

September 22, 2023

Report to:

Kara Haas  
South32  
749 Harshaw Rd  
Patagonia, AZ 85624

Bill to:

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

cc: Matt Owens

Project ID: 4542440391

ACZ Project ID: L82647

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 23, 2023. This project has been assigned to ACZ's project number, L82647. 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 L82647. 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 11, 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.



Sue Webber has reviewed and approved this report.



### South32

Project ID: 4542440391  
 Sample ID: OUTFALL-2\_08182023

ACZ Sample ID: **L82647-01**  
 Date Sampled: 08/18/23 10:00  
 Date Received: 08/23/23  
 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								08/31/23 7:30	gjl
Total Hot Plate Digestion	M200.2 ICP								08/30/23 11:44	smw

#### Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	1	50.6			mg/L	0.1	0.5	09/05/23 15:25	aeH
Copper, dissolved	M200.8 ICP-MS	1	0.00229			mg/L	0.0008	0.002	09/05/23 17:39	jka
Copper, total	M200.7 ICP	1	0.014	B		mg/L	0.01	0.05	09/06/23 21:58	aeH
Lead, dissolved	M200.8 ICP-MS	1	0.00012	B		mg/L	0.0001	0.0005	09/05/23 17:39	jka
Lead, total	M200.8 ICP-MS	1	0.1000			mg/L	0.0001	0.0005	09/01/23 12:22	gjl/scp
Magnesium, dissolved	M200.7 ICP	1	13.7			mg/L	0.2	1	09/05/23 15:25	aeH
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	09/05/23 17:39	jka
Silver, total	M200.8 ICP-MS	1	0.00072		*	mg/L	0.0001	0.0005	09/06/23 9:16	gjl/scp
Zinc, dissolved	M200.8 ICP-MS	1	0.0255			mg/L	0.006	0.015	09/19/23 14:17	jrj
Zinc, total	M200.7 ICP	1	0.148			mg/L	0.02	0.05	09/06/23 21:58	aeH

#### 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	08/25/23 10:01	mrd
Hardness as CaCO3 (dissolved)	SM2340B - Calculation		183			mg/L	0.2	5	09/22/23 0:00	calc

Arizona license number: **AZ0102**

**Report Header Explanations**

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

**QC Sample Types**

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

**QC Sample Type Explanations**

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

**ACZ Qualifiers (Qual)**

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

**Method References**

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

**Comments**

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

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

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

**AZMINING**

ACZ Project ID: **L82647**

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.

**Calcium, dissolved** M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573575</b>													
WG573575ICV	ICV	09/05/23 14:21	II230831-3	100		99.68	mg/L	100	95	105			
WG573575ICB	ICB	09/05/23 14:27				U	mg/L		-0.3	0.3			
WG573575LFB	LFB	09/05/23 14:39	II230831-6	67.98753		69.15	mg/L	102	85	115			
L82654-05AS	AS	09/05/23 15:56	II230831-6	67.98753	56.6	123.3	mg/L	98	85	115			
L82654-05ASD	ASD	09/05/23 15:59	II230831-6	67.98753	56.6	123	mg/L	98	85	115	0	20	

**Copper, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573588</b>													
WG573588ICV	ICV	09/05/23 16:44	MS230712-3	.05		.05374	mg/L	107	90	110			
WG573588ICB	ICB	09/05/23 16:46				U	mg/L		-0.00176	0.00176			
WG573588LFB	LFB	09/05/23 16:48	MS230825-2	.05005		.05354	mg/L	107	85	115			
L82645-04AS	AS	09/05/23 17:33	MS230825-2	.05005	.00192	.04904	mg/L	94	70	130			
L82645-04ASD	ASD	09/05/23 17:35	MS230825-2	.05005	.00192	.05323	mg/L	103	70	130	8	20	

**Copper, total** M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573553</b>													
WG573553ICV	ICV	09/06/23 20:45	II230831-2	2		1.934	mg/L	97	95	105			
WG573553ICB	ICB	09/06/23 20:51				U	mg/L		-0.03	0.03			
WG573200LRB	LRB	09/06/23 21:04				U	mg/L		-0.022	0.022			
WG573200LFB	LFB	09/06/23 21:07	II230804-2	.5005		.486	mg/L	97	85	115			
L82665-03LFM	LFM	09/06/23 22:27	II230804-2	.5005	U	.468	mg/L	94	70	130			
L82665-03LFMD	LFMD	09/06/23 22:30	II230804-2	.5005	U	.485	mg/L	97	70	130	4	20	

**Cyanide, Free** D6888-09/OIA-1677-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG572959</b>													
WG572959ICV	ICV	08/25/23 9:15	WI230821-7	.3003		.3014	mg/L	100	90	110			
WG572959ICB	ICB	08/25/23 9:17				U	mg/L		-0.003	0.003			
WG572959LFB	LFB	08/25/23 9:21	WI230821-8	.1001		.0951	mg/L	95	90	110			
L82647-01AS	AS	08/25/23 10:03	WI230821-8	.1001	U	.0952	mg/L	95	90	110			
L82647-01ASD	ASD	08/25/23 10:05	WI230821-8	.1001	U	.107	mg/L	107	90	110	12	20	

**Lead, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573588</b>													
WG573588ICV	ICV	09/05/23 16:44	MS230712-3	.05		.05246	mg/L	105	90	110			
WG573588ICB	ICB	09/05/23 16:46				U	mg/L		-0.00022	0.00022			
WG573588LFB	LFB	09/05/23 16:48	MS230825-2	.05005		.05534	mg/L	111	85	115			
L82645-04AS	AS	09/05/23 17:33	MS230825-2	.05005	.00014	.04723	mg/L	94	70	130			
L82645-04ASD	ASD	09/05/23 17:35	MS230825-2	.05005	.00014	.05086	mg/L	101	70	130	7	20	

**AZMINING**

ACZ Project ID: **L82647**

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 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573435</b>													
WG573435ICV	ICV	09/01/23 11:45	MS230712-3	.05		.05273	mg/L	105	90	110			
WG573435ICB	ICB	09/01/23 11:48				U	mg/L		-0.0003	0.0003			
WG573358LRB	LRB	09/01/23 11:50				U	mg/L		-0.00022	0.00022			
WG573358LFB	LFB	09/01/23 11:52	MS230825-2	.05005		.04976	mg/L	99	85	115			
L82625-01LFM	LFM	09/01/23 11:57	MS230825-2	.05005	.00478	.056	mg/L	102	70	130			
L82625-01LFMD	LFMD	09/01/23 11:59	MS230825-2	.05005	.00478	.05393	mg/L	98	70	130	4	20	

**Magnesium, dissolved**

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573575</b>													
WG573575ICV	ICV	09/05/23 14:21	II230831-3	100		99.48	mg/L	99	95	105			
WG573575ICB	ICB	09/05/23 14:27				U	mg/L		-0.6	0.6			
WG573575LFB	LFB	09/05/23 14:39	II230831-6	49.99752		50.9	mg/L	102	85	115			
L82654-05AS	AS	09/05/23 15:56	II230831-6	49.99752	10.1	60.32	mg/L	100	85	115			
L82654-05ASD	ASD	09/05/23 15:59	II230831-6	49.99752	10.1	60.32	mg/L	100	85	115	0	20	

**Silver, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573588</b>													
WG573588ICV	ICV	09/05/23 16:44	MS230712-3	.02		.01888	mg/L	94	90	110			
WG573588ICB	ICB	09/05/23 16:46				U	mg/L		-0.00022	0.00022			
WG573588LFB	LFB	09/05/23 16:48	MS230825-2	.01001		.01021	mg/L	102	85	115			
L82645-04AS	AS	09/05/23 17:33	MS230825-2	.01001	U	.00969	mg/L	97	70	130			
L82645-04ASD	ASD	09/05/23 17:35	MS230825-2	.01001	U	.00977	mg/L	98	70	130	1	20	

**Silver, total**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573537</b>													
WG573537ICV	ICV	09/06/23 8:39	MS230712-3	.02		.0183	mg/L	92	90	110			
WG573537ICB	ICB	09/06/23 8:41				U	mg/L		-0.0003	0.0003			
WG573358LRB	LRB	09/06/23 8:44				U	mg/L		-0.00022	0.00022			
WG573358LFB	LFB	09/06/23 8:46	MS230825-2	.01001		.01025	mg/L	102	85	115			
L82625-01LFM	LFM	09/06/23 8:50	MS230825-2	.01001	.00018	.00904	mg/L	89	70	130			
L82625-01LFMD	LFMD	09/06/23 8:53	MS230825-2	.01001	.00018	.00896	mg/L	88	70	130	1	20	

**Zinc, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG574595</b>													
WG574595ICV	ICV	09/19/23 14:10	MS230908-1	.05		.0523	mg/L	105	90	110			
WG574595ICB	ICB	09/19/23 14:12				U	mg/L		-0.0132	0.0132			
WG574595LFB	LFB	09/19/23 14:13	MS230912-3	.050015		.0576	mg/L	115	85	115			
L82820-01AS	AS	09/19/23 14:27	MS230912-3	.050015	U	.06	mg/L	120	70	130			
L82820-01ASD	ASD	09/19/23 14:28	MS230912-3	.050015	U	.06	mg/L	120	70	130	0	20	

**AZMINING**

ACZ Project ID: **L82647**

*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	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573553</b>													
WG573553ICV	ICV	09/06/23 20:45	II230831-2	2		1.957	mg/L	98	95	105			
WG573553ICB	ICB	09/06/23 20:51				U	mg/L		-0.06	0.06			
WG573200LRB	LRB	09/06/23 21:04				U	mg/L		-0.044	0.044			
WG573200LFB	LFB	09/06/23 21:07	II230804-2	.50045		.527	mg/L	105	85	115			
L82665-03LFM	LFM	09/06/23 22:27	II230804-2	.50045	U	.511	mg/L	102	70	130			
L82665-03LFMD	LFMD	09/06/23 22:30	II230804-2	.50045	U	.525	mg/L	105	70	130	3	20	

South32

ACZ Project ID: **L82647**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
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No extended qualifiers associated with this analysis

**South32**

ACZ Project ID: **L82647**

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Silver, dissolved	M200.8 ICP-MS
Silver, total	M200.8 ICP-MS

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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South32  
 4542440391

ACZ Project ID: L82647  
 Date Received: 08/23/2023 11:20  
 Received By:  
 Date Printed: 8/24/2023

**Receipt Verification**

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

**Samples/Containers**

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

NA indicates Not Applicable

**Chain of Custody Related Remarks**

**Client Contact Remarks**

**Shipping Containers**

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
6019	1.2	<=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.

South32  
4542440391

ACZ Project ID: L82647  
Date Received: 08/23/2023 11:20  
Received By:  
Date Printed: 8/24/2023

<sup>1</sup> 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), Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Laboratories, Inc. **L82647**

**CHAIN of CUSTODY**

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

Report to:

Name: Kara Haas  
Company: South32  
E-mail: kara.haas@south32.net

Address: 749 Harshaw Road  
Patagonia, AZ 85648  
Telephone: 505-947-1738

Copy of Report to:

Name: Matt Owens  
Company: South32

E-mail: Matt.Owens1@south32.net  
Telephone: 520-947-1738

Invoice to:

Name: Kara Haas  
Company: South32  
E-mail: kara.haas@south32.net

Address: 749 Harshaw Road  
Patagonia, AZ 85648  
Telephone: 505-947-1738

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES  NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes  No

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

Sampler's Name: jaime lopez Sampler's Site Information State AZ Zip code 85624 Time Zone AZ

\*Sampler's Signature: [Signature]

\*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: STORM-OUTFALL2  
PO#: 4542440391  
Reporting state for compliance testing:  
Check box if samples include NRC licensed material?

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	TOTAL METALS	DISSOLVED METALS	FREE CYANIDE					
<u>Outfall-2_08182023</u>	<u>8/18/23 10:00AM</u>	<u>SW</u>	<u>3</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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September 13, 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: L82646

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 23, 2023. This project has been assigned to ACZ's project number, L82646. 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 L82646. 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 02, 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 McNeal*

Mark McNeal has reviewed  
and approved this report.



**South32**

Project ID: 4542440391  
 Sample ID: OUTFALL-3\_08192023

ACZ Sample ID: **L82646-01**  
 Date Sampled: 08/19/23 14:04  
 Date Received: 08/23/23  
 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								08/31/23 7:30	gjl
Total Hot Plate Digestion	M200.2 ICP				*				08/29/23 16:25	smw

**Metals Analysis**

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	1	89.8			mg/L	0.1	0.5	09/02/23 18:39	wtc
Copper, dissolved	M200.8 ICP-MS	1	0.00419			mg/L	0.0008	0.002	09/01/23 18:59	gjl/scp
Copper, total	M200.7 ICP	5	0.075	B		mg/L	0.05	0.25	08/30/23 20:57	aeH
Lead, dissolved	M200.8 ICP-MS	1	0.00025	B		mg/L	0.0001	0.0005	09/01/23 18:59	gjl/scp
Lead, total	M200.8 ICP-MS	2	0.195			mg/L	0.0002	0.001	09/01/23 12:20	gjl/scp
Magnesium, dissolved	M200.7 ICP	1	15.4			mg/L	0.2	1	09/01/23 21:17	aeH
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	09/05/23 17:37	jka
Silver, total	M200.8 ICP-MS	10	0.00198	B	*	mg/L	0.001	0.005	09/06/23 9:14	gjl/scp
Zinc, dissolved	M200.8 ICP-MS	1	<0.006	U		mg/L	0.006	0.015	09/01/23 18:59	gjl/scp
Zinc, total	M200.7 ICP	5	0.354			mg/L	0.1	0.25	08/30/23 20:57	aeH

**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	08/25/23 9:57	mrd
Hardness as CaCO3 (dissolved)	SM2340B - Calculation		288			mg/L	0.2	5	09/13/23 0:00	calc

**Arizona license number: AZ0102**

**Report Header Explanations**

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

**QC Sample Types**

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

**QC Sample Type Explanations**

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

**ACZ Qualifiers (Qual)**

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

**Method References**

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

**Comments**

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

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

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

**AZMINING**

ACZ Project ID: **L82646**

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.

**Calcium, dissolved**

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573501</b>													
WG573501ICV	ICV	09/02/23 16:56	II230831-3	100		97.63	mg/L	98	95	105			
WG573501ICB	ICB	09/02/23 17:02				.13	mg/L		-0.3	0.3			
WG573501LFB	LFB	09/02/23 17:14	II230831-6	67.98753		68.92	mg/L	101	85	115			
L82621-01AS	AS	09/02/23 18:15	II230831-6	67.98753	282	341.9	mg/L	88	85	115			
L82621-01ASD	ASD	09/02/23 18:18	II230831-6	67.98753	282	342	mg/L	88	85	115	0	20	

**Copper, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573472</b>													
WG573472ICV	ICV	09/01/23 17:50	MS230712-3	.05		.05178	mg/L	104	90	110			
WG573472ICB	ICB	09/01/23 17:52				U	mg/L		-0.00176	0.00176			
WG573472LFB	LFB	09/01/23 17:54	MS230825-2	.05005		.04871	mg/L	97	85	115			
L82633-03AS	AS	09/01/23 18:34	MS230825-2	.05005	U	.04931	mg/L	99	70	130			
L82633-03ASD	ASD	09/01/23 18:36	MS230825-2	.05005	U	.04876	mg/L	97	70	130	1	20	

**Copper, total**

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573347</b>													
WG573347ICV	ICV	08/30/23 19:12	II230808-1	2		1.957	mg/L	98	95	105			
WG573347ICB	ICB	08/30/23 19:18				U	mg/L		-0.03	0.03			
WG573144LRB	LRB	08/30/23 19:30				U	mg/L		-0.022	0.022			
WG573144LFB	LFB	08/30/23 19:33	II230804-2	.5005		.513	mg/L	102	85	115			
L82625-03LFM	LFM	08/30/23 20:51	II230804-2	.5005	U	.511	mg/L	102	70	130			
L82625-03LFMD	LFMD	08/30/23 20:54	II230804-2	.5005	U	.515	mg/L	103	70	130	1	20	

**Cyanide, Free**

D6888-09/OIA-1677-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG572959</b>													
WG572959ICV	ICV	08/25/23 9:15	WI230821-7	.3003		.3014	mg/L	100	90	110			
WG572959ICB	ICB	08/25/23 9:17				U	mg/L		-0.003	0.003			
WG572959LFB	LFB	08/25/23 9:21	WI230821-8	.1001		.0951	mg/L	95	90	110			
L82647-01AS	AS	08/25/23 10:03	WI230821-8	.1001	U	.0952	mg/L	95	90	110			
L82647-01ASD	ASD	08/25/23 10:05	WI230821-8	.1001	U	.107	mg/L	107	90	110	12	20	

**Lead, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573472</b>													
WG573472ICV	ICV	09/01/23 17:50	MS230712-3	.05		.05246	mg/L	105	90	110			
WG573472ICB	ICB	09/01/23 17:52				U	mg/L		-0.00022	0.00022			
WG573472LFB	LFB	09/01/23 17:54	MS230825-2	.05005		.04833	mg/L	97	85	115			
L82633-03AS	AS	09/01/23 18:34	MS230825-2	.05005	U	.05831	mg/L	117	70	130			
L82633-03ASD	ASD	09/01/23 18:36	MS230825-2	.05005	U	.05616	mg/L	112	70	130	4	20	

**AZMINING**

ACZ Project ID: **L82646**

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 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573435</b>													
WG573435ICV	ICV	09/01/23 11:45	MS230712-3	.05		.05273	mg/L	105	90	110			
WG573435ICB	ICB	09/01/23 11:48				U	mg/L		-0.0003	0.0003			
WG573358LRB	LRB	09/01/23 11:50				U	mg/L		-0.00022	0.00022			
WG573358LFB	LFB	09/01/23 11:52	MS230825-2	.05005		.04976	mg/L	99	85	115			
L82625-01LFM	LFM	09/01/23 11:57	MS230825-2	.05005	.00478	.056	mg/L	102	70	130			
L82625-01LFMD	LFMD	09/01/23 11:59	MS230825-2	.05005	.00478	.05393	mg/L	98	70	130	4	20	

**Magnesium, dissolved** M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573386</b>													
WG573386ICV	ICV	09/01/23 19:34	II230825-1	100		98.25	mg/L	98	95	105			
WG573386ICB	ICB	09/01/23 19:39				U	mg/L		-0.6	0.6			
WG573386LFB	LFB	09/01/23 19:52	II230804-2	49.99752		50.73	mg/L	101	85	115			
L82621-01AS	AS	09/01/23 21:05	II230804-2	49.99752	18.2	68	mg/L	100	85	115			
L82621-01ASD	ASD	09/01/23 21:08	II230804-2	49.99752	18.2	68.16	mg/L	100	85	115	0	20	

**Silver, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573588</b>													
WG573588ICV	ICV	09/05/23 16:44	MS230712-3	.02		.01888	mg/L	94	90	110			
WG573588ICB	ICB	09/05/23 16:46				U	mg/L		-0.00022	0.00022			
WG573588LFB	LFB	09/05/23 16:48	MS230825-2	.01001		.01021	mg/L	102	85	115			
L82645-04AS	AS	09/05/23 17:33	MS230825-2	.01001	U	.00969	mg/L	97	70	130			
L82645-04ASD	ASD	09/05/23 17:35	MS230825-2	.01001	U	.00977	mg/L	98	70	130	1	20	

**Silver, total** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573537</b>													
WG573537ICV	ICV	09/06/23 8:39	MS230712-3	.02		.0183	mg/L	92	90	110			
WG573537ICB	ICB	09/06/23 8:41				U	mg/L		-0.0003	0.0003			
WG573358LRB	LRB	09/06/23 8:44				U	mg/L		-0.00022	0.00022			
WG573358LFB	LFB	09/06/23 8:46	MS230825-2	.01001		.01025	mg/L	102	85	115			
L82625-01LFM	LFM	09/06/23 8:50	MS230825-2	.01001	.00018	.00904	mg/L	89	70	130			
L82625-01LFMD	LFMD	09/06/23 8:53	MS230825-2	.01001	.00018	.00896	mg/L	88	70	130	1	20	

**Zinc, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573472</b>													
WG573472ICV	ICV	09/01/23 17:50	MS230712-3	.05		.052	mg/L	104	90	110			
WG573472ICB	ICB	09/01/23 17:52				U	mg/L		-0.0132	0.0132			
WG573472LFB	LFB	09/01/23 17:54	MS230825-2	.050015		.0538	mg/L	108	85	115			
L82633-03AS	AS	09/01/23 18:34	MS230825-2	.050015	U	.0618	mg/L	124	70	130			
L82633-03ASD	ASD	09/01/23 18:36	MS230825-2	.050015	U	.0601	mg/L	120	70	130	3	20	



**AZMINING**

ACZ Project ID: **L82646**

*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	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG573347</b>													
WG573347ICV	ICV	08/30/23 19:12	II230808-1	2		1.932	mg/L	97	95	105			
WG573347ICB	ICB	08/30/23 19:18				U	mg/L		-0.06	0.06			
WG573144LRB	LRB	08/30/23 19:30				U	mg/L		-0.044	0.044			
WG573144LFB	LFB	08/30/23 19:33	II230804-2	.50045		.513	mg/L	103	85	115			
L82625-03LFM	LFM	08/30/23 20:51	II230804-2	.50045	U	.514	mg/L	103	70	130			
L82625-03LFMD	LFMD	08/30/23 20:54	II230804-2	.50045	U	.513	mg/L	103	70	130	0	20	

South32

ACZ Project ID: **L82646**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L82646-01	WG573537	Silver, total	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG573144	Total Hot Plate Digestion	M200.2 ICP	DF	Sample required dilution due to high sediment.

**South32**

ACZ Project ID: **L82646**

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Silver, dissolved	M200.8 ICP-MS
Silver, total	M200.8 ICP-MS

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
---------------	----------------------

South32  
 4542440391

ACZ Project ID: L82646  
 Date Received: 08/23/2023 11:20  
 Received By:  
 Date Printed: 8/24/2023

**Receipt Verification**

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

**Samples/Containers**

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

NA indicates Not Applicable

**Chain of Custody Related Remarks**

**Client Contact Remarks**

**Shipping Containers**

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
6019	1.2	<=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.

South32  
4542440391

ACZ Project ID: L82646  
Date Received: 08/23/2023 11:20  
Received By:  
Date Printed: 8/24/2023

<sup>1</sup> 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), Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Laboratories, Inc. L82646

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

CHAIN of CUSTODY

Report to:

Name: Kara Haas
Company: South32
E-mail: kara.haas@south32.net

Address: 749 Harshaw Road
Patagonia, AZ 85648
Telephone: 505-947-1738

Copy of Report to:

Name: Matt Owens
Company: South32

E-mail: Matt.Owens1@south32.net
Telephone: 520-947-1738

Invoice to:

Name: Kara Haas
Company: South32
E-mail: kara.haas@south32.net

Address: 749 Harshaw Road
Patagonia, AZ 85648
Telephone: 505-947-1738

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]
If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Jaime Lopez Sampler's Site Information State AZ Zip code 85624 Time Zone AZ

\*Sampler's Signature: [Signature] \*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: STORM-OUTFALL3
PO#: 4542440391
Reporting state for compliance testing:
Check box if samples include NRC licensed material? [ ]

Table with columns: SAMPLE IDENTIFICATION, DATE:TIME, Matrix, # of Containers, TOTAL METALS, DISSOLVED METALS, FREE CYANIDE, and various analysis checkboxes. Includes handwritten 'JC 8-22-23' and a large 'X' over the table.

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

REMARKS

[Large handwritten 'X' over the remarks section with 'JC 8-22-23' written across it]

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

RELINQUISHED BY: JAIME LOPEZ DATE:TIME 8-22-23 10:00am RECEIVED BY: [Signature] DATE:TIME 8/27/23 11:20

FRMAD050.06.14.14

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

Barcode and vertical text: L82646 Chain of Custody

January 16, 2024

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: L85332

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 27, 2023. This project has been assigned to ACZ's project number, L85332. 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 L85332. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after January 05, 2026. 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*

Mark McNeal has reviewed  
and approved this report.



**South32**

Project ID: 4542440391  
Sample ID: OUTFALL-1\_12232023

ACZ Sample ID: **L85332-01**  
Date Sampled: 12/23/23 06:45  
Date Received: 12/27/23  
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								01/09/24 8:45	gjl
Total Hot Plate Digestion	M200.2 ICP								01/03/24 14:19	smw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, dissolved	M200.8 ICP-MS	1	0.00336			mg/L	0.0002	0.001	01/15/24 15:05	aps
Arsenic, total	M200.8 ICP-MS	1	0.0145			mg/L	0.0002	0.001	01/11/24 20:09	aps
Cadmium, dissolved	M200.8 ICP-MS	1	0.000506			mg/L	0.00005	0.00025	01/15/24 15:05	aps
Cadmium, total	M200.8 ICP-MS	1	0.00144			mg/L	0.00005	0.00025	01/11/24 20:09	aps
Calcium, dissolved	M200.7 ICP	1	327			mg/L	0.1	0.5	01/16/24 2:21	brc
Copper, dissolved	M200.8 ICP-MS	1	0.00297			mg/L	0.0008	0.002	01/15/24 15:05	aps
Copper, total	M200.7 ICP	1	0.020	B		mg/L	0.01	0.05	01/13/24 2:57	aeH
Lead, dissolved	M200.8 ICP-MS	1	0.00041	B		mg/L	0.0001	0.0005	01/15/24 15:05	aps
Lead, total	M200.8 ICP-MS	1	0.0781			mg/L	0.0001	0.0005	01/11/24 20:09	aps
Magnesium, dissolved	M200.7 ICP	1	74.9			mg/L	0.2	1	01/16/24 2:21	brc
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	01/15/24 15:05	aps
Silver, total	M200.8 ICP-MS	1	0.00043	B		mg/L	0.0001	0.0005	01/11/24 20:09	aps
Zinc, dissolved	M200.8 ICP-MS	1	0.0133	B		mg/L	0.006	0.015	01/15/24 15:05	aps
Zinc, total	M200.7 ICP	1	0.234			mg/L	0.02	0.05	01/13/24 2:57	aeH

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	01/05/24 12:20	mrd
Hardness as CaCO3 (dissolved)	SM2340B - Calculation		1120			mg/L	0.2	5	01/16/24 0:00	calc

**Arizona license number: AZ0102**



**Report Header Explanations**

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

**QC Sample Types**

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

**QC Sample Type Explanations**

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

**ACZ Qualifiers (Qual)**

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

**Method References**

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

**Comments**

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

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

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

**AZMINING**

ACZ Project ID: **L85332**

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.

**Arsenic, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.04933	mg/L	99	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00044	0.00044			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.0501		.05021	mg/L	100	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.0501	.00062	.05039	mg/L	99	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.0501	.00062	.04976	mg/L	98	70	130	1	20	

**Arsenic, total**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582109</b>													
WG582109ICV	ICV	01/11/24 19:28	MS240109-5	.05		.04868	mg/L	97	90	110			
WG582109ICB	ICB	01/11/24 19:30				U	mg/L		-0.0006	0.0006			
WG581874LRB	LRB	01/11/24 19:31				U	mg/L		-0.00044	0.00044			
WG581874LFB	LFB	01/11/24 19:33	MS240109-2	.0501		.05099	mg/L	102	85	115			
L85285-03LFM	LFM	01/11/24 20:06	MS240109-2	.0501	.00633	.05992	mg/L	107	70	130			
L85285-03LFMD	LFMD	01/11/24 20:08	MS240109-2	.0501	.00633	.05896	mg/L	105	70	130	2	20	

**Cadmium, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.051099	mg/L	102	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00011	0.00011			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.05005		.051738	mg/L	103	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.05005	.000791	.051132	mg/L	101	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.05005	.000791	.051439	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
<b>WG582109</b>													
WG582109ICV	ICV	01/11/24 19:28	MS240109-5	.05		.048994	mg/L	98	90	110			
WG582109ICB	ICB	01/11/24 19:30				U	mg/L		-0.00015	0.00015			
WG581874LRB	LRB	01/11/24 19:31				U	mg/L		-0.00011	0.00011			
WG581874LFB	LFB	01/11/24 19:33	MS240109-2	.05005		.050366	mg/L	101	85	115			
L85285-03LFM	LFM	01/11/24 20:06	MS240109-2	.05005	.000113	.055573	mg/L	111	70	130			
L85285-03LFMD	LFMD	01/11/24 20:08	MS240109-2	.05005	.000113	.055573	mg/L	111	70	130	0	20	

**Calcium, dissolved**

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582277</b>													
WG582277ICV	ICV	01/16/24 1:04	II231227-4	100		98.16	mg/L	98	95	105			
WG582277ICB	ICB	01/16/24 1:10				.21	mg/L		-0.3	0.3			
WG582277LFB	LFB	01/16/24 1:23	II240111-3	67.98753		68.95	mg/L	101	85	115			
L85350-01AS	AS	01/16/24 2:40	II240111-3	67.98753	.22	70.09	mg/L	103	85	115			
L85350-01ASD	ASD	01/16/24 2:44	II240111-3	67.98753	.22	71.38	mg/L	105	85	115	2	20	

**AZMINING**

ACZ Project ID: **L85332**

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.

**Copper, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.05286	mg/L	106	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00176	0.00176			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.05005		.05185	mg/L	104	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.05005	.00898	.05516	mg/L	92	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.05005	.00898	.05446	mg/L	91	70	130	1	20	

**Copper, total**

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582191</b>													
WG582191ICV	ICV	01/13/24 1:47	II231214-3	2		1.931	mg/L	97	95	105			
WG582191ICB	ICB	01/13/24 1:53				U	mg/L		-0.03	0.03			
WG581533LRB	LRB	01/13/24 2:06				U	mg/L		-0.022	0.022			
WG581533LFB	LFB	01/13/24 2:09	II231214-2	.5005		.499	mg/L	100	85	115			
L85340-01LFM	LFM	01/13/24 3:26	II10XWATER	5.015	U	4.987	mg/L	99	70	130			
L85340-01LFMD	LFMD	01/13/24 3:29	II10XWATER	5.015	U	5.078	mg/L	101	70	130	2	20	

**Cyanide, Free**

D6888-09/OIA-1677-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG581716</b>													
WG581716ICV	ICV	01/05/24 12:10	WI231227-4	.3003		.2997	mg/L	100	90	110			
WG581716ICB	ICB	01/05/24 12:12				U	mg/L		-0.003	0.003			
WG581716LFB	LFB	01/05/24 12:16	WI231227-5	.1001		.1041	mg/L	104	90	110			
L85332-01AS	AS	01/05/24 12:22	WI231227-5	.1001	U	.0999	mg/L	100	90	110			
L85332-01ASD	ASD	01/05/24 12:24	WI231227-5	.1001	U	.1038	mg/L	104	90	110	4	20	

**Lead, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.05083	mg/L	102	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00022	0.00022			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.05005		.05123	mg/L	102	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.05005	U	.04949	mg/L	99	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.05005	U	.05089	mg/L	102	70	130	3	20	

**Lead, total**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582109</b>													
WG582109ICV	ICV	01/11/24 19:28	MS240109-5	.05		.04686	mg/L	94	90	110			
WG582109ICB	ICB	01/11/24 19:30				U	mg/L		-0.0003	0.0003			
WG581874LRB	LRB	01/11/24 19:31				U	mg/L		-0.00022	0.00022			
WG581874LFB	LFB	01/11/24 19:33	MS240109-2	.05005		.04787	mg/L	96	85	115			
L85285-03LFM	LFM	01/11/24 20:06	MS240109-2	.05005	.00421	.05472	mg/L	101	70	130			
L85285-03LFMD	LFMD	01/11/24 20:08	MS240109-2	.05005	.00421	.05395	mg/L	99	70	130	1	20	

**AZMINING**

ACZ Project ID: **L85332**

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.

**Magnesium, dissolved**

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582277</b>													
WG582277ICV	ICV	01/16/24 1:04	II231227-4	100		100.59	mg/L	101	95	105			
WG582277ICB	ICB	01/16/24 1:10				U	mg/L		-0.6	0.6			
WG582277LFB	LFB	01/16/24 1:23	II240111-3	49.81683		51.54	mg/L	103	85	115			
L85350-01AS	AS	01/16/24 2:40	II240111-3	49.81683	U	52.56	mg/L	106	85	115			
L85350-01ASD	ASD	01/16/24 2:44	II240111-3	49.81683	U	53.52	mg/L	107	85	115	2	20	

**Silver, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.02		.02057	mg/L	103	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00022	0.00022			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.01		.01007	mg/L	101	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.01	U	.00928	mg/L	93	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.01	U	.0093	mg/L	93	70	130	0	20	

**Silver, total**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582109</b>													
WG582109ICV	ICV	01/11/24 19:28	MS240109-5	.02		.01964	mg/L	98	90	110			
WG582109ICB	ICB	01/11/24 19:30				U	mg/L		-0.0003	0.0003			
WG581874LRB	LRB	01/11/24 19:31				U	mg/L		-0.00022	0.00022			
WG581874LFB	LFB	01/11/24 19:33	MS240109-2	.01		.00984	mg/L	98	85	115			
L85285-03LFM	LFM	01/11/24 20:06	MS240109-2	.01	U	.01022	mg/L	102	70	130			
L85285-03LFMD	LFMD	01/11/24 20:08	MS240109-2	.01	U	.0102	mg/L	102	70	130	0	20	

**Zinc, dissolved**

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.0526	mg/L	105	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.0132	0.0132			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.050015		.0544	mg/L	109	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.050015	.0221	.0737	mg/L	103	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.050015	.0221	.0735	mg/L	103	70	130	0	20	

**Zinc, total**

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582191</b>													
WG582191ICV	ICV	01/13/24 1:47	II231214-3	2		2.018	mg/L	101	95	105			
WG582191ICB	ICB	01/13/24 1:53				U	mg/L		-0.06	0.06			
WG581533LRB	LRB	01/13/24 2:06				U	mg/L		-0.044	0.044			
WG581533LFB	LFB	01/13/24 2:09	II231214-2	.50045		.545	mg/L	109	85	115			
L85340-01LFM	LFM	01/13/24 3:26	II10XWATER	5.0075	U	5.507	mg/L	110	70	130			
L85340-01LFMD	LFMD	01/13/24 3:29	II10XWATER	5.0075	U	5.547	mg/L	111	70	130	1	20	

South32

ACZ Project ID: **L85332**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
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No extended qualifiers associated with this analysis

**South32**

ACZ Project ID: **L85332**

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

South32  
 4542440391

ACZ Project ID: L85332  
 Date Received: 12/27/2023 10:44  
 Received By:  
 Date Printed: 12/28/2023

**Receipt Verification**

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

**Samples/Containers**

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

NA indicates Not Applicable

**Chain of Custody Related Remarks**

The 'Relinquished By' field on the COC was not completed. The project manager is contacting the client.

**Client Contact Remarks**

**Shipping Containers**

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
NA40892	3.8	<=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.

South32  
4542440391

ACZ Project ID: L85332  
Date Received: 12/27/2023 10:44  
Received By:  
Date Printed: 12/28/2023

<sup>1</sup> 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), Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).





Laboratories, Inc. *L85332*

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

CHAIN of CUSTODY

Report to:

Name: Kara Haas  
Company: South32  
E-mail: kara.haas@south32.net

Address: 749 Harshaw Road  
Patagonia, AZ 85648  
Telephone: 505-947-1738

Copy of Report to:

Name: Matt Owens  
Company: South32

E-mail: Matt.Owens1@south32.net  
Telephone: 520-947-1738

Invoice to:

Name: Kara Haas  
Company: South32  
E-mail: sscinvoice@south32.net

Address: 749 Harshaw Road  
Patagonia, AZ 85648  
Telephone: 505-947-1738

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES  NO

Are samples for SDWA Compliance Monitoring? Yes  No

Sampler's Name: jaime lopez Sampler's Site Information State AZ Zip code 85624 Time Zone AZ

\*Sampler's Signature: [Signature] \*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: Outfall 1  
PO#: 4542440391  
Reporting state for compliance testing:  
Check box if samples include NRC licensed material?

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Outfall 1														
Outfall-1_12232023	12/23/23 6:45AM	sw	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME

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

L85332 Chain of Custody

January 16, 2024

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: L85333

Kara Haas:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 27, 2023. This project has been assigned to ACZ's project number, L85333. 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 L85333. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after January 05, 2026. 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*

Mark McNeal has reviewed  
and approved this report.



### South32

Project ID: 4542440391  
 Sample ID: OUTFALL-2\_12232023

ACZ Sample ID: **L85333-01**  
 Date Sampled: 12/23/23 08:00  
 Date Received: 12/27/23  
 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								01/09/24 8:45	gjl
Total Hot Plate Digestion	M200.2 ICP								01/03/24 14:34	smw

#### Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	1	249			mg/L	0.1	0.5	01/16/24 2:24	brc
Copper, dissolved	M200.8 ICP-MS	1	0.00141	B		mg/L	0.0008	0.002	01/15/24 15:07	aps
Copper, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	01/13/24 3:00	aeH
Lead, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	01/15/24 15:07	aps
Lead, total	M200.8 ICP-MS	1	0.0146			mg/L	0.0001	0.0005	01/11/24 20:15	aps
Magnesium, dissolved	M200.7 ICP	1	132			mg/L	0.2	1	01/16/24 2:24	brc
Silver, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	01/15/24 15:07	aps
Silver, total	M200.8 ICP-MS	1	0.00014	B		mg/L	0.0001	0.0005	01/11/24 20:15	aps
Zinc, dissolved	M200.8 ICP-MS	1	0.821			mg/L	0.006	0.015	01/15/24 15:07	aps
Zinc, total	M200.7 ICP	1	0.959			mg/L	0.02	0.05	01/13/24 3:00	aeH

#### 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	01/05/24 12:26	mrd
Hardness as CaCO3 (dissolved)	SM2340B - Calculation		1170			mg/L	0.2	5	01/16/24 0:00	calc

Arizona license number: AZ0102

**Report Header Explanations**

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

**QC Sample Types**

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

**QC Sample Type Explanations**

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

**ACZ Qualifiers (Qual)**

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

**Method References**

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

**Comments**

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

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

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

**AZMINING**

ACZ Project ID: **L85333**

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.

**Calcium, dissolved** M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582277</b>													
WG582277ICV	ICV	01/16/24 1:04	II231227-4	100		98.16	mg/L	98	95	105			
WG582277ICB	ICB	01/16/24 1:10				.21	mg/L		-0.3	0.3			
WG582277LFB	LFB	01/16/24 1:23	II240111-3	67.98753		68.95	mg/L	101	85	115			
L85350-01AS	AS	01/16/24 2:40	II240111-3	67.98753	.22	70.09	mg/L	103	85	115			
L85350-01ASD	ASD	01/16/24 2:44	II240111-3	67.98753	.22	71.38	mg/L	105	85	115	2	20	

**Copper, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.05286	mg/L	106	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00176	0.00176			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.05005		.05185	mg/L	104	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.05005	.00898	.05516	mg/L	92	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.05005	.00898	.05446	mg/L	91	70	130	1	20	

**Copper, total** M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582191</b>													
WG582191ICV	ICV	01/13/24 1:47	II231214-3	2		1.931	mg/L	97	95	105			
WG582191ICB	ICB	01/13/24 1:53				U	mg/L		-0.03	0.03			
WG581533LRB	LRB	01/13/24 2:06				U	mg/L		-0.022	0.022			
WG581533LFB	LFB	01/13/24 2:09	II231214-2	.5005		.499	mg/L	100	85	115			
L85340-01LFM	LFM	01/13/24 3:26	II10XWATER	5.015	U	4.987	mg/L	99	70	130			
L85340-01LFMD	LFMD	01/13/24 3:29	II10XWATER	5.015	U	5.078	mg/L	101	70	130	2	20	

**Cyanide, Free** D6888-09/OIA-1677-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG581716</b>													
WG581716ICV	ICV	01/05/24 12:10	WI231227-4	.3003		.2997	mg/L	100	90	110			
WG581716ICB	ICB	01/05/24 12:12				U	mg/L		-0.003	0.003			
WG581716LFB	LFB	01/05/24 12:16	WI231227-5	.1001		.1041	mg/L	104	90	110			
L85332-01AS	AS	01/05/24 12:22	WI231227-5	.1001	U	.0999	mg/L	100	90	110			
L85332-01ASD	ASD	01/05/24 12:24	WI231227-5	.1001	U	.1038	mg/L	104	90	110	4	20	

**Lead, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.05083	mg/L	102	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00022	0.00022			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.05005		.05123	mg/L	102	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.05005	U	.04949	mg/L	99	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.05005	U	.05089	mg/L	102	70	130	3	20	

**AZMINING**

ACZ Project ID: **L85333**

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 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582109</b>													
WG582109ICV	ICV	01/11/24 19:28	MS240109-5	.05		.04686	mg/L	94	90	110			
WG582109ICB	ICB	01/11/24 19:30				U	mg/L		-0.0003	0.0003			
WG581874LRB	LRB	01/11/24 19:31				U	mg/L		-0.00022	0.00022			
WG581874LFB	LFB	01/11/24 19:33	MS240109-2	.05005		.04787	mg/L	96	85	115			
L85285-03LFM	LFM	01/11/24 20:06	MS240109-2	.05005	.00421	.05472	mg/L	101	70	130			
L85285-03LFMD	LFMD	01/11/24 20:08	MS240109-2	.05005	.00421	.05395	mg/L	99	70	130	1	20	

**Magnesium, dissolved** M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582277</b>													
WG582277ICV	ICV	01/16/24 1:04	II231227-4	100		100.59	mg/L	101	95	105			
WG582277ICB	ICB	01/16/24 1:10				U	mg/L		-0.6	0.6			
WG582277LFB	LFB	01/16/24 1:23	II240111-3	49.81683		51.54	mg/L	103	85	115			
L85350-01AS	AS	01/16/24 2:40	II240111-3	49.81683	U	52.56	mg/L	106	85	115			
L85350-01ASD	ASD	01/16/24 2:44	II240111-3	49.81683	U	53.52	mg/L	107	85	115	2	20	

**Silver, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.02		.02057	mg/L	103	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.00022	0.00022			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.01		.01007	mg/L	101	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.01	U	.00928	mg/L	93	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.01	U	.0093	mg/L	93	70	130	0	20	

**Silver, total** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582109</b>													
WG582109ICV	ICV	01/11/24 19:28	MS240109-5	.02		.01964	mg/L	98	90	110			
WG582109ICB	ICB	01/11/24 19:30				U	mg/L		-0.0003	0.0003			
WG581874LRB	LRB	01/11/24 19:31				U	mg/L		-0.00022	0.00022			
WG581874LFB	LFB	01/11/24 19:33	MS240109-2	.01		.00984	mg/L	98	85	115			
L85285-03LFM	LFM	01/11/24 20:06	MS240109-2	.01	U	.01022	mg/L	102	70	130			
L85285-03LFMD	LFMD	01/11/24 20:08	MS240109-2	.01	U	.0102	mg/L	102	70	130	0	20	

**Zinc, dissolved** M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582273</b>													
WG582273ICV	ICV	01/15/24 14:12	MS240109-5	.05		.0526	mg/L	105	90	110			
WG582273ICB	ICB	01/15/24 14:14				U	mg/L		-0.0132	0.0132			
WG582273LFB	LFB	01/15/24 14:16	MS240109-2	.050015		.0544	mg/L	109	85	115			
L85068-01AS	AS	01/15/24 14:47	MS240109-2	.050015	.0221	.0737	mg/L	103	70	130			
L85068-01ASD	ASD	01/15/24 14:48	MS240109-2	.050015	.0221	.0735	mg/L	103	70	130	0	20	

**AZMINING**

ACZ Project ID: **L85333**

*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	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG582191</b>													
WG582191ICV	ICV	01/13/24 1:47	II231214-3	2		2.018	mg/L	101	95	105			
WG582191ICB	ICB	01/13/24 1:53				U	mg/L		-0.06	0.06			
WG581533LRB	LRB	01/13/24 2:06				U	mg/L		-0.044	0.044			
WG581533LFB	LFB	01/13/24 2:09	II231214-2	.50045		.545	mg/L	109	85	115			
L85340-01LFM	LFM	01/13/24 3:26	II10XWATER	5.0075	U	5.507	mg/L	110	70	130			
L85340-01LFMD	LFMD	01/13/24 3:29	II10XWATER	5.0075	U	5.547	mg/L	111	70	130	1	20	

South32

ACZ Project ID: **L85333**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
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No extended qualifiers associated with this analysis



**South32**

ACZ Project ID: **L85333**

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

South32  
 4542440391

ACZ Project ID: L85333  
 Date Received: 12/27/2023 10:44  
 Received By:  
 Date Printed: 12/28/2023

**Receipt Verification**

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

**Samples/Containers**

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

NA indicates Not Applicable

**Chain of Custody Related Remarks**

**Client Contact Remarks**

**Shipping Containers**

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
NA40892	3.8	<=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.

South32  
4542440391

ACZ Project ID: L85333  
Date Received: 12/27/2023 10:44  
Received By:  
Date Printed: 12/28/2023

<sup>1</sup> 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), Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Laboratories, Inc.

L85333

CHAIN of CUSTODY

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

Report to:

Name: Kara Haas
Company: South32
E-mail: kara.haas@south32.net

Address: 749 Harshaw Road
Patagonia, AZ 85648
Telephone: 505-947-1738

Copy of Report to:

Name: Matt Owens
Company: South32

E-mail: Matt.Owens1@south32.net
Telephone: 520-947-1738

Invoice to:

Name: Kara Haas
Company: South32
E-mail: sscinvoice@south32.net

Address: 749 Harshaw Road
Patagonia, AZ 85648
Telephone: 505-947-1738

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

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

Sampler's Name: jaime lopez Sampler's Site Information State AZ Zip code 85624 Time Zone AZ

\*Sampler's Signature: [Signature] \*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: Outfall 2
PO#: 4542440391
Reporting state for compliance testing:
Check box if samples include NRC licensed material? [ ]

Table with columns: SAMPLE IDENTIFICATION, DATE:TIME, Matrix, # of Containers, and multiple analysis columns. Includes handwritten notes like 'DL - 12-23-23' and 'DL 12-22-23'.

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

REMARKS

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

RELINQUISHED BY: DATE:TIME RECEIVED BY: DATE:TIME
[Signature] [Date]

FRMAD050.06.14.14

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

L85333 Chain of Custody