOROMETHANE	6212.5	U	6300	ug/L	101.0	70	130
DIBROMOMETHANE	6243.8	U	6160	ug/L	99.0	70	130
DICHLORODIFLUOROMETHANE	6225	U	5860	ug/L	94.0	70	130
ETHYLBENZENE	6256.3	300	6653	ug/L	102.0	70	130
FREON 113	6209.4	U	6270	ug/L	101.0	70	130
HEXACHLOROBUTADIENE	6221.9	U	6730	ug/L	108.0	70	130
HEXACHLOROETHANE	6275	U	6630	ug/L	106.0	70	130
HEXANE	6250	400	7140	ug/L	108.0	70	130
IODOMETHANE	6265.6	U	6170	ug/L	98.0	70	130
ISOPROPYLBENZENE	6246.9	U	6460	ug/L	103.0	70	130
M P XYLENE	12450	2100	14860	ug/L	102.0	70	130
METHYL TERT BUTYL ETHER	6246.9	U	6110	ug/L	98.0	70	130
METHYLENE CHLORIDE	6265.6	U	6000	ug/L	96.0	70	130
NAPHTHALENE	6271.9	U	6400	ug/L	102.0	70	130
N-BUTYLBENZENE	6278.1	U	6700	ug/L	107.0	70	130
NITROBENZENE	6300	U	5920	ug/L	94.0	70	130
N-PROPYLBENZENE	6259.4	U	6560	ug/L	105.0	70	130
O XYLENE	6246.9	810	7158	ug/L	102.0	70	130
SEC-BUTYLBENZENE	6250	U	6620	ug/L	106.0	70	130
STYRENE	6265.6	U	6390	ug/L	102.0	70	130
TERT-BUTYLBENZENE	6256.3	U	6560	ug/L	105.0	70	130
TETRACHLOROETHENE	6340.6	U	6340	ug/L	100.0	71	130
TOLUENE	6262.5	8000	14408	ug/L	102.0	70	130
TRANS-1,2-DICHLOROETHENE	6256.3	U	6200	ug/L	99.0	70	130
TRANS-1,3-DICHLOROPROPENE	6275	U	6260	ug/L	100.0	70	130
TRANS-1,4-DICHLORO-2-BUTENE	6243.8	U	6540	ug/L	105.0	70	130
TRICHLOROETHENE	6206.3	U	6210	ug/L	100.0	71	130
TRICHLOROFLUOROMETHANE	6256.3	U	6310	ug/L	101.0	70	130
VINYL ACETATE	6315.6	U	7090	ug/L	112.0	70	130
VINYL CHLORIDE	6306.3	U	6080	ug/L	96.0	70	130
BROMOFLUOROBENZENE (surr)				%	99.4	70	130
DIBROMOFLUOROMETHANE (surr)				%	98.8	70	130
TOLUENE-D8 (surr)				%	99.3	70	130

ASD **Sample ID: L29320-03ASD** **PCN/SCN: V160311-1-CCV** **Analyzed: 03/15/16 19:21**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE	6271.9	U	6180	ug/L	99.0	70	130	2	20	
1,1,1-TRICHLOROETHANE	6265.6	U	6200	ug/L	99.0	70	130	1	20	
1,1,2,2-TETRACHLOROETHANE	6234.4	U	6320	ug/L	101.0	70	130	1	20	
1,1,2-TRICHLOROETHANE	6256.3	U	6220	ug/L	99.0	70	130	0	20	
1,1-DICHLOROETHANE	6221.9	U	6120	ug/L	98.0	70	130	1	20	
1,1-DICHLOROETHENE	6246.9	U	6060	ug/L	97.0	70	130	3	20	
1,1-DICHLOROPROPENE	6290.6	U	6280	ug/L	100.0	70	130	2	20	
1,2,3-TRICHLOROBENZENE	6265.6	U	6460	ug/L	103.0	70	130	1	20	
1,2,3-TRICHLOROPROPANE	6281.3	U	6170	ug/L	98.0	70	130	0	20	
1,2,4-TRICHLOROBENZENE	6256.3	U	6510	ug/L	104.0	70	130	2	20	
1,2,4-TRIMETHYLBENZENE	6271.9	300	6730	ug/L	103.0	70	130	0	20	
1,2-DIBROMO-3-CHLOROPROPANE	6231.3	U	6240	ug/L	100.0	70	130	1	20	

1,2-DIBROMOETHANE	6284.4	U	6250	ug/L	99.0	70	130	1	20
1,2-DICHLOROBENZENE	6115.6	U	6290	ug/L	103.0	70	130	0	20
1,2-DICHLOROETHANE	6296.9	U	6470	ug/L	103.0	70	130	0	20
1,2-DICHLOROPROPANE	6278.1	U	6220	ug/L	99.0	70	130	1	20
1,3,5-TRIMETHYLBENZENE	6221.9	U	6530	ug/L	104.0	70	130	2	20
1,3-DICHLOROBENZENE	6162.5	U	6290	ug/L	102.0	70	130	1	20
1,3-DICHLOROPROPANE	6256.3	U	6220	ug/L	99.0	70	130	0	20
1,4-DICHLOROBENZENE	6178.1	U	6250	ug/L	101.0	70	130	0	20
1,4-DIOXANE	6256.3	U	6440	ug/L	103.0	70	130	2	20
1-CHLOROHEXANE	6215.6	U	6480	ug/L	104.0	70	130	2	20
2,2-DICHLOROPROPANE	6253.1	U	6250	ug/L	100.0	70	130	2	20
2-BUTANONE	12515.6	U	13750	ug/L	110.0	70	130	4	20
2-CHLOROTOLUENE	6165.6	U	6290	ug/L	102.0	70	130	1	20
2-HEXANONE	12500	U	12510	ug/L	100.0	70	130	3	20
4-CHLOROTOLUENE	6165.6	U	6320	ug/L	103.0	70	130	1	20
4-ISOPROPYLTOLUENE	6256.3	U	6490	ug/L	104.0	70	130	2	20
4-METHYL-2-PENTANONE	12509.4	U	12550	ug/L	100.0	70	130	2	20
ACETONE	12503.1	12000	25950	ug/L	112.0	70	130	3	20
ACRYLONITRILE	6250	U	6300	ug/L	101.0	70	130	3	20
BENZENE	6259.4	12000	18240	ug/L	100.0	70	130	1	20
BROMOBENZENE	6262.5	U	6170	ug/L	99.0	70	130	1	20
BROMOCHLOROMETHANE	6218.8	U	6170	ug/L	99.0	70	130	0	20
BROMODICHLOROMETHANE	6153.1	U	6300	ug/L	102.0	70	130	0	20
BROMOFORM	6287.5	U	6170	ug/L	98.0	70	130	1	20
BROMOMETHANE	6243.8	U	6060	ug/L	97.0	70	130	1	20
CARBON DISULFIDE	6331.3	U	6060	ug/L	96.0	70	130	1	20
CARBON TETRACHLORIDE	6271.9	U	6270	ug/L	100.0	70	130	1	20
CHLOROBENZENE	6187.5	U	6170	ug/L	100.0	70	130	1	20
CHLOROETHANE	6256.3	U	6060	ug/L	97.0	70	130	3	20
CHLOROFORM	6256.3	U	6110	ug/L	98.0	70	130	0	20
CHLOROMETHANE	6281.3	U	5800	ug/L	92.0	70	130	4	20
CIS-1,2-DICHLOROETHENE	6253.1	U	6190	ug/L	99.0	70	130	1	20
CIS-1,3-DICHLOROPROPENE	6278.1	U	6280	ug/L	100.0	70	130	0	20
DIBROMOCHLOROMETHANE	6212.5	U	6280	ug/L	101.0	70	130	0	20
DIBROMOMETHANE	6243.8	U	6280	ug/L	101.0	70	130	2	20
DICHLORODIFLUOROMETHANE	6225	U	5680	ug/L	91.0	70	130	3	20
ETHYLBENZENE	6256.3	300	6565	ug/L	100.0	70	130	1	20
FREON 113	6209.4	U	6430	ug/L	104.0	70	130	3	20
HEXACHLOROBUTADIENE	6221.9	U	6720	ug/L	108.0	70	130	0	20
HEXACHLOROETHANE	6275	U	6530	ug/L	104.0	70	130	2	20
HEXANE	6250	400	6860	ug/L	103.0	70	130	4	20
IODOMETHANE	6265.6	U	6140	ug/L	98.0	70	130	0	20
ISOPROPYLBENZENE	6246.9	U	6360	ug/L	102.0	70	130	2	20
M P XYLENE	12450	2100	14580	ug/L	100.0	70	130	2	20
METHYL TERT BUTYL ETHER	6246.9	U	6140	ug/L	98.0	70	130	0	20
METHYLENE CHLORIDE	6265.6	U	5900	ug/L	94.0	70	130	2	20
NAPHTHALENE	6271.9	U	6420	ug/L	102.0	70	130	0	20
N-BUTYLBENZENE	6278.1	U	6560	ug/L	104.0	70	130	2	20
NITROBENZENE	6300	U	5830	ug/L	93.0	70	130	2	20

N-PROPYLBENZENE	6259.4	U	6440	ug/L	103.0	70	130	2	20
O XYLENE	6246.9	810	7045	ug/L	100.0	70	130	2	20
SEC-BUTYLBENZENE	6250	U	6510	ug/L	104.0	70	130	2	20
STYRENE	6265.6	U	6330	ug/L	101.0	70	130	1	20
TERT-BUTYLBENZENE	6256.3	U	6440	ug/L	103.0	70	130	2	20
TETRACHLOROETHENE	6340.6	U	6260	ug/L	99.0	70	130	1	20
TOLUENE	6262.5	8000	14188	ug/L	99.0	70	130	2	20
TRANS-1,2-DICHLOROETHENE	6256.3	U	6100	ug/L	98.0	70	130	2	20
TRANS-1,3-DICHLOROPROPENE	6275	U	6320	ug/L	101.0	70	130	1	20
TRANS-1,4-DICHLORO-2-BUTENE	6243.8	U	6450	ug/L	103.0	70	130	1	20
TRICHLOROETHENE	6206.3	U	6070	ug/L	98.0	71	130	2	20
TRICHLOROFLUOROMETHANE	6256.3	U	6220	ug/L	99.0	70	130	1	20
VINYL ACETATE	6315.6	U	7020	ug/L	111.0	70	130	1	20
VINYL CHLORIDE	6306.3	U	5880	ug/L	93.0	70	130	3	20
BROMOFLUOROBENZENE (surr)				%	99.3	70	130		
DIBROMOFLUOROMETHANE (surr)				%	100.1	70	130		
TOLUENE-D8 (surr)				%	99.8	70	130		

LCSW **Sample ID: WG400071LCSW** **PCN/SCN: V160311-1-CCV** **Analyzed: 03/15/16 13:20**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE	25.1		25.02	ug/L	100.0	70	130			
1,1,1-TRICHLOROETHANE	25.1		25.52	ug/L	102.0	70	130			
1,1,2,2-TETRACHLOROETHANE	24.9		24.92	ug/L	100.0	70	130			
1,1,2-TRICHLOROETHANE	25		24.58	ug/L	98.0	70	130			
1,1-DICHLOROETHANE	24.9		25.22	ug/L	101.0	70	130			
1,1-DICHLOROETHENE	25		25.57	ug/L	102.0	70	130			
1,1-DICHLOROPROPENE	25.2		25.71	ug/L	102.0	70	130			
1,2,3-TRICHLOROBENZENE	25.1		25.3	ug/L	101.0	70	130			
1,2,3-TRICHLOROPROPANE	25.1		24.4	ug/L	97.0	70	130			
1,2,4-TRICHLOROBENZENE	25		26.1	ug/L	104.0	70	130			
1,2,4-TRIMETHYLBENZENE	25.1		26.09	ug/L	104.0	70	130			
1,2-DIBROMO-3-CHLOROPROPANE	24.9		24.37	ug/L	98.0	70	130			
1,2-DIBROMOETHANE	25.1		24.9	ug/L	99.0	70	130			
1,2-DICHLOROBENZENE	24.5		25.29	ug/L	103.0	70	130			
1,2-DICHLOROETHANE	25.2		24.67	ug/L	98.0	70	130			
1,2-DICHLOROPROPANE	25.1		24.96	ug/L	99.0	70	130			
1,3,5-TRIMETHYLBENZENE	24.9		26.38	ug/L	106.0	70	130			
1,3-DICHLOROBENZENE	24.7		25.32	ug/L	103.0	70	130			
1,3-DICHLOROPROPANE	25		24.78	ug/L	99.0	70	130			
1,4-DICHLOROBENZENE	24.7		25.31	ug/L	102.0	70	130			
1,4-DIOXANE	25		24	ug/L	96.0	70	130			
1-CHLOROHEXANE	24.9		27.09	ug/L	109.0	70	130			
2,2-DICHLOROPROPANE	25		26.12	ug/L	104.0	70	130			
2-BUTANONE	50.1		48.51	ug/L	97.0	70	130			
2-CHLOROTOLUENE	24.7		25.53	ug/L	104.0	70	130			
2-HEXANONE	50		48.74	ug/L	97.0	70	130			
4-CHLOROTOLUENE	24.7		25.74	ug/L	104.0	70	130			
4-ISOPROPYLTOLUENE	25		26.79	ug/L	107.0	70	130			
4-METHYL-2-PENTANONE	50		48.87	ug/L	98.0	70	130			

ACETONE	50	45.7	ug/L	91.0	70	130
ACRYLONITRILE	25	24.75	ug/L	99.0	70	130
BENZENE	25	25.15	ug/L	100.0	70	130
BROMOBENZENE	25.1	25.13	ug/L	100.0	70	130
BROMOCHLOROMETHANE	24.9	24.62	ug/L	99.0	70	130
BROMODICHLOROMETHANE	24.6	25.32	ug/L	103.0	70	130
BROMOFORM	25.2	24.5	ug/L	97.0	70	130
BROMOMETHANE	25	25.96	ug/L	104.0	70	130
CARBON DISULFIDE	25.3	25.34	ug/L	100.0	70	130
CARBON TETRACHLORIDE	25.1	25.95	ug/L	103.0	70	130
CHLOROBENZENE	24.8	24.98	ug/L	101.0	70	130
CHLOROETHANE	25	25.77	ug/L	103.0	70	130
CHLOROFORM	25	24.69	ug/L	99.0	70	130
CHLOROMETHANE	25.1	24.7	ug/L	98.0	70	130
CIS-1,2-DICHLOROETHENE	25	25.21	ug/L	101.0	70	130
CIS-1,3-DICHLOROPROPENE	25.1	25.29	ug/L	101.0	70	130
DIBROMOCHLOROMETHANE	24.9	25.28	ug/L	102.0	70	130
DIBROMOMETHANE	25	24.96	ug/L	100.0	70	130
DICHLORODIFLUOROMETHANE	24.9	26.05	ug/L	105.0	70	130
ETHYLBENZENE	25	25.63	ug/L	102.0	70	130
FREON 113	24.8	27.43	ug/L	110.0	70	130
HEXACHLOROBUTADIENE	24.9	28.1	ug/L	113.0	70	130
HEXACHLOROETHANE	25.1	27.09	ug/L	108.0	70	130
HEXANE	25	28	ug/L	112.0	70	130
IODOMETHANE	25.1	25.16	ug/L	100.0	70	130
ISOPROPYLBENZENE	25	25.97	ug/L	104.0	70	130
M P XYLENE	49.8	51.27	ug/L	103.0	70	130
METHYL TERT BUTYL ETHER	25	24.08	ug/L	96.0	70	130
METHYLENE CHLORIDE	25.1	23.85	ug/L	95.0	70	130
NAPHTHALENE	25.1	24.8	ug/L	99.0	70	130
N-BUTYLBENZENE	25.1	27.54	ug/L	110.0	70	130
NITROBENZENE	25.2	23.9	ug/L	95.0	70	130
N-PROPYLBENZENE	25	26.37	ug/L	105.0	70	130
O XYLENE	25	25.43	ug/L	102.0	70	130
SEC-BUTYLBENZENE	25	27.11	ug/L	108.0	70	130
STYRENE	25.1	25.55	ug/L	102.0	70	130
TERT-BUTYLBENZENE	25	26.67	ug/L	107.0	70	130
TETRACHLOROETHENE	25.4	25.91	ug/L	102.0	71	130
TOLUENE	25.1	25.4	ug/L	101.0	70	130
TRANS-1,2-DICHLOROETHENE	25	25.06	ug/L	100.0	70	130
TRANS-1,3-DICHLOROPROPENE	25.1	25.27	ug/L	101.0	70	130
TRANS-1,4-DICHLORO-2-BUTENE	25	26.09	ug/L	104.0	70	130
TRICHLOROETHENE	24.8	25.04	ug/L	101.0	71	130
TRICHLOROFLUOROMETHANE	25	26.1	ug/L	104.0	70	130
VINYL ACETATE	25.3	27.45	ug/L	109.0	70	130
VINYL CHLORIDE	25.2	25.45	ug/L	101.0	70	130
BROMOFLUOROBENZENE (surr)			%	98.7	70	130
DIBROMOFLUOROMETHANE (surr)			%	98.9	70	130
TOLUENE-D8 (surr)			%	99.2	70	130

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LCSWD **Sample ID: WG400071LCSWD** **PCN/SCN: V160311-1-CCV** **Analyzed: 03/15/16 13:49**

Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
1,1,1,2-TETRACHLOROETHANE	25.1		24.93	ug/L	99.0	70	130	0	20	
1,1,1-TRICHLOROETHANE	25.1		24.65	ug/L	98.0	70	130	3	20	
1,1,2,2-TETRACHLOROETHANE	24.9		25.54	ug/L	102.0	70	130	2	20	
1,1,2-TRICHLOROETHANE	25		24.96	ug/L	100.0	70	130	2	20	
1,1-DICHLOROETHANE	24.9		24.31	ug/L	98.0	70	130	4	20	
1,1-DICHLOROETHENE	25		24.12	ug/L	97.0	70	130	6	20	
1,1-DICHLOROPROPENE	25.2		24.64	ug/L	98.0	70	130	4	20	
1,2,3-TRICHLOROBENZENE	25.1		25.9	ug/L	103.0	70	130	2	20	
1,2,3-TRICHLOROPROPANE	25.1		24.67	ug/L	98.0	70	130	1	20	
1,2,4-TRICHLOROBENZENE	25		25.8	ug/L	103.0	70	130	1	20	
1,2,4-TRIMETHYLBENZENE	25.1		25.46	ug/L	101.0	70	130	2	20	
1,2-DIBROMO-3-CHLOROPROPANE	24.9		25.87	ug/L	104.0	70	130	6	20	
1,2-DIBROMOETHANE	25.1		25.08	ug/L	100.0	70	130	1	20	
1,2-DICHLOROBENZENE	24.5		25.06	ug/L	102.0	70	130	1	20	
1,2-DICHLOROETHANE	25.2		24.72	ug/L	98.0	70	130	0	20	
1,2-DICHLOROPROPANE	25.1		24.74	ug/L	99.0	70	130	1	20	
1,3,5-TRIMETHYLBENZENE	24.9		25.57	ug/L	103.0	70	130	3	20	
1,3-DICHLOROBENZENE	24.7		24.9	ug/L	101.0	70	130	2	20	
1,3-DICHLOROPROPANE	25		24.66	ug/L	99.0	70	130	0	20	
1,4-DICHLOROBENZENE	24.7		24.89	ug/L	101.0	70	130	2	20	
1,4-DIOXANE	25		26.62	ug/L	106.0	70	130	10	20	
1-CHLOROHEXANE	24.9		25.85	ug/L	104.0	70	130	5	20	
2,2-DICHLOROPROPANE	25		25.13	ug/L	100.0	70	130	4	20	
2-BUTANONE	50.1		50.29	ug/L	100.0	70	130	4	20	
2-CHLOROTOLUENE	24.7		24.78	ug/L	100.0	70	130	3	20	
2-HEXANONE	50		50.15	ug/L	100.0	70	130	3	20	
4-CHLOROTOLUENE	24.7		25.14	ug/L	102.0	70	130	2	20	
4-ISOPROPYLTOLUENE	25		25.79	ug/L	103.0	70	130	4	20	
4-METHYL-2-PENTANONE	50		51.02	ug/L	102.0	70	130	4	20	
ACETONE	50		47.1	ug/L	94.0	70	130	3	20	
ACRYLONITRILE	25		25.71	ug/L	103.0	70	130	4	20	
BENZENE	25		24.49	ug/L	98.0	70	130	3	20	
BROMOBENZENE	25.1		24.79	ug/L	99.0	70	130	1	20	
BROMOCHLOROMETHANE	24.9		24.43	ug/L	98.0	70	130	1	20	
BROMODICHLOROMETHANE	24.6		25.17	ug/L	102.0	70	130	1	20	
BROMOFORM	25.2		24.77	ug/L	98.0	70	130	1	20	
BROMOMETHANE	25		24.79	ug/L	99.0	70	130	5	20	
CARBON DISULFIDE	25.3		24.3	ug/L	96.0	70	130	4	20	
CARBON TETRACHLORIDE	25.1		24.87	ug/L	99.0	70	130	4	20	
CHLOROBENZENE	24.8		24.47	ug/L	99.0	70	130	2	20	
CHLOROETHANE	25		24.65	ug/L	99.0	70	130	4	20	
CHLOROFORM	25		24.25	ug/L	97.0	70	130	2	20	
CHLOROMETHANE	25.1		23.37	ug/L	93.0	70	130	6	20	
CIS-1,2-DICHLOROETHENE	25		24.57	ug/L	98.0	70	130	3	20	
CIS-1,3-DICHLOROPROPENE	25.1		25.17	ug/L	100.0	70	130	0	20	
DIBROMOCHLOROMETHANE	24.9		25.22	ug/L	101.0	70	130	0	20	

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DIBROMOMETHANE	25	24.73	ug/L	99.0	70	130	1	20
DICHLORODIFLUOROMETHANE	24.9	24.48	ug/L	98.0	70	130	6	20
ETHYLBENZENE	25	24.71	ug/L	99.0	70	130	4	20
FREON 113	24.8	25.85	ug/L	104.0	70	130	6	20
HEXACHLOROBUTADIENE	24.9	27.3	ug/L	110.0	70	130	3	20
HEXACHLOROETHANE	25.1	26.29	ug/L	105.0	70	130	3	20
HEXANE	25	26.38	ug/L	106.0	70	130	6	20
IODOMETHANE	25.1	24.33	ug/L	97.0	70	130	3	20
ISOPROPYLBENZENE	25	25.05	ug/L	100.0	70	130	4	20
M P XYLENE	49.8	49.52	ug/L	99.0	70	130	3	20
METHYL TERT BUTYL ETHER	25	24.48	ug/L	98.0	70	130	2	20
METHYLENE CHLORIDE	25.1	23.46	ug/L	94.0	70	130	2	20
NAPHTHALENE	25.1	26	ug/L	104.0	70	130	5	20
N-BUTYLBENZENE	25.1	26.34	ug/L	105.0	70	130	4	20
NITROBENZENE	25.2	25.7	ug/L	102.0	70	130	7	20
N-PROPYLBENZENE	25	25.46	ug/L	102.0	70	130	4	20
O XYLENE	25	24.72	ug/L	99.0	70	130	3	20
SEC-BUTYLBENZENE	25	25.8	ug/L	103.0	70	130	5	20
STYRENE	25.1	24.9	ug/L	99.0	70	130	3	20
TERT-BUTYLBENZENE	25	25.59	ug/L	102.0	70	130	4	20
TETRACHLOROETHENE	25.4	24.84	ug/L	98.0	70	130	4	20
TOLUENE	25.1	24.38	ug/L	97.0	70	130	4	20
TRANS-1,2-DICHLOROETHENE	25	24.23	ug/L	97.0	70	130	3	20
TRANS-1,3-DICHLOROPROPENE	25.1	25.36	ug/L	101.0	70	130	0	20
TRANS-1,4-DICHLORO-2-BUTENE	25	27.01	ug/L	108.0	70	130	3	20
TRICHLOROETHENE	24.8	24.38	ug/L	98.0	71	130	3	20
TRICHLOROFLUOROMETHANE	25	24.72	ug/L	99.0	70	130	5	20
VINYL ACETATE	25.3	27.6	ug/L	109.0	70	130	1	20
VINYL CHLORIDE	25.2	23.88	ug/L	95.0	70	130	6	20
BROMOFLUOROBENZENE (surr)			%	99.0	70	130		
DIBROMOFLUOROMETHANE (surr)			%	99.3	70	130		
TOLUENE-D8 (surr)			%	99.0	70	130		

PBW **Sample ID: WG400071PBW** **Analyzed: 03/15/16 14:17**

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		-1	1			
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		-1	1			
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	
1,4-DIOXANE	U	ug/L	-2	2	
1-CHLOROHEXANE	U	ug/L	-1	1	
2,2-DICHLOROPROPANE	U	ug/L	-1	1	
2-BUTANONE	U	ug/L	-2	2	
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	-1	1	
BENZENE	.43	ug/L	-1	1	B7
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	-1	1	
DICHLORODIFLUOROMETHANE	U	ug/L	-1	1	
ETHYLBENZENE	U	ug/L	-1	1	
FREON 113	U	ug/L	-1	1	
HEXACHLOROBUTADIENE	1.1	ug/L	-4	4	
HEXACHLOROETHANE	U	ug/L	-1	1	
HEXANE	U	ug/L	-1	1	
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	
NITROBENZENE	U	ug/L	-4	4	
N-PROPYLBENZENE	U	ug/L	-1	1	
O XYLENE	U	ug/L	-1	1	

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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	.76	ug/L		-1	1	B7
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		-2	2	
BROMOFLUOROBENZENE (surr)		%	99.5	70	130	
DIBROMOFLUOROMETHANE (surr)		%	98.2	70	130	
TOLUENE-D8 (surr)		%	98.9	70	130	

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Organic Extended Qualifier Report

ACZ Project ID: ***L29391***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L29391-01	WG400054	*All Compounds*	M8015D GC/FID	Q6	Sample was received above recommended temperature.
		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).
	WG400071	*All Compounds*	M8260B GC/MS	Q6	Sample was received above recommended temperature.

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RadioChemistry Analytical Results

Golder Associates
Project ID: 1547878.300
Sample ID: DW-02
Locator:

ACZ Sample ID: ***L29391-01***
Date Sampled: *03/09/16 10:29*
Date Received: *03/14/16*
Sample Matrix: *Ground Water*

Combined Radium — Prep Method:
Calculation (RA226 + RA228)

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Combined Radium	03/24/16 13:49		0.26	0.55		pCi/L		calc

Gross Alpha - Corrected — Prep Method:
Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	03/24/16 13:49		1.21			pCi/L		calc

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

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	03/21/16 0:20		26	24	25	pCi/L	*	kls
Gross Beta	03/21/16 0:20		21	22	33	pCi/L		kls

Radium 226 — Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/23/16 0:14		0.16	0.1	0.13	pCi/L		kls

Radium 228 — Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/25/16 12:03		0.1	0.45	0.48	pCi/L		tjr

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

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Radiochemistry QC Summary

Golder Associates

ACZ Project ID: ***L29391***

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
WG400324																
WG400010PBW	PBW	03/21/16						.13	0.88	1.2			2.4			
WG400010LCSW	LCSW	03/21/16	PCN50101	100				110	10	1.8	110	83	133			
L29324-01DUP	DUP-RER	03/21/16			1.1	1.5	2	1.4	1.6	2				0.14	2	
L29393-01DUP	DUP-RER	03/21/16			82	12	3.2	95	13	3.2				0.73	2	
L29324-01MS	MS	03/21/16	PCN50101	66.67	1.1	1.5	2	56	8.3	2.4	82	83	133			M2

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
WG400324																
WG400010PBW	PBW	03/21/16						-.1	1.9	2.8			5.6			
WG400010LCSW	LCSW	03/21/16	PCN49862	100				110	7.1	4.2	110	70	129			
L29324-01DUP	DUP-RER	03/21/16			3.3	2.2	3.3	4.1	2.3	3.3				0.25	2	
L29393-01DUP	DUP-RER	03/21/16			30	4.7	4.7	28	4.7	4.6				0.3	2	
L29388-01MS	MS	03/21/16	PCN49862	100	8.2	3.4	4.7	130	8.1	4.8	122	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
WG400485																
WG400102PBW	PBW	03/23/16						.06	0.09	0.07			0.14			
WG400102LCSW	LCSW	03/23/16	PCN49536	20				19	0.57	0.06	95	43	148			
L29368-01DUP	DUP-RER	03/23/16			0.14	0.07	0.07	.21	0.11	0.23				0.54	2	
L29391-01DUP	DUP-RER	03/23/16			0.16	0.1	0.13	.24	0.11	0.17				0.54	2	
L29370-03MS	MS	03/23/16	PCN49536	20	0.11	0.08	0.3	24	0.64	0.13	119	43	148			

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Radiochemistry QC Summary

Golder Associates

ACZ Project ID: ***L29391***

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
WG400586																
WG400097LCSW	LCSW	03/24/16	PCN48442	17.72				15	1.1	0.47	85	47	123			
WG400097PBW	PBW	03/24/16						-.13	0.23	0.26			0.52			
L29257-01DUP	DUP-RER	03/25/16			-0.01	0.39	0.42	.24	0.42	0.44				0.44	2	
L29369-03DUP	DUP-RER	03/25/16			0.1	0.41	0.44	.24	0.4	0.41				0.24	2	
L29390-01MS	MS	03/25/16	PCN48442	17.71	0.33	0.44	0.45	13	1	0.46	72	47	123			

Golder Associates ACZ Project ID: ***L29391***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L29391-01	WG400324	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

No certification qualifiers associated with this analysis

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Sample Receipt

Golder Associates
1547878.300

ACZ Project ID: L29391
Date Received: 03/14/2016 09:33
Received By: ddp
Date Printed: 3/14/2016

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		

A change was made in the ID Line 1 section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody 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	

Some parameters were received past hold time.

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
3874	13.5	<=6.0	13	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s) but was thawed by receipt at ACZ.

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.
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Sample Receipt

Golder Associates
1547878.300

ACZ Project ID:	L29391
Date Received:	03/14/2016 09:33
Received By:	ddp
Date Printed:	3/14/2016

[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).

ACZ Laboratories, Inc. L29391

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

***Sampler's Signature:** Keith Hermanson

*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	Organics, TotalWetChem Raw. 2 - 1L + 1 - 500mL	Diss Wet Chem - 250mL Sulfuric (FILTERED) - 1	Diss Wet Chem - 250mL Unpres (FILTERED) - 1	Total Metals - 250mL Nitric, unfiltered - 1	Diss Metals - 125mL Nitric (FILTERED) - 1	Total Radiochem - 4L Nitric, unfiltered - 2	Diss Radiochem - 1L Nitric (FILTERED) - 1	VOA, BTEX, TVH -40mL HCl, unfiltered - 3
~~HW-02~~		~~GW~~	~~13~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~
DW-02	3.9.16 10:29	GW	13	X	X	X	X	X	X	X	X

KH

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

REMARKS

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
Rochelle Destrampe	3.9.16 1600	MC	3/4/16 0833

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

L29391 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 (T)	EPA 200.8	0.0005	0.002	mg/L
Zinc (Zn)	EPA 200.7	0.02	0.01	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.