

STATE OF
COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

November & December 2021 Schwartzwalder Surface Water Report

Elizabeth Busby <ebusby@ensero.com>

Tue, Feb 1, 2022 at 7:15 PM

To: "Eschberger - DNR, Amy" <amy.eschberger@state.co.us>, "daniel.arnold@denverwater.org" <daniel.arnold@denverwater.org>, Evelyn Rhodes <erhodes@arvada.org>, "eric.mink@state.co.us" <eric.mink@state.co.us>, "bwyant@arvada.org" <bwyant@arvada.org>
Cc: Jim Harrington <jimharrington@ensero.com>, Billy Ray <bray@ensero.com>, Evan Valencia <evalencia@ensero.com>

Ms. Eschberger, Mr. Mink, Mr. Arnold, Mr. Wyant, and Ms. Rhodes,

Here is the latest surface water sampling reports for Ralston Creek. These samples were collected in November and December 2021 from the Schwartzwalder Mine in Golden, Colorado. You can see from the date on the lab packet that our subcontract laboratory is experiencing delays. I understand this is due to COVID-19 supply chain disruptions. Please let me know if you have any questions, Liz

Elizabeth Busby, PE, PMP

Senior Project Manager



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4 attachments



DEC2021_Schwartz_RPT.pdf
753K



NOV2021_Schwartz_RPT.pdf
753K



L70424.csv
12K



L70091.csv
12K



12150 E. Briarwood Ave. Suite 135, Centennial, CO 80112
T. (303) 862-3928

February 2, 2022

Colorado Department of Public Health and Environment
Water Quality Control Division / WQCD-B2-CAS
Compliance Assurance Section
Attention: Eric Mink
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Subject: December 2021 SW-AWD and SW-BPL Surface Monitoring Data for Sampling Stations, Schwartzwalder Mine, Paragraph 26, WQCD Order Number: IO 100601-1, June 1, 2010, Schwartzwalder Mine, Golden, Colorado

Dear Mr. Mink:

Pursuant to Paragraph 26 of the above referenced Order, please find enclosed data reports from contract laboratories as received by Ensero Solutions, Inc working on behalf of Colorado Legacy Land. This data originates from the analysis of the surface water sample collected in December 2021 at the Schwartzwalder Mine, monitoring station SW-AWD and SW-BPL. Review of the data indicates that the total and dissolved uranium concentrations at SW-AWD and SW-BPL were below 30 µg/L.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Jim Harrington, Managing Director
COLORADO LEGACY LAND
jim@ColoradoLegacy.Land

Distribution List:

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December 2021 Schwartzwalder Monthly Surface Water Report

Contents:

Sample Location	Sample Date	Analysis	Sample ID	Temp (°C)	Field pH (S.U.)	Conductivity (µS/cm)	DO (mg/L)	ORP (mV)
SW-BPL	12/8/2021	Sample Suite 2	L70424-01	4.8	7.98	278.5	10.10	126.6
SW-AWD	12/8/2021	Sample Suite 2	L70424-02	4.3	7.73	267.0	9.05	100.6

January 31, 2022

Report to:

Christie Brizinski
Ensero Solutions
131 E. Lincoln Ave Ste. 200
Fort Collins, CO 80524

Bill to:

Pauline Wong
Ensero Solutions
131 E. Lincoln Ave Ste. 200
Fort Collins, CO 80524

cc: Ensero/Alexco Importer, Evan Valencia

Project ID: 3100-PO205

ACZ Project ID: L70424

Christie Brizinski:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 10, 2021. This project has been assigned to ACZ's project number, L70424. Please reference this number in all future inquiries.

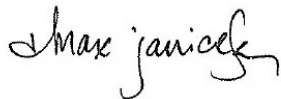
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L70424. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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 March 02, 2022. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

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



Max Janicek has reviewed and
approved this report.



Ensero Solutions

Project ID: 3100-PO205

Sample ID: SW-BPL

ACZ Sample ID: **L70424-01**

Date Sampled: 12/08/21 10:10

Date Received: 12/10/21

Sample Matrix: Surface Water

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cyanide, WAD	SM4500-CN I- distillation								12/20/21 11:21	bls
Phosphorus, total	M365.1 - Auto Ascorbic Acid Digestion								12/22/21 12:49	bls
Total Hot Plate Digestion	M200.2 ICP-MS								12/20/21 12:24	bsu
Total Hot Plate Digestion	M200.2 ICP								12/22/21 16:42	kja
Total Recoverable Digestion	M200.2 ICP-MS								12/29/21 9:30	mfm
Total Recoverable Digestion	M200.2 ICP								12/22/21 17:40	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, total recoverable	M200.8 ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	01/05/22 15:05	scp
Arsenic, total	M200.8 ICP-MS	1	<0.0002	U		mg/L	0.0002	0.001	01/10/22 18:02	mfm
Boron, total	M200.7 ICP	1	<0.03	U		mg/L	0.03	0.1	12/29/21 6:25	jlw
Chromium, total recoverable	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.05	12/29/21 0:41	kja
Copper, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	12/30/21 23:27	kja
Molybdenum, dissolved	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.1	12/29/21 21:21	kja
Molybdenum, total	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.1	12/29/21 6:25	jlw
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	01/14/22 12:20	kja
Thallium, total recoverable	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	01/05/22 15:05	scp
Uranium, dissolved	M200.8 ICP-MS	1	0.0221			mg/L	0.0001	0.0005	01/11/22 14:07	kja/mf m
Uranium, total	M200.8 ICP-MS	1	0.0222		*	mg/L	0.0001	0.0005	01/10/22 18:02	mfm
Zinc, dissolved	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.05	12/29/21 21:21	kja

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cyanide, WAD	SM4500-CN I,E- Colorimetric w/ distillation	0.5	<0.003	U	*	mg/L	0.003	0.01	12/20/21 20:29	mjj1
Fluoride	SM4500F-C	1	0.21	B		mg/L	0.15	0.35	01/04/22 16:59	eep
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.027	B	*	mg/L	0.02	0.1	12/29/21 3:04	pjb
Phosphate, total	Calculation based on total Phosphorus		<0.03	U		mg/L	0.03	0.2	01/28/22 0:00	calc
Phosphorus, total	M365.1 - Auto Ascorbic Acid	1	<0.01	U	*	mg/L	0.01	0.05	12/30/21 23:40	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	244			mg/L	20	40	12/14/21 18:52	eep
Residue, Non-Filterable (TSS) @105C	SM2540D	1	<5	U	*	mg/L	5	20	12/14/21 16:37	eep
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	1	34.6			mg/L	1	5	12/30/21 17:05	mjj1

Ensero Solutions

Project ID: 3100-PO205

Sample ID: SW-AWD

ACZ Sample ID: **L70424-02**

Date Sampled: 12/08/21 12:00

Date Received: 12/10/21

Sample Matrix: Surface Water

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cyanide, WAD	SM4500-CN I- distillation								12/20/21 11:38	bls
Phosphorus, total	M365.1 - Auto Ascorbic Acid Digestion								12/22/21 12:53	bls
Total Hot Plate Digestion	M200.2 ICP-MS								12/20/21 12:48	bsu
Total Hot Plate Digestion	M200.2 ICP								12/22/21 16:56	kja
Total Recoverable Digestion	M200.2 ICP-MS								12/29/21 9:30	mfm
Total Recoverable Digestion	M200.2 ICP								12/22/21 17:56	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, total recoverable	M200.8 ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	01/05/22 15:07	scp
Arsenic, total	M200.8 ICP-MS	1	<0.0002	U		mg/L	0.0002	0.001	01/10/22 18:04	mfm
Boron, total	M200.7 ICP	1	<0.03	U		mg/L	0.03	0.1	12/29/21 6:28	jlw
Chromium, total recoverable	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.05	12/29/21 0:44	kja
Copper, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	12/30/21 23:30	kja
Molybdenum, dissolved	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.1	12/29/21 21:24	kja
Molybdenum, total	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.1	12/29/21 6:28	jlw
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	01/14/22 12:25	kja
Thallium, total recoverable	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	01/05/22 15:07	scp
Uranium, dissolved	M200.8 ICP-MS	1	0.00358			mg/L	0.0001	0.0005	01/11/22 14:09	kja/mf m
Uranium, total	M200.8 ICP-MS	1	0.00363		*	mg/L	0.0001	0.0005	01/10/22 18:04	mfm
Zinc, dissolved	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.05	12/29/21 21:24	kja

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cyanide, WAD	SM4500-CN I,E- Colorimetric w/ distillation	0.5	<0.003	U	*	mg/L	0.003	0.01	12/20/21 20:31	mjj1
Fluoride	SM4500F-C	1	0.21	B		mg/L	0.15	0.35	01/04/22 17:07	eep
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	<0.02	U	*	mg/L	0.02	0.1	12/29/21 3:09	pjb
Phosphate, total	Calculation based on total Phosphorus		<0.03	U		mg/L	0.03	0.2	01/28/22 0:00	calc
Phosphorus, total	M365.1 - Auto Ascorbic Acid	1	<0.01	U	*	mg/L	0.01	0.05	12/30/21 23:41	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	238			mg/L	20	40	12/14/21 18:54	eep
Residue, Non-Filterable (TSS) @105C	SM2540D	1	<5	U	*	mg/L	5	20	12/14/21 16:39	eep
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	1	29.0			mg/L	1	5	12/30/21 17:06	mjj1



Report Header Explanations

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

QC Sample Types

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

<https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Antimony, total recoverable

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534480													
WG534480ICV	ICV	01/05/22 14:25	MS220105-1	.0201		.02	mg/L	100	90	110			
WG534480ICB	ICB	01/05/22 14:27				U	mg/L		-0.0012	0.0012			
WG534198LRB	LRB	01/05/22 14:29				U	mg/L		-0.00088	0.00088			
WG534198LFB	LFB	01/05/22 14:30	MS211216-3	.01		.01147	mg/L	115	85	115			
WG534480CCV1	CCV	01/05/22 14:47	MS220105-3	.0125		.0123	mg/L	98	90	110			
WG534480CCB1	CCB	01/05/22 14:48				U	mg/L		-0.0012	0.0012			
WG534480CCV2	CCV	01/05/22 15:08	MS220105-3	.0125		.01219	mg/L	98	90	110			
WG534480CCB2	CCB	01/05/22 15:10				U	mg/L		-0.0012	0.0012			
L70584-01LFM	LFM	01/05/22 15:19	MS211216-3	.01	.0596	.07227	mg/L	127	70	130			
L70584-01LFMD	LFMD	01/05/22 15:21	MS211216-3	.01	.0596	.07348	mg/L	139	70	130	2	20	M3
WG534480CCV3	CCV	01/05/22 15:23	MS220105-3	.0125		.01351	mg/L	108	90	110			
WG534480CCB3	CCB	01/05/22 15:25				.0011	mg/L		-0.0012	0.0012			

Arsenic, total

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534737													
WG534737ICV	ICV	01/10/22 17:34	MS220105-1	.05		.05127	mg/L	103	90	110			
WG534737ICB	ICB	01/10/22 17:36				U	mg/L		-0.0006	0.0006			
WG533878LRB	LRB	01/10/22 17:38				U	mg/L		-0.00044	0.00044			
WG533878LFB	LFB	01/10/22 17:40	MS211216-3	.05005		.04969	mg/L	99	85	115			
L70401-02LFM	LFM	01/10/22 17:45	MS10XW	.501	.652	1.09601	mg/L	89	70	130			
L70401-02LFMD	LFMD	01/10/22 17:47	MS10XW	.501	.652	1.10959	mg/L	91	70	130	1	20	
WG534737CCV1	CCV	01/10/22 17:57	MS220105-3	.1001		.10254	mg/L	102	90	110			
WG534737CCB1	CCB	01/10/22 17:59				U	mg/L		-0.0006	0.0006			
WG534737CCV2	CCV	01/10/22 18:19	MS220105-3	.1001		.10081	mg/L	101	90	110			
WG534737CCB2	CCB	01/10/22 18:21				U	mg/L		-0.0006	0.0006			
WG534737CCV3	CCV	01/10/22 18:34	MS220105-3	.1001		.10122	mg/L	101	90	110			
WG534737CCB3	CCB	01/10/22 18:36				U	mg/L		-0.0006	0.0006			

Boron, total

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534166													
WG534166ICV	ICV	12/29/21 5:24	II211215-1	2		2.01	mg/L	101	95	105			
WG534166ICB	ICB	12/29/21 5:30				U	mg/L		-0.09	0.09			
WG534166PQV	PQV	12/29/21 5:33	II211130-3	.1001		.101	mg/L	101	70	130			
WG534166SIC	SIC	12/29/21 5:36	II211130-5	.1001		.093	mg/L	93	80	120			
WG534081LRB	LRB	12/29/21 5:43				U	mg/L		-0.066	0.066			
WG534081LFB	LFB	12/29/21 5:46	II211217-2	.5005		.513	mg/L	102	85	115			
L70423-01LFM	LFM	12/29/21 6:02	II2XWATER	1.001	U	1.048	mg/L	105	70	130			
L70423-01LFMD	LFMD	12/29/21 6:05	II2XWATER	1.001	U	1.024	mg/L	102	70	130	2	20	
WG534166CCV1	CCV	12/29/21 6:15	II211206-1	1		.981	mg/L	98	90	110			
WG534166CCB1	CCB	12/29/21 6:18				U	mg/L		-0.09	0.09			
WG534166CCV2	CCV	12/29/21 6:54	II211206-1	1		.986	mg/L	99	90	110			
WG534166CCB2	CCB	12/29/21 6:57				U	mg/L		-0.09	0.09			
WG534166CCV3	CCV	12/29/21 7:20	II211206-1	1		.978	mg/L	98	90	110			
WG534166CCB3	CCB	12/29/21 7:23				U	mg/L		-0.09	0.09			

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Chromium, total recoverable

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534133													
WG534133ICV	ICV	12/28/21 23:30	II211214-2	2		1.957	mg/L	98	95	105			
WG534133ICB	ICB	12/28/21 23:36				U	mg/L		-0.06	0.06			
WG534133PQV	PQV	12/28/21 23:39	II211130-3	.05005		.046	mg/L	92	70	130			
WG534133SIC	SIC	12/28/21 23:42	II211130-4	.1001		.082	mg/L	82	80	120			
WG534079LRB	LRB	12/28/21 23:49				U	mg/L		-0.044	0.044			
WG534079LFB	LFB	12/28/21 23:52	II211217-2	.5005		.485	mg/L	97	85	115			
WG534133CCV1	CCV	12/29/21 0:21	II211211-2	1		.986	mg/L	99	90	110			
WG534133CCB1	CCB	12/29/21 0:24				U	mg/L		-0.06	0.06			
WG534133CCV2	CCV	12/29/21 1:00	II211211-2	1		.98	mg/L	98	90	110			
WG534133CCB2	CCB	12/29/21 1:03				U	mg/L		-0.06	0.06			
L70608-01LFM	LFM	12/29/21 1:10	II211217-2	.5005	U	.494	mg/L	99	70	130			
L70608-01LFMD	LFMD	12/29/21 1:13	II211217-2	.5005	U	.496	mg/L	99	70	130	0	20	
WG534133CCV3	CCV	12/29/21 1:20	II211211-2	1		.971	mg/L	97	90	110			
WG534133CCB3	CCB	12/29/21 1:23				U	mg/L		-0.06	0.06			

Copper, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534274													
WG534274ICV	ICV	12/30/21 22:29	II211214-2	2		1.989	mg/L	99	95	105			
WG534274ICB	ICB	12/30/21 22:35				U	mg/L		-0.03	0.03			
WG534274PQV	PQV	12/30/21 22:38	II211130-3	.05		.046	mg/L	92	70	130			
WG534274SIC	SIC	12/30/21 22:41	II211130-4	.1		.097	mg/L	97	80	120			
WG534274LFB	LFB	12/30/21 22:48	II211228-2	.5		.505	mg/L	101	85	115			
L70423-02AS	AS	12/30/21 23:07	II211228-2	.5	U	.509	mg/L	102	85	115			
L70423-02ASD	ASD	12/30/21 23:10	II211228-2	.5	U	.514	mg/L	103	85	115	1	20	
WG534274CCV1	CCV	12/30/21 23:20	II211211-2	1		1.003	mg/L	100	90	110			
WG534274CCB1	CCB	12/30/21 23:23				U	mg/L		-0.03	0.03			
WG534274CCV2	CCV	12/30/21 23:59	II211211-2	1		.987	mg/L	99	90	110			
WG534274CCB2	CCB	12/31/21 0:02				U	mg/L		-0.03	0.03			
WG534274CCV3	CCV	12/31/21 0:12	II211211-2	1		.979	mg/L	98	90	110			
WG534274CCB3	CCB	12/31/21 0:16				U	mg/L		-0.03	0.03			

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cyanide, WAD

SM4500-CN I,E-Colorimetric w/ distillation

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG533955													
WG533955ICV	ICV	12/20/21 20:16	WI211209-3	.3003		.3178	mg/L	106	90	110			
WG533955ICB	ICB	12/20/21 20:17				U	mg/L		-0.003	0.003			
WG533730LRB	LRB	12/20/21 20:17				U	mg/L		-0.003	0.003			
WG533730LFB	LFB	12/20/21 20:18	WI211208-5	.2002		.1869	mg/L	93	90	110			
L70385-01DUP	DUP	12/20/21 20:20			U	U	mg/L				0	20	RA
L70419-01LFM	LFM	12/20/21 20:22	WI211208-5	.2002	U	.1964	mg/L	98	90	110			
WG533955CCV1	CCV	12/20/21 20:26	WI211206-2	.25		.2522	mg/L	101	90	110			
WG533955CCB1	CCB	12/20/21 20:27				U	mg/L		-0.003	0.003			
L70424-01DUP	DUP	12/20/21 20:30			U	U	mg/L				0	20	RA
L70440-01LFM	LFM	12/20/21 20:35	WI211208-5	.2002	U	.2098	mg/L	105	90	110			
WG533955CCV2	CCV	12/20/21 20:36	WI211206-2	.25		.2552	mg/L	102	90	110			
WG533955CCB2	CCB	12/20/21 20:37				U	mg/L		-0.003	0.003			
WG533955CCV3	CCV	12/20/21 20:45	WI211206-2	.25		.254	mg/L	102	90	110			
WG533955CCB3	CCB	12/20/21 20:45				U	mg/L		-0.003	0.003			

Fluoride

SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534426													
WG534426ICV	ICV	01/04/22 14:58	WC220104-1	2.008		2.06	mg/L	103	90	110			
WG534426ICB	ICB	01/04/22 15:02				U	mg/L		-0.3	0.3			
WG534426PQV	PQV	01/04/22 15:07	WC220104-4	.3514		.28	mg/L	80	70	130			
WG534426LFB1	LFB	01/04/22 15:14	WC220104-2	5.02		5.26	mg/L	105	90	110			
L70365-01AS	AS	01/04/22 15:30	WC220104-2	5.02	.41	5.42	mg/L	100	90	110			
L70365-01ASD	ASD	01/04/22 15:38	WC220104-2	5.02	.41	5.55	mg/L	102	90	110	2	20	
WG534426CCV1	CCV	01/04/22 16:27	WC220104-1	2.008		2.08	mg/L	104	90	110			
WG534426CCB1	CCB	01/04/22 16:35				U	mg/L		-0.3	0.3			
WG534426CCV2	CCV	01/04/22 17:59	WC220104-1	2.008		2.13	mg/L	106	90	110			
WG534426CCB2	CCB	01/04/22 18:07				U	mg/L		-0.3	0.3			
L70521-06AS	AS	01/04/22 18:23	WC220104-2	5.02	.21	5.72	mg/L	110	90	110			
L70521-06ASD	ASD	01/04/22 18:31	WC220104-2	5.02	.21	5.65	mg/L	108	90	110	1	20	
WG534426LFB2	LFB	01/04/22 18:55	WC220104-2	5.02		5.42	mg/L	108	90	110			
WG534426CCV3	CCV	01/04/22 19:51	WC220104-1	2.008		2.08	mg/L	104	90	110			
WG534426CCB3	CCB	01/04/22 19:59				U	mg/L		-0.3	0.3			
WG534426CCV4	CCV	01/04/22 21:34	WC220104-1	2.008		2.04	mg/L	102	90	110			
WG534426CCB4	CCB	01/04/22 21:40				U	mg/L		-0.3	0.3			
WG534426CCV5	CCV	01/04/22 23:05	WC220104-1	2.008		2.1	mg/L	105	90	110			
WG534426CCB5	CCB	01/04/22 23:13				U	mg/L		-0.3	0.3			

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Molybdenum, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534225													
WG534225ICV	ICV	12/29/21 20:11	II211214-2	2		2.047	mg/L	102	95	105			
WG534225ICB	ICB	12/29/21 20:16				U	mg/L		-0.06	0.06			
WG534225PQV	PQV	12/29/21 20:20	II211130-3	.1002		.1	mg/L	100	70	130			
WG534225SIC	SIC	12/29/21 20:23	II211130-4	.1002		.091	mg/L	91	80	120			
WG534225LFB	LFB	12/29/21 20:29	II211228-2	.501		.506	mg/L	101	85	115			
WG534225CCV1	CCV	12/29/21 20:59	II211211-2	1		1.023	mg/L	102	90	110			
WG534225CCB1	CCB	12/29/21 21:02				U	mg/L		-0.06	0.06			
WG534225CCV2	CCV	12/29/21 21:36	II211211-2	1		1.03	mg/L	103	90	110			
WG534225CCB2	CCB	12/29/21 21:39				U	mg/L		-0.06	0.06			
L70568-01AS	AS	12/29/21 21:42	II211228-2	.501	U	.529	mg/L	106	85	115			
L70568-01ASD	ASD	12/29/21 21:45	II211228-2	.501	U	.527	mg/L	105	85	115	0	20	
WG534225CCV3	CCV	12/29/21 21:58	II211211-2	1		1.015	mg/L	102	90	110			
WG534225CCB3	CCB	12/29/21 22:01				U	mg/L		-0.06	0.06			

Molybdenum, total

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534166													
WG534166ICV	ICV	12/29/21 5:24	II211215-1	2		2.013	mg/L	101	95	105			
WG534166ICB	ICB	12/29/21 5:30				U	mg/L		-0.06	0.06			
WG534166PQV	PQV	12/29/21 5:33	II211130-3	.1002		.1	mg/L	100	70	130			
WG534166SIC	SIC	12/29/21 5:36	II211130-5	.1002		.091	mg/L	91	80	120			
WG534081LRB	LRB	12/29/21 5:43				U	mg/L		-0.044	0.044			
WG534081LFB	LFB	12/29/21 5:46	II211217-2	.501		.526	mg/L	105	85	115			
L70423-01LFM	LFM	12/29/21 6:02	II2XWATER	1.003	U	1.053	mg/L	105	70	130			
L70423-01LFMD	LFMD	12/29/21 6:05	II2XWATER	1.003	U	1.062	mg/L	106	70	130	1	20	
WG534166CCV1	CCV	12/29/21 6:15	II211206-1	1		.991	mg/L	99	90	110			
WG534166CCB1	CCB	12/29/21 6:18				U	mg/L		-0.06	0.06			
WG534166CCV2	CCV	12/29/21 6:54	II211206-1	1		1	mg/L	100	90	110			
WG534166CCB2	CCB	12/29/21 6:57				U	mg/L		-0.06	0.06			
WG534166CCV3	CCV	12/29/21 7:20	II211206-1	1		.988	mg/L	99	90	110			
WG534166CCB3	CCB	12/29/21 7:23				U	mg/L		-0.06	0.06			

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534194													
WG534194ICV	ICV	12/29/21 1:17	WI211205-1	2.4161		2.361	mg/L	98	90	110			
WG534194ICB	ICB	12/29/21 1:18				U	mg/L		-0.02	0.02			
WG534197													
WG534197CCV1	CCV	12/29/21 2:30	WI211228-9	2		2.007	mg/L	100	90	110			
WG534197CCB1	CCB	12/29/21 2:33				U	mg/L		-0.02	0.02			
WG534197LFB	LFB	12/29/21 2:34	WI211001-5	2		2.082	mg/L	104	90	110			
WG534197CCV2	CCV	12/29/21 2:47	WI211228-9	2		1.963	mg/L	98	90	110			
WG534197CCB2	CCB	12/29/21 2:50				U	mg/L		-0.02	0.02			
L70423-01AS	AS	12/29/21 2:57	WI211001-5	2	U	1.874	mg/L	94	90	110			
L70423-02DUP	DUP	12/29/21 3:00			.039	.04	mg/L				3	20	RA
WG534197CCV3	CCV	12/29/21 3:05	WI211228-9	2		1.949	mg/L	97	90	110			
WG534197CCB3	CCB	12/29/21 3:08				U	mg/L		-0.02	0.02			
WG534197CCV4	CCV	12/29/21 3:19	WI211228-9	2		1.947	mg/L	97	90	110			
WG534197CCB4	CCB	12/29/21 3:22				U	mg/L		-0.02	0.02			

Phosphorus, total

M365.1 - Auto Ascorbic Acid (digest)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534316													
WG534316ICV	ICV	12/30/21 23:27	WI211112-2	.65228		.66	mg/L	101	90	110			
WG534316ICB	ICB	12/30/21 23:30				U	mg/L		-0.01	0.01			
WG534073LRB	LRB	12/30/21 23:31				U	mg/L		-0.01	0.01			
WG534073LFB	LFB	12/30/21 23:32	WI211214-2	.5		.476	mg/L	95	90	110			
L70423-01LFM	LFM	12/30/21 23:34	WI211214-2	.5	U	.476	mg/L	95	90	110			
L70423-02DUP	DUP	12/30/21 23:37			U	U	mg/L				0	20	RA
WG534316CCV1	CCV	12/30/21 23:42	WI211112-4	.5		.488	mg/L	98	90	110			
WG534316CCB1	CCB	12/30/21 23:44				U	mg/L		-0.01	0.01			
WG534316CCV2	CCV	12/30/21 23:56	WI211112-4	.5		.49	mg/L	98	90	110			
WG534316CCB2	CCB	12/30/21 23:57				U	mg/L		-0.01	0.01			
WG534316CCV3	CCV	12/31/21 0:07	WI211112-4	.5		.486	mg/L	97	90	110			
WG534316CCB3	CCB	12/31/21 0:08				U	mg/L		-0.01	0.01			

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG533543													
WG533543PBW	PBW	12/14/21 18:20				U	mg/L		-20	20			
WG533543LCSW	LCSW	12/14/21 18:22	PCN64712	1000		970	mg/L	97	80	120			
L70428-01DUP	DUP	12/14/21 19:09			1360	1332	mg/L				2	10	

Residue, Non-Filterable (TSS) @105C

SM2540D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG533540													
WG533540PBW	PBW	12/14/21 16:20				U	mg/L		-2	2			
WG533540LCSW	LCSW	12/14/21 16:21	PCN64712	100		94	mg/L	94	80	120			
L70424-02DUP	DUP	12/14/21 16:40			U	U	mg/L				0	10	RA

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Silver, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534981													
WG534981ICV	ICV	01/14/22 12:05	MS220105-1	.02		.02087	mg/L	104	90	110			
WG534981ICB	ICB	01/14/22 12:07				U	mg/L		-0.00022	0.00022			
WG534981LFB	LFB	01/14/22 12:08	MS211216-3	.01		.01106	mg/L	111	85	115			
L70424-01AS	AS	01/14/22 12:22	MS211216-3	.01	U	.01017	mg/L	102	70	130			
L70424-01ASD	ASD	01/14/22 12:23	MS211216-3	.01	U	.01024	mg/L	102	70	130	1	20	
WG534981CCV1	CCV	01/14/22 12:27	MS220105-3	.025		.02589	mg/L	104	90	110			
WG534981CCB1	CCB	01/14/22 12:29				U	mg/L		-0.0003	0.0003			
WG534981CCV2	CCV	01/14/22 12:50	MS220105-3	.025		.02558	mg/L	102	90	110			
WG534981CCB2	CCB	01/14/22 12:52				U	mg/L		-0.0003	0.0003			
WG534981CCV3	CCV	01/14/22 13:03	MS220105-3	.025		.02593	mg/L	104	90	110			
WG534981CCB3	CCB	01/14/22 13:05				U	mg/L		-0.0003	0.0003			

Sulfate

D516-02/-07/-11 - TURBIDIMETRIC

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534307													
WG534307ICB	ICB	12/30/21 15:19				U	mg/L		-3	3			
WG534307ICV	ICV	12/30/21 15:19	WI211230-3	19.9		19.1	mg/L	96	90	110			
WG534307CCV1	CCV	12/30/21 17:03	WI211230-4	24.875		25.3	mg/L	102	90	110			
WG534307CCB1	CCB	12/30/21 17:03				U	mg/L		-3	3			
WG534307LFB	LFB	12/30/21 17:03	WI211230-5	9.95		9.7	mg/L	97	90	110			
L70423-01DUP	DUP	12/30/21 17:03			32.2	32.4	mg/L				1	20	
L70423-02AS	AS	12/30/21 17:03	WI211230-5	9.95	28.8	38.2	mg/L	94	90	110			
WG534307CCV2	CCV	12/30/21 17:05	WI211230-4	24.875		25.3	mg/L	102	90	110			
WG534307CCB2	CCB	12/30/21 17:05				U	mg/L		-3	3			
WG534307CCV3	CCV	12/30/21 17:07	WI211230-4	24.875		25.4	mg/L	102	90	110			
WG534307CCB3	CCB	12/30/21 17:07				U	mg/L		-3	3			
WG534307CCV4	CCV	12/30/21 17:09	WI211230-4	24.875		25.3	mg/L	102	90	110			
WG534307CCB4	CCB	12/30/21 17:09				U	mg/L		-3	3			
WG534307CCV5	CCV	12/30/21 17:23	WI211230-4	24.875		25.1	mg/L	101	90	110			
WG534307CCB5	CCB	12/30/21 17:23				U	mg/L		-3	3			
WG534307CCV6	CCV	12/30/21 17:26	WI211230-4	24.875		25.7	mg/L	103	90	110			
WG534307CCB6	CCB	12/30/21 17:26				U	mg/L		-3	3			
WG534307CCV7	CCV	12/30/21 17:29	WI211230-4	24.875		24.9	mg/L	100	90	110			
WG534307CCB7	CCB	12/30/21 17:29				U	mg/L		-3	3			

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Thallium, total recoverable

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534480													
WG534480ICV	ICV	01/05/22 14:25	MS220105-1	.05		.05095	mg/L	102	90	110			
WG534480ICB	ICB	01/05/22 14:27				U	mg/L		-0.0003	0.0003			
WG534198LRB	LRB	01/05/22 14:29				U	mg/L		-0.00022	0.00022			
WG534198LFB	LFB	01/05/22 14:30	MS211216-3	.05		.04882	mg/L	98	85	115			
WG534480CCV1	CCV	01/05/22 14:47	MS220105-3	.1		.09913	mg/L	99	90	110			
WG534480CCB1	CCB	01/05/22 14:48				U	mg/L		-0.0003	0.0003			
WG534480CCV2	CCV	01/05/22 15:08	MS220105-3	.1		.09829	mg/L	98	90	110			
WG534480CCB2	CCB	01/05/22 15:10				U	mg/L		-0.0003	0.0003			
L70584-01LFM	LFM	01/05/22 15:19	MS211216-3	.05	.00363	.05603	mg/L	105	70	130			
L70584-01LFMD	LFMD	01/05/22 15:21	MS211216-3	.05	.00363	.05769	mg/L	108	70	130	3	20	
WG534480CCV3	CCV	01/05/22 15:23	MS220105-3	.1		.10049	mg/L	100	90	110			

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534781													
WG534781ICV	ICV	01/11/22 13:26	MS220105-1	.05		.05227	mg/L	105	90	110			
WG534781ICB	ICB	01/11/22 13:29				U	mg/L		-0.00022	0.00022			
WG534781LFB	LFB	01/11/22 13:31	MS211216-3	.05		.04681	mg/L	94	85	115			
WG534781CCV1	CCV	01/11/22 13:52	MS220105-3	.1		.0946	mg/L	95	90	110			
WG534781CCB1	CCB	01/11/22 13:54				U	mg/L		-0.0003	0.0003			
WG534781CCV2	CCV	01/11/22 14:17	MS220105-3	.1		.0981	mg/L	98	90	110			
WG534781CCB2	CCB	01/11/22 14:19				U	mg/L		-0.0003	0.0003			
L70436-06AS	AS	01/11/22 14:28	MS211216-3	.1	.00107	.11028	mg/L	109	70	130			
L70436-06ASD	ASD	01/11/22 14:30	MS211216-3	.1	.00107	.10365	mg/L	103	70	130	6	20	
WG534781CCV3	CCV	01/11/22 14:32	MS220105-3	.1		.09477	mg/L	95	90	110			
WG534781CCB3	CCB	01/11/22 14:34				U	mg/L		-0.0003	0.0003			

Uranium, total

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534737													
WG534737ICV	ICV	01/10/22 17:34	MS220105-1	.05		.05309	mg/L	106	90	110			
WG534737ICB	ICB	01/10/22 17:36				U	mg/L		-0.0003	0.0003			
WG533878LRB	LRB	01/10/22 17:38				U	mg/L		-0.00022	0.00022			
WG533878LFB	LFB	01/10/22 17:40	MS211216-3	.05		.05035	mg/L	101	85	115			
L70401-02LFM	LFM	01/10/22 17:45	MS10XW	.5	12.7	13.64135	mg/L	188	70	130			M3
L70401-02LFMD	LFMD	01/10/22 17:47	MS10XW	.5	12.7	13.54416	mg/L	169	70	130	1	20	M3
WG534737CCV1	CCV	01/10/22 17:57	MS220105-3	.1		.10221	mg/L	102	90	110			
WG534737CCB1	CCB	01/10/22 17:59				U	mg/L		-0.0003	0.0003			
WG534737CCV2	CCV	01/10/22 18:19	MS220105-3	.1		.10207	mg/L	102	90	110			
WG534737CCB2	CCB	01/10/22 18:21				U	mg/L		-0.0003	0.0003			
WG534737CCV3	CCV	01/10/22 18:34	MS220105-3	.1		.10333	mg/L	103	90	110			
WG534737CCB3	CCB	01/10/22 18:36				U	mg/L		-0.0003	0.0003			

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Zinc, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG534225													
WG534225ICV	ICV	12/29/21 20:11	II211214-2	2		1.978	mg/L	99	95	105			
WG534225ICB	ICB	12/29/21 20:16				U	mg/L		-0.06	0.06			
WG534225PQV	PQV	12/29/21 20:20	II211130-3	.05015		.044	mg/L	88	70	130			
WG534225SIC	SIC	12/29/21 20:23	II211130-4	.1003		.101	mg/L	101	80	120			
WG534225LFB	LFB	12/29/21 20:29	II211228-2	.50045		.49	mg/L	98	85	115			
WG534225CCV1	CCV	12/29/21 20:59	II211211-2	1		.993	mg/L	99	90	110			
WG534225CCB1	CCB	12/29/21 21:02				U	mg/L		-0.06	0.06			
WG534225CCV2	CCV	12/29/21 21:36	II211211-2	1		1.006	mg/L	101	90	110			
WG534225CCB2	CCB	12/29/21 21:39				U	mg/L		-0.06	0.06			
L70568-01AS	AS	12/29/21 21:42	II211228-2	.50045	U	.525	mg/L	105	85	115			
L70568-01ASD	ASD	12/29/21 21:45	II211228-2	.50045	U	.521	mg/L	104	85	115	1	20	
WG534225CCV3	CCV	12/29/21 21:58	II211211-2	1		.971	mg/L	97	90	110			
WG534225CCB3	CCB	12/29/21 22:01				U	mg/L		-0.06	0.06			

Ensero Solutions

ACZ Project ID: **L70424**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L70424-01	WG534480	Antimony, total recoverable	M200.8 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG533955	Cyanide, WAD	SM4500-CN I,E-Colorimetric w/ distillation	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).
	WG534197	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	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).
	WG534316	Phosphorus, total	M365.1 - Auto Ascorbic Acid (digest)	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).
	WG533540	Residue, Non-Filterable (TSS) @105C	SM2540D	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).
			SM2540D	Z3	Sample volume yielded a residue less than 2.5 mg
	WG534737	Uranium, total	M200.8 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
L70424-02	WG534480	Antimony, total recoverable	M200.8 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG533955	Cyanide, WAD	SM4500-CN I,E-Colorimetric w/ distillation	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).
	WG534197	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	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).
	WG534316	Phosphorus, total	M365.1 - Auto Ascorbic Acid (digest)	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).
	WG533540	Residue, Non-Filterable (TSS) @105C	SM2540D	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).
			SM2540D	Z3	Sample volume yielded a residue less than 2.5 mg
	WG534737	Uranium, total	M200.8 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.

Ensero Solutions

Project ID: 3100-PO205

Sample ID: SW-BPL

Locator:

ACZ Sample ID: **L70424-01**

Date Sampled: 12/08/21 10:10

Date Received: 12/10/21

Sample Matrix: Surface Water

Combined Radium (total)

Prep Method:

Calculation (RA226 + RA228)

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Combined Radium (total)	01/28/22 16:13		0			pCi/L		calc

Gross Alpha & Beta, total

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	01/04/22 0:11		10	3.9	17	pCi/L	*	ttg
Gross Beta	01/04/22 0:11		8.9	3.6	21	pCi/L	*	ttg

Radium 226, total

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, total	01/27/22 0:24		0.23	0.09	0.37	pCi/L		fdw

Radium 228, total

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, total	01/07/22 15:13		0.67	0.77	1.9	pCi/L		ess

Ensero Solutions

Project ID: 3100-PO205

Sample ID: SW-AWD

Locator:

ACZ Sample ID: **L70424-02**

Date Sampled: 12/08/21 12:00

Date Received: 12/10/21

Sample Matrix: *Surface Water*

Combined Radium (total)

Prep Method:

Calculation (RA226 + RA228)

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Combined Radium (total)	01/28/22 16:13		0			pCi/L		calc

Gross Alpha & Beta, total

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	01/04/22 0:14		2.5	2.3	18	pCi/L	*	ttg
Gross Beta	01/04/22 0:14		6.4	3.2	22	pCi/L	*	ttg

Radium 226, total

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, total	01/27/22 0:27		0.1	0.11	0.42	pCi/L		fdw

Radium 228, total

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, total	01/07/22 15:13		0.08	0.76	1.8	pCi/L		ess

Report Header Explanations

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

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	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.
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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:

<https://aczk.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

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
WG534136																
WG534136PBW	PBW	01/04/22						.9	1.1	1.1			2.2			
WG534136LCSWA	LCSW	01/04/22	PCN64375	100				110	9	1.6	110	67	144			
L70423-04DUP	DUP-RPD	01/04/22			5.5	3	7.6	4.4	2.8	7.2				22	20	RG
L70423-04DUP	DUP-RER	01/04/22			5.5	3	7.6	4.4	2.8	7.2				0.27	2	
L70424-01MSA	MS	01/04/22	PCN64375	100	10	3.9	17	120	11	7	110	67	144			
L70482-06DUP	DUP-RPD	01/04/22			8.5	7.6	59	2.1	6.2	33				121	20	RG
L70482-06DUP	DUP-RER	01/04/22			8.5	7.6	59	2.1	6.2	33				0.65	2	

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
WG534136																
WG534136PBW	PBW	01/04/22						2	2	2.1			4.2			
WG534136LCSWB	LCSW	01/04/22	RC210621-11	49.9				61	5.6	2.8	122	82	122			
L70423-04DUP	DUP-RPD	01/04/22			12	3.5	7.8	7.6	3.5	9.6				45	20	RG
L70423-04DUP	DUP-RER	01/04/22			12	3.5	7.8	7.6	3.5	9.6				0.89	2	
L70424-02MSB	MS	01/04/22	RC210621-11	49.9	6.4	3.2	22	62	5.6	8	111	82	122			
L70482-06DUP	DUP-RPD	01/04/22			10	6.7	48	10	6.5	18				0	20	

Radium 226, total		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
WG534765																
WG534765LCSW	LCSW	01/27/22	PCN64374	20				25	0.67	0.09	125	43	148			
WG534765PBW	PBW	01/27/22						.11	0.07	0.07			0.14			
L70423-01DUP	DUP-RPD	01/27/22			0.22	0.09	0.39	.36	0.1	0.35				48	20	RG
L70423-01DUP	DUP-RER	01/27/22			0.22	0.09	0.39	.36	0.1	0.35				1.04	2	
L70423-04MS	MS	01/27/22	PCN64374	20	0.15	0.07	0.39	16	0.48	0.47	79	43	148			
L70424-01DUP	DUP-RPD	01/27/22			0.23	0.09	0.37	.24	0.07	0.42				4	20	

ENSERO

ACZ Project ID: **L70424**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 228, total

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
WG534391																
WG534391LCSW	LCSW	01/07/22	PCN64684	9.72				11	1.2	0.83	113	47	123			
WG534391PBW	PBW	01/07/22						.48	0.51	0.51			1.02			
L70424-01DUP	DUP-RER	01/07/22			0.67	0.77	1.9	.67	1	2.4				0	2	
L70424-01DUP	DUP-RPD	01/07/22			0.67	0.77	1.9	.67	1	2.4				0	20	
L70623-07DUP	DUP-RPD	01/07/22			1.7	0.73	1.7	.95	0.67	1.5				57	20	RG
L70623-03MS	MS	01/07/22	PCN64684	9.72	2.2	1.2	2.8	8.6	1	1.7	66	47	123			
L70623-07DUP	DUP-RER	01/07/22			1.7	0.73	1.7	.95	0.67	1.5				0.76	2	

Ensero Solutions

ACZ Project ID: **L70424**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L70424-01	WG534136	Gross Alpha	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L70424-02	WG534136	Gross Alpha	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.

Ensero Solutions

ACZ Project ID: **L70424**

No certification qualifiers associated with this analysis

Ensero Solutions
3100-PO205

ACZ Project ID: L70424
Date Received: 12/10/2021 10:59
Received By: mjj
Date Printed: 12/13/2021

Receipt Verification

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

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	☒	☐	☐
9) Are all labels on containers and are they intact and legible?	☒	☐	☐
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	☒	☐	☐
11) For preserved bottle types, was the pH checked and within limits? ¹	☒	☐	☐
12) Is there sufficient sample volume to perform all requested work?	☒	☐	☐
13) Is the custody seal intact on all containers?	☐	☐	☒
14) Are samples that require zero headspace acceptable?	☐	☐	☒
15) Are all sample containers appropriate for analytical requirements?	☒	☐	☐
16) Is there an Hg-1631 trip blank present?	☐	☐	☒
17) Is there a VOA trip blank present?	☐	☐	☒
18) Were all samples received within hold time?	☒	☐	☐

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
5153	4.2	<=6.0	15	N/A

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.

Ensero Solutions
3100-PO205

ACZ Project ID: L70424

Date Received: 12/10/2021 10:59

Received By: mjj

Date Printed: 12/13/2021

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).



Laboratories, Inc. L70424

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

CHAIN of CUSTODY

Report to:

Name: Christie Brizinski

Company: Ensero Solutions

E-mail: cbrizinski@ensero.com

Address: 131 E. Lincoln Ave Ste. 200

Fort Collins, CO 80524

Telephone: 867-668-6463, ext 229

Copy of Report to:

Name: Evan Valencia

Company: Ensero Solutions

E-mail: evalencia@ensero.com

Telephone: 818-688-1839

Invoice to:

Name: Pauline Wong

Company: Ensero Solutions

E-mail: ap@ensero.com

Address: 131 E. Lincoln Ave Ste. 200

Fort Collins, CO 80524

Telephone: 778-404-1182

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 ☒

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 ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: EV, NL

Sampler's Site Information

State CO

Zip code 80401

Time Zone MTN

*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

ANALYSES REQUESTED (attach list or use quote number)

Quote #: Ensero-2020

PO#: 3100-PO205

Reporting state for compliance testing: CO

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	TSS	Sample suite #1	Sample suite #2	COD	LLHG trip blank	Sample suite #3	TDS	
SW-BPL	12-8-2021: 10:10	SW	8	☐	☐	☒	☐	☐	☐	☐	☐
SW-AWD	12-8-2021: 12:00	SW	8	☐	☐	☒	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐

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

REMARKS

This COC accounts for 16 containers. Shipped 12/9/2021
Please also send reports to importer@alexco.ehsdata.com

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

E. Valencia

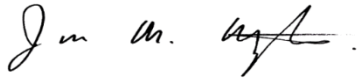
12-9-21: 13:00

[Signature]

12/16/21 10:55

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Jim Harrington, Managing Director
COLORADO LEGACY LAND