July 15, 2022

Report to: Bill to:

Kara Haas Accounts Payable

South32 South32

2210 E Ft. Lowell Rd. 2210 E Fort Lowell Road

Tucson, AZ 85719 Tucson, AZ 85719

Project ID:

ACZ Project ID: L74129

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 23, 2022. This project has been assigned to ACZ's project number, L74129. 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 L74129. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after July 04, 2024. 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.

Scott Habermehl has reviewed and approved this report.

S. Havermehl





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South32 ACZ Sample ID: L74129-01

Project ID: Date Sampled: 06/22/22 10:45 Sample ID: OUTFALL 1-06222022 Date Received: 06/23/22

Sample Matrix: Surface Water

Inorganic Prep										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS								06/30/22 14:13	kja
Total Hot Plate Digestion	M200.2 ICP								07/05/22 22:30	aeh
Metals Analysis										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, dissolved	M200.8 ICP-MS	1	0.0197			mg/L	0.0002	0.001	07/01/22 20:24	kja
Arsenic, total	M200.8 ICP-MS	1	0.0224			mg/L	0.0002	0.001	07/01/22 10:36	kja
Cadmium, dissolved	M200.8 ICP-MS	1	0.000253			mg/L	0.00005	0.00025	07/01/22 20:24	kja
Cadmium, total	M200.8 ICP-MS	1	0.000537			mg/L	0.00005	0.00025	07/01/22 10:36	kja
Calcium, dissolved	M200.7 ICP	1	153			mg/L	0.1	0.5	07/12/22 17:59	keh1
Copper, dissolved	M200.8 ICP-MS	1	<0.0008	U		mg/L	0.0008	0.002	07/01/22 20:24	kja
Copper, total	M200.7 ICP	1	0.049	В	*	mg/L	0.01	0.05	07/08/22 4:04	wtc
Lead, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	07/01/22 20:24	kja
Lead, total	M200.8 ICP-MS	1	0.0142			mg/L	0.0001	0.0005	07/01/22 10:36	kja
Magnesium, dissolved	M200.7 ICP	1	31.5			mg/L	0.2	1	07/14/22 17:19	keh1
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	07/01/22 20:24	kja
Silver, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	07/01/22 10:36	kja
Zinc, dissolved	M200.8 ICP-MS	1	0.0516		*	mg/L	0.006	0.015	07/01/22 20:24	kja
Zinc, total	M200.7 ICP	1	0.160			mg/L	0.02	0.05	07/08/22 4:04	wtc
Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cyanide, Free	D6888-09/OIA-1677-09	1	<0.003	U	*	mg/L	0.003	0.01	06/27/22 16:43	mjj1
Hardness as CaCO3 (dissolved)	SM2340B - Calculation		512			mg/L	0.2	5	07/15/22 0:00	calc

Arizona license number: AZ0102

^{*} Please refer to Qualifier Reports for details.

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

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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 Recovery Limit, in % (except for LCSS, mg/Kg)

MDL Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5).

Allows for instrument and annual fluctuations.

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis

PQL Practical Quantitation Limit. Synonymous with the EPA term "minimum level".

QC True Value of the Control Sample or the amount added to the Spike

Rec Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)

RPD Relative Percent Difference, calculation used for Duplicate QC Types

Upper Upper Recovery Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

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

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method. Spikes/Fortified Matrix Determines sample matrix interferences, if any.

Standard Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

- B Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
- H Analysis exceeded method hold time. pH is a field test with an immediate hold time.
- L Target analyte response was below the laboratory defined negative threshold.
- U The material was analyzed for, but was not detected above the level of the associated value.

 The associated value is either the sample quantitation limit or the sample detection limit.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

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

REP001.03.15.02

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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.

WG545606 WG545606 C C C C C C C C C C C C	IIIIIIIS ale III /6 N													
WG545606 WG545606 C C C C C C C C C C C C	Arsenic, dissolv	red		M200.8 I	CP-MS									
WG54569616V CV O7/01/22 1940 MS220502-1 0.5 0.5181 mgl 104 90 110 115 1	ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WGS4560BICB	WG545606													
WGS45606LFB	WG545606ICV	ICV	07/01/22 19:40	MS220502-1	.05		.05181	mg/L	104	90	110			
L74143-04AS AS 07/01/22 20:31 MS220627-2 0.5005 0.00441 0.5846 mg/L 108 70 130 2 2.00 1.00 1.00 1.00 1.00 1.00 1.00 1	WG545606ICB	ICB	07/01/22 19:42				U	mg/L		-0.00044	0.00044			
M200.8 CP-MS	WG545606LFB	LFB	07/01/22 19:44	MS220627-2	.05005		.05271	mg/L	105	85	115			
Arsenic, total Arsenic, total Arsenic, total Arsenic, total Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual WG545571 WG545571CV C/V 07/01/22 9:58 MS220502-1 .05 .05119 mg/L .02 90 .110 .00006	L74143-04AS							_						
ACZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual WG545571 (CV 07/01/22 9:58 MS20502-1 0.05 0.5119 mg/L 0-0.0006 0.	L74143-04ASD	ASD	07/01/22 20:33	MS220627-2	.05005	.00441	.05748	mg/L	106	70	130	2	20	
WG545571 WG545571ICV ICV 07/01/22 9:58 MS220502-1 .05 .05119 mg/L 102 90 110 V V WG545571ICV ICV 07/01/22 9:59 U mg/L -0.0006 0.0006 0.0006 V V WG545470ICRB LRB 07/01/22 10:30 MS220627-2 .05005 .05143 mg/L -0.00044 .	Arsenic, total			M200.8 I	CP-MS									
WGS45571 CV ICV O7/01/22 9:58 MS220502-1 .0.5 .0.5119 mg/L .0.0 .0.0006 .0.	ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WGS45571 CB	WG545571													
WG545470LRB	WG545571ICV	ICV	07/01/22 9:58	MS220502-1	.05		.05119	mg/L	102	90	110			
WGS45470LFB	WG545571ICB	ICB	07/01/22 9:59				U	mg/L		-0.0006	0.0006			
L74137-05LFM LFM 07/01/22 10:50 MS220627-2 0.5005 0.0031 0.5124 mg/L 102 70 130 0 20 Cadmium, dissolvet M200.8 ICP-MS M200.	WG545470LRB	LRB	07/01/22 10:01				U	mg/L		-0.00044	0.00044			
Cadmium, dissolved M200.8 ICP-MS AGZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec's Lower Upper RPD Limit Qual WG545606 WG545606 ICV 07/01/22 19:40 MS220502-1 .05 .050983 mg/L 102 90 110 .000011	WG545470LFB	LFB	07/01/22 10:03	MS220627-2	.05005		.05143	mg/L	103	85	115			
Cadmium, dissolved M200.8 ICP-MS AGZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec' Lower Upper RPD Limit Qual WG545606 WG545606ICV ICV 07/01/22 19:40 MS220502-1 0.05 0.50983 mg/L 102 90 110 WG545606ICB ICB 07/01/22 19:44 MS220627-2 0.5005 0.0528 mg/L 104 85 115 L74143-04AS AS 07/01/22 20:31 MS220627-2 0.5005 0.0325 0.54134 mg/L 102 70 130 L74143-04ASD ASD 07/01/22 20:33 MS220627-2 0.5005 0.0325 0.53673 mg/L 104 85 115 L74143-04ASD ASD 07/01/22 20:33 MS220627-2 0.5005 0.0325 0.53673 mg/L 104 85 115 Cadmium, total M200.8 ICP-MS AGZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec' Lower Upper RPD Limit Qual WG545571ICV ICV 07/01/22 9:58 MS220527-1 0.05 0.55183 mg/L 104 90 110 WG545571ICB ICB 07/01/22 9:59 U mg/L -0.00015 0.00015 WG545571ICB ICB 07/01/22 10:01 U mg/L -0.00011 0.00011 WG545470LFB LFB 07/01/22 10:03 MS220627-2 0.5005 U 0.48453 mg/L 97 70 130 LF4137-05LFMD LFM 07/01/22 10:50 MS220627-2 0.5005 U 0.48453 mg/L 97 70 130 0 20 Calcium, dissolvet M200.7 ICP	L74137-05LFM	LFM	07/01/22 10:50	MS220627-2	.05005	.00031	.05124	mg/L	102	70	130			
Magazina	L74137-05LFMD	LFMD	07/01/22 10:52	MS220627-2	.05005	.00031	.051	mg/L	101	70	130	0	20	
WG545606 WG545606ICV ICV 07/01/22 19:40 MS220502-1 .05 .050983 mg/L 102 90 110 WG545606ICP WG545606ICB ICB 07/01/22 19:42 U mg/L -0.00011 0.	Cadmium, disso	olved		M200.8 I	CP-MS									
WG545606ICV ICV 07/01/22 19:40 MS220502-1 .05	ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545606ICB	WG545606													
WG545606LFB LFB 07/01/22 19:44 MS220627-2 .05005 .0523 mg/L 104 85 115 L74143-04AS AS 07/01/22 20:31 MS220627-2 .05005 .00325 .054134 mg/L 102 70 130 L74143-04ASD ASD 07/01/22 20:33 MS220627-2 .05005 .00325 .053673 mg/L 101 70 130 1 20 Cadmium, total M200.8 ICP-MS ACZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual WG545571 WG545571ICV ICV 07/01/22 9:58 MS220502-1 .05 .05 .051983 mg/L 104 90 110 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000011 .00	WG545606ICV	ICV	07/01/22 19:40	MS220502-1	.05		.050983	mg/L	102	90	110			
L74143-04AS AS 07/01/22 20:31 MS220627-2 .05005 .00325 .054134 mg/L 102 70 130 L74143-04ASD ASD 07/01/22 20:33 MS220627-2 .05005 .00325 .053673 mg/L 101 70 130 1 20 Cadmium, total M200.8 ICP-MS ACZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual WG545571 WG545571 WG545571ICV ICV 07/01/22 9:58 MS220502-1 .0.5 .051983 mg/L 104 90 110 .00011 .000	WG545606ICB	ICB	07/01/22 19:42				U	mg/L		-0.00011	0.00011			
L74143-04ASD ASD 07/01/22 20:33 MS220627-2 .05005 .00325 .053673 mg/L 101 70 130 1 20 Cadmium, total M200.8 ICP-MS ACZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual WG545571 WG545571ICV ICV 07/01/22 9:58 MS220502-1 .05 .051983 mg/L 104 90 110 WG545571ICB ICB 07/01/22 9:59 U mg/L -0.00015 0.00015 WG545470LRB LRB 07/01/22 10:01 U mg/L -0.00011 0.00011 WG545470LFB LFB 07/01/22 10:03 MS220627-2 .05005 U .04957 mg/L 99 85 115 L74137-05LFM LFM 07/01/22 10:50 MS220627-2 .05005 U .04843 mg/L 97 70 130 L74137-05LFMD LFMD 07/01/22 10:52 MS220627-2 .05005 U .048436 mg/L 97 70 130 0 20 Calcium, dissolved M200.7 ICP	WG545606LFB	LFB	07/01/22 19:44	MS220627-2	.05005		.0523	mg/L	104	85	115			
Cadmium, total M200.8 ICP-MS ACZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual WG545571 WG545571 WG545571ICV ICV 07/01/22 9:58 MS220502-1 .05 .051983 mg/L 104 90 110 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000011 .000	L74143-04AS	AS	07/01/22 20:31	MS220627-2	.05005	.00325	.054134	mg/L	102	70	130			
ACZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual WG545571 WG545571ICV ICV 07/01/22 9:58 MS220502-1 .05 .051983 mg/L 104 90 110 .000015 .000015 .000015 .000015 .000015 .000015 .000015 .000011 .0000011 .000011 .000011 .000011 .000011 .000011 .000011 .000011 .00	L74143-04ASD	ASD	07/01/22 20:33	MS220627-2	.05005	.00325	.053673	mg/L	101	70	130	1	20	
WG545571 WG545571ICV ICV 07/01/22 9:58 MS220502-1 .05 .051983 mg/L 104 90 110 WG545571ICB ICB 07/01/22 9:59 U mg/L -0.00015 0.00015 WG545470LRB LRB 07/01/22 10:01 U mg/L -0.00011 0.00011 WG545470LFB LFB 07/01/22 10:03 MS220627-2 .05005 .04957 mg/L 99 85 115 L74137-05LFM LFM 07/01/22 10:50 MS220627-2 .05005 U .048453 mg/L 97 70 130 L74137-05LFMD LFMD 07/01/22 10:52 MS220627-2 .05005 U .048436 mg/L 97 70 130 0 20 Calcium, dissolved M200.7 ICP	Cadmium, total			M200.8 I	CP-MS									
WG545571ICV ICV 07/01/22 9:58 MS220502-1 .05 .051983 mg/L 104 90 110 WG545571ICB ICB 07/01/22 9:59 U mg/L -0.00015 0.00015 WG545470LRB LRB 07/01/22 10:01 U mg/L -0.00011 0.00011 WG545470LFB LFB 07/01/22 10:03 MS220627-2 .05005 .04957 mg/L 99 85 115 L74137-05LFM LFM 07/01/22 10:50 MS220627-2 .05005 U .048453 mg/L 97 70 130 L74137-05LFMD LFMD 07/01/22 10:52 MS220627-2 .05005 U .048436 mg/L 97 70 130 0 20 Calcium, dissolved M200.7 ICP	ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545571ICB ICB 07/01/22 9:59 U mg/L -0.00015 0.00015 WG545470LRB LRB 07/01/22 10:01 U mg/L -0.00011 0.00011 WG545470LFB LFB 07/01/22 10:03 MS220627-2 .05005 .04957 mg/L 99 85 115 L74137-05LFM LFM 07/01/22 10:50 MS220627-2 .05005 U .048453 mg/L 97 70 130 L74137-05LFMD LFMD 07/01/22 10:52 MS220627-2 .05005 U .048436 mg/L 97 70 130 0 20 Calcium, dissolved M200.7 ICP	WG545571													
WG545470LRB LRB 07/01/22 10:01	WG545571ICV	ICV	07/01/22 9:58	MS220502-1	.05		.051983	mg/L	104	90	110			
WG545470LFB LFB 07/01/22 10:03 MS220627-2 .05005 .04957 mg/L 99 85 115 L74137-05LFM LFM 07/01/22 10:50 MS220627-2 .05005 U .048453 mg/L 97 70 130 L74137-05LFMD LFMD 07/01/22 10:52 MS220627-2 .05005 U .048436 mg/L 97 70 130 0 20 Calcium, dissolved M200.7 ICP	WG545571ICB	ICB	07/01/22 9:59				U	mg/L		-0.00015	0.00015			
L74137-05LFM LFM 07/01/22 10:50 MS220627-2 .05005 U .048453 mg/L 97 70 130 L74137-05LFMD LFMD 07/01/22 10:52 MS220627-2 .05005 U .048436 mg/L 97 70 130 0 20 Calcium, dissolved M200.7 ICP	WG545470LRB	LRB	07/01/22 10:01				U	mg/L		-0.00011	0.00011			
L74137-05LFMD LFMD 07/01/22 10:52 MS220627-2 .05005 U .048436 mg/L 97 70 130 0 20 Calcium, dissolved M200.7 ICP	WG545470LFB	LFB	07/01/22 10:03	MS220627-2	.05005		.04957	mg/L	99	85	115			
Calcium, dissolved M200.7 ICP	L74137-05LFM	LFM	07/01/22 10:50	MS220627-2	.05005	U	.048453	mg/L	97	70	130			
	L74137-05LFMD	LFMD	07/01/22 10:52	MS220627-2	.05005	U	.048436	mg/L	97	70	130	0	20	
ACZ ID Type Analyzed PCN/SCN QC Sample Found Units Rec% Lower Upper RPD Limit Qual	Calcium, dissolv	ved		M200.7 I	CP									
	ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper_	RPD	Limit	Qual
WG546147	WG546147													
WG546147ICV ICV 07/12/22 16:40 II220624-2 100 98.07 mg/L 98 95 105	WG546147ICV	ICV	07/12/22 16:40	11220624-2	100		98.07	mg/L	98	95	105			
	WG546147ICB							-						
	WG546147LFB			11220628-3	67.98862			_	99					
	L74143-02AS					38.4		mg/L						
L74143-02ASD ASD 07/12/22 18:18 II220628-3 67.98862 38.4 104.1 mg/L 97 85 115 10 20	L74143-02ASD	ASD	07/12/22 18:18	11220628-3	67.98862	38.4	104.1	mg/L	97	85	115	10	20	

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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.

ilmits are in % Re	ec.												
Copper, dissolve	d		M200.8 IC	P-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545606													
WG545606ICV	ICV	07/01/22 19:40	MS220502-1	.05		.05447	mg/L	109	90	110			
WG545606ICB	ICB	07/01/22 19:42				U	mg/L		-0.00176	0.00176			
WG545606LFB	LFB	07/01/22 19:44	MS220627-2	.05		.05327	mg/L	107	85	115			
L74143-04AS	AS	07/01/22 20:31	MS220627-2	.05	U	.05125	mg/L	103	70	130			
L74143-04ASD	ASD	07/01/22 20:33	MS220627-2	.05	U	.05077	mg/L	102	70	130	1	20	
Copper, total			M200.7 IC	:P									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545983													
WG545983ICV	ICV	07/08/22 2:18	11220621-2	2		1.956	mg/L	98	95	105			
WG545983ICB	ICB	07/08/22 2:24				U	mg/L		-0.03	0.03			
WG545746LRB	LRB	07/08/22 2:36				U	mg/L		-0.022	0.022			
WG545746LFB	LFB	07/08/22 2:39	II220628-3	.5005		.499	mg/L	100	85	115			
L74120-03LFM	LFM	07/08/22 3:37	II220628-3	.5005	78	77.74	mg/L	-52	70	130			M3
L74120-03LFMD	LFMD	07/08/22 3:40	11220628-3	.5005	78	77.94	mg/L	-12	70	130	0	20	M3
Cyanide, Free			D6888-09/	/OIA-1677	7-09								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545160													
WG545160ICV	ICV	06/27/22 15:53	WI220624-9	.3003		.275	mg/L	92	90	110			
WG545160ICB	ICB	06/27/22 15:55				U	mg/L		-0.003	0.003			
WG545160LFB	LFB	06/27/22 15:59	WI220624-10	.1001		.0981	mg/L	98	90	110			
L74126-02AS	AS	06/27/22 16:33	WI220624-10	.1001	.005	.0932	mg/L	88	90	110			MC
L74126-02ASD	ASD	06/27/22 16:35	WI220624-10	.1001	.005	.0935	mg/L	88	90	110	0	20	MC
Lead, dissolved			M200.8 IC	P-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545606													
WG545606ICV	ICV	07/01/22 19:40	MS220502-1	.05		.05118	mg/L	102	90	110			
WG545606ICB	ICB	07/01/22 19:42				U	mg/L		-0.00022	0.00022			
WG545606LFB	LFB	07/01/22 19:44	MS220627-2	.0501		.05214	mg/L	104	85	115			
L74143-04AS	AS	07/01/22 20:31	MS220627-2	.0501	.00166	.05254	mg/L	102	70	130			
L74143-04ASD	ASD	07/01/22 20:33	MS220627-2	.0501	.00166	.05233	mg/L	101	70	130	0	20	
Lead, total			M200.8 IC	P-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545571													
WG545571ICV	ICV	07/01/22 9:58	MS220502-1	.05		.05176	mg/L	104	90	110			
WG545571ICB	ICB	07/01/22 9:59				U	mg/L		-0.0003	0.0003			
WG545470LRB	LRB	07/01/22 10:01				U	mg/L		-0.00022	0.00022			
WG545470LFB	LFB	07/01/22 10:03	MS220627-2	.0501		.04936	mg/L	99	85	115			
L74137-05LFM	LFM	07/01/22 10:50	MS220627-2	.0501	U	.04942	mg/L	99	70	130			
L74137-05LFMD	LFMD	07/01/22 10:52	MS220627-2	.0501	U	.04962	mg/L	99	70	130	0	20	

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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.

limits are in % Re	ec.												
Magnesium, diss	solved		M200.7 I	CP									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546353													
WG546353ICV	ICV	07/14/22 15:59	11220624-2	100		95.05	mg/L	95	95	105			
WG546353ICB	ICB	07/14/22 16:05				U	mg/L		-0.6	0.6			
WG546353LFB	LFB	07/14/22 16:18	II220628-3	49.99809		47.39	mg/L	95	85	115			
L74143-02AS	AS	07/14/22 17:35	II220628-3	49.99809	1.76	55.39	mg/L	107	85	115			
L74143-02ASD	ASD	07/14/22 17:38	II220628-3	49.99809	1.76	49.87	mg/L	96	85	115	10	20	
Silver, dissolved	I		M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545606													
WG545606ICV	ICV	07/01/22 19:40	MS220502-1	.02		.02009	mg/L	100	90	110			
WG545606ICB	ICB	07/01/22 19:42				U	mg/L		-0.00022	0.00022			
WG545606LFB	LFB	07/01/22 19:44	MS220627-2	.01		.01005	mg/L	101	85	115			
L74143-04AS	AS	07/01/22 20:31	MS220627-2	.01	U	.00981	mg/L	98	70	130			
L74143-04ASD	ASD	07/01/22 20:33	MS220627-2	.01	U	.00983	mg/L	98	70	130	0	20	
Silver, total			M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545571													
WG545571ICV	ICV	07/01/22 9:58	MS220502-1	.02		.02029	mg/L	101	90	110			
WG545571ICB	ICB	07/01/22 9:59				U	mg/L		-0.0003	0.0003			
WG545470LRB	LRB	07/01/22 10:01				U	mg/L		-0.00022	0.00022			
WG545470LFB	LFB	07/01/22 10:03	MS220627-2	.01		.00968	mg/L	97	85	115			
L74137-05LFM	LFM	07/01/22 10:50	MS220627-2	.01	U	.00913	mg/L	91	70	130			
L74137-05LFMD	LFMD	07/01/22 10:52	MS220627-2	.01	U	.00912	mg/L	91	70	130	0	20	
Zinc, dissolved			M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545606													
WG545606ICV	ICV	07/01/22 19:40	MS220502-1	.05		.0489	mg/L	98	90	110			
WG545606ICB	ICB	07/01/22 19:42				U	mg/L		-0.0132	0.0132			
WG545606LFB	LFB	07/01/22 19:44	MS220627-2	.050075		.0528	mg/L	105	85	115			
L74143-04AS	AS	07/01/22 20:31	MS220627-2	.050075	1.04	1.0772	mg/L	74	70	130			
L74143-04ASD	ASD	07/01/22 20:33	MS220627-2	.050075	1.04	1.0748	mg/L	69	70	130	0	20	M3
Zinc, total			M200.7 I	CP									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545983													
WG545983ICV	ICV	07/08/22 2:18	II220621-2	2		1.893	mg/L	95	95	105			
WG545983ICB	ICB	07/08/22 2:24				U	mg/L		-0.06	0.06			
WG545746LRB	LRB	07/08/22 2:36				U	mg/L		-0.044	0.044			
WG545746LFB	LFB	07/08/22 2:39	II220628-3	.50045		.505	mg/L	101	85	115			
L74120-03LFM	LFM	07/08/22 3:37	II220628-3	.50045	2.66	3.092	mg/L	86	70	130			
L74120-03LFMD	LFMD	07/08/22 3:40	II220628-3	.50045	2.66	3.076	mg/L	83	70	130	1	20	

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Inorganic Extended Qualifier Report

South32 ACZ Project ID: L74129

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L74129-01	WG545983	Copper, total	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG545160	Cyanide, Free	D6888-09/OIA-1677-09	MC	Recovery for matrix spike and matrix spike duplicate are outside of acceptance limits; recovery for the method control sample was acceptable.
	WG545606	Zinc, dissolved	M200.8 ICP-MS	М3	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

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Certification Qualifiers

South32 ACZ Project ID: L74129

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

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Sample Receipt

South32 ACZ Project ID: L74129

Date Received: 06/23/2022 11:31

Received By:

Date Printed: 6/24/2022

Date	mileu.	O/	24/2022
Receipt Verification			
	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		Х	
4) Are any samples NRC licensable material?			Х
5) If samples are received past hold time, proceed with requested short hold time analyses?	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 samples?		Х	
Samples/Containers			
	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	Х		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	Х		
11) For preserved bottle types, was the pH checked and within limits? 1	X		
12) Is there sufficient sample volume to perform all requested work?	Х		
13) Is the custody seal intact on all containers?			Χ
14) Are samples that require zero headspace acceptable?			Χ
15) Are all sample containers appropriate for analytical requirements?	Х		
16) Is there an Hg-1631 trip blank present?			Χ
17) Is there a VOA trip blank present?			Х
18) Were all samples received within hold time?	Х	-	
	NA indica	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?
7158	1.5	<=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.



Sample Receipt

South32 ACZ Project ID: L74129

Date Received: 06/23/2022 11:31

Received By:

Date Printed: 6/24/2022

REPAD LPII 2012-03

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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).

AGZ LABORATORIES	Accredited Environmental Testing	2773 Down Steamboat (970) 879-6	Springs, CO 8	0487	7	112	$\widehat{\gamma}$	CI	IIAH	N of	CUST	ODY	
Report to:													
Name: Kara Ha	as				Addres	ss: 749	Hars	naw Ro	oad				4
Company: AMI/						onia, A							4
E-mail: Kara.Ha	as@south32.ne	ıt]	Teleph	one: 5	05.947	.1738					Ⅎ
Copy of Report	to:												Į.
Name:					E-mail	<u> </u>							4
Company:					Teleph	one:							4
Invoice to:													
Name: Kara Ha	as				Addre	ss: 749	Hars	haw R	oad				
Company: AMI/	South 32			}		onia, /							1
E-mail: Kara.Ha	aas@south32.ne	et .]	Telept	one: 5	05.947	.1738					4
Copy of Invoice	e to:												
Name: South32					Addre	ss: NA							
Company: AMI/]]
	ices@south32.n	et]	Telepi	none: N	Α						4
	ived past holding t						9				YES	✓	
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Sampler's Name:	Taime Look	2 Samplei		ation to the autheri	State_	HZ	sample, 1	Zip co	de <u> 52</u>	lonelly misi	_Time Zor	16	-
*Sampler's Signa				g with the sa		way, is cons	idered fra	d and punk			r gaute numt	- vei	
PROJECT INFO										1.016743	i gaste mark		
Quote #: STORM	HOUTFALL-1				of Containers	otal Metals	Dissolved Metals	Cyanide	`	├ ╲		<u> </u>	12
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REMARKS													•
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For metal	s analyte li	st pleas	se refer t	o ba	ck of	CO	С						
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			6.22-22.					//			Khoh	12531	
Laim	Lopez	· · · ·	buu.	2pm	 	,		- - - - - - - - - - - -			C/43/42	11:31	-
			 				-/				 		-1

74129 Chain of Custod

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White - Return with sample.

July 21, 2022

Report to: Bill to:

Kara Haas Accounts Payable

South32 South32

2210 E Ft. Lowell Rd. 2210 E Fort Lowell Road

Tucson, AZ 85719 Tucson, AZ 85719

Project ID:

ACZ Project ID: L74335

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on July 06, 2022. This project has been assigned to ACZs project number, L74335. Please reference this number in all future inquiries.

All analyses were performed according to ACZs Quality Assurance Plan. The enclosed results relate only to the samples received under L74335. 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 ACZs current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after July 10, 2024. 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 ACZs 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 McNeal has reviewed and approved this report.

Mark Monent





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Sample ID:

OUTFALL2-07052022

South32 ACZ Sample ID: L74335-01

Project ID: Date Sampled: 07/05/22 08:15

Date Received: 07/06/22

Sample Matrix: Surface Water

Inorganic Prep									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS			*				07/12/22 13:37	kja
Total Hot Plate Digestion	M200.2 ICP							07/12/22 20:23	aeh
Metals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	1	126		mg/L	0.1	0.5	07/21/22 3:11	wtc
Copper, dissolved	M200.8 ICP-MS	1	0.00121	В	mg/L	0.0008	0.002	07/11/22 13:43	mfm
Copper, total	M200.7 ICP	1	0.152		mg/L	0.01	0.05	07/15/22 17:55	keh1
Lead, dissolved	M200.8 ICP-MS	1	<0.0001	U	mg/L	0.0001	0.0005	07/11/22 13:43	mfm
Lead, total	M200.8 ICP-MS	2	0.268		mg/L	0.0002	0.001	07/13/22 11:17	kja
Magnesium, dissolved	M200.7 ICP	1	33.1		mg/L	0.2	1	07/21/22 3:11	wtc
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U	mg/L	0.0001	0.0005	07/11/22 13:43	mfm
Silver, total	M200.8 ICP-MS	2	0.00212		mg/L	0.0002	0.001	07/13/22 11:17	kja
Zinc, dissolved	M200.8 ICP-MS	1	<0.006	U	mg/L	0.006	0.015	07/11/22 13:43	mfm
Zinc, total	M200.7 ICP	1	1.08		mg/L	0.02	0.05	07/15/22 17:55	keh1
Wet Chemistry									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Cyanide, Free	D6888-09/OIA-1677-09	1	<0.003	U *	mg/L	0.003	0.01	07/07/22 13:07	mjj1
Hardness as CaCO3 (dissolved)	SM2340B - Calculation		451		mg/L	0.2	5	07/21/22 0:00	calc

Arizona license number: AZ0102

REPIN.02.06.05.01

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^{*} Please refer to Qualifier Reports for details.

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

Report Header Expla	anations
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Batch A distinct set of samples analyzed at a specific time

Found Value of the QC Type of interest Limit Upper limit for RPD, in %.

Lower Lower Recovery Limit, in % (except for LCSS, mg/Kg)

MDL Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5).

Allows for instrument and annual fluctuations.

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis

PQL Practical Quantitation Limit. Synonymous with the EPA term "minimum level".

QC True Value of the Control Sample or the amount added to the Spike

Rec Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)

RPD Relative Percent Difference, calculation used for Duplicate QC Types

Upper Upper Recovery Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QC Sample Type	es
----------------	----

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

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method.

Spikes/Fortified Matrix Determines sample matrix interferences, if any.

Standard Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

- B Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
- H Analysis exceeded method hold time. pH is a field test with an immediate hold time.
- L Target analyte response was below the laboratory defined negative threshold.
- U The material was analyzed for, but was not detected above the level of the associated value.

The associated value is either the sample quantitation limit or the sample detection limit.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ Extended Qualifiers, please click:

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

REP001.03.15.02

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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.

limits are in % Re	ec.												
Calcium, dissolv	ed		M200.7 I	CP									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546823													
WG546823ICV	ICV	07/21/22 1:59	II220719-1	100		99.47	mg/L	99	95	105			
WG546823ICB	ICB	07/21/22 2:05				U	mg/L		-0.3	0.3			
WG546823LFB	LFB	07/21/22 2:18	11220628-3	67.98862		68.63	mg/L	101	85	115			
L74333-07AS	AS	07/21/22 2:33	11220628-3	67.98862	160	223	mg/L	93	85	115			
L74333-07ASD	ASD	07/21/22 2:36	11220628-3	67.98862	160	222.2	mg/L	91	85	115	0	20	
Copper, dissolve	ed		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546139													
WG546139ICV	ICV	07/11/22 12:53	MS220701-3	.05		.05332	mg/L	107	90	110			
WG546139ICB	ICB	07/11/22 12:55		.00		U	mg/L		-0.00176	0.00176			
WG546139LFB	LFB	07/11/22 12:57	MS220627-2	.05		.04937	mg/L	99	85	115			
L74313-02AS	AS	07/11/22 13:32	MS220627-2	.05	.00218	.04093	mg/L	78	70	130			
L74313-02ASD	ASD	07/11/22 13:34	MS220627-2	.05	.00218	.04054	mg/L	77	70	130	1	20	
			14000 7.1										
Copper, total			M200.7 I					-					
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546506													
WG546506ICV	ICV	07/15/22 16:33	II220621-2	2		1.97	mg/L	99	95	105			
WG546506ICB	ICB	07/15/22 16:39				U	mg/L		-0.03	0.03			
WG546298LRB	LRB	07/15/22 16:52				U	mg/L		-0.022	0.022			
WG546298LFB	LFB	07/15/22 16:55	11220628-3	.5005		.506	mg/L	101	85	115			
L74336-01LFM	LFM	07/15/22 18:08	II5XWATER	2.5075	1.01	3.498	mg/L	99	70	130			
L74336-01LFMD	LFMD	07/15/22 18:11	II5XWATER	2.5075	1.01	3.454	mg/L	97	70	130	1	20	
Cyanide, Free			D6888-0	9/OIA-1677	-09								
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG545901													
WG545901ICV	ICV	07/07/22 12:53	WI220706-9	.3003		.289	mg/L	96	90	110			
WG545901ICB	ICB	07/07/22 12:55				U	mg/L		-0.003	0.003			
WG545901LFB	LFB	07/07/22 12:59	WI220706-10	.1001		.0988	mg/L	99	90	110			
L74334-01AS	AS	07/07/22 13:03	WI220706-10	.1001	U	.1042	mg/L	104	90	110			
L74334-01ASD	ASD	07/07/22 13:05	WI220706-10	.1001	U	.1029	mg/L	103	90	110	1	20	
Lead, dissolved			M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units _	Rec%	Lower	Upper	RPD	Limit	Qual
WG546139													
WG546139ICV	ICV	07/11/22 12:53	MS220701-3	.05		.05318	mg/L	106	90	110			
WG546139ICB	ICB	07/11/22 12:55		.00		.03310 U	mg/L	100	-0.00022	0.00022			
			MS220627-2	0504				104					
WG546139LFB	LFB	07/11/22 12:57		.0501		.05194	mg/L	104	85 70	115			
L74313-02AS	AS	07/11/22 13:32	MS220627-2	.0501	U	.04074	mg/L	81	70 70	130	•	20	
L74313-02ASD	ASD	07/11/22 13:34	MS220627-2	.0501	U	.04192	mg/L	84	70	130	3	20	

L74335-2207211432 Page 4 of 11

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.

Lead, total			M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546318													
WG546318ICV	ICV	07/13/22 10:34	MS220701-3	.05		.05089	mg/L	102	90	110			
WG546318ICB	ICB	07/13/22 10:36				U	mg/L		-0.0003	0.0003			
WG546216LRB	LRB	07/13/22 10:37				U	mg/L		-0.00022	0.00022			
WG546216LFB	LFB	07/13/22 10:39	MS220627-2	.0501		.04909	mg/L	98	85	115			
L74340-02LFM	LFM	07/13/22 11:25	MS220627-2	.0501	.00064	.0495	mg/L	98	70	130			
L74340-02LFMD	LFMD	07/13/22 11:26	MS220627-2	.0501	.00064	.04917	mg/L	97	70	130	1	20	
Magnesium, dis	solved		M200.7 I	CP									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546823													
WG546823ICV	ICV	07/21/22 1:59	II220719-1	100		95.95	mg/L	96	95	105			
WG546823ICB	ICB	07/21/22 2:05				U	mg/L		-0.6	0.6			
WG546823LFB	LFB	07/21/22 2:18	11220628-3	49.99809		47.61	mg/L	95	85	115			
L74333-07AS	AS	07/21/22 2:33	11220628-3	49.99809	28.3	75.09	mg/L	94	85	115			
L74333-07ASD	ASD	07/21/22 2:36	11220628-3	49.99809	28.3	75.1	mg/L	94	85	115	0	20	
Silver, dissolved	d		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546139													
WG546139ICV	ICV	07/11/22 12:53	MS220701-3	.02		.0207	mg/L	104	90	110			
WG546139ICB	ICB	07/11/22 12:55				U	mg/L		-0.00022	0.00022			
WG546139LFB	LFB	07/11/22 12:57	MS220627-2	.01		.00998	mg/L	100	85	115			
L74313-02AS	AS	07/11/22 13:32	MS220627-2	.01	U	.00761	mg/L	76	70	130			
L74313-02ASD	ASD	07/11/22 13:34	MS220627-2	.01	U	.00838	mg/L	84	70	130	10	20	
Silver, total			M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546318	-71	· · · · · · · · · · · · · · · · · · ·								5,1			
WG546318ICV	ICV	07/13/22 10:34	MS220701-3	02		.02037	mg/L	102	90	110			
WG546318ICB	ICB	07/13/22 10:34	WOZZ0701-3	.02		.02037 U	mg/L	102	-0.0003	0.0003			
WG546216LRB	LRB	07/13/22 10:37				U	mg/L		-0.0003	0.0003			
WG546216LFB	LFB	07/13/22 10:37	MS220627-2	.01		.00978	mg/L	98	85	115			
L74340-02LFM	LFM	07/13/22 10:39	MS220627-2	.01	U	.00947	mg/L	95	70	130			
L74340-02LFMD	LFMD	07/13/22 11:26	MS220627-2	.01	U	.00931	mg/L	93	70	130	2	20	
			M200 0 L										
Zinc, dissolved ACZ ID	Tyroo	Analyzad	M200.8 I	QC QC	Sample	Found	Units	Rec%	Lower	Unner	BBD	Limit	Oual
	Type	Analyzed	PCN/SCN	<u></u>	Sample	Found	Units	Kec%	Lower	Upper	RPD	Limit	Qual
WG546139													
WG546139ICV	ICV	07/11/22 12:53	MS220701-3	.05		.0498	mg/L	100	90	110			
	ICB	07/11/22 12:55				U	mg/L		-0.0132	0.0132			
WG546139LFB	LFB	07/11/22 12:57	MS220627-2	.050075		.0514	mg/L	103	85	115			
WG546139ICB WG546139LFB L74313-02AS L74313-02ASD		07/11/22 12:57 07/11/22 13:32 07/11/22 13:34	MS220627-2 MS220627-2 MS220627-2	.050075 .050075 .050075	.0155 .0155	.0514 .0591 .0547	mg/L mg/L mg/L	103 87 78	85 70 70	115 130 130	8	20	

L74335-2207211432 Page 5 of 11

(800) 334-5493 2773 Downhill Drive

AZMINING ACZ Project ID: L74335

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.

M200.7 ICP Zinc, total

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG546506													
WG546506ICV	ICV	07/15/22 16:33	II220621-2	2		1.956	mg/L	98	95	105			
WG546506ICB	ICB	07/15/22 16:39				U	mg/L		-0.06	0.06			
WG546298LRB	LRB	07/15/22 16:52				U	mg/L		-0.044	0.044			
WG546298LFB	LFB	07/15/22 16:55	11220628-3	.50045		.528	mg/L	106	85	115			
L74336-01LFM	LFM	07/15/22 18:08	II5XWATER	2.50375	3.26	6.035	mg/L	111	70	130			
L74336-01LFMD	LFMD	07/15/22 18:11	II5XWATER	2.50375	3.26	5.97	mg/L	108	70	130	1	20	

L74335-2207211432 Page 6 of 11

Inorganic Extended
Qualifier Report

South32 ACZ Project ID: L74335

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L74335-01	NG546216	Total Hot Plate Digestion	M200.2 ICP-MS	DF	Sample required dilution due to high sediment.

L74335-2207211432 Page 7 of 11

REPAD.15.06.05.01

Certification Qualifiers

South32 ACZ Project ID: L74335

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

L74335-2207211432 Page 8 of 11

Sample Receipt

South32 ACZ Project ID: L74335

Date Received: 07/06/2022 11:39

Received By:

Date Printed: 7/7/2022

Date	Printed:		////2022
Receipt Verification			
	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		Х	
4) Are any samples NRC licensable material?			Х
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		Х	
Samples/Containers			
	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? 1	X		
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			Х
14) Are samples that require zero headspace acceptable?			Х
15) Are all sample containers appropriate for analytical requirements?	X		
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?	X		
	NA indica	tes Not A	pplicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?			
4518	2.8	<=6.0	15	Yes			

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.



Sample Receipt

South32 ACZ Project ID: L74335

Date Received: 07/06/2022 11:39

Received By:

Date Printed: 7/7/2022

L74335-2207211432 Page 10 of 11

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).

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LABORATORIES Testing	(970) 87	oat Springs, C '9-6590	O 80487	6/	45)S-	>	СП	AIIN O	f CUS	IODY
Report to:											
Name: Kara Haas				Ad	dress: 7	740 H	rebou	Pone		<u> </u>	
Company: AMI/South 32			7		tagoni				l 		
E-mail: Kara.Haas@south32	2.net				ephone						
Copy of Report to:				[16]	epriorie	3. 303.8	747.17	36			
Name:	i										
Company:				E-n	nail:						
				Tele	ephone	<u>: </u>					
Invoice to:											
Name: Kara Haas			_	Add	lress: 7	49 Ha	rshaw	Road			<u>. </u>
Company: AMI/South 32			_	Pat	agonia	a, AZ 8	5624				
E-mail: Kara.Haas@south32	.net			Tele	phone:	505.9	47.173	8			
Copy of Invoice to:											
Name: South32				Add	ress: N	Α					
Company: AMI/South32			7	1,000		-					
E-mail: sscinvoices@south32			7	Tele	phone:	NA					
If sample(s) received past holding	time (HT), c	or if insufficien	교 It HT ren			ete				V50	71
I Sould belove expiration, shall a	N./ Drocood	sarith enginees.								YES NO	$\stackrel{\boldsymbol{\leftarrow}}{\vdash}$
If "NO" then ACZ will contact client for further instruc Are samples for SDWA Compliance	ce Monitorina	i" nor "NO" is indicate	d, ACZ will pr	roceed with	the request	ed analyse:		7 is expired	and data will	be qualified	
If yes, please include state forms.	Results will	be reported to	PQL fo	Yes r Color:	L	J	No	L	J		
Sampler's Name: Jaime L.		r's Site Inform		State	Т		7:	. 0.	5624		
*Sampler's Signature:	- pr	4 attes	t to the autho	otiotic and	reliables and sta					Time Zone	e MT
PROJECT INFORMATION			ing with the s	-anipre in an						quote numbe	
Quote #: STORM-OUTFALL-2				, n			40	_	1151 01 1558	guote numbe	ri
PO#:				1 5	tals	eta	Cyanide	1	12		\mathcal{X}
Reporting state for compliance testin	g:			<u> </u>	₩	≥ 0	\\ \alpha \\ \al	İ	1		
Check box if samples include NRC lic	censed mater	ial?	T	of Containers	Total Metal	Dissolved Metals	0	1	12 /	\times	
SAMPLE IDENTIFICATION		E:TIME	Matrix		Į	Siss	Free				
Outfall2-07052022	7.5.2	2 8:15	SW	3	×	×	×	-	{		$\overline{\mathcal{A}}$
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Matrix SW (Surface Water) · GW ((Ground Water)	· WW (Waste W	(ster) · DV	V (Deinkin	- 14/-/-					_1	
EMARKS			/ DV	· (Drittikir	y water)) · SL (SI	udge) · :	SO (Soil)	· OL (Oil) ·	Other (Spec	ify)
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DISSOLVED METAL	SFIEL) FILTE	RED								ł
or metals analyte lis	t please	e refer to	bac	k of	COC)					
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Jaime Lope 2		7.5.22 12	ط 00 <i>د</i>	M	Mil	1			7	16/21	
			[1139
Mrax ID: 1984 P											
R	Revision #: 2	White -	Return	with sa	mple.	Yell	ow - R	etain fo	r your re	cords.	

August 12, 2022

Report to:

Kara Haas Accounts Payable

South32 South32

749 Harshaw Rd 2210 E Fort Lowell Road

Patagonia, AZ 85624 Tucson, AZ 85719

cc: Matt Owens

Project ID:

ACZ Project ID: L74731

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on July 22, 2022. This project has been assigned to ACZ's project number, L74731. Please reference this number in all future inquiries.

Bill to:

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L74731. 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 August 01, 2024. 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 McNeal has reviewed and approved this report.

Mark Monant





L74731-2208121540 Page 1 of 11



Sample ID:

OUTFALL 3-07212022

South32 ACZ Sample ID: L74731-01

Project ID: Date Sampled: 07/21/22 07:30

Date Received: 07/22/22

Sample Matrix: Surface Water

Inorganic Prep									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS							08/01/22 13:06	kja
Total Hot Plate Digestion	M200.2 ICP			*				08/02/22 17:23	keh1
Metals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	1	4.27		mg/L	0.1	0.5	08/08/22 22:43	keh1
Copper, dissolved	M200.8 ICP-MS	1	0.00236		mg/L	8000.0	0.002	08/02/22 17:15	kja
Copper, total	M200.7 ICP	2	0.034	В	mg/L	0.02	0.1	08/06/22 16:09	wtc
Lead, dissolved	M200.8 ICP-MS	1	0.00060		mg/L	0.0001	0.0005	08/01/22 17:06	kja
Lead, total	M200.8 ICP-MS	1	0.0208		mg/L	0.0001	0.0005	08/02/22 10:14	kja
Magnesium, dissolved	M200.7 ICP	1	1.60		mg/L	0.2	1	08/08/22 22:43	keh1
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U	mg/L	0.0001	0.0005	08/01/22 17:06	kja
Silver, total	M200.8 ICP-MS	1	0.00037	В	mg/L	0.0001	0.0005	08/02/22 10:14	kja
Zinc, dissolved	M200.8 ICP-MS	1	0.0110	В	mg/L	0.006	0.015	08/01/22 17:06	kja
Zinc, total	M200.7 ICP	2	0.094	В	mg/L	0.04	0.1	08/06/22 16:09	wtc
Wet Chemistry									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Cyanide, Free	D6888-09/OIA-1677-09	1	<0.003	U *	mg/L	0.003	0.01	07/27/22 15:24	mjj1
Hardness as CaCO3 (dissolved)	SM2340B - Calculation		17		mg/L	0.2	5	08/12/22 0:00	calc

Arizona license number: AZ0102

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

Report H	andar	Eval	anationa
Report	eauer		สเเสนเบเเร

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 Recovery Limit, in % (except for LCSS, mg/Kg)

MDL Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5).

Allows for instrument and annual fluctuations.

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis

PQL Practical Quantitation Limit. Synonymous with the EPA term "minimum level".

QC True Value of the Control Sample or the amount added to the Spike

Rec Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)

RPD Relative Percent Difference, calculation used for Duplicate QC Types

Upper Upper Recovery Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QC	Sample	e Types

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

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates

Verifies the precision of the instrument and/or method.

Spikes/Fortified Matrix

Determines sample matrix interferences, if any.

Standard Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

- B Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
- H Analysis exceeded method hold time. pH is a field test with an immediate hold time.
- L Target analyte response was below the laboratory defined negative threshold.
- U The material was analyzed for, but was not detected above the level of the associated value.

 The associated value is either the sample quantitation limit or the sample detection limit.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

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

REP001.03.15.02

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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.

limits are in % R	ec.												
Calcium, dissolv	/ed		M200.7 I	CP									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG548009													
WG548009ICV	ICV	08/08/22 21:04	11220729-1	100		99.27	mg/L	99	95	105			
WG548009ICB	ICB	08/08/22 21:10				U	mg/L		-0.3	0.3			
WG548009LFB	LFB	08/08/22 21:23	11220804-2	67.98862		69.73	mg/L	103	85	115			
L74752-01AS	AS	08/08/22 22:49	11220804-2	67.98862	2.93	71.6	mg/L	101	85	115			
L74752-01ASD	ASD	08/08/22 22:53	11220804-2	67.98862	2.93	71.27	mg/L	101	85	115	0	20	
Copper, dissolv	ed		M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547645													
WG547645ICV	ICV	08/02/22 16:53	MS220701-3	.05		.05477	mg/L	110	90	110			
WG547645ICB	ICB	08/02/22 16:55				U	mg/L		-0.00176	0.00176			
WG547645LFB	LFB	08/02/22 16:57	MS220722-2	.05		.05198	mg/L	104	85	115			
L74731-01AS	AS	08/02/22 17:17	MS220722-2	.05	.00236	.05487	mg/L	105	70	130			
L74731-01ASD	ASD	08/02/22 17:19	MS220722-2	.05	.00236	.05413	mg/L	104	70	130	1	20	
Copper, total			M200.7 I	CP									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547946													
WG547946ICV	ICV	08/06/22 14:50	11220720-4	2		2.005	mg/L	100	95	105			
WG547946ICB	ICB	08/06/22 14:56		_		U	mg/L	100	-0.03	0.03			
WG547629LRB	LRB	08/06/22 15:08				U	mg/L		-0.022	0.022			
WG547629LFB	LFB	08/06/22 15:11	11220720-3	.5005		.51	mg/L	102	85	115			
L74731-01LFM	LFM	08/06/22 16:12	II2XWATER	1	.034	1.034	mg/L	100	70	130			
L74731-01LFMD	LFMD	08/06/22 16:21	II2XWATER	1	.034	1.05	mg/L	102	70	130	2	20	
Cyanide, Free			D6888-09	9/OIA-1677	-09								
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547285													
WG547285ICV	ICV	07/27/22 15:06	WI220727-9	.3003		.281	mg/L	94	90	110			
WG547285ICB	ICB	07/27/22 15:08	***************************************	.3003		.201 U	mg/L	34	-0.003	0.003			
WG547285LFB	LFB	07/27/22 15:08	WI220727-11	.1001		.0988	mg/L	99	90	110			
L74682-01AS	AS	07/27/22 15:12	WI220727-11	.1001	U	.0900	mg/L	92	90	110			
L74682-01ASD	ASD	07/27/22 15:22	WI220727-11	.1001	U	.0949	mg/L	95	90	110	3	20	
Lead. dissolved			M200.8 I	CP_MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC QC	Sample	Found	Units _	Rec%	Lower	Upper	RPD	Limit	Qual
WG547556	- 1 y p c				- Ganipic	_1-ound	-5111K3			— оррсг	_ N D		- Gau
	10) (00/04/00 40:40	MC220704.2	0.5		05407	pa == /I	100	00	140			
WG547556ICV	ICV	08/01/22 16:19	MS220701-3	.05		.05127	mg/L	103	90	110			
WG547556ICB	ICB	08/01/22 16:20	M0000700 6	0==:		U	mg/L	465	-0.00022	0.00022			
WG547556LFB	LFB	08/01/22 16:22	MS220722-2	.0501	0000	.05152	mg/L	103	85	115			
L74731-01AS	AS	08/01/22 17:08	MS220722-2	.0501	.0006	.05167	mg/L	102	70 70	130	•	00	
L74731-01ASD	ASD	08/01/22 17:10	MS220722-2	.0501	.0006	.05088	mg/L	100	70	130	2	20	

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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.

Lead, total			M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547617													
WG547617ICV	ICV	08/02/22 9:30	MS220701-3	.05		.05197	mg/L	104	90	110			
WG547617ICB	ICB	08/02/22 9:32				U	mg/L		-0.0003	0.0003			
WG547519LRB	LRB	08/02/22 9:34				U	mg/L		-0.00022	0.00022			
WG547519LFB	LFB	08/02/22 9:36	MS220722-2	.0501		.04884	mg/L	97	85	115			
L74752-01LFM	LFM	08/02/22 10:19	MS220722-2	.0501	U	.04899	mg/L	98	70	130			
L74752-01LFMD	LFMD	08/02/22 10:21	MS220722-2	.0501	U	.04923	mg/L	98	70	130	0	20	
Magnesium, dis	solved		M200.7 I	СР									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG548009													
WG548009ICV	ICV	08/08/22 21:04	II220729-1	100		95.75	mg/L	96	95	105			
WG548009ICB	ICB	08/08/22 21:10				U	mg/L		-0.6	0.6			
WG548009LFB	LFB	08/08/22 21:23	11220804-2	49.99809		48.36	mg/L	97	85	115			
L74752-01AS	AS	08/08/22 22:49	11220804-2	49.99809	1.21	48.8	mg/L	95	85	115			
L74752-01ASD	ASD	08/08/22 22:53	11220804-2	49.99809	1.21	48.51	mg/L	95	85	115	1	20	
Silver, dissolved	t		M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547556													
WG547556ICV	ICV	08/01/22 16:19	MS220701-3	.02		.02064	mg/L	103	90	110			
WG547556ICB	ICB	08/01/22 16:20				U	mg/L		-0.00022	0.00022			
WG547556LFB	LFB	08/01/22 16:22	MS220722-2	.01		.01019	mg/L	102	85	115			
L74731-01AS	AS	08/01/22 17:08	MS220722-2	.01	U	.0101	mg/L	101	70	130			
L74731-01ASD	ASD	08/01/22 17:10	MS220722-2	.01	U	.00988	mg/L	99	70	130	2	20	
Silver, total			M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547617													
WG547617ICV	ICV	08/02/22 9:30	MS220701-3	.02		.02079	mg/L	104	90	110			
WG547617ICB	ICB	08/02/22 9:32		.02		U	mg/L	101	-0.0003	0.0003			
WG547519LRB	LRB	08/02/22 9:34				U	mg/L		-0.00022	0.00022			
WG547519LFB	LFB	08/02/22 9:36	MS220722-2	.01		.0097	mg/L	97	85	115			
L74752-01LFM	LFM	08/02/22 10:19	MS220722-2	.01	U	.00936	mg/L	94	70	130			
L74752-01LFMD	LFMD	08/02/22 10:21	MS220722-2	.01	U	.00929	mg/L	93	70	130	1	20	
Zinc, dissolved			M200.8 I	CP-MS									
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547556													
WG547556ICV	ICV	08/01/22 16:19	MS220701-3	.05		.0505	mg/L	101	90	110			
WG547556ICB	ICB	08/01/22 16:19	NIOZZU/U1-3	.05		.0505 U	mg/L	101	-0.0132	0.0132			
WG547556LFB	LFB	08/01/22 16:20	MS220722-2	.050075		.0511	mg/L	102	-0.0132 85	115			
L74731-01AS	AS	08/01/22 16:22	MS220722-2 MS220722-2	.050075	.011	.0613	mg/L	102	70	130			
L74731-01ASD	ASD	08/01/22 17:10	MS220722-2	.050075	.011	.0598	mg/L	97	70 70	130	2	20	
	700	00/01/22 17.10		.000013	.011	.0080	9/ =	JI	10	130		20	

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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, total M200.7 ICP

ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG547946													
WG547946ICV	ICV	08/06/22 14:50	11220720-4	2		1.979	mg/L	99	95	105			
WG547946ICB	ICB	08/06/22 14:56				U	mg/L		-0.06	0.06			
WG547629LRB	LRB	08/06/22 15:08				U	mg/L		-0.044	0.044			
WG547629LFB	LFB	08/06/22 15:11	11220720-3	.50045		.524	mg/L	105	85	115			
L74731-01LFM	LFM	08/06/22 16:12	II2XWATER	.9884	.094	1.149	mg/L	107	70	130			
L74731-01LFMD	LFMD	08/06/22 16:21	II2XWATER	.9884	.094	1.153	mg/L	107	70	130	0	20	

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Inorganic Extended
Qualifier Report

South32 ACZ Project ID: L74731

ACZ ID	WORKNUM PARAMETER	METHOD	QUAL DESCRIPTION
L74731-01	NG547629 Total Hot Plate Digestion	M200.2 ICP	DF Sample required dilution due to high sediment.

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Certification Qualifiers

South32 ACZ Project ID: L74731

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

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Sample Receipt

South32 ACZ Project ID: L74731

Date Received: 07/22/2022 11:43

Received By:

Date Printed: 7/25/2022

	c i illitou.		112012022
Receipt Verification			
	YE	s no	NA
1) Is a foreign soil permit included for applicable samples?			Х
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			Х
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples	?	Х	
Samples/Containers			
	YE	s no	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? 1	X		
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			Х
14) Are samples that require zero headspace acceptable?			Х
15) Are all sample containers appropriate for analytical requirements?	X		
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		
	NA inc	dicates 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?
NA38036	4.9	<=6.0	15	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.



Sample Receipt

South32 ACZ Project ID: L74731

Date Received: 07/22/2022 11:43

Received By:

Date Printed: 7/25/2022

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

ACZ TABORATORIES	Accredited Environmental Testing		nhill Drive at Springs, CO 6590	80487	U7	りて	3(C	CHAI	N of	CUS	STOI	ΣΥ
Report to:													
Name: Kara Ha	as				Addr	_{ess:} 74	9 Hars	haw i	Road				
Company: AMI/S	South 32				Patagonia, AZ 85624								
E-mail: Kara.Ha	as@south32.ne	et		_]	Telephone; 505.947.1738								
Copy of Report	to:	****											
Name: Mutt	Quens	>		1	E-ma	il: Ma	44.	Dive	nsl	(à s	ٔ ما احب	32 :	7e +
Company: S₀				7		hone:			<u>) </u>	(y)0	orn	· · ·	/- -
Invoice to:											******		
Name: Kara Haa	as				4.44	ess: 749	0 Hom	bow 5	Pood				
Company: AMI/S				1		gonia.			toau				
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Copy of Invoice	to,			_									
Name: South32)41-00			4	Addre	ess: NA							
Company: AMI/S				4	<u> </u>								
E-mail: sscinvoid						hone: N							
If sample(s) received past holding time (HT), or if insufficient HT remains to complete YES analysis before expiration, shall ACZ proceed with requested short HT analyses? NO													
of "NO" then ACZ will contact	alient for further instruction	n. If neither "YES"	nor "NO" is indicated	l, ACZ will pro	cood with ti	requested	l analyses,	even # HT	is appired, a	nd deta will	NO to qualified		
Are samples for Si					Yes			No	V				
If yes, please inclu					Colora	do.							
Sampler's Name:	7 /	Sample	r's Site Inform	ation to the author	_State doity and va	aldity of this	sample, i	Zip co		onally misla	Time Z		etion or
*Sampler's Signati PROJECT INFOR				ing with the se		way, is com	sidered frau	d and pun	ichable by S	tato Law.	•		
Quote #: STORNA		4, 4						0	I (hat or use	quitar.	rinbar _t	
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Reporting state for on Check box if sample				_	Š	<u>=</u>	- Ne				13		
SAMPLE IDEN			E:TIME	Matrix		<u> </u>	iss	Free]				
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REMARKS				Ť	Ò		, (-			(, 00.0.	(0000.13)	
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White - Return with sample.

Yellow - Retain for your records.

Revision #: 2

Qualtrax ID:

Qualtrax ID: 1984