

Analytical Report

October 09, 2023

Report to: Kara Haas South32 749 Harshaw Rd Patagonia, AZ 85624

cc: Matt Owens

Bill to: Accounts Payable South32 Hermosa Inc. 2210 E Fort Lowell Road Tucson, AZ 85719

Project ID: 4542440391 ACZ Project ID: L82880

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 05, 2023. This project has been assigned to ACZ's project number, L82880. 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 L82880. 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 September 28, 2025. 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.

Mark Mc Noal

Mark McNeal has reviewed and approved this report.







South32

 Project ID:
 4542440391

 Sample ID:
 POC-2_09012023

Inorganic Analytical Results

ACZ Sample ID: L82880-01 Date Sampled: 09/01/23 00:00 Date Received: 09/05/23 Sample Matrix: Groundwater

Metals Analysis										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	2	<0.0008	U		mg/L	0.0008	0.004	09/19/23 17:55	kja
Arsenic, dissolved	M200.8 ICP-MS	2	0.00417			mg/L	0.0004	0.002	09/19/23 17:55	kja
Barium, dissolved	M200.7 ICP	2	0.0222	В		mg/L	0.018	0.07	09/22/23 14:12	wtc
Beryllium, dissolved	M200.8 ICP-MS	2	0.000424	В		mg/L	0.00016	0.0005	09/19/23 17:55	kja
Cadmium, dissolved	M200.8 ICP-MS	2	0.00476			mg/L	0.0001	0.0005	09/19/23 17:55	kja
Chromium, dissolved	M200.8 ICP-MS	2	<0.001	U		mg/L	0.001	0.004	09/19/23 17:55	kja
Copper, dissolved	M200.8 ICP-MS	2	<0.0016	U		mg/L	0.0016	0.004	09/19/23 17:55	kja
Iron, dissolved	M200.7 ICP	2	0.847			mg/L	0.12	0.3	09/22/23 14:12	wtc
Lead, dissolved	M200.8 ICP-MS	2	0.00227			mg/L	0.0002	0.001	09/19/23 17:55	kja
Manganese, dissolved	M200.7 ICP	2	19.1			mg/L	0.02	0.1	09/22/23 14:12	wtc
Mercury, dissolved	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	09/19/23 9:40	mlh
Nickel, dissolved	M200.7 ICP	2	0.0412	В		mg/L	0.016	0.08	09/22/23 14:12	wtc
Selenium, dissolved	M200.8 ICP-MS	2	<0.0002	U		mg/L	0.0002	0.0005	09/19/23 17:55	kja
Thallium, dissolved	M200.8 ICP-MS	2	<0.0002	U		mg/L	0.0002	0.001	09/19/23 17:55	kja
Zinc, dissolved	M200.7 ICP	2	3.59			mg/L	0.04	0.1	09/22/23 14:12	wtc
Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	167		*	mg/L	2	20	09/08/23 0:00	emk
Carbonate as CaCO3		1	<2	U	*	mg/L	2	20	09/08/23 0:00	emk
Hydroxide as CaCO3		1	<2	U	*	mg/L	2	20	09/08/23 0:00	emk
Total Alkalinity		1	167		*	mg/L	2	20	09/08/23 0:00	emk
Conductivity @25C	SM2510B	1	2750		*	umhos/cm	1	10	09/26/23 14:08	emk
Cyanide, Free	D6888-09/OIA-1677-09	1	<0.003	U	*	mg/L	0.003	0.01	09/06/23 15:37	gkk
Fluoride	SM4500F-C	1	0.89		*	mg/L	0.15	0.35	09/25/23 15:16	svm
Nitrate as N	Calculation: NO3NO2 minus NO2		<0.02	UH		mg/L	0.02	0.1	10/09/23 0:00	calc
Nitrate/Nitrite as N	M353.2 - Automated Cadmium Reduction	1	<0.02	UH	*	mg/L	0.02	0.1	09/06/23 23:28	pjb
Nitrite as N	M353.2 - Automated Cadmium Reduction	1	<0.01	UH	*	mg/L	0.01	0.05	09/06/23 23:28	pjb
pH (lab)	SM4500H+ B									
рН		1	7.3	н	*	units	0.1	0.1	09/08/23 0:00	emk
pH measured at		1	23.1		*	С	0.1	0.1	09/08/23 0:00	emk
Residue, Filterable (TDS) @180C	SM2540C	2	2700		*	mg/L	40	80	09/07/23 15:48	svm
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	50	1840		*	ma/L	50	250	09/20/23 16:33	aps

Arizona license number: AZ0102



Inorganic Reference

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 un	less omitted or eq	ual to the PQL (see comment #5).					
	Allows for instrument and annual fluctuations.							
PCN/SCN	A number assigned to reagents/standards to trace to the manu	Ifacturer's certifica	te of analysis					
PQI	Practical Quantitation Limit Synonymous with the EPA term "r	ninimum level"	······································					
00	True Value of the Control Sample or the amount added to the S	Snike						
Rec	Recovered amount of the true value or spike added in % (ever	ent for LCSS_ma/	Ka)					
RPD	Relative Percent Difference, calculation used for Duplicate OC	Types						
Upper	Linner Receivery Limit in % (excent for LCSS, ma/Ka)	Турез						
Somelo	Volue of the Sample of interest							
Sample	value of the Sample of Interest							
QC Sample Typ	Des							
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate					
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank					
ССВ	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix					
CCV	Continuing Calibration Verification standard <i>LFMD</i> Laboratory Fortified Matrix Duplicate							
DUP	Sample Duplicate	I RB	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	Pren Blank - Soil					
LCSS	Laboratory Control Sample - Soil	PBW/	Pren Blank - Water					
LCSS	Laboratory Control Sample - Soil Duplicato	POV	Practical Quantitation Varification standard					
LCSSD		FQV						
LCSW	Laboratory Control Sample - Water	SDL	Senal Dilution					
QC Sample Typ	be Explanations							
Blanks	Verifies that there is no or minimal co	ntamination in the	prep method or calibration procedure.					
Control Sam	ples Verifies the accuracy of the method, i	ncluding the prep	procedure.					
Duplicates	Verifies the precision of the instrumer	nt and/or method.						
Spikes/Forti	fied Matrix Determines sample matrix interference	es, if any.						
Standard	Verifies the validity of the calibration.							
	·							
ACZ Qualifiers	(Qual)							
В	Analyte concentration detected at a value between MDL and P	QL. The associate	ed value is an estimated quantity.					
Н	Analysis exceeded method hold time. pH is a field test with an	immediate hold ti	me.					
L	Target analyte response was below the laboratory defined neg	ative threshold.						
U	The material was analyzed for, but was not detected above the	level of the asso	ciated value.					
	The associated value is either the sample quantitation limit or the	he sample detecti	on limit.					
Mothod Poferer	100							
(1)	EPA 600/4-83-020 Methods for Chemical Apolycic of Water a	nd Wastes Marek	1083					
(1)	EPA 600/4-03-020. Methods for the Determination of Increase	a Substances, Marci	Environmental Semples, August 1002					
(2)	EPA 600/R-93-100. Methods for the Determination of Motels in		environmental Samples, August 1993.					
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in	1 Environmental S	samples - Supplement I, May 1994.					
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.							
(5)	Standard Methods for the Examination of Water and Wastewal	er.						
Comments								
(1)	QC results calculated from raw data. Results may vary slightly	if the rounded va	lues are used in the calculations.					
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are rep	orted on a dry wei	ght 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 of	ualifier and/or cei	rtification gualifier					
	associated with the result.	,						
(5)	If the MDL equals the PQL or the MDL column is omitted the F	QL is the reportin	a limit.					
(-)			5					
For a compl	ete list of ACZ's Extended Qualifiers. please click:							

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

REP001.03.15.02

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

AZMINING

ACZ Project ID: L82880

Alkalinity as CaC	03		SM2320	3 - Titration									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG573872													
WG573872PBW1	PBW	09/08/23 20:43				U	mg/L		-20	20			
WG573872LCSW2	LCSW	09/08/23 20:49	WC230826-1	820.0001		812	mg/L	99	90	110			
L82887-01DUP	DUP	09/08/23 22:31			U	U	mg/L				0	20	RA
WG573872LCSW4	LCSW	09/08/23 22:35	WC230826-1	820.0001		809.7	mg/L	99	90	110			
WG573872PBW2	PBW	09/08/23 22:41				3.8	mg/L		-20	20			
WG573872LCSW6	LCSW	09/09/23 0:05	WC230826-1	820.0001		815.6	mg/L	99	90	110			
WG573872PBW3	PBW	09/09/23 0:11				3.4	mg/L		-20	20			
WG573872LCSW8	LCSW	09/09/23 1:35	WC230826-1	820.0001		825.1	mg/L	101	90	110			
WG573872PBW4	PBW	09/09/23 1:41				3.5	mg/L		-20	20			
WG573872LCSW10	LCSW	09/09/23 3:16	WC230826-1	820.0001		822.6	mg/L	100	90	110			
WG573872PBW5	PBW	09/09/23 3:21				4	mg/L		-20	20			
WG573872LCSW12	LCSW	09/09/23 5:05	WC230826-1	820.0001		830.3	mg/L	101	90	110			
Antimony, dissol	ved		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.02002		.01968	mg/L	98	90	110			
WG574608ICB	ICB	09/19/23 17:41		.02002		U	mg/L		-0.00088	0.00088			
WG574608I FB	I FB	09/19/23 17:43	MS230912-3	01		01042	mg/L	104	85	115			
L82894-01AS	AS	09/19/23 18:02	MS230912-3	.01	.00067	.01139	mg/L	107	70	130			
L82894-01ASD	ASD	09/19/23 18:04	MS230912-3	.01	.00067	.01132	mg/L	107	70	130	1	20	
									-				
Arsenic, dissolve	d		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.05166	mg/L	103	90	110			
WG574608ICB	ICB	09/19/23 17:41				U	mg/L		-0.00044	0.00044			
WG574608LFB	LFB	09/19/23 17:43	MS230912-3	.0501		.04823	mg/L	96	85	115			
L82894-01AS	AS	09/19/23 18:02	MS230912-3	.0501	.00132	.05527	mg/L	108	70	130			
L82894-01ASD	ASD	09/19/23 18:04	MS230912-3	.0501	.00132	.05586	mg/L	109	70	130	1	20	
Barium, dissolve	d		M200.7 I	СР									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574802													
WG574802ICV	ICV	09/22/23 13:51	11230905-2	2		1.9355	mg/L	97	95	105			
WG574802ICB	ICB	09/22/23 13:57				U	mg/L		-0.027	0.027			
WG574802LFB	LFB	09/22/23 14:09	II230907-5	.501		.5059	mg/L	101	85	115			
L82895-01AS	AS	09/22/23 14:19	II230907-5	.501	.0142	.5206	mg/L	101	85	115			
L82895-01ASD	ASD	09/22/23 14:22	11230907-5	.501	.0142	.5253	mg/L	102	85	115	1	20	
Beryllium, dissol	ved		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper_	RPD	Limit	Qual
WG574608													
WG574608 WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.050624	mg/L	101	90	110			
WG574608 WG574608ICV WG574608ICB	ICV ICB	09/19/23 17:39 09/19/23 17:41	MS230908-1	.05		.050624 .000141	mg/L mg/L	101	90 -0.000176	110 0.000176			
WG574608 WG574608ICV WG574608ICB WG574608LFB	ICV ICB LFB	09/19/23 17:39 09/19/23 17:41 09/19/23 17:43	MS230908-1 MS230912-3	.05		.050624 .000141 .049098	mg/L mg/L mg/L	101 98	90 -0.000176 85	110 0.000176 115			
WG574608ICV WG574608ICV WG574608ICB WG574608LFB L82894-01AS	ICV ICB LFB AS	09/19/23 17:39 09/19/23 17:41 09/19/23 17:43 09/19/23 18:02	MS230908-1 MS230912-3 MS230912-3	.05 .05005 .05005	U	.050624 .000141 .049098 .053119	mg/L mg/L mg/L mg/L	101 98 106	90 -0.000176 85 70	110 0.000176 115 130			

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Cadmium, dissol	ved		M200.8 IC	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.052561	mg/L	105	90	110			
WG574608ICB	ICB	09/19/23 17:41				U	mg/L		-0.00011	0.00011			
WG574608LFB	LFB	09/19/23 17:43	MS230912-3	.05005		.049815	mg/L	100	85	115			
L82894-01AS	AS	09/19/23 18:02	MS230912-3	.05005	U	.052434	mg/L	105	70	130			
L82894-01ASD	ASD	09/19/23 18:04	MS230912-3	.05005	U	.053864	mg/L	108	70	130	3	20	
Chromium, disso	olved		M200.8 IC	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.052	mg/L	104	90	110			
WG574608ICB	ICB	09/19/23 17:41				U	mg/L		-0.0011	0.0011			
WG574608LFB	LFB	09/19/23 17:43	MS230912-3	.0501		.04835	mg/L	97	85	115			
L82894-01AS	AS	09/19/23 18:02	MS230912-3	.0501	.0015	.05285	mg/L	102	70	130			
L82894-01ASD	ASD	09/19/23 18:04	MS230912-3	.0501	.0015	.05308	mg/L	103	70	130	0	20	
Conductivity @2	5C		SM2510B										
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG575131													
WG575131PBW	PBW	09/26/23 13:54				U	umhos/cm		-10	10			
WG575131LCSW1	LCSW	09/26/23 13:55	PCN624694	1409		1403	umhos/cm	100	90	110			
L82893-03DUP	DUP	09/26/23 14:13			398	395	umhos/cm				1	20	
WG575131LCSW2	LCSW	09/26/23 14:32	PCN624694	1409		1419	umhos/cm	101	90	110			
WG575131LCSW3	LCSW	09/26/23 15:10	PCN624694	1409		1384	umhos/cm	98	90	110			
WG575131LCSW4	LCSW	09/26/23 15:47	PCN624694	1409		1371	umhos/cm	97	90	110			
WG575131LCSW5	LCSW	09/26/23 16:24	PCN624694	1409		1355	umhos/cm	96	90	110			
WG575131LCSW6	LCSW	09/26/23 17:01	PCN624694	1409		1379	umhos/cm	98	90	110			
WG575131LCSW7	LCSW	09/26/23 17:03	PCN624694	1409		1351	umhos/cm	96	90	110			
WG575131LCSW8	LCSW	09/26/23 17:37	PCN624694	1409		1330	umhos/cm	94	90	110			
Copper, dissolve	d		M200.8 IC	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.05358	mg/L	107	90	110			
WG574608ICB	ICB	09/19/23 17:41				U	mg/L		-0.00176	0.00176			
WG574608LFB	LFB	09/19/23 17:43	MS230912-3	.05005		.04866	mg/L	97	85	115			
L82894-01AS	AS	09/19/23 18:02	MS230912-3	.05005	U	.05181	mg/L	104	70	130			
L82894-01ASD	ASD	09/19/23 18:04	MS230912-3	.05005	U	.05236	mg/L	105	70	130	1	20	
Cyanide, Free			D6888-09	/OIA-1677	-09								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG573667													
WG573667ICV	ICV	09/06/23 14:53	WI230906-8	.3003		.2741	mg/L	91	90	110			
WG573667ICB	ICB	09/06/23 14:55				U	mg/L		-0.003	0.003			
WG573667LFB	LFB	09/06/23 14:59	WI230906-11	.1001		.0936	mg/L	94	90	110			
L80295-10AS	AS	09/06/23 15:27	WI230906-11	.1001	U	.0887	mg/L	89	90	110			MA
L80295-10ASD	ASD	09/06/23 15:29	WI230906-11	.1001	U	.0915	mg/L	91	90	110	3	20	MA

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Fluoride			SM4500F	-C									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574986													
WG574986ICV	ICV	09/25/23 11:36	WC230915-1	2.002		2.07	mg/L	103	90	110			
WG574986ICB	ICB	09/25/23 11:44				U	mg/L		-0.3	0.3			
WG574986LFB1	LFB	09/25/23 11:53	WC230825-1	5.005		5.19	mg/L	104	90	110			
WG574986LFB2	LFB	09/25/23 14:35	WC230825-1	5.005		5	mg/L	100	90	110			
L82896-01AS	AS	09/25/23 15:34	WC230825-1	5.005	.83	5.71	mg/L	98	90	110			
L82896-01ASD	ASD	09/25/23 15:38	WC230825-1	5.005	.83	5.71	mg/L	98	90	110	0	20	
Iron, dissolved			M200.7 IC	P									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574802													
WG574802ICV	ICV	09/22/23 13:51	II230905-2	2		1.938	mg/L	97	95	105			
WG574802ICB	ICB	09/22/23 13:57				U	mg/L		-0.18	0.18			
WG574802LFB	LFB	09/22/23 14:09	II230907-5	1.004		1.07	mg/L	107	85	115			
L82895-01AS	AS	09/22/23 14:19	II230907-5	1.004	U	1.089	mg/L	108	85	115			
L82895-01ASD	ASD	09/22/23 14:22	II230907-5	1.004	U	1.112	mg/L	111	85	115	2	20	
Lead, dissolved			M200.8 IC	P-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.05161	mg/L	103	90	110			
WG574608ICB	ICB	09/19/23 17:41				U	mg/L		-0.00022	0.00022			
WG574608LFB	LFB	09/19/23 17:43	MS230912-3	.05005		.04973	mg/L	99	85	115			
L82894-01AS	AS	09/19/23 18:02	MS230912-3	.05005	U	.05257	mg/L	105	70	130			
L82894-01ASD	ASD	09/19/23 18:04	MS230912-3	.05005	U	.05366	mg/L	107	70	130	2	20	
Manganese, diss	olved		M200.7 IC	P									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574802													
WG574802ICV	ICV	09/22/23 13:51	II230905-2	2		1.938	mg/L	97	95	105			
WG574802ICB	ICB	09/22/23 13:57				U	mg/L		-0.03	0.03			
WG574802LFB	LFB	09/22/23 14:09	II230907-5	.4995		.531	mg/L	106	85	115			
L82895-01AS	AS	09/22/23 14:19	II230907-5	.4995	.017	.542	mg/L	105	85	115			
L82895-01ASD	ASD	09/22/23 14:22	11230907-5	.4995	.017	.55	mg/L	107	85	115	1	20	
Mercury, dissolv	ed		M245.1 C	VAA									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574478													
WG574478ICV	ICV	09/19/23 8:42	HG230911-14	.005		.00518	mg/L	104	95	105			
WG574478ICB	ICB	09/19/23 8:43				U	mg/L		-0.0002	0.0002			
WG574479													
WG574479LRB	LRB	09/19/23 9:26				U	mg/L		-0.00044	0.00044			
WG574479LFB	LFB	09/19/23 9:27	HG230911-17	.002002		.00197	mg/L	98	85	115			
L82850-01LFM	LFM	09/19/23 9:29	HG230911-17	.002002	U	.00176	- mg/L	88	85	115			
L82850-01LFMD	LFMD	09/19/23 9:30	HG230911-17	.002002	U	.00178	mg/L	89	85	115	1	20	

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ACZ Project ID: L82880

Nickel, dissolved			M200.7 IC	Р									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574802													
WG574802ICV	ICV	09/22/23 13:51	II230905-2	2.002		1.9845	mg/L	99	95	105			
WG574802ICB	ICB	09/22/23 13:57				U	mg/L		-0.024	0.024			
WG574802LFB	LFB	09/22/23 14:09	II230907-5	.5		.5154	mg/L	103	85	115			
L82895-01AS	AS	09/22/23 14:19	II230907-5	.5	U	.5287	mg/L	106	85	115			
L82895-01ASD	ASD	09/22/23 14:22	II230907-5	.5	U	.5383	mg/L	108	85	115	2	20	
Nitrate/Nitrite as	N		M353.2 - A	Automate	d Cadmiur	n Reduc	tion						
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG573720													
WG573720ICV	ICV	09/06/23 23:17	WI230701-1	2.416		2.409	mg/L	100	90	110			
WG573720ICB	ICB	09/06/23 23:18				U	mg/L		-0.02	0.02			
WG573720LFB	LFB	09/06/23 23:22	WI230829-3	2		2.093	mg/L	105	90	110			
L82879-01AS	AS	09/06/23 23:24	WI230829-3	2	U	2.039	mg/L	102	90	110			
L82879-02DUP	DUP	09/06/23 23:27			U	U	mg/L				0	20	RA
Nitrite as N			M353.2 - A	Automate	d Cadmiur	n Reduc	tion						
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG573720													
WG573720ICV	ICV	09/06/23 23:17	WI230701-1	.608		.623	mg/L	102	90	110			
WG573720ICB	ICB	09/06/23 23:18				U	mg/L		-0.01	0.01			
WG573720LFB	LFB	09/06/23 23:22	WI230829-3	1		1.048	mg/L	105	90	110			
L82879-01AS	AS	09/06/23 23:24	WI230829-3	1	U	1.058	mg/L	106	90	110			
L82879-02DUP	DUP	09/06/23 23:27			U	U	mg/L				0	20	RA
pH (lab)			SM4500H	+ B									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG573872													
WG573872LCSW1	LCSW	09/08/23 20:47	PCN624449	6		5.96	units	99	5.9	6.1			
L82887-01DUP	DUP	09/08/23 22:31			3.2	3.2	units				0	20	
WG573872LCSW3	LCSW	09/08/23 22:33	PCN624449	6		6.02	units	100	5.9	6.1			
WG573872LCSW5	LCSW	09/09/23 0:03	PCN624449	6		6.03	units	101	5.9	6.1			
WG573872LCSW7	LCSW	09/09/23 1:33	PCN624449	6		5.99	units	100	5.9	6.1			
WG573872LCSW9	LCSW	09/09/23 3:14	PCN624449	6		6	units	100	5.9	6.1			
WG573872LCSW11	LCSW	09/09/23 5:03	PCN624449	6		6	units	100	5.9	6.1			
Residue, Filterab	le (TDS) @180C	SM2540C										
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG573807													
WG573807PBW	PBW	09/07/23 14:55				U	ma/L		-20	20			
WG573807I CSW	LCSW	09/07/23 14:57	PCN625104	1000		982	mg/L	98	80	120			
L82887-01DUP	DUP	09/07/23 16:00			10600	10540	mg/L				1	10	

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ACZ Project ID: L82880

Selenium, disso	lved		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.05149	mg/L	103	90	110			
WG574608ICB	ICB	09/19/23 17:41				U	mg/L		-0.00022	0.00022			
WG574608LFB	LFB	09/19/23 17:43	MS230912-3	.05005		.04849	mg/L	97	85	115			
L82894-01AS	AS	09/19/23 18:02	MS230912-3	.05005	.00149	.05618	mg/L	109	70	130			
L82894-01ASD	ASD	09/19/23 18:04	MS230912-3	.05005	.00149	.0572	mg/L	111	70	130	2	20	
Sulfate			D516-02/	-07/-11 - TI	URBIDIME	ETRIC							
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574740													
WG574740ICB	ICB	09/20/23 10:44				U	mg/L		-3	3			
WG574740ICV	ICV	09/20/23 10:44	WI230911-4	20		20.6	mg/L	103	90	110			
WG574740LFB	LFB	09/20/23 15:57	WI230119-9	10		9.7	mg/L	97	90	110			
L82894-01AS	AS	09/20/23 16:30	WI230119-9	10	11.7	21.7	mg/L	100	90	110			
L82893-03DUP	DUP	09/20/23 16:33			116	115.1	mg/L				1	20	
Thallium, dissol	ved		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG574608													
WG574608ICV	ICV	09/19/23 17:39	MS230908-1	.05		.05305	mg/L	106	90	110			
WG574608ICB	ICB												
	ICD	09/19/23 17:41				U	mg/L		-0.00022	0.00022			
WG574608LFB	LFB	09/19/23 17:41 09/19/23 17:43	MS230912-3	.0501		U .04956	mg/L mg/L	99	-0.00022 85	0.00022 115			
WG574608LFB L82894-01AS	LFB AS	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02	MS230912-3 MS230912-3	.0501 .0501	U	U .04956 .05304	mg/L mg/L mg/L	99 106	-0.00022 85 70	0.00022 115 130			
WG574608LFB L82894-01AS L82894-01ASD	LFB AS ASD	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04	MS230912-3 MS230912-3 MS230912-3	.0501 .0501 .0501	U U	U .04956 .05304 .0536	mg/L mg/L mg/L mg/L	99 106 107	-0.00022 85 70 70	0.00022 115 130 130	1	20	
WG574608LFB L82894-01AS L82894-01ASD Zinc, dissolved	LFB AS ASD	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04	MS230912-3 MS230912-3 MS230912-3 MS230912-3	.0501 .0501 .0501 CP	U U	U .04956 .05304 .0536	mg/L mg/L mg/L	99 106 107	-0.00022 85 70 70	0.00022 115 130 130	1	20	
WG574608LFB L82894-01AS L82894-01ASD Zinc, dissolved ACZ ID	LFB AS ASD	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04 Analyzed	MS230912-3 MS230912-3 MS230912-3 M200.7 IC PCN/SCN	.0501 .0501 .0501 CP QC	U U Sample	U .04956 .05304 .0536	mg/L mg/L mg/L Mg/L	99 106 107 Rec%	-0.00022 85 70 70 Lower	0.00022 115 130 130 Upper	1 RPD	20 Limit	Qual
WG574608LFB L82894-01AS L82894-01ASD Zinc, dissolved ACZ ID WG574802	LFB AS ASD	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04 Analyzed	MS230912-3 MS230912-3 MS230912-3 M200.7 K PCN/SCN	.0501 .0501 .0501 CP QC	U U Sample	U .04956 .05304 .0536	mg/L mg/L mg/L mg/L	99 106 107 Rec%	-0.00022 85 70 70 Vower	0.00022 115 130 130 Upper	1 RPD	20 Limit	Qual
WG574608LFB L82894-01AS L82894-01ASD Zinc, dissolved ACZ ID WG574802 WG574802ICV	ICD LFB AS ASD Type	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04 Analyzed 09/22/23 13:51	MS230912-3 MS230912-3 MS230912-3 M200.7 K PCN/SCN II230905-2	.0501 .0501 .0501 CP QC 2	U U Sample	U .04956 .05304 .0536 Found	mg/L mg/L mg/L Units mg/L	99 106 107 Rec% 96	-0.00022 85 70 70 Lower 95	0.00022 115 130 130 Upper 105	1 RPD	20 Limit	Qual
WG574608LFB L82894-01AS L82894-01ASD Zinc, dissolved ACZ ID WG574802 WG574802ICV WG574802ICS	LFB AS ASD Type ICV ICB	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04 Analyzed 09/22/23 13:51 09/22/23 13:57	MS230912-3 MS230912-3 MS230912-3 M200.7 IC PCN/SCN II230905-2	.0501 .0501 .0501 CP QC 2	U U Sample	U .04956 .05304 .0536 Found 1.914 U	mg/L mg/L mg/L mg/L Units mg/L mg/L	99 106 107 Rec% 96	-0.00022 85 70 70 Lower 95 -0.06	0.00022 115 130 130 Upper 105 0.06	1 RPD	20 Limit	Qual
WG574608LFB L82894-01AS L82894-01ASD Zinc, dissolved AC2 ID WG574802 WG574802ICV WG574802ICB WG574802LFB	LFB AS ASD Type ICV ICB LFB	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04 Analyzed 09/22/23 13:51 09/22/23 13:57 09/22/23 14:09	MS230912-3 MS230912-3 MS230912-3 M200.7 If PCN/SCN II230905-2 II230907-5	.0501 .0501 .0501 CP QC 2 .50045	U U Sample	U .04956 .05304 .0536 Found 1.914 U .51	mg/L mg/L mg/L Units mg/L mg/L mg/L	99 106 107 Rec% 96 102	-0.00022 85 70 70 Lower 95 -0.06 85	0.00022 115 130 130 Upper 105 0.06 115	1 RPD	20 Limit	Qual
WG574608LFB L82894-01ASD Zinc, dissolved ACZ ID WG574802ICV WG574802ICV WG574802LFB L82895-01AS	ICU LFB AS ASD Type ICV ICB LFB AS	09/19/23 17:41 09/19/23 17:43 09/19/23 18:02 09/19/23 18:04 Analyzed 09/22/23 13:51 09/22/23 13:57 09/22/23 14:09 09/22/23 14:19	MS230912-3 MS230912-3 MS230912-3 M200.7 If PCN/SCN II230905-2 II230907-5 II230907-5	.0501 .0501 .0501 CP QC 2 .50045 .50045	U U Sample	U .04956 .05304 .0536 Found 1.914 U .51 .581	mg/L mg/L mg/L Units Units mg/L mg/L mg/L	99 106 107 Rec% 96 102 112	-0.00022 85 70 70 Lower 95 -0.06 85 85	0.00022 115 130 130 Upper 105 0.06 115 115	1 RPD	20 Limit	Qual



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South32

ACZ Project ID: L82880

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L82880-01	NG573872	Bicarbonate as CaCO3	SM2320B - Titration	Q6	Sample was received above recommended temperature.
		Carbonate as CaCO3	SM2320B - Titration	Q6	Sample was received above recommended temperature.
	WG575131	Conductivity @25C	SM2510B	Q6	Sample was received above recommended temperature.
	WG573667	Cyanide, Free	D6888-09/OIA-1677-09	Q6	Sample was received above recommended temperature.
	WG574986	Fluoride	SM4500F-C	Q6	Sample was received above recommended temperature.
	WG573872	Hydroxide as CaCO3	SM2320B - Titration	Q6	Sample was received above recommended temperature.
	WG573720	Nitrate/Nitrite as N	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	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).
	WG573872	рН	SM4500H+ B	Q6	Sample was received above recommended temperature.
		pH measured at	SM4500H+ B	Q6	Sample was received above recommended temperature.
	WG573807	Residue, Filterable (TDS) @180C	SM2540C	Q6	Sample was received above recommended temperature.
	WG574740	Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	Q6	Sample was received above recommended temperature.
	WG573872	Total Alkalinity	SM2320B - Titration	Q6	Sample was received above recommended temperature.
			SM2320B - Titration	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).

2773 Downhill Drive	e Steamb	boat Springs, CO	80487 (800) 3	334-5493			larytio		
South32 Project ID: Sample ID: Locator:	454244 POC-2 <u>-</u>	0391 _09012023			ACZ Dat Date Sar	Sample IE e Samplec e Receivec nple Matriy): L828 I: 09/01 I: 09/05 K: Groui	80-01 /23 0:0 //23 ndwatei	0 r
Combined Radium (Calculation (RA226	(total) + RA228))						Pre	p Method:
Parameter Combined Radium ((total)	Measure Date 10/09/23 11:42	Prep Date	Result 0	Error(+/-)	LLD	Units pCi/L	XQ	Analyst calc
Gross Alpha Total, d Calculation	corrected							Pre	p Method:
Parameter Gross Alpha Total, o	corrected	Measure Date 10/09/23 11:43	Prep Date	Result -5.8	Error(+/-)	LLD	Units pCi/L	XQ	Analyst calc
Gross Alpha, total M900.0								Pre	p Method:
Parameter		Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, total		10/06/23 0:04		-5.8	3.5	31	pCi/L	*	trt
Radium 226 + Alpha M903.0	a Emitting	Radium Isotopes	, total					Pre	p Method:
Parameter		Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	a	09/25/23 0:07		-0.19	0.14	0.88	pCi/L		ksl
Radium 228, total M904.0								Pre	p Method:
Parameter		Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, total		09/17/23 19:40		1.1	0.76	1.9	pCi/L	*	amk
Uranium, Isotopic T Eichrom ACW03	otal							Pre	p Method:
Parameter		Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Uranium 234, total		09/24/23 14:10		1.44	1.7	2.8	pCi/L	*	amk
Uranium 235, total		09/24/23 14:10		-1.45	1	2.8	pCi/L	*	amk
Uranium 238, total		09/24/23 14:10		0.581	1.1	2	pCi/L	*	amk

Arizona license number: AZ0102

ACZ Laboratories, Inc.



Radiochemistry Reference

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Report Head	der 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/SC	N 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

М	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://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP003.09.12.01

ACZ Project ID: L82880

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.

Gross Alpha, tot	tal		M900.0										Uni	ts: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG575706																
WG575706PBW	PBW	10/06/23						.03	0.82	12			24			
WG575706LCSW A	LCSW	10/06/23	PCN625402	100				100	8.8	12	100	67	144			
L83360-01DUP	DUP-RER	10/06/23			0.93	1.4	10	1.6	1.7	5.1				0.3	2	
L83360-01DUP	DUP-RPD	10/06/23			0.93	1.4	10	1.6	1.7	5.1				53	20	RG
L83360-02MS A	MS	10/06/23	PCN625402	100	-0.82	0.53	5.1	100	8.7	4.8	101	67	144			
L83567-07DUP	DUP-RER	10/06/23			0.44	2.1	9.4	1	1.3	4.6				0.23	2	
L83567-07DUP	DUP-RPD	10/06/23			0.44	2.1	9.4	1	1.3	4.6				78	20	RG

Radium 226 + Alpha Emitting Radium M903.0

ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG574871																
WG574871PBW	PBW	09/25/23						14	0.12	0.23			0.46			
WG574871LCSW	LCSW	09/25/23	PCN624896	20				19	1.4	0.2	95	66	132			
L83252-01DUP	DUP-RPD	09/25/23			-0.18	0.12	0.93	2	0.13	0.95				11	20	
L83252-08DUP	DUP-RPD	09/25/23			-0.02	0.1	0.64	19	0.16	1				162	20	RG
L83252-04MS	MS	09/25/23	PCN624896	20	0.29	0.24	0.88	19	1.4	0.84	94	66	132			
L83252-08DUP	DUP-RER	09/25/23			-0.02	0.1	0.64	19	0.16	1				0.9	2	

Units: pCi/L

ACZ Project ID: L82880

Radium 228, tot	tal		M904.0										Uni	t s: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG574407												-				
WG574407LCSW	LCSW	09/17/23	PCN623727	8.91				8.2	1	0.7	92	47	123			
WG574407PBW	PBW	09/17/23						.17	0.47	0.49			0.98			
L82723-01DUP	DUP-RER	09/17/23			2.7	2.7	6.8	4.7	2.5	6.2				0.54	2	
L82723-01DUP	DUP-RPD	09/17/23			2.7	2.7	6.8	4.7	2.5	6.2				54	20	RG
L83137-02DUP	DUP-RPD	09/17/23			2.3	1.1	2.7	2.3	1.2	2.9				0	20	
L83083-02MS	MS	09/17/23	PCN623727	8.91	3.2	1.2	2.8	17	1.8	3	155	47	123			M1
L83137-02DUP	DUP-RER	09/17/23			2.3	1.1	2.7	2.3	1.2	2.9				0	2	
U-232			Eichrom ACV	W03									Uni	t s: %		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG574435																
WG574435LCSW	LCSW	09/23/23	PCN625391					65	130	30						
L82605-02DUP	DUP-RER	09/24/23			83	130	30	81	130	30					20	
L82605-02DUP	DUP-RPD	09/24/23			83	130	30							2	20	
L82605-02DUP	DUP-RPD	09/24/23			83	130	30	81	130	30					20	
L82880-01MS	MS	09/24/23	PCN625391		70	130	30	76	130	30						
L82880-01DUP	DUP-RPD	09/24/23			70	130	30	79	130	30					20	
L02000-01D01	DUP-RER	09/24/23			70	130	30	79	130	30					20	
L82880-01DUP	DUP-RER DUP-RPD	09/24/23 09/24/23			70 70	130 130	30 30	79	130	30				12	20 20	

ACZ Project ID: L82880

U-234			Eichrom AC	W03									Uni	ts: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG574435																
WG574435LCSW	LCSW	09/23/23	PCN625391	98.2				93.4	13	3.3	95	77	122			
L82605-02DUP	DUP-RER	09/24/23			5.01	1.9	2.1	6.41	2.2	2.5				0.48	2	
L82605-02DUP	DUP-RPD	09/24/23			5.01	1.9	2.1	6.41	2.2	2.5				25	20	RG
L82880-01MS	MS	09/24/23	PCN625391	98.2	1.44	1.7	2.8	95.8	12	2.7	96	77	122			
L82880-01DUP	DUP-RER	09/24/23			1.44	1.7	2.8	3.14	1.6	1.9				0.73	2	
L82880-01DUP	DUP-RPD	09/24/23			1.44	1.7	2.8	3.14	1.6	1.9				74	20	RG
WG574435PBW	PBW	09/24/23						1.43	1.5	2.5			5			
U-235			Eichrom AC	W03									Uni	ts: pCi/L		
U-235 ACZ ID	Туре	Analyzed	Eichrom AC	W03 QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Uni Upper	ts: pCi/L RPD/RER	Limit	Qual
U-235 ACZ ID WG574435	Туре	Analyzed	Eichrom AC	03 QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Uni Upper	t s: pCi/L RPD/RER	Limit	Qual
U-235 ACZ ID WG574435 WG574435LCSW	Type	Analyzed 09/23/23	Eichrom ACV PCN/SCN PCN625391	W03 QC 4.48	Sample	Error	LLD	Found 3.55	Error 2.3	LLD 3.2	Rec% 79	Lower 42	Uni Upper 136	ts: pCi/L RPD/RER	Limit	Qual
U-235 ACZ ID WG574435 WG574435LCSW L82605-02DUP	Type LCSW DUP-RER	Analyzed 09/23/23 09/24/23	Eichrom ACV PCN/SCN PCN625391	W03 QC 4.48	Sample -0.461	Error 0.82	LLD 2	Found 3.55 .602	Error 2.3 1.1	LLD 3.2 2	Rec%	Lower 42	Uni Upper 136	ts: pCi/L RPD/RER 0.77	Limit 2	Qual
U-235 ACZ ID WG574435 WG574435LCSW L82605-02DUP L82605-02DUP	Type LCSW DUP-RER DUP-RPD	Analyzed 09/23/23 09/24/23 09/24/23	Eichrom ACV PCN/SCN PCN625391	W03 QC 4.48	Sample -0.461 -0.461	Error 0.82 0.82	LLD 2 2	Found 3.55 .602 .602	Error 2.3 1.1 1.1	LLD 3.2 2 2	Rec%	Lower 42	Uni Upper 136	ts: pCi/L RPD/RER 0.77 1508	Limit 2 20	Qual
U-235 ACZ ID WG574435 WG574435LCSW L82605-02DUP L82605-02DUP L82880-01MS	Type LCSW DUP-RER DUP-RPD MS	Analyzed 09/23/23 09/24/23 09/24/23 09/24/23	Eichrom ACV PCN/SCN PCN625391 PCN625391	W03 QC 4.48 4.48	Sample -0.461 -0.461 -1.45	Error 0.82 0.82 1	LLD 2 2 2.8	Found 3.55 .602 .602 2.4	Error 2.3 1.1 1.1 1.8	LLD 3.2 2 2 2.6	Rec% 79 86	Lower 42 42	Uni Upper 136 136	ts: pCi/L RPD/RER 0.77 1508	Limit 2 20	Qual RG
U-235 ACZ ID WG574435 WG574435LCSW L82605-02DUP L82605-02DUP L82800-01MS L82880-01DUP	Type LCSW DUP-RER DUP-RPD MS DUP-RER	Analyzed 09/23/23 09/24/23 09/24/23 09/24/23 09/24/23	Eichrom ACV PCN/SCN PCN625391 PCN625391	W03 QC 4.48 4.48	-0.461 -0.461 -1.45 -1.45	Error 0.82 0.82 1 1	2 2 2.8 2.8	Found 3.55 .602 .602 2.4 1.01	Error 2.3 1.1 1.1 1.8 1	3.2 2 2 2.6 1.6	Rec% 79 86	Lower 42 42	Uni Upper 136 136	ts: pCi/L RPD/RER 0.77 1508 1.74	Limit 2 20 2	Qual
U-235 ACZ ID WG574435 WG574435LCSW L82605-02DUP L82605-02DUP L82880-01MS L82880-01DUP L82880-01DUP	Type LCSW DUP-RER DUP-RPD MS DUP-RER DUP-RER DUP-RPD	Analyzed 09/23/23 09/24/23 09/24/23 09/24/23 09/24/23 09/24/23	Eichrom ACV PCN/SCN PCN625391 PCN625391	W03 QC 4.48 4.48	-0.461 -0.461 -1.45 -1.45 -1.45 -1.45	Error 0.82 0.82 1 1 1 1	LLD 2 2.8 2.8 2.8 2.8	Found 3.55 .602 2.4 1.01 1.01	Error 2.3 1.1 1.1 1.8 1 1	3.2 2 2 2.6 1.6 1.6	Rec% 79 86	Lower 42 42	Unir Upper 136 136	ts: pCi/L RPD/RER 0.77 1508 1.74 1118	Limit 2 20 2 20	Qual RG RG

ACZ Project ID: L82880

U-238			Eichrom ACV	V03									Uni	ts: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG574435																
WG574435LCSW	LCSW	09/23/23	PCN625391	97.3				98.1	13	1.6	101	87	124			
L82605-02DUP	DUP-RER	09/24/23			4.77	1.6	1.2	8.51	2.2	1.6				1.37	2	
L82605-02DUP	DUP-RPD	09/24/23			4.77	1.6	1.2	8.51	2.2	1.6				56	20	RG
L82880-01MS	MS	09/24/23	PCN625391	97.3	0.581	1.1	2	98.8	13	1.8	101	87	124			
L82880-01DUP	DUP-RPD	09/24/23			0.581	1.1	2	1.63	1.2	1.8				95	20	RG
L82880-01DUP	DUP-RER	09/24/23			0.581	1.1	2	1.63	1.2	1.8				0.64	2	
WG574435PBW	PBW	09/24/23						2.74	1.2	1.3			2.6			B4 B7



(800) 334-5493

South32

ACZ Project ID: L82880

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L82880-01	WG575706	Gross Alpha, total	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.
	WG574407	Radium 228, total	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M904.0	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.
	WG574435	Uranium 234, total	Eichrom ACW03	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.
		Uranium 235, total	Eichrom ACW03	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.
		Uranium 238, total	Eichrom ACW03	B4	Target analyte detected in blank at or above the acceptance criteria.
			Eichrom ACW03	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.



South32

ACZ Project ID: L82880

Radiochemistry

The following parameters are not offered for certification or a	re not covered by AZ certificate #AZ0102.
Uranium 234, total	Eichrom ACW03
Uranium 235, total	Eichrom ACW03
Uranium 238, total	Eichrom ACW03
The following parameters are not offered for certification or a	re not covered by NELAC certificate #ACZ.
Uranium 234, total	Eichrom ACW03
Uranium 235, total	Eichrom ACW03
Uranium 238, total	Eichrom ACW03

Wet Chemistry

The following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.

Cyanide, Free

D6888-09/OIA-1677-09

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

South32 AC 4542440391 Da	CZ Proje ate Rece	ct ID: eived: 09	9/05/202	L82880 3 11:48
	Receive	ed By:		
	Date Pri	inted:	9	/6/2023
Receipt Verification		VEC	NO	NIA
1) Is a foreign soil permit included for applicable samples?		TES	NO	X
2) Is the Chain of Custody form or other directive shipping papers present?		Х	<u></u>	
3) Does this project require special handling procedures such as CLP protocol?			Х	
4) Are any samples NRC licensable material?				Х
5) If samples are received past hold time, proceed with requested short hold time analys	es?	Х		
6) Is the Chain of Custody form complete and accurate?		Х		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the sam	ples?		Х	
Samples/Containers				
		YES	NO	NA
8) Are all containers intact and with no leaks?		Х		
9) Are all labels on containers and are they intact and legible?		Х		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Tir	ne?	Х		
11) For preserved bottle types, was the pH checked and within limits? $ ^{1}$		Х		
12) Is there sufficient sample volume to perform all requested work?		Х		
13) Is the custody seal intact on all containers?				Х
14) Are samples that require zero headspace acceptable?				Х
15) Are all sample containers appropriate for analytical requirements?		Х		
16) Is there an Hg-1631 trip blank present?				Х
17) Is there a VOA trip blank present?				Х
18) Were all samples received within hold time?			Х	
Some parameters were received past hold time.		NA indicat	tes Not Ap	plicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA41151	19.2	<=6.0	15	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.



South32 4542440391 ACZ Project ID: L82880 Date Received: 09/05/2023 11:48 Received By: Date Printed: 9/6/2023

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), HCI preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 E-mail: Matt.Owens1@south32.net Telephone: 520-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 Tele	2773 Downhill Drive Steamboa	DOFATORIES, Ind	C.	1828	27)	CHAIN	of CUSTC	DY
Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 E-mail: Matt.Owens1@south32.net Telephone: 520-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 ent HT remains to complete Yes No No X to PQL for Colorado. ation State AZ ANLYSES REQUESTED (attach list or use quote number) Yes No Yes Yes NALYSES REQUESTED (attach list or use quote number) Yes Yes Yes Yes <th>Report to:</th> <th>t Springs, CO 80487 (800) 3</th> <th>334-5493</th> <th>1000</th> <th></th> <th></th> <th></th> <th></th>	Report to:	t Springs, CO 80487 (800) 3	334-5493	1000				
Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 E-mail: Matt.Owens1@south32.net Telephone: 520-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Patagonia, AZ 85648 Telephone: 505-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: Telephone: 505-947-1738 ant HT remains to complete YES Yes No No X to POL for Colorado. Xip code ation State_AZ Zip code 85624 Yets No X ANALYSES RECUESTED (attach list or use quote number) Xip code Yet Xip code Xip code Xip code Yet Xip code Xip code Xip code Xip code Yet Xip code Xip code Xip code Xip code Xip code Yet No Xip code	Name: Kara Haas							_
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E-mail: Matt.Owens1@south32.net Telephone: 520-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 ent HT remains to complete ted short HT analyses? No witch ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified Yes No vitation State ADU To Colorado. vitation State Vestored with the requested analyses, even if HT is expired, and data will be qualified Yes No vitation State ADU To Colorado. vitation State vitation State ANALYSES REQUESTED (attach list or use quote number) vitation So So S	Copy of Report to:			l elephone:	505-947	-1738		
E-mail: Matt.Owens1@south32.net Telephone: 520-947-1738 Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 ant HT remains to complete YES NO Yes NO Yes No Yes No Xet Yes No Xet Yes No Xet	ame: Matt Owens							
Address: 749 Harshaw Road Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 ant HT remains to complete YES ted short HT analyses? NO Matrix Yes No X to PQL for Colorado. Imme Zone attain State AZ Zip code 85624 Time Zone to PQL for Colorado. attom state AZ attom state AZ ANALYSES REQUESTED (attach list or use quote number) So So	Company: South32		-	E-mail: Ma	tt.Owens	1@south32	.net	
Address: 749 Harshaw Road Patagonia, AZ 85648 Telephone: 505-947-1738 ant HT remains to complete ted short HT analyses? Mo Yes No Yes No Xet to PQL for Colorado. Time Zone AZ Time Zone AZ To the authentidity and validity of this sample. I understand that intentionally mistabeling the time/date/location or pritti the sample in anyway, is considered fraud and punishable by State Law. ANALYSES REQUESTED (attach list or use quote number) Yes So So So Matrix ## So GW 7 Xet Complete Complete Complete Complete No Complete No No No No No No No No No No	avoice to:			l elephone:	520-947-	1738		
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Pation State AZ Zip code 85624 Time Zone AZ to the authenticity and validity of this sample. I understand that intentionally mislableing the time/data/location or with the sample in anyway. Is considered fraud and purishable by State Law.	yes, please include state form	ns/Results will be reported	to PQL f	Yes	No	×		
o the authenticity and validity of this sample. Lunderstand that intentionally mislabeling the time/date/location or switch the sample in anyway, is considered fraud and punishable by State Law. ANALYSES REQUESTED (attach list or use quote number)	ampler's Name: jaime lope	Z Sampler's Site Inform	ation	State AZ		ode 85624	Tire - 7	Δ7
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Yellow - Retain for your records.

L82880 Chain of Custod