Thorin Resources
1900 Main St. Unit 1
PO Box 1030
Ouray, CO 81427

September 26, 2024

Mr. Lucas West
Environmental Protection Specialist
Colorado Division of Reclamation Mining and Safety
101 3rd Street
Grand Junction, CO 81501

Subject: **TR-17 Adequacy Review Response**
DRMS Permit No. M-2012-032
Revenue Mine, Ouray County, Colorado

Dear Mr. West,

Below are responses to the adequacy review for technical revision 17 to DRMS Permit No. M-2012-032.

1. Down gradient groundwater monitoring wells were drilled the week of July 22nd, 2024. Completion of the wells is planned to take place the week of September 30th, 2024 with the installation of the down-hole materials. Completion report will be submitted once monitoring well material installation is complete. The excavation/construction of stormwater containment pond and emergency outfall will take place post monitoring wells but prior to any milling operations.
2. The internal valve will be located on the tank that resides in the secondary containment. The valve will be shut to prevent liquid from entering the secondary containment from the tank. Secondary containment will have no valves so will be closed without the possibility of discharge from the containment in the event of catastrophic failure.
3. Filter press is located in secondary containment with the purpose of capturing extracted process water in the event of a catastrophic failure, not to collect for recycling. The extracted process water from the filter presses will report to the process water tank, not the secondary containment area.
4. Process water will be bled off (discharged) at the rate that water can be supplied from the mine portal discharge (dependent on seasonal discharge rate). The maximum discharge/feed rate for the process water tank will be 75 gpm. In the event of a 2 minute failure shut-down, there would be the possibility of 150 gallons of additional water input into the system. Updated table provided in adequacy review response under **Attachment A**. The value of previous table shows additional containment capacity, with containment capacity being 146% of volume in the case of the process water volume in the circuit being double engineered circuit volume.
5. Updated diagram 1 including flow arrows shown under **Attachment B**.

Phone: (970) 316-2294

6. Secondary containment for fluid transportation lines will be maintained in areas outside of containment areas by casing lines in a larger diameter pipe that will direct water/slurry away from uncontained area in the event of line or fitting failure.
7. Diagram 2 is showing the layout of the railyard area where the milling circuit will be located prior to the placement of any equipment or secondary containment.
8. The purpose of placing the gravity circuit in the covered railyard area is to allow for year-round operation. The railyard building will be winterized with insulation combined with electric heaters to maintain above freezing temperatures and allow for year round operation.
9. Secondary containment is no longer planned to be one single containment area with dimensions of 19'W x 100'L x 24" D. Containment is now 6 separate areas consisting of 4 pre-fabricated areas and 2 that will be fabricated on site to the required dimensions. The containment areas are constructed of 18oz PVC. The rectangular shaped containment areas will come pre-constructed from the manufacturer and the odd shaped containment areas will be constructed on site out of the same 18oz PVC. On-site construction will be completed using manufacturer recommendations. Manufacturer specs and construction recommendations are located under **Attachment C.** Installation will consist of placing the pre-fabricated containment areas in the proper location and constructing the remaining areas in place prior to placing equipment. QA/QC will consist of filling secondary containment areas with clean water (Prior to starting process) and doing a time study to ensure that no water is discharged.
10. Sample was tested for comparison to discharge standards per CDPHE Discharge Permit No. CO0000003 not Regulation 41 Table 3 as the process water will report to the mine discharge which will then be treated by the pond system prior to discharge to Sneffels creek.
11. Samples from Table 2 were taken prior to dilution with portal discharge water as well as treatment by the pond system. Discharge from the gravity circuit which is represented by the results from testing in Table 2 will be pumped to the Atlas Cumberland drift where a coffer dam is located. Dilution will occur at this location due to inflow of ground water over the length of the 1200' drift and again when the water from the coffer dam is discharged to the mine drainage ditch over 5000' of the revenue tunnel. It will then be treated by the pond system prior to discharge to Sneffels Creek.
12. Additional sample event has taken place and updated water quality data is provided in **Attachment D** that includes TDS.
13. The source for proposed reclamation costs is RSMeans Construction Cost Data.

a. Disposal methods will include:
    i. Equipment: Removal of equipment anchors when required, picking of equipment and placement in underground mill. No cutting will be required to dismantle equipment prior to picking & placement.

b. Table 6 has been updated to include job hours for personnel & equipment where applicable, located under **Attachment F**.

14. All equipment and features associated with the milling process in TR-17 will be removed from the railyard upon entering final reclamation. Equipment will be placed in the Mill area.
15. Copy of executed permit allowing material transportation from Camp Bird to the Revenue Virginius is located under **Attachment G**.
16. SPLP and ABA testing including Net Acid Forming and Net Neutralizing Potential have been performed and the summary table of the data showing that the tailings criteria meets acceptable standards is provided under **Attachment H** with data sheets corroborating the summary table provided under **Attachment I**. All tailings handling and placement will be performed under the guidelines set forth by the Tailings Management Plan approved in AM-2 of mining permit M-2012-032.
17. Net Acid Forming & Net Neutralizing Potential has been calculated for all feed material samples. There was an error in labeling the samples, but all feed material had both SPLP and ABA testing performed. A summary table of Net Acid Forming vs Net Neutralizing Potential for all feed material samples is provided under **Attachment J** with the corroborating data sheets provided under **Attachment K**.
18. Documentation regarding input of system discharge and water quality has been sent to CDPHE via certified mail and receipt of documentation has been verified. Documentation provided and certification of receipt is provided under **Attachment L**.
19. 'Inert' was referring to the Net Neutralizing potential being greater than the Net Acid Generating potential from the sampling & testing that was conducted showing that there is not a potential for acid leaching. The table of data values this is referring to is provided under **Attachment J**
20. The estimated duration of the gravity circuit is dependent on sufficient collection of data so that the underground flotation mill can be retrofit with the direction provided by the gravity circuit. Estimated time to reach 75 TPD max through-put is by late spring/early summer of 2025.
21. Total amount of material to be exported from Camp Bird is approximately 35,000 tons.
22. The concentrate and tailings will be dried by dewatering filter presses. Each stream will have a dedicated filter press that reduces moisture content to 10% - 15%.
23. Two samples each were taken from the representative mill feed "head-grade" material from the Camp Bird and Revenue, four samples total. Initially one of each sample for the two properties would be used for ABA and the other would be used for SPLP testing, it was then decided to conduct both ABA & SPLP testing on all of the samples for additional data points. RV indicates that the material came from the Revenue-Virginius and CB indicates material originated

from the Camp Bird. A map of sample locations for both the Revenue-Virginius and Camp Brid are provided under **Attachment M**. Sample material for laboratory testing was collected during bench top testing as it was fed through the crushing and grinding portion of the process. Material was collected on set intervals as to obtain an unbiased sample as it passed through the mini-jaw crusher prior to being fed into the impact mill for grinding.

24. A map of sample location is provided under **Attachment M** The methodology to obtain a representative and unbiased sample was to remove material from all sides of the stockpiles as well as to reach the material located at the center of the piles. This material was then mixed on a large scale via the front end loader before being bagged into super sacks to be processed on the bench scale testing circuit. The samples to be sent for analysis were then collected using the methodology mentioned above in question number 23.

Thorin also plans to use a product called BioZem that's use will be to create a foundation layer in the process area. The BioZem will be mixed with the broken rock (aggregate) that makes up the floor of the railyard as well as the entire surface of the mine site and then sprayed with water from the portal before being rolled to create a concrete like structure. This foundation will improve the process by creating a solid foundation to which the Deister Concentration Tables can be mounted to for an improvement in harmonics. It will also aid with the secondary containment by creating a homogeneous structure preventing any punctures in the liner from the equipment placement in the containment area. The MSDS sheets as well as sample analysis are located under **Attachment N**.

Thank you for your attention to our adequacy review response as well as the addition of the BioZem material.

Sincerely,

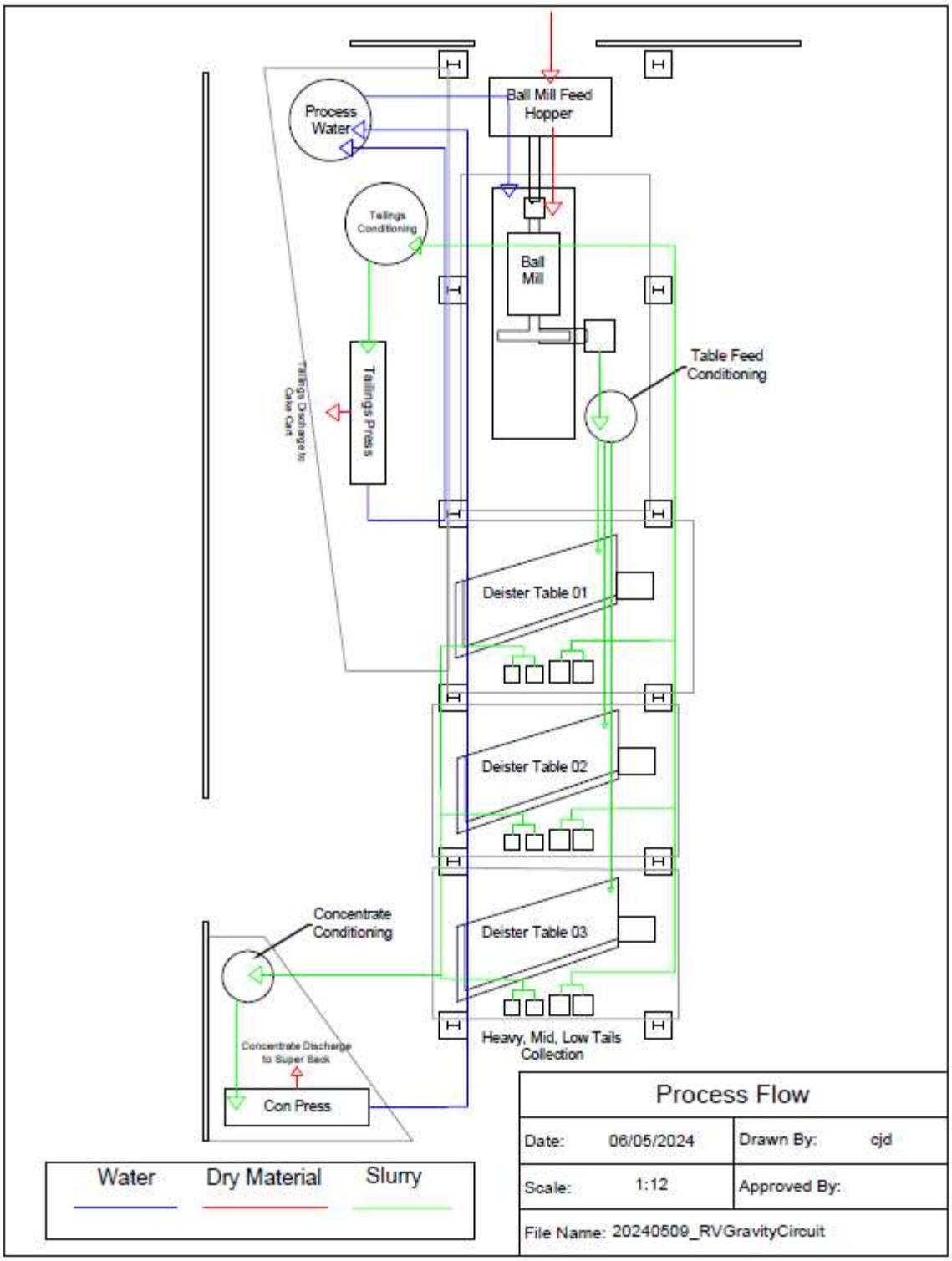
Chris Skerik
Chief Operating Officer
Thorin Resources
cskerik@thorinresources.com

Attachment A – Updated Emergency 2 Minute Shut-Off Volume & Capacity Table

Shut Off Time	Volume of Luquid Post Shut Off (gal)
Circuit Capacity Pre 2 Min Shutoff	9,247
Max Inflow - 2 Minute Shutoff	150
Actual Containment Volume	27,121
% Containment Coverage at 2 Min w/ Max Inflow Rate	289%

Updated Table 4: Secondary Containment with Shut-Off Capabilities

Attachment B – Updated Equipment Layout with Process Flow



Updated Diagram 1: Equipment Layout with Process Flow

Attachment C – Secondary Containment Specs & Construction recommendations

ULTRATECH INTERNATIONAL, INC.

Ultra-Containment Berm Rapid Rise Model®

SPECIFICATIONS

KEY FEATURES AND BENEFITS

+ Sidewalls remain down during normal operations, loading and unloading. Vehicles and equipment can drive in and out with no set-up or take-down required
+ In the case of a spill, the foam ring around the top perimeter of the Containment Berm rises with the level of spilled liquid.
+ Standard materials include PVC and Copolymer 2000™.

SIDEWALLS

+ Lay flat unless spill occurs - foam ring will rise with liquid level.
+ Eliminates tripping hazards.
+ No set-up required once berm has been positioned in the field.

COMPLIANCE

+ EPA 40 CFR 264.175 Containment of Containers Containing Free Liquid.
+ EPA 40 CFR 112 (SPCC) - Spill Prevention, Control and Countermeasure Act

Copolymer 2000™ Part#	PVC 22 oz. Part#	Dimensions ft. (m) Wall Height: 12 in. (305 mm)	Containment Capacity gal. (L)	Copolymer 2000™ Weight lbs. (kg)	PVC 22 oz. Weight lbs. (kg)
8430	8654	4 x 6 (1.2 x 1.8)	179 (678)	31.0 (14.0)	24.0 (11.0)
8431	8630	6 x 6 (1.8 x 1.8)	269 (1,018)	37.0 (17.0)	30.0 (14.0)
8432	8631	10 x 10 (3.0 x 3.0)	748 (2,831)	69.0 (31.0)	54.0 (24.5)
8710	8655	12 x 12 (3.7 x 3.7)	1077 (4,077)	85.0 (39.0)	66.0 (30.0)
8437	8656	12 x 26 (3.7 x 7.9)	2,333 (8,831)	151.0 (68.5)	118.0 (54.0)
8711	8632	12 x 30 (3.7 x 9.1)	2,692 (10,190)	171.0 (78.0)	134.0 (61.0)
8712	8657	12 x 40 (3.7 x 12.2)	3,590 (13,590)	218.0 (99.0)	170.0 (77.0)
8713	8633	12 x 50 (3.7 x 15.2)	4,488 (16,989)	266.0 (121.0)	207.0 (94.0)
8714	8658	12 x 60 (3.7 x 18.3)	5,385 (20,384)	313.0 (142.0)	244.0 (111.0)
8715	8659	12 x 72 (3.7 x 22.0)	6,462 (24,461)	370.0 (168.0)	288.0 (131.0)
8716	8660	15 x 15 (4.6 x 4.6)	1,683 (6,371)	115.0 (52.0)	93.0 (42.0)
8717	8661	15 x 20 (4.6 x 6.1)	2,244 (8,495)	141.0 (64.0)	114.0 (52.0)
8718	8662	15 x 30 (4.6 x 9.1)	3,366 (12,742)	195.0 (89.0)	158.0 (72.0)
8719	8663	15 x 40 (4.6 x 12.2)	4,488 (16,989)	248.0 (113.0)	201.0 (91.0)
8433	8664	15 x 50 (4.6 x 15.2)	5,610 (21,234)	302.0 (137.0)	244.0 (111.0)
8720	8665	15 x 60 (4.6 x 18.3)	6,732 (25,483)	356.0 (162.0)	286.0 (130.0)
8434	8666	15 x 66 (4.6 x 20.1)	7,405 (28,028)	388.0 (175.0)	313.0 (142.0)
8721	8667	15 x 72 (4.6 x 21.9)	8,078 (30,579)	420.0 (191.0)	338.0 (153.0)

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(800) 353-1611 · 1-904-292-1611 · spillcontainment.com

ULTRATECH INTERNATIONAL, INC.

PROCEDURE FOR BERM DEPLOYMENT:

STEP 1: Select a level area and be sure that ground is swept clean of debris and sharp objects. The use of a ground cloth is recommended to prevent puncturing from underneath the berm.

STEP 2: Place the folded berm at the setup location. Do not drag the folded berm. Unfold berm and position as desired. If tread protectors are being used, place these in the unit at this time.

STEP 3: Your berm is ready for use.

Storage:

1. Sweep out berm and be sure that it is dry and free of contaminants.
2. Store unit in clean, dry environment.

Repair and Maintenance: If a puncture or tear occurs, call for a repair kit. Describe the damage to the service representative to ensure receipt of the proper kit.

PROPER USE AND BEST PRACTICES

1. Enter and exit the berm as perpendicular to the sidewall as possible. Angled entry/exit may cause damage.
2. Do not drive over the sidewall (in parallel).
3. Drive slowly, avoiding sudden stops or acceleration.
4. Avoid excessive turns while on the berm.

PVC MATERIAL SPECS

	English	Metric	Testing Method
Weight	22 oz./yd²	745 g/m²	FS 5040 / ASTM D3776
Width	up to 126"	up to 320 cm	-
Count	18 x 16/1"	7 x 7/cm	-
Denier	1300 x 1500	1430 x 1650	-
Grab Tensile	459 x 418 lbs./1"	2042 x 1859 N/2.5 cm	FS 5100 / ASTM D5034
Tongue Tear	140 x 150 lbs./1"	623 x 667 N/2.5 cm	FS 5134 / ASTM 2261
Adhesion	22 lbs./2"	98 N/5 cm	FS 5970 / ASTM D751
Finish	Matte		
Cold Crack	-30°F	-34°C	FS 5874 / ASTM D2136
Treatments	Anti-Mildew, UV Pigments		
Put-Up	75 yds	69 m	

COPOLYMER-2000 MATERIAL SPECS

Reinforced	English	Metric	Testing Method
Base Fabric Type	Polyester		
Base Fabric Weight (nominal)	3.0 oz/yd2	102 g/m2	
Finished Coated Weight	28.0 ± 2 oz/yd2	950 ± 70 g/m2	ASTM D751
Thickness	30 mils nominal	0.76 mm nominal	ASTM D751
Trapezoid Tear	30/30 lbf nominal	133/133 N nominal	ASTM D4533
Grab Tensile	250/200 lbf min.	1112/890 N min.	ASTM D751 Grab Method
Hydrostatic Resistance	300 psi min.	2.06 MPa min.	ASTM D751, Procedure A
Adhesion	10 lbf/in min.	9.0 daN/5 cm min.	ASTM D751 Dielectric Seam
Cold Crack	Pass @ -25° F	Pass @ -32° C	ASTM D2136 1/8 in mandrel, 4 hr.
Puncture Resistance	50 lbf typical	225 N typical	ASTM D4833
Dead Load	2 in seam, 4 hr, 1 in strip 100 lbf @ 70° F 50 lbf @ 160° F	5 cm seam, 4 hr, 2.5 cm strip 445 N @ 21° C 220 N @ 70° C	ASTM D751

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Attachment D – Updated Water Quality Table

		Bench Top Tests	Discharge Standards		Historical Sample Results	
Analyte	**Units**	**Average Results**	**30 Day Avg**	**Daily Max**	**2023 Outfall Discharge**	**2023 Portal Discharge**
Arsenic, total recoverable	*mg/L*	**ND**	Report	-	0.001	-
Cadmium, dissolved	*mg/L*	**0.0004**	0.00074	0.0022	0.000	0.00130525
Cadmium, total	*mg/L*	**ND**	0.05	0.1	0.000	-
Chromium, total recoverable	*mg/L*	**ND**	Report	-	ND	-
Copper, dissolved	*mg/L*	**0.0006**	0.0125	Report	0.0008	0.00173
Copper, total	*mg/L*	**0.02**	0.15	0.3	0.0012	-
Cyanide, wad	*mg/L*	**ND**	-	0.0056	ND	-
Iron, total recoverable	*mg/L*	**0.3415**	1.276	-	0.095	-
Lead, dissolved	*mg/L*	**0.0259**	0.0026	0.1	0.001	0.0012525
Lead, total	*mg/L*	**0.0402**	0.3	0.6	0.001	-
Manganese, dissolved	*mg/L*	**1.075**	2.067	4.127	0.094	1.5395
Mercury, total	*mg/L*	**ND**	0.001	0.002	ND	-
pH	*mg/L*	**7.655**	Report	-	7.661	7.375
Silver, dissolved	*mg/L*	**ND**	0.00008	Report	ND	ND
Zinc, dissolved	*mg/L*	**0.1035**	0.126	0.166	0.075	0.4535
Zinc, total	*mg/L*	**0.08**	0.75	1.5	0.072	-
Residue, Filterable (TDS) @180C	*mg/L*	**290**	Report	-	199.333	221
Residue, Non-Filterable (TSS) @105C	*mg/L*	**17.5**	20	-	ND	ND

Attachment E – Colorado Analytical Water Quality Reports

Colorado Analytical LABORATORIES, INC.

Analytical Results

TASK NO: 240206006

Report To: CJ Dickerson
Company: Thorin Resources, LLC
1900 Main St
Unit 1
Ouray CO 81427

Bill To: CJ Dickerson
Company: Thorin Resources, LLC
1900 Main St
Unit 1
Ouray CO 81427

Task No.: 240206006
Client PO:
Client Project: Revenue - Virginius

Date Received: 2/6/24
Date Reported: 2/13/24
Matrix: Wastewater

Customer Sample ID BTT_0001
Sample Date/Time: 2/5/24 12:25 PM
Lab Number: 240206006-01

Test	Result / Units	Method	RL	MDL	Date Analyzed	QC Batch ID	Analyzed By
Cyanide-Weak Acid Dissociable	**ND mg/L**	ASTM 2036-09C	0.005	0.0005	2/9/24	QC71174	DPL
pH	**7.65 units**	SM 4500-H-B	0.01	0.01	2/6/24	-	ARH
Total Suspended Solids	**7 mg/L**	SM 2540-D	5	2	2/6/24	QC71087	ISG
Potentially Dissolved							
Cadmium	**0.0002 mg/L**	EPA 200.8	0.0001	0.000006	2/8/24	QC71144	MBN
Copper	**ND mg/L**	EPA 200.8	0.0008	0.00001	2/8/24	QC71144	MBN
Lead	**0.0214 mg/L**	EPA 200.8	0.0001	0.000006	2/8/24	QC71144	MBN
Manganese	**1.15 mg/L**	EPA 200.8	0.0008	0.00001	2/8/24	QC71144	MBN
Silver	**ND mg/L**	EPA 200.8	0.0005	0.000003	2/8/24	QC71144	MBN
Zinc	**0.005 mg/L**	EPA 200.8	0.001	0.00003	2/8/24	QC71144	MBN
Total							
Mercury	**ND mg/L**	EPA 245.7	0.0002	0.00002	2/8/24	QC71183	MBN
Lead	**0.0222 mg/L**	EPA 200.8	0.0001	0.000006	2/8/24	QC71144	MBN
Total Recoverable							
Iron	**0.033 mg/L**	EPA 200.7	0.005	0.0005	2/8/24	QC71140	MBN

Abbreviations/ References:

RL = Reporting Limit = Minimum Level
MDL = Method Detection Limit
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.
(s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

ND = Not Detected at Reporting Limit.

Colorado Analytical LABORATORIES, INC.

Analytical QC Summary

TASK NO: 240206006

Report To: CJ Dickerson
Company: Thorin Resources, LLC

Receive Date: 2/6/24
Project Name: Revenue - Virginius

Test	QC Batch ID	QC Type	Result	Method	Prep Date
Cyanide-Weak Acid Dissociable	QC71174	Blank	ND	ASTM 2036-09C	2/9/24
Mercury	QC71183	Method Blank	ND	EPA 245.7	2/8/24
Cadmium	QC71144	Method Blank	ND	EPA 200.8	2/6/24
Copper	QC71144	Method Blank	ND	EPA 200.8	2/6/24
Lead	QC71144	Method Blank	ND	EPA 200.8	2/6/24
Manganese	QC71144	Method Blank	ND	EPA 200.8	2/6/24
Silver	QC71144	Method Blank	ND	EPA 200.8	2/6/24
Zinc	QC71144	Method Blank	ND	EPA 200.8	2/6/24
Iron	QC71140	Method Blank	ND	EPA 200.7	2/6/24
Total Suspended Solids	QC71087	Blank	ND	SM 2540-D	2/6/24

Test	QC Batch ID	QC Type	Limits	% Rec	RPD	Method
Cyanide-Weak Acid Dissociable	QC71174	Duplicate	0 - 20	-	18.2	ASTM 2036-09C
		LCS	90 - 110	100.3	-	
		MS	75 - 125	84.5	-	
Mercury	QC71183	Duplicate	0 - 20	-	0.0	EPA 245.7
		LCS	90 - 110	105.4	-	
		MS	80 - 120	98.0	-	
Cadmium	QC71144	LCS	90 - 110	93.1	-	EPA 200.8
		MS	70 - 130	101.7	-	
		MSD	0 - 10	-	2.4	
Copper	QC71144	LCS	90 - 110	95.4	-	EPA 200.8
		MS	70 - 130	97.8	-	
		MSD	0 - 10	-	1.1	
Lead	QC71144	LCS	90 - 110	93.8	-	EPA 200.8
		MS	70 - 130	94.5	-	
		MSD	0 - 10	-	2.4	
Manganese	QC71144	LCS	90 - 110	98.9	-	EPA 200.8
		MS	70 - 130	108.8	-	
		MSD	0 - 10	-	0.0	
Silver	QC71144	LCS	90 - 110	91.4	-	EPA 200.8
		MS	70 - 130	98.0	-	
		MSD	0 - 10	-	2.7	
Zinc	QC71144	LCS	90 - 110	100.1	-	EPA 200.8
		MS	70 - 130	106.3	-	
		MSD	0 - 10	-	2.8	
Iron	QC71140	Duplicate	0 - 20	-	0.0	EPA 200.7
		LCS	90 - 110	100.3	-	
		MS	75 - 125	90.9	-	
Total Suspended Solids	QC71087	Duplicate	0 - 10	-	2.1	SM 2540-D
		LCS	90 - 110	102.3	-	

Abbreviations/ References:

RL = Reporting Limit = Minimum Level
MDL = Method Detection Limit
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.
(s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

ND = Not Detected at Reporting Limit.

All analyses were performed in accordance with approved methods under the latest revision to 40 CFR Part 136 unless otherwise identified. Based on my inquiry of the person or persons directly responsible for analyzing the wastewater samples and generating the report (s), the analyses, report, and information submitted are, to the best of my knowledge and belief, true, accurate, and complete.

DATA APPROVED FOR RELEASE BY

Abbreviations/ References:

RL = Reporting Limit = Minimum Level
MDL = Method Detection Limit
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.
(s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

ND = Not Detected at Reporting Limit.

Chain of Custody Form

Colorado Analytical LABORATORIES, INC

Commerce City Lab
10411 Heinz Way
Commerce City CO 80640

Lakewood Service Center
610 Garrison Street, Unit E
Lakewood CO 80215

Phone: 303-659-2313

www.coloradolab.com

Report To Information	Bill To Information (If different from report to)	Project Name / Number
Company Name: Thorin Resources	Company Name: Thorin Resources	
Contact Name: CJ Dickerson	Contact Name: CJ Dickerson	
Address: 1900 Main St Unit 1	Address:	Task Number (Lab Use Only)
City Ouray State CO Zip 81427	City State Zip	CAL Task 240206006 RMB
Phone: (970) 316-2294	Phone:	
Email: cjdickerson@thorinresources.com	Email:	
Sample Collector: CJ Dickerson		
Sample Collector Phone: (602) 793-1321	PO No.:	

Sample Matrix (Select One Only)

Waste Water ☒ Soil ☐ Drinking Water ☐
Ground Water ☐ Sludge ☐
Surface Water ☐

Date	Time	Sample ID	No. of Containers	Grab or Composite (Check One Only)	Tests Requested
2/5	12:25	BTT_0001	3	✓	
		* Tests based on history (3) and bottles rcd.			

Instructions: No return bottles requested for this order

C/S Info:
Deliver Via: UPS
C/S Charge ☐

Seals Present Yes ☐ No ☐
Temp. 2 °C/Ice Y Sample Pres. Yes ☒ No ☐

Relinquished By:	Date/Time:	Received By:	Date/Time:	Relinquished By:	Date/Time:	Received By:	Date/Time:
		JAdams	2/6/24				

015

Pace Analytical
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Date: 4/11/2024

CLIENT: Disa Technologies Inc.
Project: Disa Total Metals + Rads
Lab Order: S2403158

CASE NARRATIVE

Report ID: S2403158001

Entire Report Reviewed by:

Jessica Gillan, Project Manager

Samples Process Water 1 and Process Water 2 were received on March 12, 2024.

All samples were received and analyzed within recommended holding times, except those noted below in this case narrative. Samples were analyzed using methods outlined in the following references:

Standard Methods for the Examination of Water and Wastewater, approved method versions
EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, online versions
EPA methods 40 CFR Parts 136 and 141EPA 600/2-78-054 methods
NDEP Mining Methods
40 CFR Part 50, Appendices B, J, L, O and FEM EQL-0310-189
IO Compendium Methods
Clean Water Act Methods Update Rule for the Analysis of Effluent, current version.
ASTM approved and recognized standards
ISO approved and recognized standards
USDA Handbook 60
Soil Survey Laboratory Manual Ver 4.0
ASA/SSSA 9 Methods of Analysis Part 2, 1982
ASA/SSSA Methods of Analysis Book 5 Part 3, 1996
Other industry approved methods

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical except as indicated in this case narrative:

Material exported over a 3 year period. Updated permit from County At

Date: 4/11/2024

Definitions

RL	Reporting Limit

Qualifiers

*	Value exceeds Maximum Contaminant Level
A	Check MSA specifications
B	Analyte detected in the associated Method Blank
C	Calculated Value
D	Report limit raised due to dilution
E	Value above quantitation range
G	Analyzed at Pace Gillette, WY laboratory
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL
N	Sample analyzed outside of compliance requirements
ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions
P	Sample preserved in lab at time of receipt
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
U	Analyte below method detection limit
X	Matrix Effect

Pace Analytical
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Disa Technologies Inc.
11005 N Dover St. Suite 500
Westminster, CO 80021

Date Reported 4/11/2024
Report ID S2403158001

ProjectName: Disa Total Metals + Rads
Lab ID: S2403158-001
ClientSample ID: Process Water 2
COC:
PWS ID:
Comments

WorkOrder: S2403158
CollectionDate: 2/29/2024 10:00:00 AM
DateReceived: 3/12/2024 10:38:00 AM
FieldSampler:
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Total							
Arsenic	ND	mg/L		0.005	EPA 200.8	03/15/2024 518	MS
Barium	0.049	mg/L		0.005	EPA 200.8	03/15/2024 518	MS
Cadmium	ND	mg/L		0.002	EPA 200.8	03/15/2024 518	MS
Chromium	ND	mg/L		0.01	EPA 200.7	03/19/2024 1344	DG
Copper	0.02	mg/L		0.01	EPA 200.8	03/15/2024 518	MS
Lead	0.068	mg/L		0.001	EPA 200.8	03/15/2024 518	MS
Mercury	ND	mg/L		0.001	EPA 245.1	03/19/2024 1505	JGU
Molybdenum	ND	mg/L		0.02	EPA 200.8	03/15/2024 518	MS
Nickel	ND	mg/L		0.01	EPA 200.7	03/19/2024 1344	DG
Selenium	ND	mg/L		0.005	EPA 200.8	03/15/2024 518	MS
Silver	ND	mg/L		0.003	EPA 200.8	03/15/2024 518	MS
Thorium	ND	mg/L		0.05	EPA 200.7	03/19/2024 1344	DG
Uranium	0.0005	mg/L		0.0003	EPA 200.8	03/15/2024 518	MS
Zinc	0.08	mg/L		0.02	EPA 200.7	03/19/2024 1344	DG

Pace Analytical
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Disa Technologies Inc.
11005 N Dover St. Suite 500
Westminster, CO 80021

Date Reported 4/11/2024
Report ID S2403158001

ProjectName: Disa Total Metals + Rads
Lab ID: S2403158-002
ClientSample ID: Process Water 1
COC:
PWS ID:
Comments

WorkOrder: S2403158
CollectionDate: 2/29/2024 10:02:00 AM
DateReceived: 3/12/2024 10:38:00 AM
FieldSampler:
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Radium 226	ND	pCi/L		0.2	SM 7500 Ra-B	04/09/2024 1555	WN
Radium 226 Precision (±)	NA	pCi/L			SM 7500 Ra-B	04/09/2024 1555	WN
Radium 228	ND	pCi/L		1	Ga-Tech	04/05/2024 2026	WN
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	04/05/2024 2026	WN
Thorium 228	ND	pCi/L		0.2	ACW10	03/21/2024 1537	AEF
Thorium 228 (Dissolved) Precision (±)	NA	pCi/L			ACW10	03/21/2024 1537	AEF
Thorium 230	ND	pCi/L		0.2	ACW10	03/21/2024 1537	AEF
Thorium 230 Precision (±)	NA	pCi/L			ACW10	03/21/2024 1537	AEF
Thorium 232	ND	pCi/L		0.2	ACW10	03/21/2024 1537	AEF
Thorium 232 (Dissolved) Precision (±)	NA	pCi/L			ACW10	03/21/2024 1537	AEF
Thorium 229 Tracer (30-120)	88	%			ACW10	03/21/2024 1537	AEF

Material exported over a 3 year period. Updated permit from County Att

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Disa Technologies Inc. **Date:** 4/11/2024
Work Order: S2403158 **Report ID:** S2403158001
Project: Disa Total Metals + Rads

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-799 (04/04/24 14:02) RunNo: 219819 PrepDate: 03/19/24 0:00 BatchID: 21724

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	ND	1					

Radium 228 by Ga/Tech Sample Type **LCS** Units: pCi/L

LCS-799 (04/04/24 17:05) RunNo: 219819 PrepDate: 03/19/24 0:00 BatchID: 21724

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	16	1	21.4		75.2	57 - 142	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

MS-799 (04/04/24 23:10) RunNo: 219819 PrepDate: 03/19/24 0:00 BatchID: 21724

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	17	1	21.4	ND	79.5	62 - 137	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-799 (04/05/24 02:12) RunNo: 219819 PrepDate: 03/19/24 0:00 BatchID: 21724

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 228 (Dissolved)	17	1	17	0.955	78.7	20	

Radium 226 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-2610 (04/09/24 15:55) RunNo: 219873 PrepDate: 04/01/24 0:00 BatchID: 21719

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	ND	0.2					

Radium 226 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-2610 (04/09/24 15:55) RunNo: 219873 PrepDate: 04/01/24 0:00 BatchID: 21719

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	7.3	0.2	7.74		93.6	78 - 117	

Radium 226 in Water - Dissolved Sample Type **MS** Units: pCi/L

MS-2610 (04/09/24 15:55) RunNo: 219873 PrepDate: 04/01/24 0:00 BatchID: 21719

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	8.2	0.2	7.74	ND	106	66.8 - 130	

Radium 226 in Water - Dissolved Sample Type **MSD** Units: pCi/L

MSD-2610 (04/09/24 15:55) RunNo: 219873 PrepDate: 04/01/24 0:00 BatchID: 21719

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226 (Dissolved)	7.8	0.2	8.2	4.78	101	20	

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Disa Technologies Inc. **Date:** 4/11/2024
Work Order: S2403158 **Report ID:** S2403158001
Project: Disa Total Metals + Rads

Thorium 230 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-957 (03/21/24 15:37)	RunNo: 219399						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 228 (Dissolved)	ND	0.2					
Thorium 230 (Dissolved)	ND	0.2					
Thorium 232 (Dissolved)	ND	0.2					

Thorium 230 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-957 (03/21/24 15:37)	RunNo: 219399						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 230 (Dissolved)	12	0.2	12		98.1	75 - 139	

LCS-TH232-957 (03/21/24 15:37)	RunNo: 219399						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 228 (Dissolved)	11	0.2	11		96.9	50 - 150	
Thorium 232 (Dissolved)	11	0.2	11		96.0	50 - 150	

Thorium 230 in Water - Dissolved Sample Type **LCSD** Units: pCi/L

LCSD-957 (03/21/24 15:37)	RunNo: 219399						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Thorium 230 (Dissolved)	14	0.2	12	9.76	108	20	

Total Mercury by EPA 245.1 - Water Sample Type **MBLK** Units: mg/L

MB (03/19/24 15:03)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	ND	0.001					

MB (03/19/24 15:29)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	ND	0.001					

MB (03/19/24 16:33)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	ND	0.001					

MB (03/19/24 17:35)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	ND	0.001					

Material exported over a 3 year period. Updated permit from County

Total Mercury by EPA 245.1 - Water Sample Type **LCS** Units: mg/L

LCS (03/19/24 15:01)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.005	0.001	0.005		93.4	85 - 115	

LCS (03/19/24 15:27)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.005	0.001	0.005		97.2	85 - 115	

LCS (03/19/24 16:31)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.005	0.001	0.005		98.0	85 - 115	

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Disa Technologies Inc. **Date:** 4/11/2024
Work Order: S2403158 **Report ID:** S2403158001
Project: Disa Total Metals + Rads

Total Mercury by EPA 245.1 - Water Sample Type **LCS** Units: mg/L

LCS (03/19/24 17:32)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.005	0.001	0.005		94.6	85 - 115	

Total Mercury by EPA 245.1 - Water Sample Type **MS** Units: mg/L

S2403158-001AS (03/19/24 15:10)	RunNo: 219278						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.005	0.001	0.005	ND	95.5	70 - 130	

Total Mercury by EPA 245.1 - Water Sample Type **MSD** Units: mg/L

S2403158-001ASD (03/19/24 15:12)	RunNo: 219278						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Mercury	0.005	0.001	0.005	0.973	94.5	20	

Total Mercury by EPA 245.1 - Water Sample Type **DUP** Units: mg/L

S2403158-001AD (03/19/24 15:08)	RunNo: 219278					
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Mercury	ND	0.001	ND			20	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MBLK** Units: mg/L

MB-21661 (03/19/24 13:33)	RunNo: 219257	PrepDate: 03/14/24 9:42		BatchID: 21661			
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chromium	ND	0.01					
Nickel	ND	0.01					
Thorium	ND	0.05					
Zinc	ND	0.02					

MB-21661 (03/19/24 15:57)	RunNo: 219257	PrepDate: 03/14/24 9:42		BatchID: 21661			
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chromium	ND	0.01					
Nickel	ND	0.01					
Thorium	ND	0.05					
Zinc	ND	0.02					

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **LCS** Units: mg/L

LCS-21661 (03/19/24 13:35)	RunNo: 219257	PrepDate: 03/14/24 9:42		BatchID: 21661			
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chromium	0.20	0.01	0.2		101	85 - 115	
Nickel	0.53	0.01	0.5		105	85 - 115	
Zinc	0.21	0.02	0.2		105	85 - 115	

LCS-21661 (03/19/24 13:38)	RunNo: 219257	PrepDate: 03/14/24 9:42		BatchID: 21661			
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium	0.19	0.05	0.2		92.9	85 - 115	

LCS-21661 (03/19/24 16:00)	RunNo: 219257	PrepDate: 03/14/24 9:42		BatchID: 21661			
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chromium	0.20	0.01	0.2		98.0	85 - 115	
Nickel	0.51	0.01	0.5		102	85 - 115	
Zinc	0.20	0.02	0.2		101	85 - 115	

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1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

ANALYTICAL QC SUMMARY REPORT

CLIENT: Disa Technologies Inc. **Date:** 4/11/2024
Work Order: S2403158 **Report ID:** S2403158001
Project: Disa Total Metals + Rads

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **LCS** Units: mg/L

LCS-21661 (03/19/24 16:02)	RunNo: 219257	PrepDate: 03/14/24 9:42			BatchID: 21661		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium	0.19	0.05	0.2		92.4	85 - 115	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MS** Units: mg/L

S2403158-001AS (03/19/24 13:47)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium	0.20	0.05	0.2	ND	97.3	70 - 130	

S2403166-002DS (03/19/24 14:46)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chromium	0.21	0.01	0.2	ND	103	70 - 130	
Nickel	0.53	0.01	0.5	ND	106	70 - 130	
Zinc	0.22	0.02	0.2	ND	112	70 - 130	

S2403178-002DS (03/19/24 15:44)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chromium	0.20	0.01	0.2	ND	97.6	70 - 130	
Nickel	0.513	0.002	0.5	ND	103	70 - 130	
Zinc	0.205	0.009	0.2	ND	102	70 - 130	

S2403183-002CS (03/19/24 16:13)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chromium	0.21	0.01	0.2	ND	104	70 - 130	
Nickel	0.54	0.01	0.5	ND	107	70 - 130	
Zinc	0.22	0.02	0.2	ND	110	70 - 130	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MSD** Units: mg/L

S2403158-001AMSD (03/19/24 13:49)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Thorium	0.21	0.05	0.20	6.15	103	20	

S2403166-002DMSD (03/19/24 14:48)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Chromium	0.21	0.01	0.21	0.979	104	20	
Nickel	0.54	0.01	0.53	1.43	108	20	
Zinc	0.23	0.02	0.22	1.23	113	20	

S2403178-002DMSD (03/19/24 15:46)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Chromium	0.20	0.01	0.20	0.160	97.4	20	
Nickel	0.509	0.002	0.513	0.701	102	20	
Zinc	0.203	0.009	0.205	0.711	102	20	

S2403183-002CMSD (03/19/24 16:15)	RunNo: 219257	PrepDate: 03/14/24 8:00			BatchID: 21661		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Chromium	0.21	0.01	0.21	1.37	103	20	
Nickel	0.53	0.01	0.54	0.258	107	20	
Zinc	0.22	0.02	0.22	0.894	109	20	

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Disa Technologies Inc. **Date:** 4/11/2024
Work Order: S2403158 **Report ID:** S2403158001
Project: Disa Total Metals + Rads

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **DUP** Units: mg/L

S2403178-001DD (03/19/24 15:40) RunNo: 219257 PrepDate: 03/14/24 8:00 BatchID: 21661

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Nickel	ND	0.002	ND			20	
Zinc	ND	0.009	ND			20	

Total (200.2) Metals by EPA 200.8 - Water Sample Type **MBLK** Units: mg/L

MB-21661 (03/15/24 05:00) RunNo: 219179 PrepDate: 03/14/24 9:42 BatchID: 21661

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	ND	0.005					
Barium	ND	0.005					
Cadmium	ND	0.002					
Copper	ND	0.01					
Lead	ND	0.001					
Molybdenum	ND	0.02					
Selenium	ND	0.005					
Silver	ND	0.003					
Uranium	ND	0.0003					

Total (200.2) Metals by EPA 200.8 - Water Sample Type **LCS** Units: mg/L

LCS-21661 (03/15/24 05:12) RunNo: 219179 PrepDate: 03/14/24 9:42 BatchID: 21661

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	0.204	0.005	0.2		102	85 - 115	
Barium	0.206	0.005	0.2		103	85 - 115	
Cadmium	0.210	0.002	0.2		105	85 - 115	
Copper	0.22	0.01	0.2		109	85 - 115	
Lead	0.208	0.001	0.2		104	85 - 115	
Molybdenum	0.20	0.02	0.2		100	85 - 115	
Selenium	0.394	0.005	0.4		98.6	85 - 115	
Silver	0.104	0.003	0.1		104	85 - 115	
Uranium	0.210	0.0003	0.2		105	85 - 115	

Total (200.2) Metals by EPA 200.8 - Water Sample Type **MS** Units: mg/L

S2403178-002DS (03/15/24 05:42) RunNo: 219179 PrepDate: 03/14/24 8:00 BatchID: 21661

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	0.202	0.001	0.2	ND	101	70 - 130	
Barium	0.205	0.005	0.2	ND	103	70 - 130	
Cadmium	0.211	0.0005	0.2	ND	106	70 - 130	
Copper	0.216	0.002	0.2	ND	108	70 - 130	
Lead	0.194	0.0003	0.2	ND	97.1	70 - 130	
Molybdenum	0.20	0.02	0.2	ND	101	70 - 130	
Selenium	0.394	0.001	0.4	ND	98.5	70 - 130	
Silver	0.104	0.003	0.1	ND	104	70 - 130	
Uranium	0.212	0.001	0.2	ND	106	70 - 130	

Total (200.2) Metals by EPA 200.8 - Water Sample Type **MSD** Units: mg/L

S2403178-002DMSD (03/15/24 06:00) RunNo: 219179 PrepDate: 03/14/24 8:00 BatchID: 21661

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Arsenic	0.202	0.001	0.202	0.00464	101	20	
Barium	0.203	0.005	0.205	1.20	102	20	
Cadmium	0.210	0.0005	0.211	0.701	105	20	

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Disa Technologies Inc. **Date:** 4/11/2024
Work Order: S2403158 **Report ID:** S2403158001
Project: Disa Total Metals + Rads

Total (200.2) Metals by EPA 200.8 - Water Sample Type **MSD** Units: mg/L

S2403178-002DMSD (03/15/24 06:00) RunNo: 219179 PrepDate: 03/14/24 8:00 BatchID: 21661

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Copper	0.216	0.002	0.216	0.184	108	20	
Lead	0.199	0.0003	0.194	2.48	99.5	20	
Molybdenum	0.19	0.02	0.20	3.65	96.9	20	
Selenium	0.397	0.001	0.394	0.694	99.2	20	
Silver	0.103	0.003	0.104	1.88	103	20	
Uranium	0.194	0.001	0.212	9.01	97.0	20	

Total (200.2) Metals by EPA 200.8 - Water Sample Type **DUP** Units: mg/L

S2403178-001DD (03/15/24 05:30) RunNo: 219179 PrepDate: 03/14/24 8:00 BatchID: 21661

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Arsenic	ND	0.001	ND			20	
Cadmium	ND	0.0005	ND			20	
Copper	ND	0.002	ND			20	
Lead	ND	0.0003	ND			20	
Selenium	ND	0.001	ND			20	

Pace® Location Requested (City/State):
1673 Terra Avenue
Sheridan WY 82801
307-672-8945

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Disa Technologies, Inc	Contact/Report To:	laurel Naser
Street Address:	11005 N Dover st. suite 500 westminster, co 80021	Phone #:	720-239-2463
		E-Mail:	laurel@disausa.com
		Cc E-Mail:	
Customer Project #:	24001		
Project Name:	Thorin Resources	Invoice To:	John lee
		Invoice E-Mail:	john@disausa.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [x] MT [ ] CT [ ] ET

County / State origin of sample(s): Colorado

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other _____

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [x] No

Rush (Pre-approval required):
[ ] 5 Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other _____

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

Field Filtered (if applicable): [ ] Yes [x] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	raidonuclides	RCRA metals
Process water 1	ww	grab	2/29/2024	10:00						X	
Process water 2	ww	grab	2/29/2024	10:02							X

Specify Container Size **: 1 3

Identify Container Preservative Type***: 1 2

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only
Proj. Mgr:
AcctNum / Client ID:
Table #:
Profile / Template:
Prelog / Bottle Ord. ID:

Sample Comment

Preservation non-conformance identified for

240518 5[illegible]3158-001
-002

Additional Instructions from Pace®:

Collected By:
(Printed Name) Michael Angelino
Signature: Michael Angelino

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice
				15.0	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Michael Angelino	3/1/24 1215	Daniel Sloop	3/12/24 1038	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

F&L Sweep ok

Pace Analytical
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Quotation for Analytical Services

Prepared for: **Disa Technologies, INC**
Laurel Naser
11005 N Dover St.
Westminster, CO 82604
Phone: (720) 239-2463 Fax:

Submitted By:
Ian Scofield

QuoteID: 3938
TAT: 35 Days
Expires: 5/19/2024

Project: Disa Total Metals + Rads

Parameter	Reporting Limit	Units	Method	Per Sample Discounted Price
Total (200.2) Metals by EPA 200.7 ICP - Water				**$44.00**
Chromium	0.01	mg/L	EPA 200.7	
Nickel	0.01	mg/L	EPA 200.7	
Thorium	0.05	mg/L	EPA 200.7	
Zinc	0.02	mg/L	EPA 200.7	
Total (200.2) Metals by EPA 200.8 - Water				**$108.00**
Arsenic	0.005	mg/L	EPA 200.8	
Barium	0.005	mg/L	EPA 200.8	
Cadmium	0.002	mg/L	EPA 200.8	
Copper	0.01	mg/L	EPA 200.8	
Lead	0.001	mg/L	EPA 200.8	
Molybdenum	0.02	mg/L	EPA 200.8	
Selenium	0.005	mg/L	EPA 200.8	
Silver	0.003	mg/L	EPA 200.8	
Uranium	0.0003	mg/L	EPA 200.8	
Total Mercury by EPA 245.1 - Water				**$30.80**
Mercury	0.001	mg/L	EPA 245.1	
200.2 Total Metals in Water - PREP				**$14.90**
200.2 Total Metals in Water - PREP			Prep	
Radium 226 in Water - Dissolved				**$130.00**
Radium 226 (Dissolved)	0.2	pCi/L	SM 7500 Ra-B	
Radium 228 by Ga/Tech				**$130.00**
Radium 228 (Dissolved)	1	pCi/L	Ga-Tech	
Thorium 230 in Water - Dissolved				**$275.40**
Thorium 228 (Dissolved)	0.2	pCi/L	ACW10	
Thorium 229 Tracer	-999	pCi/L	ACW10	
Thorium 230 (Dissolved)	0.2	pCi/L	ACW10	
Thorium 232 (Dissolved)	0.2	pCi/L	ACW10	
Radium 226 in Water - Prep				**$6.40**
Radium 226 in Water - Prep			Prep	
Radium 226/228 Ga Tech Prep				**$6.40**
Radium 226/228 Ga Tech Prep			Prep	

Misc Comments:

Total (List):	**$745.90**
Discount:	**0%**
Discounted Price:	**$745.90**

NOTE: $30.00 Environmental Impact Fee
$7.00 Sample Disposal Fee per Sample
$100.00 Minimum Order Fee

Survey Meter # Model 2241-2; SN 182119
pH strip lot # HC333774
Thermometer SN# 27130475

Condition Upon Receipt (Attach to COC)

Sample Receipt

1 Number of ice chests/packages received: 1 **ROI?** **Yes** (No)
*Note as "**OTC**" if samples are received over the counter, unpackaged*

2 Temperature of cooler/samples. *(If more than 8 coolers, obtain an additional CUR form.)*

Temps Observed (°C):	15.0						
Temps Corrected (°C):	15.0						

***Acceptable is: 0.1° to 10°C** for Bacteria; and 0.1° to 6°C for most other water parameters. Samples may not have had adequate time to cool following collection. Indicate ROI (Received on Ice) for iced samples received on the same day as sampled, in addition to temperature at receipt.*

Client contact for temperatures outside method criteria must be documented below.

3 Emission rate of samples for radiochemical analyses < 0.5mR/hr?	(Yes)	No	N/A
4 COC Number (If applicable): _____			
5 Do the number of bottles agree with the COC?	Yes	No	(N/A)
6 Were the samples received intact? *(no broken bottles, leaks, etc.)*	(Yes)	No	N/A
7 Were the sample custody seals intact?	Yes	No	(N/A)
8 Is the COC properly completed, legible, and signed?	(Yes)	No	

Sample Verification, Labeling & Distribution

1 Were all requested analyses understood and appropriate?	(Yes)	No	
2 Did the bottle labels correspond with the COC information?	(Yes)	No	
3 Samples collected in method-prescribed containers?	(Yes)	No	

4 Sample Preservation:

pH at Receipt:	**Final pH** (if added in lab):	**Preservative/Lot#**	**Date/Time Added:**
<2 Total Metals	_____ Total Metals	HNO_3 _____	_____
_____ Diss Metals	_____ Diss Metals	*Filtered and preserved in metals*	*Filtered and preserved in metals*
_____ Nutrient	_____ Nutrient	H_2SO_4 _____	
_____ Cyanide	_____ Cyanide	NaOH _____	
_____ Sulfide	_____ Sulfide	ZnAcet _____	
_____ Phenol	_____ Phenol	H_2SO_4 _____	
_____ SDWA Rads	_____ SDWA Rads	HNO_3 _____	_____

5 VOA vials have <6mm headspace?	Yes	No	(N/A)
6 Were all analyses within holding time at the time of receipt?	(Yes)	No	
7 Have rush or project due dates been checked and accepted?	Yes	No	(N/A)
8 Do samples require subcontracted analyses?	Yes	(No)	

If "Yes", which type of subcontracting is required? **General** **Customer-Specified** **Certified**

Sample Receipt, Verification, Login, Labeling & Distribution completed by *(initials)*: JD **Set ID:** 3240315S

Discrepancy Documentation ***(use back of sheet for notes on discrepancies)***

Any items listed above with a response of "No" or do not meet specifications must be resolved.

Person Contacted: _____ Method of Contact: __ Phone: _____

Initiated By: _____ Date/Time: _____ __ Email: _____

Problem:

Resolution:

Colorado Analytical LABORATORIES, INC.

Analytical Results

TASK NO: 240809025

Report To: CJ Dickerson
Company: Thorin Resources, LLC
1900 Main St
Unit 1
Ouray CO 81427

Bill To: CJ Dickerson
Company: Thorin Resources, LLC
1900 Main St
Unit 1
Ouray CO 81427

Task No.: 240809025
Client PO:
Client Project: CDPS Bi Monthly WW

Date Received: 8/9/24
Date Reported: 8/20/24
Matrix: Wastewater

Customer Sample ID BTT_0003
Sample Date/Time: 8/8/24 3:00 PM
Lab Number: 240809025-01

Test	Result / Units	Method	RL	MDL	Date Analyzed	QC Batch ID	Analyzed By
Cyanide-Weak Acid Dissociable	**ND mg/L**	ASTM 2036-09C	0.005	0.0005	8/15/24	QC75433	KRB
pH	**7.66 units**	SM 4500-H-B	0.01	0.01	8/9/24	-	ARH
Total Dissolved Solids	**290 mg/L**	SM 2540-C	5	2	8/14/24	QC75399	ISG
Total Suspended Solids	**28 mg/L**	SM 2540-D	5	2	8/12/24	QC75353	RLP
Potentially Dissolved							
Cadmium	**0.0006 mg/L**	EPA 200.8	0.0001	0.000006	8/14/24	QC75401	MBN
Copper	**0.0012 mg/L**	EPA 200.8	0.0008	0.00001	8/14/24	QC75401	MBN
Lead	**0.0304 mg/L**	EPA 200.8	0.0001	0.000006	8/14/24	QC75401	MBN
Manganese	**1.00 mg/L**	EPA 200.8	0.0008	0.00001	8/14/24	QC75401	MBN
Silver	**ND mg/L**	EPA 200.8	0.0005	0.000003	8/14/24	QC75401	MBN
Zinc	**0.202 mg/L**	EPA 200.8	0.001	0.00003	8/14/24	QC75401	MBN
Total							
Mercury	**ND mg/L**	EPA 245.7	0.0002	0.00002	8/15/24	QC75483	JJA
Lead	**0.0304 mg/L**	EPA 200.8	0.0001	0.000006	8/14/24	QC75401	MBN
Total Recoverable							
Iron	**0.650 mg/L**	EPA 200.7	0.005	0.0005	8/13/24	QC75374	JJA

Abbreviations/ References:

RL = Reporting Limit = Minimum Level
MDL = Method Detection Limit
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.
(s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

ND = Not Detected at Reporting Limit.

Colorado Analytical LABORATORIES, INC.

Analytical QC Summary

TASK NO: 240809025

Report To: CJ Dickerson
Company: Thorin Resources, LLC

Receive Date: 8/9/24
Project Name: CDPS Bi Monthly WW

Test	QC Batch ID	QC Type	Result	Method	Prep Date
Cyanide-Weak Acid Dissociable	QC75433	Blank	ND	ASTM 2036-09C	8/14/24
Mercury	QC75483	Method Blank	ND	EPA 245.7	8/15/24
Cadmium	QC75401	Method Blank	ND	EPA 200.8	8/9/24
Copper	QC75401	Method Blank	ND	EPA 200.8	8/9/24
Lead	QC75401	Method Blank	ND	EPA 200.8	8/9/24
Manganese	QC75401	Method Blank	ND	EPA 200.8	8/9/24
Silver	QC75401	Method Blank	ND	EPA 200.8	8/9/24
Zinc	QC75401	Method Blank	ND	EPA 200.8	8/9/24
Iron	QC75374	Method Blank	ND	EPA 200.7	8/9/24
Total Dissolved Solids	QC75399	Blank	ND	SM 2540-C	8/13/24
Total Suspended Solids	QC75353	Blank	ND	SM 2540-D	8/12/24

Test	QC Batch ID	QC Type	Limits	% Rec	RPD	Method
Cyanide-Weak Acid Dissociable	QC75433	Duplicate -240808082-01	0 - 20	-	0.0	ASTM 2036-09C
		LCS	90 - 110	93.5	-	
		MS -240808018-04C	75 - 125	119.5	-	
Mercury	QC75483	Duplicate -240808091-01	0 - 20	-	0.0	EPA 245.7
		LCS	90 - 110	105.6	-	
		MS -240808091-01B	80 - 120	94.0	-	
Cadmium	QC75401	LCS	90 - 110	97.2	-	EPA 200.8
		MS -240809003-01	70 - 130	98.4	-	
		MSD -240809003-01	0 - 10	-	0.9	
Copper	QC75401	LCS	90 - 110	101.3	-	EPA 200.8
		MS -240809003-01	70 - 130	106.3	-	
		MSD -240809003-01	0 - 10	-	2.6	
Lead	QC75401	LCS	90 - 110	98.0	-	EPA 200.8
		MS -240809003-01	70 - 130	80.3	-	
		MSD -240809003-01	0 - 10	-	2.7	
Manganese	QC75401	LCS	90 - 110	104.7	-	EPA 200.8
		MS -240809003-01	70 - 130	122.0	-	
		MSD -240809003-01	0 - 10	-	2.6	
Silver	QC75401	LCS	90 - 110	98.5	-	EPA 200.8
		MS -240809003-01	70 - 130	82.8	-	
		MSD -240809003-01	0 - 10	-	4.5	
Zinc	QC75401	LCS	90 - 110	99.7	-	EPA 200.8
		MS -240809003-01	70 - 130	104.0	-	
		MSD -240809003-01	0 - 10	-	6.6	
Iron	QC75374	Duplicate -240809030-01	0 - 20	-	2.1	EPA 200.7
		LCS	90 - 110	106.8	-	
		MS -240809049-01	75 - 125	94.9	-	
Total Dissolved Solids	QC75399	Duplicate -240808158-03	0 - 10	-	1.0	SM 2540-C

Abbreviations/ References:

RL = Reporting Limit = Minimum Level
MDL = Method Detection Limit
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.
(s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

ND = Not Detected at Reporting Limit.

Test	QC Batch ID	QC Type	Limits	% Rec	RPD	Method
		LCS	85 - 115	104.2	-	
Total Suspended Solids	QC75353	Duplicate -240809001-01	0 - 10	-	9.3	SM 2540-D
		LCS	90 - 110	103.7	-	

All analyses were performed in accordance with approved methods under the latest revision to 40 CFR Part 136 unless otherwise identified. Based on my inquiry of the person or persons directly responsible for analyzing the wastewater samples and generating the report (s), the analyses, report, and information submitted are, to the best of my knowledge and belief, true, accurate, and complete.

DATA APPROVED FOR RELEASE BY

Abbreviations/ References:

RL = Reporting Limit = Minimum Level
MDL = Method Detection Limit
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.
(s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

ND = Not Detected at Reporting Limit.

Chain of Custody Form

Colorado Analytical LABORATORIES, INC

Commerce City Lab
10411 Heinz Way
Commerce City CO 80640

Lakewood Service Center
610 Garrison Street, Unit E
Lakewood CO 80215

Phone: 303-659-2313

www.coloradolab.com

Report To Information	Bill To Information (If different from report to)	Project Name / Number
Company Name: Thorin Resources	Company Name:	
Contact Name: CJ Dickerson	Contact Name:	
Address: 1900 Main St Unit 1	Address:	Task Number (Lab Use Only)
City Quray State CO Zip 81427	City State Zip	CAL Task 240809025 RMB
Phone: (602) 753-1321	Phone:	
Email: cjdickerson@thorinresources.com	Email:	
Sample Collector:		
Sample Collector Phone:	PO No.:	

Sample Matrix (Select One Only)

Waste Water ☐ Soil ☐ Drinking Water ☐
Ground Water ☐ Sludge ☐
Surface Water ☐

Date	Time	Sample ID	No. of Containers	Grab or (Check One Only) Composite	Tests Requested: QR0231/10/23
8/8	3:00	BTT_0003	3	X	X

* no extra container provided for TDS + no O/G bottle rcd (3)

Instructions: Please Return Bottles

C/S Info:

Deliver Via: UPS C/S Charge ☒ 5

Seals Present Yes ☐ No ☐

Temp. 2 °C/Ice Y Sample Pres. Yes ☒ No ☐

Relinquished By:	Date/Time:	Received By:	Date/Time:	Relinquished By:	Date/Time:	Received By:	Date/Time:
CJ Dickerson	8/8 4:50P					Adams	8/9/24

800

Attachment F – Additional Bonding Calcs

Personnel and Equipment Cost Assumptions:

Label	Description - RS Means	unit	cost	Hrly Rate
Laborer	Field Personnel, general Purpose Laborer, Average	$/week	$ 1,600.00	$ 40.00
Front-End Loader	Rent front end loader, 4WD, art. Frame, diesel, 4-4.5 CY 185 HP	$/day	$ 787.60	$ 98.45
Skid Steer	Rent Loader, skid steer, wheeled 1 CY 78 HP, diesel	$/day	$ 511.80	$ 63.98
Equipment Operator	Deconstruction process support equipment, as needed, daily use, backhoe, includes operator	$/day	$ 410.00	$ 51.25

Additional Bonding Calculations – Personnel, Equipment & Hours

	Personnel & Equipment Required						Cost ($/hr)			
Structure or Item Description	Personnel 1	Num	Personnel 2	Num	Equipment	Num	Personnel 1	Personnel 2	Equipment	Duration (hrs)
Remove Ball Mill Feed Hopper	Laborer	1					$ 40.00	$ -	$ -	3.2
Remove Ball Mill Feed Hopper	Equipment Operator	1			Front-End Loader	1	$ 51.25	$ -	$ 98.45	1.1
Remove Ball Mill - Trailer Mounted	Equipment Operator	1			Front-End Loader	1	$ 51.25	$ -	$ 98.45	0.7
Remove Ball Mill Collection Tank	Equipment Operator	1			Skid Steer	1	$ 51.25	$ -	$ 63.98	0.5
Remove Conditioning Tank 01 - Table Feed	Equipment Operator	1	Laborer	1	Front-End Loader	1	$ 51.25	$ 40.00	$ 98.45	1.3
Remove Deister Table 01 & Steel Frame	Equipment Operator	1	Laborer	2	Front-End Loader	1	$ 51.25	$ 80.00	$ 98.45	5.3
Remove Deister Table 01 Heavy Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.2
Remove Deister Table 01 Mids Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.2
Remove Deister Table 01 Lows Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.4
Remove Deister Table 01 Tails Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.4
Remove Deister Table 02 & Steel Frame	Equipment Operator	1	Laborer	2	Front-End Loader	1	$ 51.25	$ 80.00	$ 98.45	5.3
Remove Deister Table 02 Heavy Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.2
Remove Deister Table 02 Mids Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.2
Remove Deister Table 02 Lows Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.4
Remove Deister Table 02 Tails Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.4
Remove Deister Table 03 & Steel Frame	Equipment Operator	1	Laborer	2	Front-End Loader	1	$ 51.25	$ 80.00	$ 98.45	5.3
Remove Deister Table 03 Heavy Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.2
Remove Deister Table 03 Mids Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.2
Remove Deister Table 03 Lows Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.4
Remove Deister Table 03 Tails Collection Box	Laborer	1					$ 40.00	$ -	$ -	0.4
Remove Conditioning Tank 02 - Concentrate Conditioning	Equipment Operator	1			Front-End Loader	1	$ 51.25	$ -	$ 98.45	1.6
Remove Concentrate Dewatering Press	Equipment Operator	1	Laborer	2	Front-End Loader	1	$ 51.25	$ 80.00	$ 98.45	3.5
Remove Conditioning Tank 03 - Tailings Conditioning	Equipment Operator	1	Laborer	1	Front-End Loader	1	$ 51.25	$ 40.00	$ 98.45	4.3
Remove Tailings Dewatering Press	Equipment Operator	1	Laborer	2	Front-End Loader	1	$ 51.25	$ 80.00	$ 98.45	3.5
Remove Process Water Tank	Equipment Operator	1			Front-End Loader	1	$ 51.25	$ -	$ 98.45	5.5
Remove Ball Mill Containment	Equipment Operator	1	Laborer	1	Front-End Loader	1	$ 51.25	$ 40.00	$ 98.45	1.2
Remove Deister Table 01 Containment	Equipment Operator	1	Laborer	1	Front-End Loader	1	$ 51.25	$ 40.00	$ 98.45	0.7
Remove Deister Table 02 Containment	Equipment Operator	1	Laborer	1	Front-End Loader	1	$ 51.25	$ 40.00	$ 98.45	0.6
Remove Deister Table 03 Containment	Equipment Operator	1	Laborer	1	Front-End Loader	1	$ 51.25	$ 40.00	$ 98.45	0.6
Remove Concentrate Conditioning/Press Containment	Equipment Operator	1	Laborer	1	Front-End Loader	1	$ 51.25	$ 40.00	$ 98.45	0.9
Remove Process Water & Tailings Conditioning/Press Containment	Equipment Operator	1	Laborer	2	Front-End Loader	1	$ 51.25	$ 80.00	$ 98.45	4.0

Attachment G – Special Use Permit - Hauling Material: Camp Bird to Revenue

RIGHT-OF-WAY PERMIT APPLICATION

Road & Bridge Department
970.626.5391

Physical Address: 111 Mall Road, Ridgway CO
Mailing Address: PO Box 28, Ridgway CO 81432

The Right-of-Way Permit is for construction in or improvement to Ouray County rights-of-way. A permit is required to construct driveways, install telephone, electric, gas, sewer, water and other utility wires, pipelines, or the like, along, across, upon and under any road right-of-way which is owned or controlled by Ouray County.

Permittee
Name Chris Skerik
Company Thorin Resources, LLC
Address 1900 Main St, Unit 1, PO Box 1030
City Ouray State CO Zip 81427
Business Phone 970-316-2294
Fax No. _____
Email cskerik@thorinresources.com
Insurance Carrier Imperium Insurance Company Limits: $2,000,000 / $5,000,000

Contractor
Name _____
Company _____
Address _____
City _____ State ___ Zip _____
Business Phone _____
Fax No. _____
Email _____

Location/Description of Construction:
CR 361 and 26 at the following locations: Camp Bird and Revenue Mine sites
Address 4936 CR-361, Ouray, CO 81427 Subdivision _____ Legal Desc. _____

HOW MANY FEET ARE YOU DISTURBING IN THE RIGHT-OF-WAY: No disturbance required
PLANS REQUIRED WITH APPLICATION

Type of Work:

☐ **TV Cable**	☐ Main	☐ Service		☐ **Phone**	☐ Main	☐ Service
☐ **Gas**	☐ Main	☐ Service		☐ **Water**	☐ Main	☐ Service
☐ **Electric**	☐ Main	☐ Service	☐ Set Pole	☐ **Sewer**	☐ Main	☐ Service

☐ **Culvert** _____ inch by _____ foot long corrugated pipe (0.16 gauge) with annular ends.
6" cover – ¾ "compacted road base.

☒ **Other** Request access to haul material from Camp Bird to Revenue Mine, from 6:00AM to 9:30AM, Monday through Friday.

☐ **Cut Pavement** (Repair must be completed in 15 days) _____

☐ **Include sketch showing excavation(s) with dashed line in relation to road, house and driveway**

Construction Schedule and Submittal Questions – All permit holders must request inspection 24 hours in advance of work commencing. Please call 970.626.5391 for inspection request.

Planned Start Date TO BE DETERMINED Daily Work Hours 6:00AM to 9:30AM
Planned Finish Date OPEN-ENDED, INDEFINITE Weekend Work Hours NOT APPLICABLE
Does project disturb more than _____ acre? Yes No NO DISTURBANCE
If yes, a Revegetation and Weed Control Plan needs to be submitted with application

READ CAREFULLY

Job must be finished and right-of-way restored to its original condition by expiration date. Failure to do so is a violation of state and local regulations and new permits may not be issued until the job is complete. Permit extensions may be granted by calling the road inspector.

Applicant shall be responsible for confirming all utility locations within public rights-of-way prior to any excavation. Call UNCC: 1.800.922.1987.

A minimum of three working days is required to process this application.

The owner of the private improvements under this permit shall promptly relocate or remove such improvements from the Ouray County right-of-way at his own expense upon written request from Ouray County. By requiring or approving this permit, Ouray County makes no warranty of title or interest in any property or right-of-way. By submitting this application, applicant agrees to indemnify Ouray County for all claims against Ouray County arising out of, caused by or related to the work contemplated by this application, including all reasonable attorney's fees. Nothing herein shall be construed as a waiver of any right by Ouray County or an admission that any use in the right-of-way is adverse.

APPLICANT GUARANTEES ALL WORK FOR TWO YEARS FROM FINAL INSPECTION DATE

By accepting this permit, the undersigned Permittee or agent, under penalty of perjury, verifies that they have received all pages of the permit application; they have read and understood all of the permit requirements and provisions set forth on all pages; that they have the authority to sign for and bind the Permittee; and that by virtue of their signature, the Permittee is bound by and agrees to comply with all said permit requirements and provisions, all Ouray County regulations, ordinances or state laws regarding facilities construction.

Chris Skrik
Permittee or agent signature

Date July 30th, 2024

Office Use Only:

- **THIS PERMIT EXPIRES SIX MONTHS AFTER DATE APPROVED. MAY BE REISSUED.**
- **FEES WAIVED.**
- **WORK IN THE RIGHT-OF-WAY IS ONLY ALLOWED BETWEEN 6:00AM AND 9:30AM. WORK MAY NOT BE SCHEDULED DURING WEEKENDS (SATURDAY OR SUNDAY), STATE HOLIDAYS, OR WITHIN TWO DAYS OF A STATE HOLIDAY.**
- **PILOT CAR AND FLAGGERS REQUIRED FOR ALL MOVEMENTS.**
- **ANY MODIFICATIONS TO THE DESCRIBED ACTIVITY MUST BE COORDINATED IN ADVANCE WITH THE OURAY COUNTY ROAD & BRIDGE SUPERINTENDENT.**

T. L. BARGER 7/30/2024

Permit Approved – Ouray County Date

Final Inspection Approval Date

Approved for Construction Date

1. **Cost to Ouray County**. Permittee fully understands that all line installation and/or construction will be performed at no expense whatsoever to Ouray County.
2. **Stop Work**. Ouray County shall have the right to order Permittee to stop work anytime Ouray County believes that a violation of this permit has occurred or if there is a danger to the public safety if the work continues.
3. **Revocability.** Ouray County reserves the right to revoke this permit at any time should Permittee fail to comply with any of the requirements of this permit. Should this permit be revoked, Permittee must obtain a new permit and pay all required fees in order to continue with the project contemplated herein. Any lines or materials installed by Permittee prior to the revocation of the permit remain the responsibility of Permittee and shall be maintained or removed by Permittee at the discretion of Ouray County.
4. **Warranty of Right-of-Way**. Ouray County does not warrant the right-of-way by the issuance of this permit. Permittee is responsible for determining the ownership of properties traversed by its lines, the location of all property boundary lines, and the ownership of all rights-of way.
5. Commencement of construction prior to payment of fees and granting of approvals will result in applicable fees being doubled. Construction without inspection is subject to rejection.
6. Traffic shall be maintained on all rights-of-way. Flaggers shall be provided at any locations where the orderly flow of traffic is interrupted.
7. Permittee shall provide all necessary signs and barricades in accordance with the Manual on Uniform Traffic Control Devices and its latest Colorado Supplement in order to warn oncoming motorists of any installation or construction work.
8. In the event any changes are made in the future to the roadway or its appurtenances within the right-of-way contemplated herein that would necessitate removal or relocation of the lines installed or constructed herein, Permittee shall do so promptly at its own expense upon the written request from Ouray County, Colorado.
9. A copy of this permit shall be maintained on-site at all times until the work has been completed and inspected.
10. Permittee shall furnish all labor and materials, perform all work, and pay all costs in connection with the construction of the driveway(s) and its appurtenances on the right-of-way. All work shall be completed in an expeditious and safe manner and shall be finished within three months of the permit date.
11. This permit does not allow any damage to occur on the existing County right-of-way. If Permittee causes damage to the County road, Permittee shall repair road to the County's satisfaction.
12. This permit is valid only for the work described on page one. Any additional work shall require a separate application and permit.

Attachment H – Tailings Material – Net Acid Generating & Net Neutralizing Potential Sum Table

New Table: Summary of SPLP & ABA – Camp Bird Tailings Material

Analyte	Units	Minimum	Maximum	Average	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	11.6	11.6	11.60000	1	-	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	46	46	46	1	-	1
Acid-Base Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	34.4	34.4	34.4	1	-	-
Aluminum (1312)	mg/L	0.225	0.225	0.225	1	-	0.07
Antimony (1312)	mg/L	0.00474	0.00474	0.00474	1	-	0.0004
Arsenic (1312)	mg/L	0.00229	0.00229	0.00229	1	-	0.0002
Barium (1312)	mg/L	0.0473	0.0473	0.0473	1	-	0.0005
Beryllium (1312)	mg/L	-	-	-	1	1	0.0001
Bicarbonate as CaCO3	mg/L	44	44	44	1	-	2
Boron (1312)	mg/L	-	-	-	1	1	0.03
Bromide (1312-DI)	mg/L	-	-	-	1	1	0.25
Cadmium (1312)	mg/L	-	-	-	1	1	0.00005
Calcium (1312)	mg/L	12.3	12.3	12.3	1	-	0.1
Carbon, total organic (TOC) (1312-DI)	mg/L	3	3	3	1	-	1
Carbonate as CaCO3	mg/L	-	-	-	1	1	2
Chloride (1312-DI)	mg/L	-	-	-	1	1	0.4
Chromium (1312)	mg/L	-	-	-	1	1	0.0005
Cobalt (1312)	mg/L	0.000069	0.000069	0.000069	1	-	0.00005
Conductivity @25C (1312-DI)	umhos/cm	80	80	80	1	-	1
Copper (1312)	mg/L	-	-	-	1	1	0.0008
Fluoride (1312 DI)	mg/L	0.31	0.31	0.31	1	-	0.15
Hardness as CaCO3 (1312)	mg/L	32	32	32	1	-	0.2
Hydroxide as CaCO3	mg/L	-	-	-	1	1	2
Iron (1312)	mg/L	-	-	-	1	1	0.06
Lead (1312)	mg/L	0.01	0.01	0.01	1	-	0.0001
Lithium (1312)	mg/L	-	-	-	1	1	0.008
Magnesium (1312)	mg/L	0.4	0.4	0.4	1	-	0.2
Manganese (1312)	mg/L	0.0433	0.0433	0.0433	1	-	0.0004
Mercury (1312)	mg/L	-	-	-	1	1	0.0002
Molybdenum (1312)	mg/L	0.0262	0.0262	0.0262	1	-	0.0002
Neutralization Potential as CaCO3	%	4.6	4.6	4.6	1	-	0.1
Nickel (1312)	mg/L	0.00042	0.00042	0.00042	1	-	0.0004
Nitrate (1312 DI)	mg/L	0.079	0.079	0.079	1	-	0.02
Nitrate/Nitrite as N (1312-DI)	mg/L	0.079	0.079	0.079	1	-	0.02
Nitrite as N (1312-DI)	mg/L	-	-	-	1	1	0.01
Nitrogen, ammonia (1312-DI)	mg/L	0.329	0.329	0.329	1	-	0.1
pH	Units	8.5	8.5	8.5	1	-	0.1
Phosphorus, ortho dissolved (1312-DI)	mg/L	-	-	-	1	1	0.01
Phosphorus, Total (1312-DI)	mg/L	-	-	-	1	1	0.01
Potassium (1312)	mg/L	2.89	2.89	2.89	1	-	0.5
Residue, Filterable (TDS) @180C (1312)	mg/L	44	44	44	1	-	20
Residue, Non-Filter (TSS) @180C (1312-DI)	mg/L	-	-	-	1	1	5
Selenium (1312)	mg/L	-	-	-	1	1	0.0001
Silica (1312)	mg/L	2.3	2.3	2.3	1	-	0.2
Silver (1312)	mg/L	-	-	-	1	1	0.0001
Sodium (1312)	mg/L	0.98	0.98	0.98	1	-	0.2
Strontium (1312)	mg/L	0.195	0.195	0.195	1	-	0.009
Sulfate (1312-DI)	mg/L	8.45	8.45	8.45	1	-	0.9
Temperature	Units	20.9	20.9	20.9	1	-	0.1
Thallium (1312)	mg/L	-	-	-	1	1	0.0001
Tin (1312)	mg/L	-	-	-	1	1	0.04
Total Alkalinity	mg/L	44	44	44	1	-	2
Uranium (1312)	mg/L	-	-	-	1	1	0.0001
Vanadium (1312)	mg/L	0.00053	0.00053	0.00053	1	-	0.0005
Zinc (1312)	mg/L	-	-	-	1	1	0.006

New Table: Acid Generation Vs Acid Neutralizing Potential – Camp Bird Tailings Material

Analyte	Units	Num	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	11.6	1	0	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	46	1	0	1
Acid-Base Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	34.4	1	0	0
Neutralization Potential as CaCO3	%	4.6	1	0	0.1
Neutralization Potential Ratio		4.0	1	0	

New Table: Summary of SPLP & ABA – Revenue Tailings Material

Analyte	Units	Minimum	Maximum	Average	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	31.9	34.7	33.30000	2	-	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	74	75	74.5	2	-	1
Acid-Base Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	40.3	42.1	41.2	2	-	-
Aluminum (1312)	mg/L	0.147	0.16	0.1535	2	-	0.07
Antimony (1312)	mg/L	0.00788	0.00801	0.007945	2	-	0.0004
Arsenic (1312)	mg/L	0.00296	0.00302	0.00299	2	-	0.0002
Barium (1312)	mg/L	0.0554	0.0582	0.0568	2	-	0.0005
Beryllium (1312)	mg/L	-	-	-	2	2	0.0001
Bicarbonate as CaCO3	mg/L	49.3	50.2	49.75	2	-	2
Boron (1312)	mg/L	-	-	-	2	2	0.03
Bromide (1312-DI)	mg/L	-	-	-	2	2	0.25
Cadmium (1312)	mg/L	-	-	-	2	2	0.00005
Calcium (1312)	mg/L	14.8	15	14.9	2	-	0.1
Carbon, total organic (TOC) (1312-DI)	mg/L	3.2	3.8	3.5	2	-	1
Carbonate as CaCO3	mg/L	-	-	-	2	2	2
Chloride (1312-DI)	mg/L	-	-	-	2	2	0.4
Chromium (1312)	mg/L	-	-	-	2	2	0.0005
Cobalt (1312)	mg/L	0.000065	0.000071	0.000068	2	-	0.00005
Conductivity @25C (1312-DI)	umhos/cm	99	101	100	2	-	1
Copper (1312)	mg/L	-	-	-	2	2	0.0008
Fluoride (1312 DI)	mg/L	-	-	-	2	2	0.15
Hardness as CaCO3 (1312)	mg/L	39	40	39.5	2	-	0.2
Hydroxide as CaCO3	mg/L	-	-	-	2	2	2
Iron (1312)	mg/L	-	-	-	2	2	0.06
Lead (1312)	mg/L	0.0171	0.0176	0.01735	2	-	0.0001
Lithium (1312)	mg/L	0.0103	0.0121	0.0112	2	-	0.008
Magnesium (1312)	mg/L	0.49	0.54	0.515	2	-	0.2
Manganese (1312)	mg/L	0.0498	0.0601	0.05495	2	-	0.0004
Mercury (1312)	mg/L	-	-	-	2	2	0.0002
Molybdenum (1312)	mg/L	0.0243	0.0257	0.025	2	-	0.0002
Neutralization Potential as CaCO3	%	7.4	7.5	7.45	2	-	0.1
Nickel (1312)	mg/L	-	-	-	2	2	0.0004
Nitrate (1312 DI)	mg/L	0.248	0.253	0.2505	2	-	0.02
Nitrate/Nitrite as N (1312-DI)	mg/L	0.248	0.253	0.2505	2	-	0.02
Nitrite as N (1312-DI)	mg/L	-	-	-	2	2	0.01
Nitrogen, ammonia (1312-DI)	mg/L	0.568	0.712	0.64	2	-	0.1
pH	Units	8	8.5	8.25	2	-	0.1
Phosphorus, ortho dissolved (1312-DI)	mg/L	-	-	-	2	2	0.01
Phosphorus, Total (1312-DI)	mg/L	-	-	-	2	2	0.01
Potassium (1312)	mg/L	5.12	5.19	5.155	2	-	0.5
Residue, Filterable (TDS) @180C (1312)	mg/L	54	56	55	2	-	20
Residue, Non-Filter (TSS) @180C (1312-DI)	mg/L	-	-	-	2	2	5
Selenium (1312)	mg/L	-	-	-	2	2	0.0001
Silica (1312)	mg/L	2.1	2.1	2.1	2	-	0.2
Silver (1312)	mg/L	-	-	-	2	2	0.0001
Sodium (1312)	mg/L	0.78	0.79	0.785	2	-	0.2
Strontium (1312)	mg/L	0.29	0.302	0.296	2	-	0.009
Sulfate (1312-DI)	mg/L	13	13.2	13.1	2	-	0.9
Temperature	Units	21	21.6	21.3	2	-	0.1
Thallium (1312)	mg/L	0.00013	0.00014	0.000135	2	-	0.0001
Tin (1312)	mg/L	-	-	-	2	2	0.04
Total Alkalinity	mg/L	49.3	50.2	49.75	2	-	2
Uranium (1312)	mg/L	-	-	-	2	2	0.0001
Vanadium (1312)	mg/L	-	-	-	2	2	0.0005
Zinc (1312)	mg/L	-	-	-	2	2	0.006

New Table: Acid Generation Vs Acid Neutralizing Potential – Tailings Material

Analyte	Units	Num	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	33.3	2	0	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	74.5	2	0	1
Acid-Base Potential (calc on Pyritic Sulfur)	t CaCO3/Kt	41.2	2	0	0
Neutralization Potential as CaCO3	%	7.45	2	0	0.1
Neutralization Potential Ratio		2.2	2	0	

Attachment I – ACZ Report Tailings SPLP/ABA w/ Acid Generating & Neutralizing Potential

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

Analytical Report

September 25, 2024

Report to:
CJ Dickerson
Thorin Resources
105 Meadow Estates Dr.

Ridgway, CO 81432

cc: Accounts Payable

Bill to:
Accounts Payable
Thorin Resources
1900 Main St
Unit #1
Ouray, CO 81427

Project ID:
ACZ Project ID: L89863

CJ Dickerson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 29, 2024. This project has been assigned to ACZ's project number, L89863. 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 L89863. 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 October 25, 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
Mark McNeal has reviewed and approved this report.

Thorin Resources

September 25, 2024

Project ID:
ACZ Project ID: L89863

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 3 miscellaneous samples from Thorin Resources on August 29, 2024. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L89863. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

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

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

1. The below is from WG597078
Qualifier: H1
Applies to: L89863-01/ANTIMONY
L89863-01/ARSENIC
L89863-01/BARIUM
L89863-01/BERYLLIUM
L89863-01/CADMIUM
L89863-01/CHROMIUM
L89863-01/COBALT
L89863-01/COPPER
L89863-01/LEAD
L89863-01/MANGANESE
L89863-01/MOLYBDENUM
L89863-01/NICKEL
L89863-01/SELENIUM
L89863-01/THALLIUM
L89863-01/URANIUM
L89863-01/VANADIUM
L89863-01/ZINC
L89863-02/ANTIMONY
L89863-02/ARSENIC
L89863-02/BARIUM
L89863-02/BERYLLIUM
L89863-02/CADMIUM
L89863-02/CHROMIUM
L89863-02/COBALT
L89863-02/COPPER
L89863-02/LEAD
L89863-02/MANGANESE
L89863-02/MOLYBDENUM
L89863-02/NICKEL
L89863-02/SELENIUM
L89863-02/THALLIUM
L89863-02/URANIUM
L89863-02/VANADIUM
L89863-02/ZINC
L89863-03/ANTIMONY
L89863-03/ARSENIC
L89863-03/BARIUM
L89863-03/BERYLLIUM
L89863-03/CADMIUM

L89863-03/CHROMIUM
L89863-03/COBALT
L89863-03/COPPER
L89863-03/LEAD
L89863-03/MANGANESE
L89863-03/MOLYBDENUM
L89863-03/NICKEL
L89863-03/SELENIUM
L89863-03/THALLIUM
L89863-03/URANIUM
L89863-03/VANADIUM
L89863-03/ZINC

Sample analysis performed past holding time. Samples logged in with insufficient time remaining in 180 day hold period for 1312 extraction, hot block digestion, and ICPMS analysis.

2. The below is from WG597262
Qualifier: H1
Applies to: L89863-01/SILVER
L89863-02/SILVER
L89863-03/SILVER

Sample analysis performed past holding time. Samples were received with insufficient time to prep and analyze before 180 day Hold period expired.

3. The below is from WG597330
Qualifier: H1
Applies to: L89863-01/ALUMINUM
L89863-01/BORON
L89863-01/CALCIUM
L89863-01/IRON
L89863-01/LITHIUM
L89863-01/MAGNESIUM
L89863-01/POTASSIUM
L89863-01/SODIUM
L89863-01/STRONTIUM
L89863-01/TIN
L89863-02/ALUMINUM
L89863-02/BORON
L89863-02/CALCIUM
L89863-02/IRON
L89863-02/LITHIUM
L89863-02/MAGNESIUM
L89863-02/POTASSIUM
L89863-02/SODIUM
L89863-02/STRONTIUM
L89863-02/TIN
L89863-03/ALUMINUM
L89863-03/BORON
L89863-03/CALCIUM
L89863-03/IRON
L89863-03/LITHIUM
L89863-03/MAGNESIUM
L89863-03/POTASSIUM
L89863-03/SODIUM
L89863-03/STRONTIUM
L89863-03/TIN

Sample analysis performed past holding time. Samples logged in with
insufficient time remaining in 180 day hold period for 1312 extraction, hotblock digestion, and ICP analysis.

4. The below is from WG598011

Qualifier: H1
Applies to: L89863-01/SILICA
L89863-02/SILICA
L89863-03/SILICA

Sample analysis performed past holding time. Samples logged in with insufficient time remaining in 180 day hold period for 1312 extraction, hotblock digestion, and ICP analysis.

Thorin Resources
Project ID:
Sample ID: RV SPLP TAILS

ACZ Sample ID: ***L89863-01***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, Total (1312-DI)	EPA 365.1								09/23/24 12:00	mrd
Total Hot Plate Digestion (1312)	EPA 3010A								09/09/24 19:21	jrj
Total Hot Plate Digestion (1312)	EPA 3010A								09/24/24 11:42	smw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	EPA 6010D	1	0.147	BH	*	mg/L	0.07	0.25	09/16/24 14:17	msp
Antimony (1312)	EPA 6020B	1	0.00788	H	*	mg/L	0.0004	0.002	09/11/24 19:50	jrj
Arsenic (1312)	EPA 6020B	1	0.00296	H	*	mg/L	0.0002	0.001	09/11/24 19:50	jrj
Barium (1312)	EPA 6020B	1	0.0554	H	*	mg/L	0.0005	0.0025	09/11/24 19:50	jrj
Beryllium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.00025	09/11/24 19:50	jrj
Boron (1312)	EPA 6010D	1	<0.03	UH	*	mg/L	0.03	0.1	09/16/24 14:17	msp
Cadmium (1312)	EPA 6020B	1	<0.00005	UH	*	mg/L	0.00005	0.00025	09/11/24 19:50	jrj
Calcium (1312)	EPA 6010D	1	15.0	H	*	mg/L	0.1	0.5	09/16/24 14:17	msp
Chromium (1312)	EPA 6020B	1	<0.0005	UH	*	mg/L	0.0005	0.002	09/11/24 19:50	jrj
Cobalt (1312)	EPA 6020B	1	0.000071	BH	*	mg/L	0.00005	0.00025	09/11/24 19:50	jrj
Copper (1312)	EPA 6020B	1	<0.0008	UH	*	mg/L	0.0008	0.002	09/11/24 19:50	jrj
Iron (1312)	EPA 6010D	1	<0.06	UH	*	mg/L	0.06	0.15	09/16/24 14:17	msp
Lead (1312)	EPA 6020B	1	0.0176	H	*	mg/L	0.0001	0.0005	09/11/24 19:50	jrj
Lithium (1312)	EPA 6010D	1	0.0103	BH	*	mg/L	0.008	0.04	09/16/24 14:17	msp
Magnesium (1312)	EPA 6010D	1	0.54	BH	*	mg/L	0.2	1	09/16/24 14:17	msp
Manganese (1312)	EPA 6020B	1	0.0601	H	*	mg/L	0.0004	0.002	09/11/24 19:50	jrj
Mercury (1312)	EPA 7470A	1	<0.0002	U	*	mg/L	0.0002	0.001	09/12/24 15:15	aew
Molybdenum (1312)	EPA 6020B	1	0.0243	H	*	mg/L	0.0002	0.0005	09/11/24 19:50	jrj
Nickel (1312)	EPA 6020B	1	<0.0004	UH	*	mg/L	0.0004	0.001	09/11/24 19:50	jrj
Potassium (1312)	EPA 6010D	1	5.12	H	*	mg/L	0.5	1	09/16/24 14:17	msp
Selenium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.00025	09/11/24 19:50	jrj
Silica (1312)	EPA 6010D	1	2.1	H	*	mg/L	0.2	1	09/25/24 13:38	wtc
Silver (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.0005	09/15/24 13:52	jrj
Sodium (1312)	EPA 6010D	1	0.78	BH	*	mg/L	0.2	1	09/16/24 14:17	msp
Strontium (1312)	EPA 6010D	1	0.290	H	*	mg/L	0.009	0.045	09/16/24 14:17	msp
Thallium (1312)	EPA 6020B	1	0.00014	BH	*	mg/L	0.0001	0.0005	09/11/24 19:50	jrj
Tin (1312)	EPA 6010D	1	<0.04	UH	*	mg/L	0.04	0.2	09/16/24 14:17	msp
Uranium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.0005	09/11/24 19:50	jrj
Vanadium (1312)	EPA 6020B	1	<0.0005	UH	*	mg/L	0.0005	0.002	09/11/24 19:50	jrj
Zinc (1312)	EPA 6020B	1	<0.006	UH	*	mg/L	0.006	0.015	09/11/24 19:50	jrj

Thorin Resources
Project ID:
Sample ID: RV SPLP TAILS

ACZ Sample ID: ***L89863-01***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Pyritic Sulfur)	EPA 600/2-78-054 3.2.6		34.7			t CaCO3/Kt	0.31	3.1	09/25/24 0:00	calc
Acid Neutralization Potential (calc)	EPA 600/2-78-054 1.3		75.0			t CaCO3/Kt	1	5	09/25/24 0:00	calc
Acid-Base Potential (calc on Pyritic Sulfur)	EPA 600/2-78-054 1.3		40.3			t CaCO3/Kt			09/25/24 0:00	calc
Net Acid Generation Procedure	Single NAG - EGI 2002									
NAG		1	<1	U	*	Kg H2SO4/t	1	1	09/18/24 0:00	bdc
pH After Oxidation		1	9.5		*	units	0.1	0.1	09/18/24 0:00	bdc
Net Neutralization Potential	***Error***		0			t CaCO3/Kt			09/25/24 0:00	calc
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3 Modified (No Heat)	1	7.5		*	%	0.1	0.5	09/18/24 3:13	bdc
pH, (1312)	EPA 9045D/9040C									
pH			8			Units	0.1	0.1	09/25/24 0:00	LFP
Temperature			21.6			Units	0.1	0.1	09/25/24 0:00	LFP
pH, Saturated Paste	EPA 600/2-78-054 3.2.2									
Max Particle Size		1	250		*	um			09/21/24 0:00	kmb
pH		1	7.7		*	units	0.1	0.1	09/21/24 0:00	kmb
Sulfur Forms	EPA 600/2-78-054 3.2.4 Modified									
Sulfur HCl Residue		1	1.16		*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur HNO3 Residue		1	0.05	B	*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Organic Residual		1	0.05	B	*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Pyritic Sulfide		1	1.11			%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Sulfate		1	0.12			%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Total		1	1.28		*	%	0.01	0.1	09/20/24 0:00	kmb
Total Sulfur minus Sulfate		1	1.16			%	0.01	0.1	09/20/24 0:00	kmb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								09/04/24 8:48	jsa
Crush and Pulverize (Ring & Puck)	EPA 600/2-78-054 3.1.3								09/11/24 9:00	jsa
Saturated Paste Extraction	USDA No. 60 (2)								09/20/24 9:03	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								09/06/24 1:26	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								09/05/24 23:26	lfp

Thorin Resources
Project ID:
Sample ID: RV SPLP TAILS

ACZ Sample ID: ***L89863-01***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (1312 DI)	SM 2320 B-2011									
Bicarbonate as CaCO3		1	50.2	H	*	mg/L	2	20	09/16/24 0:00	asn
Carbonate as CaCO3		1	<2	UH	*	mg/L	2	20	09/16/24 0:00	asn
Hydroxide as CaCO3		1	<2	UH	*	mg/L	2	20	09/16/24 0:00	asn
Total Alkalinity		1	50.2	H	*	mg/L	2	20	09/16/24 0:00	asn
Bromide (1312-DI)	EPA 300.0	5	<0.25	U	*	mg/L	0.25	1.25	09/16/24 16:16	bls
Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	1	3.8	B	*	mg/L	1	5	09/13/24 12:06	ems
Chloride (1312-DI)	EPA 300.0	1	<0.4	U	*	mg/L	0.4	2	09/13/24 14:07	bls
Conductivity @25C (1312-DI)	SM 2510 B-2011	1	101	H	*	umhos/cm	1	10	09/16/24 11:43	asn
Fluoride (1312 DI)	SM 4500-F C-2011	1	<0.15	UH	*	mg/L	0.15	0.35	09/14/24 17:57	jck
Hardness as CaCO3 (1312)	Calculation (SM 2340 B-2011)		40			mg/L	0.2	5	09/25/24 0:00	calc
Nitrate (1312 DI)	Calculation (NO3NO2-NO2)		0.253			mg/L	0.02	0.1	09/25/24 0:00	calc
Nitrate/Nitrite as N (1312-DI)	EPA 353.2	1	0.253		*	mg/L	0.02	0.1	09/07/24 0:55	pjb
Nitrite as N (1312-DI)	EPA 353.2	1	<0.01	U	*	mg/L	0.01	0.05	09/07/24 0:55	pjb
Nitrogen, ammonia (1312-DI)	EPA 350.1	1	0.712		*	mg/L	0.1	0.2	09/11/24 15:02	mrd
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	09/07/24 1:12	pjb
Phosphorus, Total (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	09/23/24 16:20	gfm
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	1	56	H	*	mg/L	20	40	09/18/24 21:42	jck
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	1	<5	UH	*	mg/L	5	20	09/09/24 11:42	cob
Sulfate (1312-DI)	EPA 300.0	1	13.0		*	mg/L	0.9	2	09/13/24 14:07	bls

Thorin Resources
Project ID:
Sample ID: RV ABA TAILS

ACZ Sample ID: ***L89863-02***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, Total (1312-DI)	EPA 365.1								09/23/24 12:40	mrd
Total Hot Plate Digestion (1312)	EPA 3010A								09/24/24 12:34	smw
Total Hot Plate Digestion (1312)	EPA 3010A								09/09/24 20:07	jrj

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	EPA 6010D	1	0.160	BH	*	mg/L	0.07	0.25	09/16/24 14:21	msp
Antimony (1312)	EPA 6020B	1	0.00801	H	*	mg/L	0.0004	0.002	09/11/24 19:53	jrj
Arsenic (1312)	EPA 6020B	1	0.00302	H	*	mg/L	0.0002	0.001	09/11/24 19:53	jrj
Barium (1312)	EPA 6020B	1	0.0582	H	*	mg/L	0.0005	0.0025	09/11/24 19:53	jrj
Beryllium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.00025	09/11/24 19:53	jrj
Boron (1312)	EPA 6010D	1	<0.03	UH	*	mg/L	0.03	0.1	09/16/24 14:21	msp
Cadmium (1312)	EPA 6020B	1	<0.00005	UH	*	mg/L	0.00005	0.00025	09/11/24 19:53	jrj
Calcium (1312)	EPA 6010D	1	14.8	H	*	mg/L	0.1	0.5	09/16/24 14:21	msp
Chromium (1312)	EPA 6020B	1	<0.0005	UH	*	mg/L	0.0005	0.002	09/11/24 19:53	jrj
Cobalt (1312)	EPA 6020B	1	0.000065	BH	*	mg/L	0.00005	0.00025	09/11/24 19:53	jrj
Copper (1312)	EPA 6020B	1	<0.0008	UH	*	mg/L	0.0008	0.002	09/11/24 19:53	jrj
Iron (1312)	EPA 6010D	1	<0.06	UH	*	mg/L	0.06	0.15	09/16/24 14:21	msp
Lead (1312)	EPA 6020B	1	0.0171	H	*	mg/L	0.0001	0.0005	09/11/24 19:53	jrj
Lithium (1312)	EPA 6010D	1	0.0121	BH	*	mg/L	0.008	0.04	09/16/24 14:21	msp
Magnesium (1312)	EPA 6010D	1	0.49	BH	*	mg/L	0.2	1	09/16/24 14:21	msp
Manganese (1312)	EPA 6020B	1	0.0498	H	*	mg/L	0.0004	0.002	09/11/24 19:53	jrj
Mercury (1312)	EPA 7470A	1	<0.0002	U	*	mg/L	0.0002	0.001	09/12/24 15:16	aew
Molybdenum (1312)	EPA 6020B	1	0.0257	H	*	mg/L	0.0002	0.0005	09/11/24 19:53	jrj
Nickel (1312)	EPA 6020B	1	<0.0004	UH	*	mg/L	0.0004	0.001	09/11/24 19:53	jrj
Potassium (1312)	EPA 6010D	1	5.19	H	*	mg/L	0.5	1	09/16/24 14:21	msp
Selenium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.00025	09/11/24 19:53	jrj
Silica (1312)	EPA 6010D	1	2.1	H	*	mg/L	0.2	1	09/25/24 13:42	wtc
Silver (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.0005	09/15/24 13:54	jrj
Sodium (1312)	EPA 6010D	1	0.79	BH	*	mg/L	0.2	1	09/16/24 14:21	msp
Strontium (1312)	EPA 6010D	1	0.302	H	*	mg/L	0.009	0.045	09/16/24 14:21	msp
Thallium (1312)	EPA 6020B	1	0.00013	BH	*	mg/L	0.0001	0.0005	09/11/24 19:53	jrj
Tin (1312)	EPA 6010D	1	<0.04	UH	*	mg/L	0.04	0.2	09/16/24 14:21	msp
Uranium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.0005	09/11/24 19:53	jrj
Vanadium (1312)	EPA 6020B	1	<0.0005	UH	*	mg/L	0.0005	0.002	09/11/24 19:53	jrj
Zinc (1312)	EPA 6020B	1	<0.006	UH	*	mg/L	0.006	0.015	09/11/24 19:53	jrj

Thorin Resources
Project ID:
Sample ID: RV ABA TAILS

ACZ Sample ID: ***L89863-02***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Pyritic Sulfur)	EPA 600/2-78-054 3.2.6		31.9			t CaCO3/Kt	0.31	3.1	09/25/24 0:00	calc
Acid Neutralization Potential (calc)	EPA 600/2-78-054 1.3		74.0			t CaCO3/Kt	1	5	09/25/24 0:00	calc
Acid-Base Potential (calc on Pyritic Sulfur)	EPA 600/2-78-054 1.3		42.1			t CaCO3/Kt			09/25/24 0:00	calc
Net Acid Generation Procedure	Single NAG - EGI 2002									
NAG		1	<1	U	*	Kg H2SO4/t	1	1	09/18/24 0:00	bdc
pH After Oxidation		1	9.4		*	units	0.1	0.1	09/18/24 0:00	bdc
Net Neutralization Potential	***Error***		0			t CaCO3/Kt			09/25/24 0:00	calc
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3 Modified (No Heat)	1	7.4		*	%	0.1	0.5	09/18/24 12:05	bdc
pH, (1312)	EPA 9045D/9040C									
pH			8.5			Units	0.1	0.1	09/25/24 0:00	LFP
Temperature			21			Units	0.1	0.1	09/25/24 0:00	LFP
pH, Saturated Paste	EPA 600/2-78-054 3.2.2									
Max Particle Size		1	250		*	um			09/21/24 0:00	kmb
pH		1	7.8		*	units	0.1	0.1	09/21/24 0:00	kmb
Sulfur Forms	EPA 600/2-78-054 3.2.4 Modified									
Sulfur HCl Residue		1	1.08		*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur HNO3 Residue		1	0.06	B	*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Organic Residual		1	0.06	B	*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Pyritic Sulfide		1	1.02			%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Sulfate		1	0.08	B		%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Total		1	1.16		*	%	0.01	0.1	09/20/24 0:00	kmb
Total Sulfur minus Sulfate		1	1.08			%	0.01	0.1	09/20/24 0:00	kmb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								09/04/24 8:54	jsa
Crush and Pulverize (Ring & Puck)	EPA 600/2-78-054 3.1.3								09/11/24 9:12	jsa
Saturated Paste Extraction	USDA No. 60 (2)								09/20/24 9:07	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								09/06/24 3:20	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								09/06/24 0:30	lfp

Thorin Resources
Project ID:
Sample ID: RV ABA TAILS

ACZ Sample ID: ***L89863-02***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (1312 DI)	SM 2320 B-2011									
Bicarbonate as CaCO3		1	49.3	H	*	mg/L	2	20	09/16/24 0:00	asn
Carbonate as CaCO3		1	<2	UH	*	mg/L	2	20	09/16/24 0:00	asn
Hydroxide as CaCO3		1	<2	UH	*	mg/L	2	20	09/16/24 0:00	asn
Total Alkalinity		1	49.3	H	*	mg/L	2	20	09/16/24 0:00	asn
Bromide (1312-DI)	EPA 300.0	5	<0.25	U	*	mg/L	0.25	1.25	09/16/24 16:33	bls
Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	1	3.2	B	*	mg/L	1	5	09/13/24 12:19	ems
Chloride (1312-DI)	EPA 300.0	1	<0.4	U	*	mg/L	0.4	2	09/13/24 14:25	bls
Conductivity @25C (1312-DI)	SM 2510 B-2011	1	99	H	*	umhos/cm	1	10	09/16/24 11:48	asn
Fluoride (1312 DI)	SM 4500-F C-2011	1	<0.15	UH	*	mg/L	0.15	0.35	09/14/24 18:01	jck
Hardness as CaCO3 (1312)	Calculation (SM 2340 B-2011)		39.0			mg/L	0.2	5	09/25/24 0:00	calc
Nitrate (1312 DI)	Calculation (NO3NO2-NO2)		0.248			mg/L	0.02	0.1	09/25/24 0:00	calc
Nitrate/Nitrite as N (1312-DI)	EPA 353.2	1	0.248		*	mg/L	0.02	0.1	09/07/24 0:57	pjb
Nitrite as N (1312-DI)	EPA 353.2	1	<0.01	U	*	mg/L	0.01	0.05	09/07/24 0:57	pjb
Nitrogen, ammonia (1312-DI)	EPA 350.1	1	0.568		*	mg/L	0.1	0.2	09/11/24 15:05	mrd
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	09/07/24 1:14	pjb
Phosphorus, Total (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	09/23/24 16:21	gfm
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	1	54	H	*	mg/L	20	40	09/18/24 21:48	jck
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	1	<5	UH	*	mg/L	5	20	09/09/24 11:48	cob
Sulfate (1312-DI)	EPA 300.0	1	13.2		*	mg/L	0.9	2	09/13/24 14:25	bls

Thorin Resources
Project ID:
Sample ID: CBW SPLP TAILS

ACZ Sample ID: ***L89863-03***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, Total (1312-DI)	EPA 365.1								09/23/24 13:00	mrd
Total Hot Plate Digestion (1312)	EPA 3010A								09/09/24 22:24	jrj
Total Hot Plate Digestion (1312)	EPA 3010A								09/24/24 13:25	smw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	EPA 6010D	1	0.225	BH	*	mg/L	0.07	0.25	09/16/24 14:29	msp
Antimony (1312)	EPA 6020B	1	0.00474	H	*	mg/L	0.0004	0.002	09/11/24 20:02	jrj
Arsenic (1312)	EPA 6020B	1	0.00229	H	*	mg/L	0.0002	0.001	09/11/24 20:02	jrj
Barium (1312)	EPA 6020B	1	0.0473	H	*	mg/L	0.0005	0.0025	09/11/24 20:02	jrj
Beryllium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.00025	09/11/24 20:02	jrj
Boron (1312)	EPA 6010D	1	<0.03	UH	*	mg/L	0.03	0.1	09/16/24 14:29	msp
Cadmium (1312)	EPA 6020B	1	<0.00005	UH	*	mg/L	0.00005	0.00025	09/11/24 20:02	jrj
Calcium (1312)	EPA 6010D	1	12.3	H	*	mg/L	0.1	0.5	09/16/24 14:29	msp
Chromium (1312)	EPA 6020B	1	<0.0005	UH	*	mg/L	0.0005	0.002	09/11/24 20:02	jrj
Cobalt (1312)	EPA 6020B	1	0.000069	BH	*	mg/L	0.00005	0.00025	09/11/24 20:02	jrj
Copper (1312)	EPA 6020B	1	<0.0008	UH	*	mg/L	0.0008	0.002	09/11/24 20:02	jrj
Iron (1312)	EPA 6010D	1	<0.06	UH	*	mg/L	0.06	0.15	09/16/24 14:29	msp
Lead (1312)	EPA 6020B	1	0.01000	H	*	mg/L	0.0001	0.0005	09/11/24 20:02	jrj
Lithium (1312)	EPA 6010D	1	<0.008	UH	*	mg/L	0.008	0.04	09/16/24 14:29	msp
Magnesium (1312)	EPA 6010D	1	0.40	BH	*	mg/L	0.2	1	09/16/24 14:29	msp
Manganese (1312)	EPA 6020B	1	0.0433	H	*	mg/L	0.0004	0.002	09/11/24 20:02	jrj
Mercury (1312)	EPA 7470A	1	<0.0002	U	*	mg/L	0.0002	0.001	09/12/24 15:17	aew
Molybdenum (1312)	EPA 6020B	1	0.0262	H	*	mg/L	0.0002	0.0005	09/11/24 20:02	jrj
Nickel (1312)	EPA 6020B	1	0.00042	BH	*	mg/L	0.0004	0.001	09/11/24 20:02	jrj
Potassium (1312)	EPA 6010D	1	2.89	H	*	mg/L	0.5	1	09/16/24 14:29	msp
Selenium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.00025	09/11/24 20:02	jrj
Silica (1312)	EPA 6010D	1	2.3	H	*	mg/L	0.2	1	09/25/24 13:46	wtc
Silver (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.0005	09/15/24 13:59	jrj
Sodium (1312)	EPA 6010D	1	0.98	BH	*	mg/L	0.2	1	09/16/24 14:29	msp
Strontium (1312)	EPA 6010D	1	0.195	H	*	mg/L	0.009	0.045	09/16/24 14:29	msp
Thallium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.0005	09/11/24 20:02	jrj
Tin (1312)	EPA 6010D	1	<0.04	UH	*	mg/L	0.04	0.2	09/16/24 14:29	msp
Uranium (1312)	EPA 6020B	1	<0.0001	UH	*	mg/L	0.0001	0.0005	09/11/24 20:02	jrj
Vanadium (1312)	EPA 6020B	1	0.00053	BH	*	mg/L	0.0005	0.002	09/11/24 20:02	jrj
Zinc (1312)	EPA 6020B	1	<0.006	UH	*	mg/L	0.006	0.015	09/11/24 20:02	jrj

Thorin Resources
Project ID:
Sample ID: CBW SPLP TAILS

ACZ Sample ID: ***L89863-03***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Pyritic Sulfur)	EPA 600/2-78-054 3.2.6		11.6			t CaCO3/Kt	0.31	3.1	09/25/24 0:00	calc
Acid Neutralization Potential (calc)	EPA 600/2-78-054 1.3		46.0			t CaCO3/Kt	1	5	09/25/24 0:00	calc
Acid-Base Potential (calc on Pyritic Sulfur)	EPA 600/2-78-054 1.3		34.4			t CaCO3/Kt			09/25/24 0:00	calc
Net Acid Generation Procedure	Single NAG - EGI 2002									
NAG		1	<1	U	*	Kg H2SO4/t	1	1	09/18/24 0:00	bdc
pH After Oxidation		1	9.9		*	units	0.1	0.1	09/18/24 0:00	bdc
Net Neutralization Potential	***Error***		0			t CaCO3/Kt			09/25/24 0:00	calc
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3 Modified (No Heat)	1	4.6		*	%	0.1	0.5	09/18/24 15:02	bdc
pH, (1312)	EPA 9045D/9040C									
pH			8.5			Units	0.1	0.1	09/25/24 0:00	LFP
Temperature			20.9			Units	0.1	0.1	09/25/24 0:00	LFP
pH, Saturated Paste	EPA 600/2-78-054 3.2.2									
Max Particle Size		1	250		*	um			09/21/24 0:00	kmb
pH		1	8.1		*	units	0.1	0.1	09/21/24 0:00	kmb
Sulfur Forms	EPA 600/2-78-054 3.2.4 Modified									
Sulfur HCl Residue		1	0.44		*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur HNO3 Residue		1	0.07	B	*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Organic Residual		1	0.07	B	*	%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Pyritic Sulfide		1	0.37			%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Sulfate		1	0.10			%	0.01	0.1	09/20/24 0:00	kmb
Sulfur Total		1	0.54		*	%	0.01	0.1	09/20/24 0:00	kmb
Total Sulfur minus Sulfate		1	0.44			%	0.01	0.1	09/20/24 0:00	kmb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								09/04/24 9:00	jsa
Crush and Pulverize (Ring & Puck)	EPA 600/2-78-054 3.1.3								09/11/24 9:25	jsa
Saturated Paste Extraction	USDA No. 60 (2)								09/20/24 9:11	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								09/06/24 3:41	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								09/06/24 5:13	lfp

Thorin Resources
Project ID:
Sample ID: CBW SPLP TAILS

ACZ Sample ID: ***L89863-03***
Date Sampled: *03/04/24 09:40*
Date Received: *08/29/24*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (1312 DI)	SM 2320 B-2011									
Bicarbonate as CaCO3		1	44.0	H	*	mg/L	2	20	09/16/24 0:00	asn
Carbonate as CaCO3		1	<2	UH	*	mg/L	2	20	09/16/24 0:00	asn
Hydroxide as CaCO3		1	<2	UH	*	mg/L	2	20	09/16/24 0:00	asn
Total Alkalinity		1	44.0	H	*	mg/L	2	20	09/16/24 0:00	asn
Bromide (1312-DI)	EPA 300.0	5	<0.25	U	*	mg/L	0.25	1.25	09/16/24 17:27	bls
Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	1	3.0	B	*	mg/L	1	5	09/13/24 13:08	ems
Chloride (1312-DI)	EPA 300.0	1	<0.4	U	*	mg/L	0.4	2	09/13/24 15:19	bls
Conductivity @25C (1312-DI)	SM 2510 B-2011	1	80	H	*	umhos/cm	1	10	09/16/24 11:53	asn
Fluoride (1312 DI)	SM 4500-F C-2011	1	0.31	BH	*	mg/L	0.15	0.35	09/14/24 18:06	jck
Hardness as CaCO3 (1312)	Calculation (SM 2340 B-2011)		32			mg/L	0.2	5	09/25/24 0:00	calc
Nitrate (1312 DI)	Calculation (NO3NO2-NO2)		0.079	B		mg/L	0.02	0.1	09/25/24 0:00	calc
Nitrate/Nitrite as N (1312-DI)	EPA 353.2	1	0.079	B	*	mg/L	0.02	0.1	09/07/24 0:59	pjb
Nitrite as N (1312-DI)	EPA 353.2	1	<0.01	U	*	mg/L	0.01	0.05	09/07/24 0:59	pjb
Nitrogen, ammonia (1312-DI)	EPA 350.1	1	0.329		*	mg/L	0.1	0.2	09/11/24 15:07	mrd
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	09/07/24 1:16	pjb
Phosphorus, Total (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	09/23/24 16:22	gfm
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	1	44	H	*	mg/L	20	40	09/18/24 21:54	jck
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	1	<5	UH	*	mg/L	5	20	09/09/24 11:54	cob
Sulfate (1312-DI)	EPA 300.0	1	8.45		*	mg/L	0.9	2	09/13/24 15:19	bls

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

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

Method References

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

Comments

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

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP001.03.15.02

OURAYSM

ACZ Project ID: ***L89863***

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.

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597299													
WG597299PBW	PBW	09/16/24 11:21				15.1	mg/L		-20	20			
WG597299LCSW2	LCSW	09/16/24 11:30	WC240814-1	820.0001		792.2	mg/L	97	90	110			
WG596691PBS	PBS	09/16/24 11:38				12.9	mg/L		-20	20			
L89863-03DUP1	DUP	09/16/24 11:58			44	51.4	mg/L				16	20	
L89863-03DUP2	DUP	09/16/24 12:03			44	50.3	mg/L				13	20	
WG597299LCSW4	LCSW	09/16/24 12:11	WC240814-1	820.0001		795.9	mg/L	97	90	110			

Aluminum (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	2		1.993	mg/L	100	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.15	0.15			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.15	0.15			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	1.0025		1.036	mg/L	103	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	1.0025	.225	1.271	mg/L	104	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	1.0025	.225	1.282	mg/L	105	75	125	1	20	
L89863-03DUP	DUP	09/16/24 14:40			.225	.243	mg/L				8	20	RA

Antimony (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.02002		.01891	mg/L	94	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0012	0.0012			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0012	0.0012			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.01		.00989	mg/L	99	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.01	.00801	.01816	mg/L	102	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.01	.00801	.01831	mg/L	103	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			.00474	.00515	mg/L				8	20	

Arsenic (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.04998	mg/L	100	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0006	0.0006			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0006	0.0006			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.0501		.04955	mg/L	99	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.0501	.00302	.05375	mg/L	101	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.0501	.00302	.05364	mg/L	101	75	125	0	20	
L89863-03DUP	DUP	09/11/24 20:04			.00229	.00222	mg/L				3	20	

OURAYSM

ACZ Project ID: ***L89863***

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.

Barium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05125	mg/L	103	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0015	0.0015			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0015	0.0015			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.04907	mg/L	98	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	.0582	.10895	mg/L	101	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	.0582	.11049	mg/L	104	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			.0473	.04639	mg/L				2	20	

Beryllium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.050825	mg/L	102	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.00024	0.00024			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.00024	0.00024			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.049582	mg/L	99	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	U	.051585	mg/L	103	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	U	.049972	mg/L	100	75	125	3	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

Boron (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	2		2.069	mg/L	103	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.09	0.09			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.09	0.09			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	.5005		.539	mg/L	108	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	.5005	U	.538	mg/L	107	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	.5005	U	.537	mg/L	107	75	125	0	20	
L89863-03DUP	DUP	09/16/24 14:40			U	U	mg/L				0	20	RA

Bromide (1312-DI) EPA 300.0

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597114													
WG597114ICV	ICV	09/09/24 14:47	WI240909-10	4.004		4.018	mg/L	100	90	110			
WG597114ICB	ICB	09/09/24 15:05				U	mg/L		-0.05	0.05			
WG597296													
WG597296LFB	LFB	09/16/24 15:40	WI240708-2	1.5		1.478	mg/L	99	90	110			
WG596691PBS	PBS	09/16/24 15:58				U	mg/L		-0.05	0.05			
L89863-02AS	AS	09/16/24 16:51	WI240708-2	7.5	U	7.083	mg/L	94	90	110			
L89863-02ASD	ASD	09/16/24 17:09	WI240708-2	7.5	U	7.259	mg/L	97	90	110	2	20	
L89863-03DUP	DUP	09/16/24 17:45			U	U	mg/L				0	20	RA

OURAYSM

ACZ Project ID: ***L89863***

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.

Cadmium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.051238	mg/L	102	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.00015	0.00015			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.00015	0.00015			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.048374	mg/L	97	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	U	.049344	mg/L	99	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	U	.049315	mg/L	99	75	125	0	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

Calcium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	100		98	mg/L	98	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.3	0.3			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.3	0.3			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	67.91666		68.86	mg/L	101	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	67.91666	12.3	81.17	mg/L	101	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	67.91666	12.3	81.52	mg/L	102	75	125	0	20	
L89863-03DUP	DUP	09/16/24 14:40			12.3	12.27	mg/L				0	20	

Carbon, total organic (TOC) (1312-DI) SM 5310 B-2011/2014

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG596844													
WG596844ICV	ICV	09/13/24 10:54	WI240821-3	100		99.2	mg/L	99	90	110			
WG596844ICB	ICB	09/13/24 11:07				U	mg/L		-2.5	2.5			
WG596844LFB	LFB	09/13/24 11:38	WI240821-4	50		50.1	mg/L	100	85	115			
WG596691PBS	PBS	09/13/24 11:53				U	mg/L		-2.5	2.5			
L89863-02AS	AS	09/13/24 12:34	WI240821-4	50	3.2	53.9	mg/L	101	85	115			
L89863-02ASD	ASD	09/13/24 12:52	WI240821-4	50	3.2	54	mg/L	102	85	115	0	15	
L89863-03DUP	DUP	09/13/24 13:20			3	3	mg/L				0	15	RA

Chloride (1312-DI) EPA 300.0

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG594885													
WG594885ICV	ICV	08/06/24 17:10	WI240806-11	19.98		20.07	mg/L	100	90	110			
WG594885ICB	ICB	08/06/24 17:28				U	mg/L		-0.4	0.4			
WG597226													
WG597226LFB	LFB	09/13/24 13:31	WI240708-2	30		30.22	mg/L	101	90	110			
WG596691PBS	PBS	09/13/24 13:49				U	mg/L		-0.4	0.4			
L89863-02AS	AS	09/13/24 14:43	WI240708-2	30	U	30.87	mg/L	103	90	110			
L89863-02ASD	ASD	09/13/24 15:01	WI240708-2	30	U	29.23	mg/L	97	90	110	5	20	
L89863-03DUP	DUP	09/13/24 15:37			U	U	mg/L				0	20	RA

OURAYSM

ACZ Project ID: ***L89863***

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

Chromium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05087	mg/L	102	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0015	0.0015			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0015	0.0015			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.04968	mg/L	99	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	U	.04952	mg/L	99	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	U	.0503	mg/L	100	75	125	2	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

Cobalt (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.050889	mg/L	102	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.00015	0.00015			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.00015	0.00015			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.050284	mg/L	100	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	.000065	.049963	mg/L	100	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	.000065	.04934	mg/L	98	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			.000069	.000064	mg/L				8	20	RA

Conductivity @25C (1312-DI) SM 2510 B-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597299													
WG597299PBW	PBW	09/16/24 11:21				1	umhos/cm		-10	10			
WG597299LCSW1	LCSW	09/16/24 11:28	PCN627186	1410		1421	umhos/cm	101	90	110			
WG596691PBS	PBS	09/16/24 11:38				2	umhos/cm		-4	4			
L89863-03DUP1	DUP	09/16/24 11:58			80	79	umhos/cm				1	20	
L89863-03DUP2	DUP	09/16/24 12:03			80	79	umhos/cm				1	20	
WG597299LCSW3	LCSW	09/16/24 12:08	PCN627186	1410		1421	umhos/cm	101	90	110			

Copper (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05162	mg/L	103	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0024	0.0024			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0024	0.0024			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.05025	mg/L	100	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	U	.0504	mg/L	101	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	U	.05096	mg/L	102	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

OURAYSM

ACZ Project ID: ***L89863***

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.

Fluoride (1312 DI) SM 4500-F C-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597257													
WG597257ICV	ICV	09/14/24 17:25	WC240914-1	2		2.13	mg/L	107	90	110			
WG597257ICB	ICB	09/14/24 17:33				U	mg/L		-0.3	0.3			
WG597257LFB	LFB	09/14/24 17:43	WC240411-1	5		5.07	mg/L	101	90	110			
WG596691PBS	PBS	09/14/24 17:51				U	mg/L		-0.3	0.3			
L89863-03AS	AS	09/14/24 18:14	WC240411-1	5	.31	5.26	mg/L	99	90	110			
L89863-03DUP	DUP	09/14/24 18:21			.31	.38	mg/L				20	20	RA

Iron (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	2		1.943	mg/L	97	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.18	0.18			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.18	0.18			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	1.003		1.034	mg/L	103	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	1.003	U	1.041	mg/L	104	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	1.003	U	1.031	mg/L	103	75	125	1	20	
L89863-03DUP	DUP	09/16/24 14:40			U	U	mg/L				0	20	RA

Lead (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05098	mg/L	102	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0003	0.0003			
WG596687PBS	PBS	09/11/24 19:46				.0005	mg/L		-0.0003	0.0003			B7
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.04957	mg/L	99	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	.0171	.06732	mg/L	100	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	.0171	.06596	mg/L	98	75	125	2	20	
L89863-03DUP	DUP	09/11/24 20:04			.01	.01055	mg/L				5	20	

Lithium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	2		1.941	mg/L	97	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.024	0.024			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.024	0.024			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	1.001		.9659	mg/L	96	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	1.001	U	.9539	mg/L	95	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	1.001	U	.9637	mg/L	96	75	125	1	20	
L89863-03DUP	DUP	09/16/24 14:40			U	.0088	mg/L				200	20	RA

OURAYSM

ACZ Project ID: ***L89863***

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 (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	100		98.44	mg/L	98	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.6	0.6			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.6	0.6			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	50.04719		51.39	mg/L	103	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	50.04719	.4	51.75	mg/L	103	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	50.04719	.4	51.92	mg/L	103	75	125	0	20	
L89863-03DUP	DUP	09/16/24 14:40			.4	.44	mg/L				10	20	RA

Manganese (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05098	mg/L	102	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0012	0.0012			
WG596687PBS	PBS	09/11/24 19:46				.00153	mg/L		-0.0012	0.0012			B7
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.0501		.05186	mg/L	104	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.0501	.0498	.09929	mg/L	99	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.0501	.0498	.09867	mg/L	98	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			.0433	.04031	mg/L				7	20	

Mercury (1312) EPA 7470A

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597016													
WG597016ICV	ICV	09/12/24 12:13	HG240819-3	.00501		.00485	mg/L	97	95	105			
WG597016ICB	ICB	09/12/24 12:14				U	mg/L		-0.0002	0.0002			
WG597088													
WG596687PBS	PBS	09/12/24 15:14				U	mg/L		-0.0006	0.0006			
WG596687LFB1	LFB	09/12/24 15:15	HG240909-3	.002002		.00227	mg/L	113	85	115			
L89863-03MS	MS	09/12/24 15:18	HG240909-3	.002002	U	.00213	mg/L	106	85	115			
L89863-03MSD	MSD	09/12/24 15:19	HG240909-3	.002002	U	.00215	mg/L	107	85	115	1	20	
L89863-03DUP	DUP	09/12/24 15:20			U	U	mg/L				0	20	RA

Molybdenum (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.02004		.01961	mg/L	98	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0006	0.0006			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0006	0.0006			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.0489	mg/L	98	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	.0257	.0764	mg/L	101	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	.0257	.07727	mg/L	103	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			.0262	.02584	mg/L				1	20	

Net Acid Generation Single NAG - EGI 2002

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597549													
L89863-01DUP	DUP	09/18/24 15:11			U	U	‹g H2SO4/				0	20	RA

OURAYSM

ACZ Project ID: ***L89863***

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.

Neutralization Potential as CaCO3 EPA 600/2-78-054 3.2.3 Modified (No Heat)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597393													
WG597393PBS	PBS	09/17/24 21:19				.1	%		-0.2	0.2			
WG597393LCSS	LCSS	09/18/24 0:16	PCN625358	99.8		112.5	%	113	80	120			
L89863-01MS	MS	09/18/24 6:10	SI230912-3	3	7.5	9.8	%	77	70	130			
L89863-01DUP	DUP	09/18/24 9:08			7.5	7.6	%				1	20	

Nickel (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05134	mg/L	103	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0012	0.0012			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0012	0.0012			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.0501		.04948	mg/L	99	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.0501	U	.04941	mg/L	99	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.0501	U	.04928	mg/L	98	75	125	0	20	
L89863-03DUP	DUP	09/11/24 20:04			.00042	U	mg/L				200	20	RA

Nitrate/Nitrite as N (1312-DI) EPA 353.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG596786													
WG596786ICV	ICV	09/06/24 23:43	WI240725-5	2.416		2.456	mg/L	102	90	110			
WG596786ICB	ICB	09/06/24 23:44				U	mg/L		-0.02	0.02			
WG596788													
WG596788LFB	LFB	09/07/24 0:52	WI240828-3	2		1.984	mg/L	99	90	110			
WG596691PBS	PBS	09/07/24 0:54				U	mg/L		-0.02	0.02			
L89863-01AS	AS	09/07/24 0:56	WI240828-3	2	.253	2.304	mg/L	103	90	110			
L89863-03DUP	DUP	09/07/24 1:00			.079	.079	mg/L				0	20	RA

Nitrite as N (1312-DI) EPA 353.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG596786													
WG596786ICV	ICV	09/06/24 23:43	WI240725-5	.609		.613	mg/L	101	90	110			
WG596786ICB	ICB	09/06/24 23:44				U	mg/L		-0.01	0.01			
WG596788													
WG596788LFB	LFB	09/07/24 0:52	WI240828-3	1		.996	mg/L	100	90	110			
WG596691PBS	PBS	09/07/24 0:54				U	mg/L		-0.01	0.01			
L89863-01AS	AS	09/07/24 0:56	WI240828-3	1	U	1.048	mg/L	105	90	110			
L89863-03DUP	DUP	09/07/24 1:00			U	U	mg/L				0	20	RA

OURAYSM

ACZ Project ID: ***L89863***

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.

Nitrogen, ammonia (1312-DI) EPA 350.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597045													
WG597045ICV	ICV	09/11/24 10:57	WI240624-5	12		11.742	mg/L	98	90	110			
WG597045ICB	ICB	09/11/24 10:58				U	mg/L		-0.1	0.1			
WG597072													
WG597072LFB	LFB	09/11/24 14:59	WI231102-6	10		10.384	mg/L	104	90	110			
WG596691PBS	PBS	09/11/24 15:01				U	mg/L		-0.1	0.1			
L89863-01AS	AS	09/11/24 15:04	WI231102-6	10	.712	11.232	mg/L	105	90	110			
L89863-03DUP	DUP	09/11/24 15:08			.329	.314	mg/L				5	20	RA

pH, Saturated Paste EPA 600/2-78-054 3.2.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597734													
WG597734ICV	ICV	09/21/24 8:22	PCN625290	3.99		4	units	100	3.9	4.1			
L90059-01DUP	DUP	09/21/24 8:28			5.1	5.1	units				0	20	

Phosphorus, ortho dissolved (1312-DI) EPA 365.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG596785													
WG596785ICV	ICV	09/07/24 0:22	WI240307-4	.65228		.657	mg/L	101	90	110			
WG596785ICB	ICB	09/07/24 0:23				U	mg/L		-0.01	0.01			
WG596787													
WG596787LFB	LFB	09/07/24 1:10	WI240824-2	.5		.495	mg/L	99	90	110			
WG596691PBS	PBS	09/07/24 1:11				U	mg/L		-0.01	0.01			
L89863-01AS	AS	09/07/24 1:13	WI240824-2	.5	U	.498	mg/L	100	90	110			
L89863-03DUP	DUP	09/07/24 1:17			U	U	mg/L				0	20	RA

Phosphorus, Total (1312-DI) EPA 365.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597827													
WG597827ICV	ICV	09/23/24 13:57	WI240723-6	.65228		.675	mg/L	103	90	110			
WG597827ICB	ICB	09/23/24 13:59				U	mg/L		-0.01	0.01			
WG597855													
WG596691PBS	PBS	09/23/24 16:19				U	mg/L		-0.01	0.01			
L89863-03DUP	DUP	09/23/24 16:23			U	U	mg/L				0	20	RA
WG597799PBS	PBS	09/23/24 16:24				U	mg/L		-0.01	0.01			
WG597799LFB	LFB	09/23/24 16:25	WI240909-3	.5		.517	mg/L	103	90	110			
L89863-01MS	MS	09/23/24 16:26	WI240909-3	.5	U	.524	mg/L	105	90	110			

OURAYSM

ACZ Project ID: ***L89863***

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.

Potassium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	20		19.57	mg/L	98	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-1.5	1.5			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-1.5	1.5			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	100.237		99.22	mg/L	99	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	100.237	2.89	101.7	mg/L	99	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	100.237	2.89	103	mg/L	100	75	125	1	20	
L89863-03DUP	DUP	09/16/24 14:40			2.89	3.05	mg/L				5	20	RA

Residue, Filterable (TDS) @180C (1312) SM 2540 C-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597571													
WG597571PBW	PBW	09/18/24 21:25				U	mg/L		-20	20			
WG597571LCSW	LCSW	09/18/24 21:30	PCN627251	1000		1010	mg/L	101	80	120			
WG596691PBS	PBS	09/18/24 21:36				U	mg/L		-40	40			
L89863-03DUP	DUP	09/18/24 22:00			44	38	mg/L				15	10	RA

Residue, Non-Filter (TSS) @180C (1312-DI) SM 2540 D-2011/2015

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG596865													
WG596865PBW	PBW	09/09/24 11:25				U	mg/L		-5	5			
WG596865LCSW	LCSW	09/09/24 11:30	PCN627255	100		90	mg/L	90	80	120			
WG596691PBS	PBS	09/09/24 11:36				U	mg/L		-15	15			
L89863-03DUP	DUP	09/09/24 12:00			U	U	mg/L				0	10	RA

Selenium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05046	mg/L	101	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0003	0.0003			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0003	0.0003			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.04796	mg/L	96	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	U	.04894	mg/L	98	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	U	.0487	mg/L	97	75	125	0	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

Silica (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG598011													
WG598011ICV	ICV	09/25/24 13:04	II240919-3	42.8		44.54	mg/L	104	90	110			
WG598011ICB	ICB	09/25/24 13:07				U	mg/L		-0.6	0.6			
WG596687PBS	PBS	09/25/24 13:31				U	mg/L		-0.6	0.6			
WG596687LFB1	LFB	09/25/24 13:35	II240910-5	21.42782		20.94	mg/L	98	80	120			
L89863-03MS	MS	09/25/24 13:53	II240910-5	21.42782	2.3	22.89	mg/L	96	75	125			
L89863-03MSD	MSD	09/25/24 13:57	II240910-5	21.42782	2.3	23.19	mg/L	97	75	125	1	20	
L89863-03DUP	DUP	09/25/24 14:00			2.3	2.55	mg/L				10	20	

OURAYSM

ACZ Project ID: ***L89863***

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

Silver (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597262													
WG597262ICV	ICV	09/15/24 13:37	MS240912-7	.02		.01897	mg/L	95	90	110			
WG597262ICB	ICB	09/15/24 13:39				U	mg/L		-0.0003	0.0003			
WG596687PBS	PBS	09/15/24 13:48				U	mg/L		-0.0003	0.0003			
WG596687LFB2	LFB	09/15/24 13:50	MS240613-7	.01		.01009	mg/L	101	80	120			
L89863-02MS	MS	09/15/24 13:56	MS240613-7	.01	U	.00962	mg/L	96	75	125			
L89863-02MSD	MSD	09/15/24 13:57	MS240613-7	.01	U	.00993	mg/L	99	75	125	3	20	
L89863-03DUP	DUP	09/15/24 14:06			U	U	mg/L				0	20	RA

Sodium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	100		98.8	mg/L	99	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.6	0.6			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.6	0.6			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	99.97081		99.63	mg/L	100	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	99.97081	.98	99.84	mg/L	99	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	99.97081	.98	101.3	mg/L	100	75	125	1	20	
L89863-03DUP	DUP	09/16/24 14:40			.98	1.1	mg/L				12	20	RA

Strontium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	2		1.954	mg/L	98	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.027	0.027			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.027	0.027			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	.501		.5327	mg/L	106	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	.501	.195	.7252	mg/L	106	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	.501	.195	.7313	mg/L	107	75	125	1	20	
L89863-03DUP	DUP	09/16/24 14:40			.195	.1922	mg/L				1	20	

Sulfate (1312-DI) EPA 300.0

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG594885													
WG594885ICV	ICV	08/06/24 17:10	WI240806-11	50.05		49.16	mg/L	98	90	110			
WG594885ICB	ICB	08/06/24 17:28				U	mg/L		-0.9	0.9			
WG597226													
WG597226LFB	LFB	09/13/24 13:31	WI240708-2	29.997		30.9	mg/L	103	90	110			
WG596691PBS	PBS	09/13/24 13:49				U	mg/L		-0.9	0.9			
L89863-02AS	AS	09/13/24 14:43	WI240708-2	29.997	13.2	44.29	mg/L	104	90	110			
L89863-02ASD	ASD	09/13/24 15:01	WI240708-2	29.997	13.2	42.72	mg/L	98	90	110	4	20	
L89863-03DUP	DUP	09/13/24 15:37			8.45	8.64	mg/L				2	20	RA

Sulfur Hcl Residue EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597577													
L89863-01DUP	DUP	09/20/24 7:19			1.16	1.17	%				1	20	

OURAYSM

ACZ Project ID: ***L89863***

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.

Sulfur Hno3 Residue EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597577													
L89863-01DUP	DUP	09/20/24 8:18			.05	.05	%				0	20	RA

Sulfur Organic Residual EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597577													
L89863-01DUP	DUP	09/20/24 8:18			.05	.05	%				0	20	RA

Sulfur Pyritic Sulfide EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597577													
L89863-01DUP	DUP	09/20/24 8:18			1.11	1.12	%				1	20	

Sulfur Sulfate EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597577													
L89863-01DUP	DUP	09/20/24 8:18			.12	.11	%				9	20	

Sulfur Total EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597577													
WG597577LCSS	LCSS	09/20/24 6:08	PCN625750	3.95		3.73	%	94	80	120			
L89863-01MS	MS	09/20/24 6:13	PCN625561	1.28	1.28	2.66	%	108	80	120			
L89863-01DUP	DUP	09/20/24 6:16			1.28	1.28	%				0	20	

Thallium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05251	mg/L	105	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0003	0.0003			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0003	0.0003			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.0501		.04882	mg/L	97	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.0501	.00013	.05	mg/L	100	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.0501	.00013	.04966	mg/L	99	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

Tin (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597330													
WG597330ICV	ICV	09/16/24 13:42	II240829-1	2		1.926	mg/L	96	90	110			
WG597330ICB	ICB	09/16/24 13:45				U	mg/L		-0.12	0.12			
WG596687PBS	PBS	09/16/24 14:10				U	mg/L		-0.12	0.12			
WG596687LFB1	LFB	09/16/24 14:14	II240808-3	1.001		1.008	mg/L	101	80	120			
L89863-03MS	MS	09/16/24 14:33	II240808-3	1.001	U	1.009	mg/L	101	75	125			
L89863-03MSD	MSD	09/16/24 14:36	II240808-3	1.001	U	1.008	mg/L	101	75	125	0	20	
L89863-03DUP	DUP	09/16/24 14:40			U	U	mg/L				0	20	RA

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ACZ Project ID: ***L89863***

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.

Total Sulfur Minus Sulfate EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597577													
L89863-01DUP	DUP	09/20/24 8:18			1.16	1.17	%				1	20	

Uranium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05243	mg/L	105	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0003	0.0003			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0003	0.0003			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05		.05017	mg/L	100	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05	U	.05123	mg/L	102	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05	U	.05041	mg/L	101	75	125	2	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

Vanadium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.05047	mg/L	101	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.0015	0.0015			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.0015	0.0015			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.05005		.04995	mg/L	100	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.05005	U	.05001	mg/L	100	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.05005	U	.05061	mg/L	101	75	125	1	20	
L89863-03DUP	DUP	09/11/24 20:04			.00053	.00068	mg/L				25	20	RA

Zinc (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG597078													
WG597078ICV	ICV	09/11/24 19:35	MS240613-12	.05		.0506	mg/L	101	90	110			
WG597078ICB	ICB	09/11/24 19:37				U	mg/L		-0.018	0.018			
WG596687PBS	PBS	09/11/24 19:46				U	mg/L		-0.018	0.018			
WG596687LFB2	LFB	09/11/24 19:48	MS240613-7	.050015		.0523	mg/L	105	80	120			
L89863-02MS	MS	09/11/24 19:55	MS240613-7	.050015	U	.0524	mg/L	105	75	125			
L89863-02MSD	MSD	09/11/24 19:57	MS240613-7	.050015	U	.0525	mg/L	105	75	125	0	20	
L89863-03DUP	DUP	09/11/24 20:04			U	U	mg/L				0	20	RA

Thorin Resources

ACZ Project ID: ***L89863***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L89863-01	WG597330	Aluminum (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Antimony (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Arsenic (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Barium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Beryllium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Bicarbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597330	Boron (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597296	Bromide (1312-DI)	EPA 300.0	D1	Sample required dilution due to matrix.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Cadmium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Calcium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG596844	Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	Q6	Sample was received above recommended temperature.
			SM 5310 B-2011/2014	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Carbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597226	Chloride (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Chromium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Conductivity @25C (1312-DI)	SM 2510 B-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2510 B-2011	Q6	Sample was received above recommended temperature.
	WG597078	Copper (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: ***L89863***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG597257	Fluoride (1312 DI)	SM 4500-F C-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 4500-F C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Hydroxide as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597330	Iron (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Lead (1312)	EPA 6020B	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597330	Lithium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Magnesium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Manganese (1312)	EPA 6020B	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597088	Mercury (1312)	EPA 7470A	Q6	Sample was received above recommended temperature.
			EPA 7470A	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Molybdenum (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597549	NAG	Single NAG - EGI 2002	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Nickel (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596788	Nitrate/Nitrite as N (1312-DI)	EPA 353.2	H3	Sample was received and analyzed past holding time.
			EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (1312-DI)	EPA 353.2	H3	Sample was received and analyzed past holding time.
			EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: ***L89863***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG597072	Nitrogen, ammonia (1312-DI)	EPA 350.1	Q6	Sample was received above recommended temperature.
			EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596787	Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597855	Phosphorus, Total (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Potassium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597571	Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2540 C-2011	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM 2540 C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596865	Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2540 D-2011/2015	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 D-2011/2015	Z3	Sample volume yielded a residue less than 2.5 mg
	WG597078	Selenium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG598011	Silica (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG597262	Silver (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Sodium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Strontium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597226	Sulfate (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597577	Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data

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					validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Organic Residual	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Thallium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Tin (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Total Alkalinity	SM 2320 B-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597078	Uranium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Vanadium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L89863-02	WG597330	Aluminum (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Antimony (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Arsenic (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Barium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Beryllium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Bicarbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597330	Boron (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597296	Bromide (1312-DI)	EPA 300.0	D1	Sample required dilution due to matrix.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Cadmium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Calcium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG596844	Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	Q6	Sample was received above recommended temperature.
			SM 5310 B-2011/2014	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Carbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597226	Chloride (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Chromium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Conductivity @25C (1312-DI)	SM 2510 B-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2510 B-2011	Q6	Sample was received above recommended temperature.
	WG597078	Copper (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG597257	Fluoride (1312 DI)	SM 4500-F C-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 4500-F C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Hydroxide as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597330	Iron (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Lead (1312)	EPA 6020B	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597330	Lithium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Magnesium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Manganese (1312)	EPA 6020B	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597088	Mercury (1312)	EPA 7470A	Q6	Sample was received above recommended temperature.
			EPA 7470A	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Molybdenum (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597549	NAG	Single NAG - EGI 2002	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Nickel (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596788	Nitrate/Nitrite as N (1312-DI)	EPA 353.2	H3	Sample was received and analyzed past holding time.
			EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (1312-DI)	EPA 353.2	H3	Sample was received and analyzed past holding time.
			EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG597072	Nitrogen, ammonia (1312-DI)	EPA 350.1	Q6	Sample was received above recommended temperature.
			EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596787	Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597855	Phosphorus, Total (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Potassium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597571	Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2540 C-2011	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM 2540 C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596865	Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2540 D-2011/2015	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 D-2011/2015	Z3	Sample volume yielded a residue less than 2.5 mg
	WG597078	Selenium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG598011	Silica (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG597262	Silver (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Sodium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Strontium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597226	Sulfate (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597577	Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Organic Residual	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Thallium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Tin (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Total Alkalinity	SM 2320 B-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597078	Uranium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Vanadium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L89863-03	WG597330	Aluminum (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Antimony (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Arsenic (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Barium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
		Beryllium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Bicarbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597330	Boron (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597296	Bromide (1312-DI)	EPA 300.0	D1	Sample required dilution due to matrix.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Cadmium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Calcium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG596844	Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	Q6	Sample was received above recommended temperature.
			SM 5310 B-2011/2014	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Carbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597226	Chloride (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Chromium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Conductivity @25C (1312-DI)	SM 2510 B-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2510 B-2011	Q6	Sample was received above recommended temperature.
	WG597078	Copper (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG597257	Fluoride (1312 DI)	SM 4500-F C-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 4500-F C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Hydroxide as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597330	Iron (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Lead (1312)	EPA 6020B	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597330	Lithium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Magnesium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Manganese (1312)	EPA 6020B	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597088	Mercury (1312)	EPA 7470A	Q6	Sample was received above recommended temperature.
			EPA 7470A	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Molybdenum (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597549	NAG	Single NAG - EGI 2002	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Nickel (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596788	Nitrate/Nitrite as N (1312-DI)	EPA 353.2	H3	Sample was received and analyzed past holding time.
			EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (1312-DI)	EPA 353.2	H3	Sample was received and analyzed past holding time.
			EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG597072	Nitrogen, ammonia (1312-DI)	EPA 350.1	Q6	Sample was received above recommended temperature.
			EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG596787	Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597855	Phosphorus, Total (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Potassium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597571	Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2540 C-2011	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM 2540 C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 C-2011	Z3	Sample volume yielded a residue less than 2.5 mg
	WG596865	Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2540 D-2011/2015	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 D-2011/2015	Z3	Sample volume yielded a residue less than 2.5 mg
	WG597078	Selenium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG598011	Silica (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG597262	Silver (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Sodium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Strontium (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG597226	Sulfate (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597577	Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Inorganic Extended Qualifier Report

Thorin Resources

ACZ Project ID: ***L89863***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L89863-03	WG597577	Sulfur Organic Residual	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597078	Thallium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597330	Tin (1312)	EPA 6010D	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG597299	Total Alkalinity	SM 2320 B-2011	H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
			SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG597078	Uranium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Vanadium (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (1312)	EPA 6020B	H1	Sample prep or analysis performed past holding time. See case narrative.
			EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Metals Analysis

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

Silver (1312)	EPA 6020B

Soil Analysis

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

NAG	Single NAG - EGI 2002
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3 Modified (No Heat)
pH After Oxidation	Single NAG - EGI 2002
pH, Saturated Paste	EPA 600/2-78-054 3.2.2
Sulfur HCl Residue	EPA 600/2-78-054 3.2.4 Modified
Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified
Sulfur Total	EPA 600/2-78-054 3.2.4 Modified

Wet Chemistry

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

Bicarbonate as CaCO3	SM 2320 B-2011
Bromide (1312-DI)	EPA 300.0
Carbonate as CaCO3	SM 2320 B-2011
Chloride (1312-DI)	EPA 300.0
Conductivity @25C (1312-DI)	SM 2510 B-2011
Fluoride (1312 DI)	SM 4500-F C-2011
Hydroxide as CaCO3	SM 2320 B-2011
Nitrate/Nitrite as N (1312-DI)	EPA 353.2
Nitrite as N (1312-DI)	EPA 353.2
Nitrogen, ammonia (1312-DI)	EPA 350.1
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1
Phosphorus, Total (1312-DI)	EPA 365.1
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015
Sulfate (1312-DI)	EPA 300.0
Total Alkalinity	SM 2320 B-2011

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

Sample Receipt

Thorin Resources

ACZ Project ID: L89863
Date Received: 08/29/2024 09:27
Received By:
Date Printed: 8/30/2024

Receipt Verification

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

Samples/Containers

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

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?
NA42768	22.5	NA	15	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not 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.

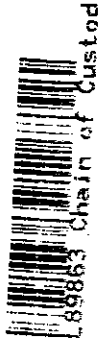
ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Thorin Resources

ACZ Project ID:	L89863
Date Received:	08/29/2024 09:27
Received By:	
Date Printed:	8/30/2024

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



ACZ LABORATORIES | Accredited Environmental Testing | 2773 Downhill Drive Steamboat Springs, CO 80487 (970) 879-6590 | 89863

CHAIN of CUSTODY

Report to:

Name: CJ Dickerson
Company: Thorin Resources
E-mail: cjdickerson@thorinresources.com
Address: 1900 Main St Unit 1
Ouray, Co 81427
Telephone: 9703162294

Copy of Report to:

Name:
Company:
E-mail:
Telephone:

Invoice to:

Name: CJ Dickerson
Company: Thorin Resources
E-mail: cjdickerson@thorinresources.com
Address: PO Box 1030
Ouray, Co 81427
Telephone: 9703162294

Copy of Invoice to:

Name:
Company:
E-mail:
Address:
Telephone:

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 PDL for Colorado.

Sampler's Name: CJ Dickerson Sampler's Site Information State: CO Zip code: 81427 Time Zone: Mtn

*Sampler's 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 any way, is considered fraud and punishable by State Law.

PROJECT INFORMATION

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

ANALYSES REQUESTED (attach list or use quote number)

	SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	ABA	SPLP						
1	RV SPLP Tails	3/4/2024 09:40		1	✓	✓						
2	RV ABA Tails	3/4/2024 09:40		1	✓	✓						
3	CBW SPLP Tails	3/4/2024 09:40		1	✓	✓						
4	CBW SPLP Tails	3/4/2024 09:40		1	✓	✓						

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

REMARKS

Please calculate Net Acid Forming & Net Neutralizing Potential

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
CJ Dickerson	7/17/ 12:00p		8/29/24 10:52

Qualirax ID: 1984 Revision #: 2 White - Return with sample. Yellow - Retain for your records.

Attachment J – Feed Material Updated Material Quality Tables & Acid Generating Potential Tables

Updated Table 3: Summary of SPLP & ABA – Proposed Camp Bird Feed Material

Analyte	Units	Minimum	Maximum	Average	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Sulfur tota	t CaCO3/Kt	9.06	14.1	11.58000	2	-	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	64	98	81	2	-	1
Acid-Base Potential (calculation)	t CaCO3/Kt	54.9	83.9	69.4	2	-	-
Aluminum (1312)	mg/L	0.45	0.52	0.485	2	-	0.05
Antimony (1312)	mg/L	0.00114	0.00157	0.001355	2	-	0.0004
Arsenic (1312)	mg/L	0.00655	0.00719	0.00687	2	-	0.0002
Barium (1312)	mg/L	0.0096	0.0154	0.0125	2	-	0.0005
Beryllium (1312)	mg/L	-	-	-	2	2	0.00008
Bicarbonate as CaCO3	mg/L	31.4	33.1	32.25	2	-	2
Boron (1312)	mg/L	-	-	-	2	2	0.03
Bromide (1312-DI)	mg/L	0.35	0.435	0.3925	2	-	0.05
Cadmium (1312)	mg/L	-	-	-	2	2	0.00005
Calcium (1312)	mg/L	8.97	10	9.485	2	-	0.1
Carbon, total organic (TOC) (1312-DI)	mg/L	1.7	1.8	1.75	2	-	1
Carbonate as CaCO3	mg/L	-	-	-	2	2	2
Chloride (1312-DI)	mg/L	-	-	-	2	2	0.4
Chromium (1312)	mg/L	-	-	-	2	2	0.0005
Cobalt (1312)	mg/L	0.000058	0.000082	0.00007	2	-	0.00005
Conductivity @25C (1312-DI)	umhos/cm	51	56	53.5	2	-	1
Copper (1312)	mg/L	0.00128	0.0013	0.00129	2	-	0.0008
Fluoride (1312 DI)	mg/L	0.37	0.38	0.375	2	-	0.15
Hardness as CaCO3 (1312)	mg/L	24	27	25.5	2	-	0.2
Hydroxide as CaCO3	mg/L	-	-	-	2	2	2
Iron (1312)	mg/L	0.071	0.071	0.071	2	1	0.06
Lead (1312)	mg/L	0.00119	0.00273	0.00196	2	-	0.0001
Lithium (1312)	mg/L	-	-	-	2	2	0.008
Magnesium (1312)	mg/L	0.38	0.38	0.38	2	-	0.2
Manganese (1312)	mg/L	0.0251	0.0312	0.02815	2	-	0.0004
Mercury (1312)	mg/L	-	-	-	2	2	0.0002
Molybdenum (1312)	mg/L	0.00357	0.00376	0.003665	2	-	0.0002
Neutralization Potential as CaCO3	%	6.4	9.8	8.1	2	-	0.1
Nickel (1312)	mg/L	-	-	-	2	2	0.0004
Nitrate (1312 DI)	mg/L	0.037	0.037	0.037	2	1	0.02
Nitrate/Nitrite as N (1312-DI)	mg/L	0.037	0.037	0.037	2	1	0.02
Nitrite as N (1312-DI)	mg/L	-	-	-	2	2	0.01
Nitrogen, ammonia (1312-DI)	mg/L	0.106	0.106	0.106	2	1	0.1
pH	Units	9	9	9	2	-	0.1
Phosphorus, ortho dissolved (1312-DI)	mg/L	0.011	0.011	0.011	2	1	0.01
Phosphorus, Total (1312-DI)	mg/L	0.011	0.012	0.0115	2	-	0.01
Potassium (1312)	mg/L	2.31	2.93	2.62	2	-	0.5
Residue, Filterable (TDS) @180C (1312)	mg/L	32	36	34	2	-	20
Residue, Non-Filter (TSS) @180C (1312-DI)	mg/L	-	-	-	2	2	5
Selenium (1312)	mg/L	0.00016	0.00034	0.00025	2	-	0.0001
Silica (1312)	mg/L	3.3	3.7	3.5	2	-	0.2
Silver (1312)	mg/L	-	-	-	2	2	0.0001
Sodium (1312)	mg/L	0.94	1.19	1.065	2	-	0.2
Strontium (1312)	mg/L	0.0857	0.133	0.10935	2	-	0.009
Sulfate (1312-DI)	mg/L	2.84	3.19	3.015	2	-	0.9
Temperature	Units	20.3	20.9	20.6	2	-	0.1
Thallium (1312)	mg/L	-	-	-	2	2	0.0001
Tin (1312)	mg/L	-	-	-	2	2	0.04
Total Alkalinity	mg/L	31.4	33.1	32.25	2	-	2
Uranium (1312)	mg/L	-	-	-	2	2	0.0001
Vanadium (1312)	mg/L	0.00185	0.00213	0.00199	2	-	0.0005
Zinc (1312)	mg/L	-	-	-	2	2	0.006

New Table: Acid Generation Vs Acid Neutralizing Potential – Camp Bird Feed Material

Analyte	Units	Minimum	Maximum	Average	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Sulfur total)	t CaCO3/Kt	9.06	14.1	11.58	2	0	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	64	98	81	2	0	1
Acid-Base Potential (calculation)	t CaCO3/Kt	54.9	83.9	69.4	2	0	0
Neutralization Potential as CaCO3	%	6.4	9.8	8.1	2	0	0.1
Neutralization Potential Ratio				7.0	2	0	

Updated Table 4: Summary of SPLP & ABA – Revenue Virginius Feed Material

Analyte	Units	Minimum	Maximum	Average	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Sulfur tota	t CaCO3/Kt	17.2	68.8	43.00000	2	-	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	105	131	118	2	-	1
Acid-Base Potential (calculation)	t CaCO3/Kt	36.3	114	75.15	2	-	-
Aluminum (1312)	mg/L	0.098	0.098	0.098	2	-	0.05
Antimony (1312)	mg/L	0.0103	0.0116	0.01095	2	-	0.0004
Arsenic (1312)	mg/L	0.00153	0.00222	0.001875	2	-	0.0002
Barium (1312)	mg/L	0.0613	0.0655	0.0634	2	-	0.0005
Beryllium (1312)	mg/L	-	-	-	2	2	0.00008
Bicarbonate as CaCO3	mg/L	30.6	30.7	30.65	2	-	2
Boron (1312)	mg/L	-	-	-	2	2	0.03
Bromide (1312-DI)	mg/L	-	-	-	2	2	0.05
Cadmium (1312)	mg/L	-	-	-	2	2	0.00005
Calcium (1312)	mg/L	17.9	22.8	20.35	2	-	0.1
Carbon, total organic (TOC) (1312-DI)	mg/L	1.5	2.9	2.2	2	-	1
Carbonate as CaCO3	mg/L	-	-	-	2	2	2
Chloride (1312-DI)	mg/L	0.63	0.63	0.63	2	1	0.4
Chromium (1312)	mg/L	-	-	-	2	2	0.0005
Cobalt (1312)	mg/L	0.000073	0.000104	0.0000885	2	-	0.00005
Conductivity @25C (1312-DI)	umhos/cm	85	107	96	2	-	1
Copper (1312)	mg/L	0.00084	0.0101	0.00547	2	-	0.0008
Fluoride (1312 DI)	mg/L	-	-	-	2	2	0.15
Hardness as CaCO3 (1312)	mg/L	48	61	54.5	2	-	0.2
Hydroxide as CaCO3	mg/L	-	-	-	2	2	2
Iron (1312)	mg/L	-	-	-	2	2	0.06
Lead (1312)	mg/L	0.0676	0.0875	0.07755	2	-	0.0001
Lithium (1312)	mg/L	-	-	-	2	2	0.008
Magnesium (1312)	mg/L	0.77	0.89	0.83	2	-	0.2
Manganese (1312)	mg/L	0.0567	0.0768	0.06675	2	-	0.0004
Mercury (1312)	mg/L	-	-	-	2	2	0.0002
Molybdenum (1312)	mg/L	0.0137	0.0218	0.01775	2	-	0.0002
Neutralization Potential as CaCO3	%	10.5	13.1	11.8	2	-	0.1
Nickel (1312)	mg/L	-	-	-	2	2	0.0004
Nitrate (1312 DI)	mg/L	1.72	1.83	1.775	2	-	0.02
Nitrate/Nitrite as N (1312-DI)	mg/L	1.74	1.85	1.795	2	-	0.02
Nitrite as N (1312-DI)	mg/L	0.016	0.023	0.0195	2	-	0.01
Nitrogen, ammonia (1312-DI)	mg/L	0.116	0.116	0.116	2	1	0.1
pH	Units	8.5	8.8	8.65	2	-	0.1
Phosphorus, ortho dissolved (1312-DI)	mg/L	-	-	-	2	2	0.01
Phosphorus, Total (1312-DI)	mg/L	-	-	-	2	2	0.01
Potassium (1312)	mg/L	3.79	4.14	3.965	2	-	0.5
Residue, Filterable (TDS) @180C (1312)	mg/L	56	76	66	2	-	20
Residue, Non-Filter (TSS) @180C (1312-DI)	mg/L	-	-	-	2	2	7.5
Selenium (1312)	mg/L	0.0001	0.00015	0.000125	2	-	0.0001
Silica (1312)	mg/L	2.1	2.5	2.3	2	-	0.2
Silver (1312)	mg/L	-	-	-	2	2	0.0001
Sodium (1312)	mg/L	0.53	0.79	0.66	2	-	0.2
Strontium (1312)	mg/L	0.35	0.429	0.3895	2	-	0.009
Sulfate (1312-DI)	mg/L	13.6	26.1	19.85	2	-	0.9
Temperature	Units	20.1	20.7	20.4	2	-	0.1
Thallium (1312)	mg/L	0.00016	0.00016	0.00016	2	1	0.0001
Tin (1312)	mg/L	-	-	-	2	2	0.04
Total Alkalinity	mg/L	30.6	30.7	30.65	2	-	2
Uranium (1312)	mg/L	-	-	-	2	2	0.0001
Vanadium (1312)	mg/L	-	-	-	2	2	0.0005
Zinc (1312)	mg/L	0.0086	0.0086	0.0086	2	1	0.006

New Table: Acid Generation Vs Acid Neutralizing Potential – Revenue Virginius Feed Material

Analyte	Units	Minimum	Maximum	Average	Sample Count	Non-Detect Count	MDL
Acid Generation Potential (calc on Sulfur total)	t CaCO3/Kt	17.2	68.8	43	2	0	0.31
Acid Neutralization Potential (calc)	t CaCO3/Kt	105	131	118	2	0	1
Acid-Base Potential (calculation)	t CaCO3/Kt	36.3	114	75.15	2	0	0
Neutralization Potential as CaCO3	%	10.5	13.1	11.8	2	0	0.1
Neutralization Potential Ratio				2.7	2	0	

Attachment K – Material Quality Laboratory Reports – Head-Grade Material

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

Analytical Report

July 23, 2024

Report to:
CJ Dickerson
Thorin Resources
105 Meadow Estates Dr.

Ridgway, CO 81432

cc: Accounts Payable

Bill to:
Accounts Payable
Thorin Resources
1900 Main St
Unit #1
Ouray, CO 81427

Project ID:
ACZ Project ID: L86570

CJ Dickerson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 13, 2024. This project has been assigned to ACZ's project number, L86570. 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 L86570. 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 22, 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

Mark McNeal has reviewed and approved this report.

Thorin Resources

July 23, 2024

Project ID:
ACZ Project ID: L86570

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 4 miscellaneous samples from Thorin Resources on March 13, 2024. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L86570. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports.

This report is being reissued to include values for AGP and ANP.

Thorin Resources
Project ID:
Sample ID: RV ABA HGW HEADS-01

ACZ Sample ID: ***L86570-01***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, Total (1312-DI)	EPA 365.1								03/25/24 10:37	mrd
Total Hot Plate Digestion (1312)	EPA 3010A								03/29/24 15:12	jrj
Total Hot Plate Digestion (1312)	EPA 3010A								03/22/24 12:50	aeh

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	EPA 6010D	1	0.056	B	*	mg/L	0.05	0.25	03/26/24 18:04	brc
Antimony (1312)	EPA 6020B	1	0.0116			mg/L	0.0004	0.002	03/30/24 17:32	jrj
Arsenic (1312)	EPA 6020B	1	0.00222			mg/L	0.0002	0.001	03/30/24 17:32	jrj
Barium (1312)	EPA 6020B	1	0.0655			mg/L	0.0005	0.0025	03/30/24 17:32	jrj
Beryllium (1312)	EPA 6020B	1	<0.00008	U	*	mg/L	0.00008	0.00025	03/30/24 17:32	jrj
Boron (1312)	EPA 6010D	1	<0.03	U	*	mg/L	0.03	0.1	03/26/24 18:04	brc
Cadmium (1312)	EPA 6020B	1	<0.00005	U	*	mg/L	0.00005	0.00025	03/30/24 17:32	jrj
Calcium (1312)	EPA 6010D	1	22.8			mg/L	0.1	0.5	03/26/24 18:04	brc
Chromium (1312)	EPA 6020B	1	<0.0005	U	*	mg/L	0.0005	0.002	03/30/24 17:32	jrj
Cobalt (1312)	EPA 6020B	1	0.000104	B	*	mg/L	0.00005	0.00025	03/30/24 17:32	jrj
Copper (1312)	EPA 6020B	1	0.0101		*	mg/L	0.0008	0.002	04/02/24 14:24	aps
Iron (1312)	EPA 6010D	1	<0.06	U	*	mg/L	0.06	0.15	03/26/24 18:04	brc
Lead (1312)	EPA 6020B	1	0.0875			mg/L	0.0001	0.0005	03/30/24 17:32	jrj
Lithium (1312)	EPA 6010D	1	<0.008	U	*	mg/L	0.008	0.04	03/26/24 18:04	brc
Magnesium (1312)	EPA 6010D	1	0.89	B	*	mg/L	0.2	1	03/26/24 18:04	brc
Manganese (1312)	EPA 6020B	1	0.0768			mg/L	0.0004	0.002	03/30/24 17:32	jrj
Mercury (1312)	EPA 7470A	1	<0.0002	U	*	mg/L	0.0002	0.001	03/26/24 14:38	aeh
Molybdenum (1312)	EPA 6020B	1	0.0137		*	mg/L	0.0002	0.0005	03/30/24 17:32	jrj
Nickel (1312)	EPA 6020B	1	<0.0004	U	*	mg/L	0.0004	0.001	03/30/24 17:32	jrj
Potassium (1312)	EPA 6010D	1	4.14		*	mg/L	0.5	1	03/26/24 18:04	brc
Selenium (1312)	EPA 6020B	1	0.00015	B	*	mg/L	0.0001	0.00025	03/30/24 17:32	jrj
Silica (1312)	EPA 6010D	1	2.5			mg/L	0.2	1	03/26/24 18:04	brc
Silver (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:32	jrj
Sodium (1312)	EPA 6010D	1	0.79	B	*	mg/L	0.2	1	03/26/24 18:04	brc
Strontium (1312)	EPA 6010D	1	0.429		*	mg/L	0.009	0.045	03/26/24 18:04	brc
Thallium (1312)	EPA 6020B	1	0.00016	B	*	mg/L	0.0001	0.0005	03/30/24 17:32	jrj
Tin (1312)	EPA 6010D	1	<0.04	U	*	mg/L	0.04	0.2	03/26/24 18:04	brc
Uranium (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:32	jrj
Vanadium (1312)	EPA 6020B	1	<0.0005	U	*	mg/L	0.0005	0.002	03/30/24 17:32	jrj
Zinc (1312)	EPA 6020B	1	0.0086	B	*	mg/L	0.006	0.015	03/30/24 17:32	jrj

Thorin Resources
Project ID:
Sample ID: RV ABA HGW HEADS-01

ACZ Sample ID: ***L86570-01***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	EPA 600/2-78-054 3.2.4		17.2			t CaCO3/Kt	0.31	3.1	07/23/24 0:00	calc
Acid Neutralization Potential (calc)	EPA 600/2-78-054 1.3		131			t CaCO3/Kt	1	5	07/23/24 0:00	calc
Acid-Base Potential (calculation)	EPA 600/2-78-054 1.3		114			t CaCO3/Kt			07/23/24 0:00	calc
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3	1	13.1		*	%	0.1	0.5	07/19/24 13:15	bdc
pH, (1312)	EPA 9045D/9040C									
pH			8.5			Units	0.1	0.1	07/23/24 0:00	LFP
Temperature			20.7			Units	0.1	0.1	07/23/24 0:00	LFP
Sulfur Forms	EPA 600/2-78-054 3.2.4 Modified									
Sulfur HCl Residue		1	0.51		*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur HNO3 Residue		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Organic Residual		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Pyritic Sulfide		1	0.51			%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Sulfate		1	0.04	B	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Total		1	0.55		*	%	0.01	0.1	07/23/24 0:00	kmb
Total Sulfur minus Sulfate		1	0.51			%	0.01	0.1	07/23/24 0:00	kmb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								07/17/24 15:00	bdc
Crush and Pulverize (Ring & Puck)	EPA 600/2-78-054 3.1.3								07/18/24 10:00	bdc
Synthetic Precip. Leaching Procedure	EPA 1312								03/20/24 10:00	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								03/20/24 21:52	lfp

Thorin Resources
Project ID:
Sample ID: RV ABA HGW HEADS-01

ACZ Sample ID: ***L86570-01***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (1312 DI)	SM 2320 B-2011									
Bicarbonate as CaCO3		1	30.7		*	mg/L	2	20	03/28/24 0:00	jck
Carbonate as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Hydroxide as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Total Alkalinity		1	30.7		*	mg/L	2	20	03/28/24 0:00	jck
Bromide (1312-DI)	EPA 300.0	1	<0.05	U	*	mg/L	0.05	0.25	03/26/24 20:29	bls
Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	1	2.9	B	*	mg/L	1	5	04/01/24 21:14	ems
Chloride (1312-DI)	EPA 300.0	1	0.63	B	*	mg/L	0.4	2	03/26/24 20:29	bls
Conductivity @25C (1312-DI)	SM 2510 B-2011	1	107		*	umhos/cm	1	10	03/28/24 17:17	jck
Fluoride (1312 DI)	SM 4500-F C-2011	1	<0.15	U	*	mg/L	0.15	0.35	03/28/24 12:30	jck
Hardness as CaCO3 (1312)	Calculation (SM 2340 B-2011)		61			mg/L	0.2	5	07/23/24 0:00	calc
Nitrate (1312 DI)	Calculation (NO3NO2-NO2)		1.83			mg/L	0.02	0.1	07/23/24 0:00	calc
Nitrate/Nitrite as N (1312-DI)	EPA 353.2	1	1.85		*	mg/L	0.02	0.1	03/22/24 0:46	pjb
Nitrite as N (1312-DI)	EPA 353.2	1	0.023	B	*	mg/L	0.01	0.05	03/22/24 0:46	pjb
Nitrogen, ammonia (1312-DI)	EPA 350.1	1	0.116	B	*	mg/L	0.1	0.2	04/02/24 11:39	jqr
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	03/22/24 1:17	pjb
Phosphorus, Total (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	03/27/24 14:37	mrd
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	1	76		*	mg/L	20	40	03/25/24 18:35	jck
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	1	<5	U	*	mg/L	5	20	03/27/24 21:36	jck
Sulfate (1312-DI)	EPA 300.0	1	26.1		*	mg/L	0.9	2	03/26/24 20:29	bls

Thorin Resources
Project ID:
Sample ID: RV SPL HEADS-02

ACZ Sample ID: ***L86570-02***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, Total (1312-DI)	EPA 365.1								03/25/24 11:42	mrd
Total Hot Plate Digestion (1312)	EPA 3010A								03/22/24 16:10	aeh
Total Hot Plate Digestion (1312)	EPA 3010A								03/29/24 15:34	jrj

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	EPA 6010D	1	0.098	B	*	mg/L	0.05	0.25	03/26/24 18:18	brc
Antimony (1312)	EPA 6020B	1	0.0103			mg/L	0.0004	0.002	03/30/24 17:39	jrj
Arsenic (1312)	EPA 6020B	1	0.00153			mg/L	0.0002	0.001	03/30/24 17:39	jrj
Barium (1312)	EPA 6020B	1	0.0613			mg/L	0.0005	0.0025	03/30/24 17:39	jrj
Beryllium (1312)	EPA 6020B	1	<0.00008	U	*	mg/L	0.00008	0.00025	04/02/24 14:29	aps
Boron (1312)	EPA 6010D	1	<0.03	U	*	mg/L	0.03	0.1	03/26/24 18:18	brc
Cadmium (1312)	EPA 6020B	1	<0.00005	U	*	mg/L	0.00005	0.00025	03/30/24 17:39	jrj
Calcium (1312)	EPA 6010D	1	17.9			mg/L	0.1	0.5	03/26/24 18:18	brc
Chromium (1312)	EPA 6020B	1	<0.0005	U	*	mg/L	0.0005	0.002	03/30/24 17:39	jrj
Cobalt (1312)	EPA 6020B	1	0.000073	B	*	mg/L	0.00005	0.00025	03/30/24 17:39	jrj
Copper (1312)	EPA 6020B	1	0.00084	B	*	mg/L	0.0008	0.002	04/02/24 14:29	aps
Iron (1312)	EPA 6010D	1	<0.06	U	*	mg/L	0.06	0.15	03/26/24 18:18	brc
Lead (1312)	EPA 6020B	1	0.0676			mg/L	0.0001	0.0005	03/30/24 17:39	jrj
Lithium (1312)	EPA 6010D	1	<0.008	U	*	mg/L	0.008	0.04	03/26/24 18:18	brc
Magnesium (1312)	EPA 6010D	1	0.77	B	*	mg/L	0.2	1	03/26/24 18:18	brc
Manganese (1312)	EPA 6020B	1	0.0567			mg/L	0.0004	0.002	03/30/24 17:39	jrj
Mercury (1312)	EPA 7470A	1	<0.0002	U	*	mg/L	0.0002	0.001	03/26/24 14:42	aeh
Molybdenum (1312)	EPA 6020B	1	0.0218		*	mg/L	0.0002	0.0005	03/30/24 17:39	jrj
Nickel (1312)	EPA 6020B	1	<0.0004	U	*	mg/L	0.0004	0.001	03/30/24 17:39	jrj
Potassium (1312)	EPA 6010D	1	3.79		*	mg/L	0.5	1	03/26/24 18:18	brc
Selenium (1312)	EPA 6020B	1	0.00010	B	*	mg/L	0.0001	0.00025	03/30/24 17:39	jrj
Silica (1312)	EPA 6010D	1	2.1			mg/L	0.2	1	03/26/24 18:18	brc
Silver (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:39	jrj
Sodium (1312)	EPA 6010D	1	0.53	B	*	mg/L	0.2	1	03/26/24 18:18	brc
Strontium (1312)	EPA 6010D	1	0.350		*	mg/L	0.009	0.045	03/26/24 18:18	brc
Thallium (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:39	jrj
Tin (1312)	EPA 6010D	1	<0.04	U	*	mg/L	0.04	0.2	03/26/24 18:18	brc
Uranium (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:39	jrj
Vanadium (1312)	EPA 6020B	1	<0.0005	U	*	mg/L	0.0005	0.002	03/30/24 17:39	jrj
Zinc (1312)	EPA 6020B	1	<0.006	U	*	mg/L	0.006	0.015	03/30/24 17:39	jrj

Thorin Resources
Project ID:
Sample ID: RV SPL HEADS-02

ACZ Sample ID: ***L86570-02***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	EPA 600/2-78-054 3.2.4		68.8			t CaCO3/Kt	0.31	3.1	07/23/24 0:00	calc
Acid Neutralization Potential (calc)	EPA 600/2-78-054 1.3		105			t CaCO3/Kt	1	5	07/23/24 0:00	calc
Acid-Base Potential (calculation)	EPA 600/2-78-054 1.3		36.3			t CaCO3/Kt			07/23/24 0:00	calc
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3	1	10.5		*	%	0.1	0.5	07/19/24 13:42	bdc
pH, (1312)	EPA 9045D/9040C									
pH			8.8			Units	0.1	0.1	07/23/24 0:00	LFP
Temperature			20.1			Units	0.1	0.1	07/23/24 0:00	LFP
Sulfur Forms	EPA 600/2-78-054 3.2.4 Modified									
Sulfur HCl Residue		1	1.86		*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur HNO3 Residue		1	0.11		*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Organic Residual		1	0.11		*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Pyritic Sulfide		1	1.75			%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Sulfate		1	0.34		*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Total		1	2.20		*	%	0.01	0.1	07/23/24 0:00	kmb
Total Sulfur minus Sulfate		1	1.86			%	0.01	0.1	07/23/24 0:00	kmb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								07/17/24 15:05	bdc
Crush and Pulverize (Ring & Puck)	EPA 600/2-78-054 3.1.3								07/18/24 10:08	bdc
Synthetic Precip. Leaching Procedure	EPA 1312								03/21/24 3:31	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								03/20/24 15:00	lfp

Thorin Resources
Project ID:
Sample ID: RV SPL HEADS-02

ACZ Sample ID: ***L86570-02***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (1312 DI)	SM 2320 B-2011									
Bicarbonate as CaCO3		1	30.6		*	mg/L	2	20	03/28/24 0:00	jck
Carbonate as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Hydroxide as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Total Alkalinity		1	30.6		*	mg/L	2	20	03/28/24 0:00	jck
Bromide (1312-DI)	EPA 300.0	1	<0.05	U	*	mg/L	0.05	0.25	03/26/24 21:05	bls
Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	1	1.5	B	*	mg/L	1	5	04/01/24 21:40	ems
Chloride (1312-DI)	EPA 300.0	1	<0.4	U	*	mg/L	0.4	2	03/26/24 21:05	bls
Conductivity @25C (1312-DI)	SM 2510 B-2011	1	85		*	umhos/cm	1	10	03/28/24 17:26	jck
Fluoride (1312 DI)	SM 4500-F C-2011	1	<0.15	U	*	mg/L	0.15	0.35	03/28/24 12:53	jck
Hardness as CaCO3 (1312)	Calculation (SM 2340 B-2011)		48			mg/L	0.2	5	07/23/24 0:00	calc
Nitrate (1312 DI)	Calculation (NO3NO2-NO2)		1.72			mg/L	0.02	0.1	07/23/24 0:00	calc
Nitrate/Nitrite as N (1312-DI)	EPA 353.2	1	1.74		*	mg/L	0.02	0.1	03/22/24 0:48	pjb
Nitrite as N (1312-DI)	EPA 353.2	1	0.016	B	*	mg/L	0.01	0.05	03/22/24 0:48	pjb
Nitrogen, ammonia (1312-DI)	EPA 350.1	1	<0.1	U	*	mg/L	0.1	0.2	04/02/24 11:42	jqr
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	03/22/24 1:19	pjb
Phosphorus, Total (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	03/27/24 14:39	mrd
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	1	56		*	mg/L	20	40	03/25/24 18:42	jck
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	2	<10	U	*	mg/L	10	40	03/27/24 21:40	jck
Sulfate (1312-DI)	EPA 300.0	1	13.6		*	mg/L	0.9	2	03/26/24 21:05	bls

Thorin Resources
Project ID:
Sample ID: CBW ABA HEADS-03

ACZ Sample ID: ***L86570-03***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, Total (1312-DI)	EPA 365.1								03/25/24 12:47	mrd
Total Hot Plate Digestion (1312)	EPA 3010A								03/22/24 17:00	aeh
Total Hot Plate Digestion (1312)	EPA 3010A								03/29/24 16:08	jrj

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	EPA 6010D	1	0.520		*	mg/L	0.05	0.25	03/26/24 18:22	brc
Antimony (1312)	EPA 6020B	1	0.00114	B		mg/L	0.0004	0.002	03/30/24 17:45	jrj
Arsenic (1312)	EPA 6020B	1	0.00655			mg/L	0.0002	0.001	03/30/24 17:45	jrj
Barium (1312)	EPA 6020B	1	0.0154			mg/L	0.0005	0.0025	03/30/24 17:45	jrj
Beryllium (1312)	EPA 6020B	1	<0.00008	U	*	mg/L	0.00008	0.00025	04/02/24 14:36	aps
Boron (1312)	EPA 6010D	1	<0.03	U	*	mg/L	0.03	0.1	03/26/24 18:22	brc
Cadmium (1312)	EPA 6020B	1	<0.00005	U	*	mg/L	0.00005	0.00025	03/30/24 17:45	jrj
Calcium (1312)	EPA 6010D	1	8.97			mg/L	0.1	0.5	03/26/24 18:22	brc
Chromium (1312)	EPA 6020B	1	<0.0005	U	*	mg/L	0.0005	0.002	03/30/24 17:45	jrj
Cobalt (1312)	EPA 6020B	1	0.000082	B	*	mg/L	0.00005	0.00025	03/30/24 17:45	jrj
Copper (1312)	EPA 6020B	1	0.00130	B	*	mg/L	0.0008	0.002	04/02/24 14:36	aps
Iron (1312)	EPA 6010D	1	0.071	B	*	mg/L	0.06	0.15	03/26/24 18:22	brc
Lead (1312)	EPA 6020B	1	0.00273			mg/L	0.0001	0.0005	03/30/24 17:45	jrj
Lithium (1312)	EPA 6010D	1	<0.008	U	*	mg/L	0.008	0.04	03/26/24 18:22	brc
Magnesium (1312)	EPA 6010D	1	0.38	B	*	mg/L	0.2	1	03/26/24 18:22	brc
Manganese (1312)	EPA 6020B	1	0.0312			mg/L	0.0004	0.002	03/30/24 17:45	jrj
Mercury (1312)	EPA 7470A	1	<0.0002	U	*	mg/L	0.0002	0.001	03/26/24 14:43	aeh
Molybdenum (1312)	EPA 6020B	1	0.00376		*	mg/L	0.0002	0.0005	03/30/24 17:45	jrj
Nickel (1312)	EPA 6020B	1	<0.0004	U	*	mg/L	0.0004	0.001	03/30/24 17:45	jrj
Potassium (1312)	EPA 6010D	1	2.31		*	mg/L	0.5	1	03/26/24 18:22	brc
Selenium (1312)	EPA 6020B	1	0.00034		*	mg/L	0.0001	0.00025	03/30/24 17:45	jrj
Silica (1312)	EPA 6010D	1	3.7			mg/L	0.2	1	03/26/24 18:22	brc
Silver (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:45	jrj
Sodium (1312)	EPA 6010D	1	1.19		*	mg/L	0.2	1	03/26/24 18:22	brc
Strontium (1312)	EPA 6010D	1	0.0857		*	mg/L	0.009	0.045	03/26/24 18:22	brc
Thallium (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:45	jrj
Tin (1312)	EPA 6010D	1	<0.04	U	*	mg/L	0.04	0.2	03/26/24 18:22	brc
Uranium (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:45	jrj
Vanadium (1312)	EPA 6020B	1	0.00185	B	*	mg/L	0.0005	0.002	03/30/24 17:45	jrj
Zinc (1312)	EPA 6020B	1	<0.006	U	*	mg/L	0.006	0.015	03/30/24 17:45	jrj

Thorin Resources
Project ID:
Sample ID: CBW ABA HEADS-03

ACZ Sample ID: ***L86570-03***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	EPA 600/2-78-054 3.2.4		9.06			t CaCO3/Kt	0.31	3.1	07/23/24 0:00	calc
Acid Neutralization Potential (calc)	EPA 600/2-78-054 1.3		64.0			t CaCO3/Kt	1	5	07/23/24 0:00	calc
Acid-Base Potential (calculation)	EPA 600/2-78-054 1.3		54.9			t CaCO3/Kt			07/23/24 0:00	calc
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3	1	6.4		*	%	0.1	0.5	07/19/24 15:05	bdc
pH, (1312)	EPA 9045D/9040C									
pH			9			Units	0.1	0.1	07/23/24 0:00	LFP
Temperature			20.9			Units	0.1	0.1	07/23/24 0:00	LFP
Sulfur Forms	EPA 600/2-78-054 3.2.4 Modified									
Sulfur HCl Residue		1	0.29		*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur HNO3 Residue		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Organic Residual		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Pyritic Sulfide		1	0.29			%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Sulfate		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Total		1	0.29		*	%	0.01	0.1	07/23/24 0:00	kmb
Total Sulfur minus Sulfate		1	0.29			%	0.01	0.1	07/23/24 0:00	kmb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								07/17/24 15:10	bdc
Crush and Pulverize (Ring & Puck)	EPA 600/2-78-054 3.1.3								07/18/24 10:16	bdc
Synthetic Precip. Leaching Procedure	EPA 1312								03/21/24 9:10	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								03/20/24 17:30	lfp

Thorin Resources
Project ID:
Sample ID: CBW ABA HEADS-03

ACZ Sample ID: ***L86570-03***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (1312 DI)	SM 2320 B-2011									
Bicarbonate as CaCO3		1	31.4		*	mg/L	2	20	03/28/24 0:00	jck
Carbonate as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Hydroxide as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Total Alkalinity		1	31.4		*	mg/L	2	20	03/28/24 0:00	jck
Bromide (1312-DI)	EPA 300.0	1	0.350		*	mg/L	0.05	0.25	03/26/24 21:41	bls
Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	1	1.7	B	*	mg/L	1	5	04/01/24 22:23	ems
Chloride (1312-DI)	EPA 300.0	1	<0.4	U	*	mg/L	0.4	2	03/26/24 21:41	bls
Conductivity @25C (1312-DI)	SM 2510 B-2011	1	51		*	umhos/cm	1	10	03/28/24 17:31	jck
Fluoride (1312 DI)	SM 4500-F C-2011	1	0.38		*	mg/L	0.15	0.35	03/28/24 12:58	jck
Hardness as CaCO3 (1312)	Calculation (SM 2340 B-2011)		24.0			mg/L	0.2	5	07/23/24 0:00	calc
Nitrate (1312 DI)	Calculation (NO3NO2-NO2)		<0.02	U		mg/L	0.02	0.1	07/23/24 0:00	calc
Nitrate/Nitrite as N (1312-DI)	EPA 353.2	1	<0.02	U	*	mg/L	0.02	0.1	03/22/24 0:51	pjb
Nitrite as N (1312-DI)	EPA 353.2	1	<0.01	U	*	mg/L	0.01	0.05	03/22/24 0:51	pjb
Nitrogen, ammonia (1312-DI)	EPA 350.1	1	<0.1	U	*	mg/L	0.1	0.2	04/02/24 11:45	jqr
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	1	0.011	B	*	mg/L	0.01	0.05	03/22/24 1:21	pjb
Phosphorus, Total (1312-DI)	EPA 365.1	1	0.011	B	*	mg/L	0.01	0.05	03/27/24 14:41	mrd
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	1	32	B	*	mg/L	20	40	03/25/24 18:46	jck
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	1	<5	U	*	mg/L	5	20	03/27/24 21:42	jck
Sulfate (1312-DI)	EPA 300.0	1	2.84		*	mg/L	0.9	2	03/26/24 21:41	bls

Thorin Resources
Project ID:
Sample ID: CBW SPLP HEADS-04

ACZ Sample ID: ***L86570-04***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, Total (1312-DI)	EPA 365.1								03/25/24 13:20	mrd
Total Hot Plate Digestion (1312)	EPA 3010A								03/22/24 17:50	aeh
Total Hot Plate Digestion (1312)	EPA 3010A								03/29/24 16:19	jrj

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	EPA 6010D	1	0.450		*	mg/L	0.05	0.25	03/26/24 18:26	brc
Antimony (1312)	EPA 6020B	1	0.00157	B		mg/L	0.0004	0.002	03/30/24 17:47	jrj
Arsenic (1312)	EPA 6020B	1	0.00719			mg/L	0.0002	0.001	03/30/24 17:47	jrj
Barium (1312)	EPA 6020B	1	0.00960			mg/L	0.0005	0.0025	03/30/24 17:47	jrj
Beryllium (1312)	EPA 6020B	1	<0.00008	U	*	mg/L	0.00008	0.00025	04/02/24 14:38	aps
Boron (1312)	EPA 6010D	1	<0.03	U	*	mg/L	0.03	0.1	03/26/24 18:26	brc
Cadmium (1312)	EPA 6020B	1	<0.00005	U	*	mg/L	0.00005	0.00025	03/30/24 17:47	jrj
Calcium (1312)	EPA 6010D	1	10.00			mg/L	0.1	0.5	03/26/24 18:26	brc
Chromium (1312)	EPA 6020B	1	<0.0005	U	*	mg/L	0.0005	0.002	03/30/24 17:47	jrj
Cobalt (1312)	EPA 6020B	1	0.000058	B	*	mg/L	0.00005	0.00025	03/30/24 17:47	jrj
Copper (1312)	EPA 6020B	1	0.00128	B	*	mg/L	0.0008	0.002	04/02/24 14:38	aps
Iron (1312)	EPA 6010D	1	<0.06	U	*	mg/L	0.06	0.15	03/26/24 18:26	brc
Lead (1312)	EPA 6020B	1	0.00119			mg/L	0.0001	0.0005	03/30/24 17:47	jrj
Lithium (1312)	EPA 6010D	1	<0.008	U	*	mg/L	0.008	0.04	03/26/24 18:26	brc
Magnesium (1312)	EPA 6010D	1	0.38	B	*	mg/L	0.2	1	03/26/24 18:26	brc
Manganese (1312)	EPA 6020B	1	0.0251			mg/L	0.0004	0.002	03/30/24 17:47	jrj
Mercury (1312)	EPA 7470A	1	<0.0002	U	*	mg/L	0.0002	0.001	03/26/24 14:46	aeh
Molybdenum (1312)	EPA 6020B	1	0.00357		*	mg/L	0.0002	0.0005	03/30/24 17:47	jrj
Nickel (1312)	EPA 6020B	1	<0.0004	U	*	mg/L	0.0004	0.001	03/30/24 17:47	jrj
Potassium (1312)	EPA 6010D	1	2.93		*	mg/L	0.5	1	03/26/24 18:26	brc
Selenium (1312)	EPA 6020B	1	0.00016	B	*	mg/L	0.0001	0.00025	03/30/24 17:47	jrj
Silica (1312)	EPA 6010D	1	3.3			mg/L	0.2	1	03/26/24 18:26	brc
Silver (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:47	jrj
Sodium (1312)	EPA 6010D	1	0.94	B	*	mg/L	0.2	1	03/26/24 18:26	brc
Strontium (1312)	EPA 6010D	1	0.133		*	mg/L	0.009	0.045	03/26/24 18:26	brc
Thallium (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:47	jrj
Tin (1312)	EPA 6010D	1	<0.04	U	*	mg/L	0.04	0.2	03/26/24 18:26	brc
Uranium (1312)	EPA 6020B	1	<0.0001	U	*	mg/L	0.0001	0.0005	03/30/24 17:47	jrj
Vanadium (1312)	EPA 6020B	1	0.00213		*	mg/L	0.0005	0.002	03/30/24 17:47	jrj
Zinc (1312)	EPA 6020B	1	<0.006	U	*	mg/L	0.006	0.015	03/30/24 17:47	jrj

Thorin Resources
Project ID:
Sample ID: CBW SPLP HEADS-04

ACZ Sample ID: ***L86570-04***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	EPA 600/2-78-054 3.2.4		14.1			t CaCO3/Kt	0.31	3.1	07/23/24 0:00	calc
Acid Neutralization Potential (calc)	EPA 600/2-78-054 1.3		98.0			t CaCO3/Kt	1	5	07/23/24 0:00	calc
Acid-Base Potential (calculation)	EPA 600/2-78-054 1.3		83.9			t CaCO3/Kt			07/23/24 0:00	calc
Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3	1	9.8		*	%	0.1	0.5	07/19/24 15:32	bdc
pH, (1312)	EPA 9045D/9040C									
pH			9			Units	0.1	0.1	07/23/24 0:00	LFP
Temperature			20.3			Units	0.1	0.1	07/23/24 0:00	LFP
Sulfur Forms	EPA 600/2-78-054 3.2.4 Modified									
Sulfur HCl Residue		1	0.48		*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur HNO3 Residue		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Organic Residual		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Pyritic Sulfide		1	0.48			%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Sulfate		1	<0.01	U	*	%	0.01	0.1	07/23/24 0:00	kmb
Sulfur Total		1	0.45		*	%	0.01	0.1	07/23/24 0:00	kmb
Total Sulfur minus Sulfate		1	0.48			%	0.01	0.1	07/23/24 0:00	kmb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								07/17/24 15:15	bdc
Crush and Pulverize (Ring & Puck)	EPA 600/2-78-054 3.1.3								07/18/24 10:24	bdc
Synthetic Precip. Leaching Procedure	EPA 1312								03/21/24 10:35	lfp
Synthetic Precip. Leaching Procedure	EPA 1312								03/20/24 20:00	lfp

Thorin Resources
Project ID:
Sample ID: CBW SPLP HEADS-04

ACZ Sample ID: ***L86570-04***
Date Sampled: *03/04/24 09:40*
Date Received: *03/13/24*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (1312 DI)	SM 2320 B-2011									
Bicarbonate as CaCO3		1	33.1		*	mg/L	2	20	03/28/24 0:00	jck
Carbonate as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Hydroxide as CaCO3		1	<2	U	*	mg/L	2	20	03/28/24 0:00	jck
Total Alkalinity		1	33.1		*	mg/L	2	20	03/28/24 0:00	jck
Bromide (1312-DI)	EPA 300.0	1	0.435		*	mg/L	0.05	0.25	03/26/24 21:59	bls
Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	1	1.8	B	*	mg/L	1	5	04/01/24 22:49	ems
Chloride (1312-DI)	EPA 300.0	1	<0.4	U	*	mg/L	0.4	2	03/26/24 21:59	bls
Conductivity @25C (1312-DI)	SM 2510 B-2011	1	56		*	umhos/cm	1	10	03/28/24 17:36	jck
Fluoride (1312 DI)	SM 4500-F C-2011	1	0.37		*	mg/L	0.15	0.35	03/28/24 13:04	jck
Hardness as CaCO3 (1312)	Calculation (SM 2340 B-2011)		27			mg/L	0.2	5	07/23/24 0:00	calc
Nitrate (1312 DI)	Calculation (NO3NO2-NO2)		0.037	B		mg/L	0.02	0.1	07/23/24 0:00	calc
Nitrate/Nitrite as N (1312-DI)	EPA 353.2	1	0.037	B	*	mg/L	0.02	0.1	03/22/24 0:52	pjb
Nitrite as N (1312-DI)	EPA 353.2	1	<0.01	U	*	mg/L	0.01	0.05	03/22/24 0:52	pjb
Nitrogen, ammonia (1312-DI)	EPA 350.1	1	0.106	B	*	mg/L	0.1	0.2	04/02/24 11:46	jqr
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	1	<0.01	U	*	mg/L	0.01	0.05	03/22/24 1:23	pjb
Phosphorus, Total (1312-DI)	EPA 365.1	1	0.012	B	*	mg/L	0.01	0.05	03/27/24 14:42	mrd
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	1	36	B	*	mg/L	20	40	03/25/24 18:49	jck
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	1	<5	U	*	mg/L	5	20	03/27/24 21:45	jck
Sulfate (1312-DI)	EPA 300.0	1	3.19		*	mg/L	0.9	2	03/26/24 21:59	bls

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

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

Method References

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

Comments

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

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP001.03.15.02

Thorin Resources

ACZ Project ID: ***L86570***

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.

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586499													
WG586499PBW	PBW	03/28/24 16:55				3.1	mg/L		-20	20			
WG586499LCSW2	LCSW	03/28/24 17:04	WC240320-1	820.0001		765.1	mg/L	93	90	110			
WG585975PBS	PBS	03/28/24 17:10				5.4	mg/L		-20	20			
L86570-01DUP	DUP	03/28/24 17:22			30.7	31.3	mg/L				2	20	
WG586499LCSW4	LCSW	03/28/24 17:44	WC240320-1	820.0001		799.8	mg/L	98	90	110			

Aluminum (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	2		1.946	mg/L	97	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.15	0.15			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.15	0.15			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	1.001		.962	mg/L	96	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	1.001	.056	1.065	mg/L	101	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	1.001	.056	1.07	mg/L	101	75	125	0	20	
L86570-01DUP	DUP	03/26/24 18:14			.056	.072	mg/L				25	20	RA

Antimony (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.02002		.01899	mg/L	95	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0012	0.0012			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0012	0.0012			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0012	0.0012			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0012	0.0012			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.01		.00928	mg/L	93	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.01		.00951	mg/L	95	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.01		.00946	mg/L	95	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.0116	.01115	mg/L				4	20	
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.01	.0103	.02043	mg/L	101	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.01	.0103	.02026	mg/L	100	75	125	1	20	

Arsenic (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05196	mg/L	104	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0006	0.0006			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0006	0.0006			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0006	0.0006			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0006	0.0006			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.0501		.04664	mg/L	93	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.0501		.04679	mg/L	93	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.0501		.04683	mg/L	93	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.00222	.00245	mg/L				10	20	
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.0501	.00153	.04972	mg/L	96	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.0501	.00153	.04948	mg/L	96	75	125	0	20	

Thorin Resources

ACZ Project ID: ***L86570***

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.

Barium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05218	mg/L	104	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0015	0.0015			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0015	0.0015			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0015	0.0015			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0015	0.0015			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.04558	mg/L	91	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.04496	mg/L	90	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.04582	mg/L	92	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.0655	.0628	mg/L				4	20	
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	.0613	.10846	mg/L	94	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	.0613	.10732	mg/L	92	75	125	1	20	

Beryllium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.051105	mg/L	102	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.00024	0.00024			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.00024	0.00024			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.00024	0.00024			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.00024	0.00024			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.046064	mg/L	92	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.044718	mg/L	89	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.047159	mg/L	94	80	120			
L86570-01DUP	DUP	03/30/24 17:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	U	.047451	mg/L	95	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	U	.047274	mg/L	94	75	125	0	20	
WG586646													
WG586646ICV	ICV	04/02/24 14:03	MS240109-5	.05		.052088	mg/L	104	90	110			
WG586646ICB	ICB	04/02/24 14:06				U	mg/L		-0.00024	0.00024			
WG585978PBS	PBS	04/02/24 14:20				U	mg/L		-0.00024	0.00024			
WG585978LFB2	LFB	04/02/24 14:22	MS240321-2	.05005		.047776	mg/L	95	80	120			
L86570-01DUP	DUP	04/02/24 14:27			U	U	mg/L				0	20	RA
L86570-02MS	MS	04/02/24 14:31	MS240321-2	.05005	U	.047325	mg/L	95	75	125			
L86570-02MSD	MSD	04/02/24 14:34	MS240321-2	.05005	U	.045864	mg/L	92	75	125	3	20	
WG586112PBS	PBS	04/02/24 14:48				U	mg/L		-0.00024	0.00024			
WG586112LFB2	LFB	04/02/24 14:50	MS240321-2	.05005		.046595	mg/L	93	80	120			

Boron (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	2		1.997	mg/L	100	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.09	0.09			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.09	0.09			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	.5005		.485	mg/L	97	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	.5005	U	.495	mg/L	99	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	.5005	U	.501	mg/L	100	75	125	1	20	
L86570-01DUP	DUP	03/26/24 18:14			U	U	mg/L				0	20	RA

Thorin Resources

ACZ Project ID: ***L86570***

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.

Bromide (1312-DI) EPA 300.0

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG585845													
WG585845ICV	ICV	03/20/24 14:53	WI240315-8	4.016		3.946	mg/L	98	90	110			
WG585845ICB	ICB	03/20/24 15:11				U	mg/L		-0.05	0.05			
WG586304													
WG586304ICV	ICV	03/20/24 14:53	WI240315-8	4.016		3.946	mg/L	98	90	110			
WG586304ICB	ICB	03/20/24 15:11				U	mg/L		-0.05	0.05			
WG586304LFB	LFB	03/26/24 19:53	WI230714-6	1.5		1.352	mg/L	90	90	110			
WG585975PBS	PBS	03/26/24 20:11				U	mg/L		-0.05	0.05			
L86570-01DUP	DUP	03/26/24 20:47			U	U	mg/L				0	20	RA
L86570-02AS	AS	03/26/24 21:23	WI230714-6	1.5	U	1.253	mg/L	84	90	110			M2

Cadmium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.052382	mg/L	105	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.00015	0.00015			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.00015	0.00015			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.00015	0.00015			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.00015	0.00015			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.044942	mg/L	90	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.044837	mg/L	90	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.045903	mg/L	92	80	120			
L86570-01DUP	DUP	03/30/24 17:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	U	.044697	mg/L	89	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	U	.045095	mg/L	90	75	125	1	20	

Calcium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	100		96.63	mg/L	97	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.3	0.3			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.3	0.3			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	67.94555		66.66	mg/L	98	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	67.94555	22.8	89.12	mg/L	98	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	67.94555	22.8	90.28	mg/L	99	75	125	1	20	
L86570-01DUP	DUP	03/26/24 18:14			22.8	20.19	mg/L				12	20	

Carbon, total organic (TOC) (1312-DI) SM 5310 B-2011/2014

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG584961													
WG584961ICV	ICV	03/02/24 9:02	WI240129-11	100		97.4	mg/L	97	90	110			
WG584961ICB	ICB	03/02/24 9:17				U	mg/L		-2.5	2.5			
WG586623													
WG586623ICB	ICB	04/01/24 20:12				U	mg/L		-2.5	2.5			
WG586623LFB	LFB	04/01/24 20:44	WI231227-9	49.6		49.4	mg/L	100	85	115			
WG585975PBS	PBS	04/01/24 20:59				1.2	mg/L		-2.5	2.5			
L86570-01DUP	DUP	04/01/24 21:27			2.9	3	mg/L				3	15	RA
L86570-04AS	AS	04/02/24 8:39	WI231227-9	49.6	1.8	57.7	mg/L	113	85	115			

Thorin Resources

ACZ Project ID: ***L86570***

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.

Chloride (1312-DI) EPA 300.0

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG585845													
WG585845ICV	ICV	03/20/24 14:53	WI240315-8	20.02		19.9	mg/L	99	90	110			
WG585845ICB	ICB	03/20/24 15:11				U	mg/L		-0.4	0.4			
WG586304													
WG586304ICV	ICV	03/20/24 14:53	WI240315-8	20.02		19.9	mg/L	99	90	110			
WG586304ICB	ICB	03/20/24 15:11				U	mg/L		-0.4	0.4			
WG586304LFB	LFB	03/26/24 19:53	WI230714-6	30		28.29	mg/L	94	90	110			
WG585975PBS	PBS	03/26/24 20:11				U	mg/L		-0.4	0.4			
L86570-01DUP	DUP	03/26/24 20:47			.63	.59	mg/L				7	20	RA
L86570-02AS	AS	03/26/24 21:23	WI230714-6	30	U	29.56	mg/L	99	90	110			

Chromium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05283	mg/L	106	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0015	0.0015			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0015	0.0015			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0015	0.0015			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0015	0.0015			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.04676	mg/L	93	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.04689	mg/L	94	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.04698	mg/L	94	80	120			
L86570-01DUP	DUP	03/30/24 17:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	U	.04823	mg/L	96	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	U	.04773	mg/L	95	75	125	1	20	

Cobalt (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.052814	mg/L	106	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.00015	0.00015			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.00015	0.00015			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.00015	0.00015			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.00015	0.00015			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.045978	mg/L	92	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.046142	mg/L	92	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.047238	mg/L	94	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.000104	.000085	mg/L				20	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	.000073	.045874	mg/L	92	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	.000073	.045819	mg/L	91	75	125	0	20	

Thorin Resources

ACZ Project ID: ***L86570***

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.

Conductivity @25C (1312-DI) SM 2510 B-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586499													
WG586499PBW	PBW	03/28/24 16:55				31	umhos/cm		-10	10			
WG586499LCSW1	LCSW	03/28/24 17:01	PCN626495	1410		1454	umhos/cm	103	90	110			
WG585975PBS	PBS	03/28/24 17:10				10	umhos/cm		-4	4			
L86570-01DUP	DUP	03/28/24 17:22			107	118	umhos/cm				10	20	
WG586499LCSW3	LCSW	03/28/24 17:41	PCN626495	1410		1474	umhos/cm	105	90	110			

Copper (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586646													
WG586646ICV	ICV	04/02/24 14:03	MS240109-5	.05		.05249	mg/L	105	90	110			
WG586646ICB	ICB	04/02/24 14:06				U	mg/L		-0.0024	0.0024			
WG585978PBS	PBS	04/02/24 14:20				.00105	mg/L		-0.0024	0.0024			
WG585978LFB2	LFB	04/02/24 14:22	MS240321-2	.05005		.04709	mg/L	94	80	120			
L86570-01DUP	DUP	04/02/24 14:27			.0101	U	mg/L				200	20	RD
L86570-02MS	MS	04/02/24 14:31	MS240321-2	.05005	.00084	.04581	mg/L	90	75	125			
L86570-02MSD	MSD	04/02/24 14:34	MS240321-2	.05005	.00084	.04413	mg/L	86	75	125	4	20	
WG586112PBS	PBS	04/02/24 14:48				U	mg/L		-0.0024	0.0024			
WG586112LFB2	LFB	04/02/24 14:50	MS240321-2	.05005		.04527	mg/L	90	80	120			

Fluoride (1312 DI) SM 4500-F C-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586467													
WG586467ICV	ICV	03/28/24 11:52	WC240322-2	2.002		2	mg/L	100	90	110			
WG586467ICB	ICB	03/28/24 12:00				U	mg/L		-0.3	0.3			
WG586467LFB	LFB	03/28/24 12:14	WC230825-1	5.005		5.37	mg/L	107	90	110			
WG585975PBS	PBS	03/28/24 12:22				U	mg/L		-0.3	0.3			
L86570-01AS	AS	03/28/24 12:37	WC230825-1	5.005	U	5.37	mg/L	107	90	110			
L86570-01DUP	DUP	03/28/24 12:45			U	.2	mg/L				200	20	RA

Iron (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	2		1.905	mg/L	95	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.18	0.18			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.18	0.18			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	1.003		1	mg/L	100	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	1.003	U	.963	mg/L	96	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	1.003	U	.973	mg/L	97	75	125	1	20	
L86570-01DUP	DUP	03/26/24 18:14			U	U	mg/L				0	20	RA

Thorin Resources

ACZ Project ID: ***L86570***

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 (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05186	mg/L	104	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0003	0.0003			
WG585978PBS	PBS	03/30/24 17:21				.00025	mg/L		-0.0003	0.0003			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0003	0.0003			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0003	0.0003			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.04504	mg/L	90	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.04491	mg/L	90	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.04583	mg/L	92	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.0875	.08053	mg/L				8	20	
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	.0676	.11608	mg/L	97	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	.0676	.11602	mg/L	97	75	125	0	20	

Lithium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	2		1.936	mg/L	97	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.024	0.024			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.024	0.024			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	1		.9414	mg/L	94	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	1	U	.9657	mg/L	97	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	1	U	.9704	mg/L	97	75	125	0	20	
L86570-01DUP	DUP	03/26/24 18:14			U	U	mg/L				0	20	RA

Magnesium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	100		96.86	mg/L	97	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.6	0.6			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.6	0.6			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	50.00453		48.71	mg/L	97	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	50.00453	.89	49.8	mg/L	98	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	50.00453	.89	50.2	mg/L	99	75	125	1	20	
L86570-01DUP	DUP	03/26/24 18:14			.89	.84	mg/L				6	20	RA

Manganese (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05227	mg/L	105	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0012	0.0012			
WG585978PBS	PBS	03/30/24 17:21				.0006	mg/L		-0.0012	0.0012			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0012	0.0012			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.0501		.04663	mg/L	93	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.0501		.0467	mg/L	93	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.0501		.05051	mg/L	101	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.0768	.07544	mg/L				2	20	
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.0501	.0567	.10518	mg/L	97	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.0501	.0567	.10489	mg/L	96	75	125	0	20	

Thorin Resources

ACZ Project ID: ***L86570***

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.

Mercury (1312) EPA 7470A

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586201													
WG586201ICV1	ICV	03/26/24 13:19	HG240226-3	.005		.00515	mg/L	103	95	105			
WG586201ICB	ICB	03/26/24 13:20				U	mg/L		-0.0002	0.0002			
WG586206													
WG586206LFB	LFB	03/26/24 14:35	HG240325-3	.002002		.00185	mg/L	92	85	115			
WG585978PBS	PBS	03/26/24 14:36				U	mg/L		-0.0006	0.0006			
WG585978LFB1	LFB	03/26/24 14:37	HG240325-3	.002002		.00175	mg/L	87	85	115			
L86570-01MS	MS	03/26/24 14:39	HG240325-3	.002002	U	.00178	mg/L	89	85	115			
L86570-01MSD	MSD	03/26/24 14:40	HG240325-3	.002002	U	.00178	mg/L	89	85	115	0	20	
L86570-01DUP	DUP	03/26/24 14:41			U	U	mg/L				0	20	RA
WG586112PBS	PBS	03/26/24 14:47				U	mg/L		-0.0006	0.0006			
WG586112LFB1	LFB	03/26/24 14:48	HG240325-3	.002002		.0018	mg/L	90	85	115			

Molybdenum (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.02		.02014	mg/L	101	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0006	0.0006			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0006	0.0006			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0006	0.0006			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0006	0.0006			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.04572	mg/L	91	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.04661	mg/L	93	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.04751	mg/L	95	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.0137	.01697	mg/L				21	20	RD
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	.0218	.06929	mg/L	95	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	.0218	.06799	mg/L	92	75	125	2	20	

Neutralization Potential as CaCO3 EPA 600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593465													
WG593465PBS	PBS	07/19/24 12:20				U	%		-0.2	0.2			
WG593465LCSS	LCSS	07/19/24 12:47	PCN625358	99.8		97.5	%	98	80	120			
L86570-02DUP	DUP	07/19/24 14:10			10.5	10.6	%				1	20	
L86570-02MS	MS	07/19/24 14:37	SI230912-3	3	10.5	13.9	%	113	70	130			

Thorin Resources

ACZ Project ID: ***L86570***

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.

Nickel (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.0517	mg/L	103	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0012	0.0012			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0012	0.0012			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0012	0.0012			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.0501		.04742	mg/L	95	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.0501		.04678	mg/L	93	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.0501		.04671	mg/L	93	80	120			
L86570-01DUP	DUP	03/30/24 17:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.0501	U	.0468	mg/L	93	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.0501	U	.04637	mg/L	93	75	125	1	20	

Nitrate/Nitrite as N (1312-DI) EPA 353.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586121													
WG586121ICV	ICV	03/21/24 23:31	WI240103-7	2.416		2.326	mg/L	96	90	110			
WG586121ICB	ICB	03/21/24 23:32				U	mg/L		-0.02	0.02			
WG586123													
WG586123LFB	LFB	03/22/24 0:43	WI240228-17	2		1.947	mg/L	97	90	110			
WG585975PBS	PBS	03/22/24 0:45				U	mg/L		-0.02	0.02			
L86570-01DUP	DUP	03/22/24 0:47			1.85	1.828	mg/L				1	20	
L86570-02AS	AS	03/22/24 0:50	WI240228-17	2	1.74	3.727	mg/L	99	90	110			

Nitrite as N (1312-DI) EPA 353.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586121													
WG586121ICV	ICV	03/21/24 23:31	WI240103-7	.608		.596	mg/L	98	90	110			
WG586121ICB	ICB	03/21/24 23:32				U	mg/L		-0.01	0.01			
WG586123													
WG586123LFB	LFB	03/22/24 0:43	WI240228-17	1		1.014	mg/L	101	90	110			
WG585975PBS	PBS	03/22/24 0:45				U	mg/L		-0.01	0.01			
L86570-01DUP	DUP	03/22/24 0:47			.023	.014	mg/L				49	20	RA
L86570-02AS	AS	03/22/24 0:50	WI240228-17	1	.016	1.075	mg/L	106	90	110			

Nitrogen, ammonia (1312-DI) EPA 350.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586671													
WG586671ICV	ICV	04/02/24 10:25	WI240106-1	12		12.336	mg/L	103	90	110			
WG586671ICB	ICB	04/02/24 10:26				U	mg/L		-0.1	0.1			
WG586679													
WG586679LFB	LFB	04/02/24 11:36	WI231102-6	10		9.713	mg/L	97	90	110			
WG585975PBS	PBS	04/02/24 11:37				U	mg/L		-0.1	0.1			
L86570-01DUP	DUP	04/02/24 11:40			.116	.113	mg/L				3	20	RA
L86570-02AS	AS	04/02/24 11:43	WI231102-6	10	U	10.679	mg/L	107	90	110			

Thorin Resources

ACZ Project ID: ***L86570***

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.

Phosphorus, ortho dissolved (1312-DI) EPA 365.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586122													
WG586122ICV	ICV	03/22/24 0:52	WI240307-4	.65228		.66	mg/L	101	90	110			
WG586122ICB	ICB	03/22/24 0:53				U	mg/L		-0.01	0.01			
WG586125													
WG586125LFB	LFB	03/22/24 1:15	WI240315-2	.5		.49	mg/L	98	90	110			
WG585975PBS	PBS	03/22/24 1:16				U	mg/L		-0.01	0.01			
L86570-01DUP	DUP	03/22/24 1:18			U	U	mg/L				0	20	RA
L86570-02AS	AS	03/22/24 1:20	WI240315-2	.5	U	.489	mg/L	98	90	110			

Phosphorus, Total (1312-DI) EPA 365.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586398													
WG586398ICV	ICV	03/27/24 14:32	WI240301-4	.6523		.694	mg/L	106	90	110			
WG586398ICB	ICB	03/27/24 14:35				U	mg/L		-0.01	0.01			
WG585975PBS	PBS	03/27/24 14:36				U	mg/L		-0.01	0.01			
L86570-01DUP	DUP	03/27/24 14:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/27/24 14:40	WI240315-2	.5	U	.517	mg/L	103	90	110			
WG586190PBS	PBS	03/27/24 14:47				U	mg/L		-0.01	0.01			
WG586190LFB	LFB	03/27/24 14:50	WI240315-2	.5		.514	mg/L	103	90	110			

Potassium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	20		19.4	mg/L	97	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-1.5	1.5			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-1.5	1.5			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	100.0104		96.87	mg/L	97	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	100.0104	4.14	101.2	mg/L	97	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	100.0104	4.14	102.2	mg/L	98	75	125	1	20	
L86570-01DUP	DUP	03/26/24 18:14			4.14	3.97	mg/L				4	20	RA

Residue, Filterable (TDS) @180C (1312) SM 2540 C-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586253													
WG586253PBW	PBW	03/25/24 18:25				U	mg/L		-20	20			
WG586253LCSW	LCSW	03/25/24 18:28	PCN626254	1000		986	mg/L	99	80	120			
WG585975PBS	PBS	03/25/24 18:32				U	mg/L		-40	40			
L86570-01DUP	DUP	03/25/24 18:39			76	86	mg/L				12	10	RA

Residue, Non-Filter (TSS) @180C (1312-DI) SM 2540 D-2011/2015

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586424													
WG586424PBW	PBW	03/27/24 21:30				5	mg/L		-5	5			BF
WG586424LCSW	LCSW	03/27/24 21:32	PCN626252	100		90	mg/L	90	80	120			
WG585975PBS	PBS	03/27/24 21:34				U	mg/L		-15	15			
L86570-01DUP	DUP	03/27/24 21:38			U	U	mg/L				0	10	RA

Thorin Resources

ACZ Project ID: ***L86570***

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.

Selenium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05265	mg/L	105	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0003	0.0003			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0003	0.0003			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0003	0.0003			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0003	0.0003			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.04607	mg/L	92	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.04669	mg/L	93	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.04669	mg/L	93	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.00015	.00013	mg/L				14	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	.0001	.04741	mg/L	95	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	.0001	.04748	mg/L	95	75	125	0	20	

Silica (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	42.8		42.13	mg/L	98	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.6	0.6			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.6	0.6			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	21.42782		20.24	mg/L	94	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	21.42782	2.5	22.45	mg/L	93	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	21.42782	2.5	23.05	mg/L	96	75	125	3	20	
L86570-01DUP	DUP	03/26/24 18:14			2.5	2.31	mg/L				8	20	

Silver (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.02		.02081	mg/L	104	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0003	0.0003			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0003	0.0003			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0003	0.0003			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0003	0.0003			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.01		.00932	mg/L	93	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.01		.00936	mg/L	94	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.01		.00953	mg/L	95	80	120			
L86570-01DUP	DUP	03/30/24 17:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.01	U	.00954	mg/L	95	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.01	U	.0094	mg/L	94	75	125	1	20	

Sodium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	100		96.98	mg/L	97	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.6	0.6			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.6	0.6			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	99.96689		96.67	mg/L	97	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	99.96689	.79	97.81	mg/L	97	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	99.96689	.79	98.81	mg/L	98	75	125	1	20	
L86570-01DUP	DUP	03/26/24 18:14			.79	.72	mg/L				9	20	RA

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ACZ Project ID: ***L86570***

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.

Strontium (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	2		1.915	mg/L	96	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.027	0.027			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.027	0.027			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	.501		.5072	mg/L	101	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	.501	.429	.9378	mg/L	102	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	.501	.429	.9525	mg/L	104	75	125	2	20	
L86570-01DUP	DUP	03/26/24 18:14			.429	.4686	mg/L				9	20	

Sulfate (1312-DI) EPA 300.0

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG585845													
WG585845ICV	ICV	03/20/24 14:53	WI240315-8	50		49.33	mg/L	99	90	110			
WG585845ICB	ICB	03/20/24 15:11				U	mg/L		-0.9	0.9			
WG586304													
WG586304ICV	ICV	03/20/24 14:53	WI240315-8	50		49.33	mg/L	99	90	110			
WG586304ICB	ICB	03/20/24 15:11				U	mg/L		-0.9	0.9			
WG586304LFB	LFB	03/26/24 19:53	WI230714-6	30		28.08	mg/L	94	90	110			
WG585975PBS	PBS	03/26/24 20:11				U	mg/L		-0.9	0.9			
L86570-01DUP	DUP	03/26/24 20:47			26.1	30.09	mg/L				14	20	
L86570-02AS	AS	03/26/24 21:23	WI230714-6	30	13.6	42.46	mg/L	96	90	110			

Sulfur Hcl Residue EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593362													
L86570-01DUP	DUP	07/23/24 13:01			.51	.47	%				8	20	

Sulfur Hno3 Residue EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593362													
L86570-01DUP	DUP	07/23/24 13:46			U	U	%				0	20	RA

Sulfur Organic Residual EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593362													
L86570-01DUP	DUP	07/23/24 13:46			U	U	%				0	20	RA

Sulfur Pyritic Sulfide EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593362													
L86570-01DUP	DUP	07/23/24 13:46			.51	.47	%				8	20	

Sulfur Sulfate EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593362													
L86570-01DUP	DUP	07/23/24 13:46			.04	.1	%				86	20	RA

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ACZ Project ID: ***L86570***

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.

Sulfur Total EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593362													
WG593362LCSS	LCSS	07/23/24 12:06	PCN625750	3.95		3.75	%	95	80	120			
L86570-01MS	MS	07/23/24 12:11	PCN625561	1.28	.55	1.95	%	109	80	120			
L86570-01DUP	DUP	07/23/24 12:15			.55	.57	%				4	20	

Thallium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05484	mg/L	110	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0003	0.0003			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0003	0.0003			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0003	0.0003			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0003	0.0003			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.0501		.04654	mg/L	93	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.0501		.04765	mg/L	95	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.0501		.04772	mg/L	95	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.00016	.00011	mg/L				37	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.0501	U	.04825	mg/L	96	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.0501	U	.04765	mg/L	95	75	125	1	20	

Tin (1312) EPA 6010D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586211													
WG586211ICV	ICV	03/26/24 17:29	II240309-1	2		1.923	mg/L	96	90	110			
WG586211ICB	ICB	03/26/24 17:33				U	mg/L		-0.12	0.12			
WG585978PBS	PBS	03/26/24 17:56				U	mg/L		-0.12	0.12			
WG585978LFB1	LFB	03/26/24 18:00	II240306-3	1.001		.962	mg/L	96	80	120			
L86570-01MS	MS	03/26/24 18:07	II240306-3	1.001	U	.965	mg/L	96	75	125			
L86570-01MSD	MSD	03/26/24 18:11	II240306-3	1.001	U	.98	mg/L	98	75	125	2	20	
L86570-01DUP	DUP	03/26/24 18:14			U	U	mg/L				0	20	RA

Total Sulfur Minus Sulfate EPA 600/2-78-054 3.2.4 Modified

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG593362													
L86570-01DUP	DUP	07/23/24 13:46			.51	.47	%				8	20	

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ACZ Project ID: ***L86570***

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.

Uranium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05406	mg/L	108	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0003	0.0003			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0003	0.0003			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0003	0.0003			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0003	0.0003			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05		.04653	mg/L	93	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05		.04646	mg/L	93	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05		.04758	mg/L	95	80	120			
L86570-01DUP	DUP	03/30/24 17:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05	U	.04881	mg/L	98	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05	U	.04789	mg/L	96	75	125	2	20	

Vanadium (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.05375	mg/L	108	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.0015	0.0015			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.0015	0.0015			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.0015	0.0015			
WG586354PBS	PBS	03/30/24 17:25				U	mg/L		-0.0015	0.0015			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.05005		.04694	mg/L	94	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.05005		.04719	mg/L	94	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.05005		.0476	mg/L	95	80	120			
L86570-01DUP	DUP	03/30/24 17:38			U	U	mg/L				0	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.05005	U	.04933	mg/L	99	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.05005	U	.04864	mg/L	97	75	125	1	20	

Zinc (1312) EPA 6020B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG586576													
WG586576ICV	ICV	03/30/24 17:10	MS240109-5	.05		.0516	mg/L	103	90	110			
WG586576ICB	ICB	03/30/24 17:12				U	mg/L		-0.018	0.018			
WG585978PBS	PBS	03/30/24 17:21				U	mg/L		-0.018	0.018			
WG586112PBS	PBS	03/30/24 17:23				U	mg/L		-0.018	0.018			
WG586354PBS	PBS	03/30/24 17:25				.0104	mg/L		-0.018	0.018			
WG585978LFB2	LFB	03/30/24 17:27	MS240321-2	.050015		.0483	mg/L	97	80	120			
WG586112LFB2	LFB	03/30/24 17:28	MS240321-2	.050015		.0475	mg/L	95	80	120			
WG586354LFB2	LFB	03/30/24 17:30	MS240321-2	.050015		.0568	mg/L	114	80	120			
L86570-01DUP	DUP	03/30/24 17:38			.0086	.0072	mg/L				18	20	RA
L86570-02MS	MS	03/30/24 17:41	MS240321-2	.050015	U	.0487	mg/L	97	75	125			
L86570-02MSD	MSD	03/30/24 17:43	MS240321-2	.050015	U	.0487	mg/L	97	75	125	0	20	

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L86570-01	WG586211	Aluminum (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586576	Beryllium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Bicarbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Boron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586304	Bromide (1312-DI)	EPA 300.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Cadmium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586623	Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM 5310 B-2011/2014	Q6	Sample was received above recommended temperature.
			SM 5310 B-2011/2014	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Carbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586304	Chloride (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Chromium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Conductivity @25C (1312-DI)	SM 2510 B-2011	Q6	Sample was received above recommended temperature.
	WG586646	Copper (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG586467	Fluoride (1312 DI)	SM 4500-F C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Hydroxide as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Iron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lithium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Magnesium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586206	Mercury (1312)	EPA 7470A	Q6	Sample was received above recommended temperature.
			EPA 7470A	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Molybdenum (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Nickel (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586123	Nitrate/Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
		Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586679	Nitrogen, ammonia (1312-DI)	EPA 350.1	Q6	Sample was received above recommended temperature.
			EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586125	Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586398	Phosphorus, Total (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Potassium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586253	Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586424	Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			SM 2540 D-2011/2015	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 D-2011/2015	Z3	Sample volume yielded a residue less than 2.5 mg
	WG586576	Selenium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Sodium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Strontium (1312)	EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586304	Sulfate (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
	WG593362	Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Organic Residual	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Thallium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Tin (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Total Alkalinity	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586576	Uranium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Vanadium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L86570-02	WG586211	Aluminum (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586646	Beryllium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Bicarbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Boron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586304	Bromide (1312-DI)	EPA 300.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Cadmium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586623	Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM 5310 B-2011/2014	Q6	Sample was received above recommended temperature.
			SM 5310 B-2011/2014	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Carbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586304	Chloride (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Chromium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Conductivity @25C (1312-DI)	SM 2510 B-2011	Q6	Sample was received above recommended temperature.
	WG586646	Copper (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG586467	Fluoride (1312 DI)	SM 4500-F C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Hydroxide as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Iron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lithium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Magnesium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586206	Mercury (1312)	EPA 7470A	Q6	Sample was received above recommended temperature.
			EPA 7470A	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Molybdenum (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Nickel (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586123	Nitrate/Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
		Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586679	Nitrogen, ammonia (1312-DI)	EPA 350.1	Q6	Sample was received above recommended temperature.
			EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586125	Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586398	Phosphorus, Total (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Potassium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586253	Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586424	Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			SM 2540 D-2011/2015	DJ	Sample dilution required due to insufficient sample.
			SM 2540 D-2011/2015	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 D-2011/2015	Z3	Sample volume yielded a residue less than 2.5 mg
	WG586576	Selenium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Sodium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Strontium (1312)	EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586304	Sulfate (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
	WG593362	Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Sulfur Organic Residual	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Thallium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Tin (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Total Alkalinity	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586576	Uranium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Vanadium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L86570-03	WG586211	Aluminum (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586646	Beryllium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Bicarbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Boron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586304	Bromide (1312-DI)	EPA 300.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Cadmium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586623	Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM 5310 B-2011/2014	Q6	Sample was received above recommended temperature.
			SM 5310 B-2011/2014	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Carbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586304	Chloride (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Chromium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Conductivity @25C (1312-DI)	SM 2510 B-2011	Q6	Sample was received above recommended temperature.
	WG586646	Copper (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG586467	Fluoride (1312 DI)	SM 4500-F C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Hydroxide as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Iron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lithium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Magnesium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586206	Mercury (1312)	EPA 7470A	Q6	Sample was received above recommended temperature.
			EPA 7470A	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Molybdenum (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Nickel (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586123	Nitrate/Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
		Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586679	Nitrogen, ammonia (1312-DI)	EPA 350.1	Q6	Sample was received above recommended temperature.
			EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586125	Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586398	Phosphorus, Total (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Potassium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586253	Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 C-2011	Z3	Sample volume yielded a residue less than 2.5 mg
	WG586424	Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			SM 2540 D-2011/2015	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 D-2011/2015	Z3	Sample volume yielded a residue less than 2.5 mg
	WG586576	Selenium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Sodium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Strontium (1312)	EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586304	Sulfate (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
	WG593362	Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Sulfur Organic Residual	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Thallium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Tin (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Total Alkalinity	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586576	Uranium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Vanadium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L86570-04	WG586211	Aluminum (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586646	Beryllium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Bicarbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Boron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586304	Bromide (1312-DI)	EPA 300.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Cadmium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586623	Carbon, total organic (TOC) (1312-DI)	SM 5310 B-2011/2014	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM 5310 B-2011/2014	Q6	Sample was received above recommended temperature.
			SM 5310 B-2011/2014	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Carbonate as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586304	Chloride (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 300.0	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Chromium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Conductivity @25C (1312-DI)	SM 2510 B-2011	Q6	Sample was received above recommended temperature.
	WG586646	Copper (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG586467	Fluoride (1312 DI)	SM 4500-F C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Hydroxide as CaCO3	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586211	Iron (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lithium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Magnesium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586206	Mercury (1312)	EPA 7470A	Q6	Sample was received above recommended temperature.
			EPA 7470A	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Molybdenum (1312)	EPA 6020B	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Nickel (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586123	Nitrate/Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
		Nitrite as N (1312-DI)	EPA 353.2	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			EPA 353.2	Q6	Sample was received above recommended temperature.
			EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586679	Nitrogen, ammonia (1312-DI)	EPA 350.1	Q6	Sample was received above recommended temperature.
			EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586125	Phosphorus, ortho dissolved (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586398	Phosphorus, Total (1312-DI)	EPA 365.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Potassium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586253	Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 C-2011	Z3	Sample volume yielded a residue less than 2.5 mg
	WG586424	Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			SM 2540 D-2011/2015	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM 2540 D-2011/2015	Z3	Sample volume yielded a residue less than 2.5 mg
	WG586576	Selenium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Sodium (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Strontium (1312)	EPA 6010D	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG586304	Sulfate (1312-DI)	EPA 300.0	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
	WG593362	Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Thorin Resources

ACZ Project ID: ***L86570***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Sulfur Organic Residual	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	EPA 600/2-78-054 3.2.4 Modified	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586576	Thallium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586211	Tin (1312)	EPA 6010D	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG586499	Total Alkalinity	SM 2320 B-2011	Q6	Sample was received above recommended temperature.
	WG586576	Uranium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Vanadium (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (1312)	EPA 6020B	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Thorin Resources ACZ Project ID: ***L86570***

Metals Analysis

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

Silver (1312)	EPA 6020B

Soil Analysis

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

Neutralization Potential as CaCO3	EPA 600/2-78-054 3.2.3
Sulfur HCl Residue	EPA 600/2-78-054 3.2.4 Modified
Sulfur HNO3 Residue	EPA 600/2-78-054 3.2.4 Modified
Sulfur Total	EPA 600/2-78-054 3.2.4 Modified

Wet Chemistry

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

Bicarbonate as CaCO3	SM 2320 B-2011
Bromide (1312-DI)	EPA 300.0
Carbonate as CaCO3	SM 2320 B-2011
Chloride (1312-DI)	EPA 300.0
Conductivity @25C (1312-DI)	SM 2510 B-2011
Fluoride (1312 DI)	SM 4500-F C-2011
Hydroxide as CaCO3	SM 2320 B-2011
Nitrate/Nitrite as N (1312-DI)	EPA 353.2
Nitrite as N (1312-DI)	EPA 353.2
Nitrogen, ammonia (1312-DI)	EPA 350.1
Phosphorus, ortho dissolved (1312-DI)	EPA 365.1
Phosphorus, Total (1312-DI)	EPA 365.1
Residue, Filterable (TDS) @180C (1312)	SM 2540 C-2011
Residue, Non-Filter (TSS) @180C (1312-DI)	SM 2540 D-2011/2015
Sulfate (1312-DI)	EPA 300.0
Total Alkalinity	SM 2320 B-2011

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

Sample Receipt

Thorin Resources

ACZ Project ID: L86570
Date Received: 03/13/2024 15:43
Received By:
Date Printed: 3/20/2024

Receipt Verification

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

Samples/Containers

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

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Sx ID's were entered per labels on bags

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA41420	12.1	NA	15	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not 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.

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

Sample Receipt

Thorin Resources

ACZ Project ID:	L86570
Date Received:	03/13/2024 15:43
Received By:	
Date Printed:	3/20/2024

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

ACZ LABORATORIES | Accredited Environmental Testing | 2773 Downhill Drive, Steamboat Springs, CO 80487, (970) 879-6590 | 186570

CHAIN of CUSTODY

Report to:

Name: CJ Dickerson	Address: 1900 Main St Unit 1
Company: Thorin Resources	Ouray, Co 81427
E-mail: cjdickerson@thorinresources.com	Telephone: 6027931321

Copy of Report to:

Name:	E-mail:
Company:	Telephone:

Invoice to:

Name: CJ Dickerson	Address:
Company:	
E-mail: cjdickerson@thorinresources.com	Telephone:

Copy of Invoice to:

Name:	Address:
Company:	
E-mail:	Telephone:

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: CJ Dickerson **Sampler's Site Information** **State** CO **Zip code** 81427 **Time Zone** mst

***Sampler's Signature:** CJ Dickerson Digitally signed by CJ Dickerson Date: 2024.03.13 09:53:22 -06'00'

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

PROJECT INFORMATION

Quote #: SPLP/ABA

PO#:

Reporting state for compliance testing:

Check box if samples include NRC licensed material? ☐

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	ABA	SPLP						
RV HGW Heads	3/4/2024 09:40		1	✓	✓						
RV HGW Tails	3/4/2024 09:40		1	✓	✓						
CB Heads	3/4/2024 09:40		1	✓	✓						
CB Tails	3/4/2024 09:40		1	✓	✓						

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
CJ Dickerson Digitally signed by CJ Dickerson Date: 2024.03.13 09:54:37 -06'00'	3/7/2024 5:10 pm		3/9/24 15:43

Qualtrax ID: 1984 Revision #: 2 White - Return with sample. Yellow - Retain for your records.

L86570 Chain of Custod

Attachment L – CDPHE Correspondence, Notification of discharge changes & Receipt of Letter

THORIN

July 26th, 2024

Colorado Department of Public Health and Environment
Water Quality Control Division
4300 Cherry Creek Drive
South Denver, Colorado
80246

Subject: Thorin Resources Discharge Permit, Permit No. CO000003

Dear Erin Scott,

We are writing to update CDPHE, Water Quality Control Division on proposed Technical Revision #17, related to DMRS Permit M-2012-032 on our planned gravity processing circuit. The planned process circuit will operate within all our current permit guidelines. Specifically, we are notifying on the following items:

1. For the circuit, we will be using existing water flow from the portal discharge to feed the gravity separation process. At the end of the circuit, the process water will be discharged to an existing drift underground where it will be diluted with the mine discharge water before being treated in the pond system. The are no changes to water volumes related to Permit No. CO000003 and no chemical reagents will be used in the process.

2. The gravity separation circuit will process ore to create a concentrate. During bench-top testing of the gravity processing circuit water samples were taken for quality analysis. The Table below shows the results from the water quality testing and demonstrates confirmation that water quality is expected to be within guidelines of Permit No. CO00003. Water quality analytics was completed by Colorado Analytical February 13th, 2024

		Bench Top Tests	Discharge Standards		Historical Sample Results	
Analyte	Units	Average Results	30 Day Avg	Daily Max	2023 Outfall Discharge	2023 Portal Discharge
Arsenic, total recoverable	mg/L	ND	Report	-	0.001246667	-
Cadmium, dissolved	mg/L	0.0001	0.00074	0.0022	0.000124222	0.00130525
Cadmium, total	mg/L	ND	0.05	0.1	0.000142667	-
Chromium, total recoverable	mg/L	ND	Report	-	ND	-
Copper, dissolved	mg/L	ND	0.0125	Report	0.0008	0.00173
Copper, total	mg/L	0.01	0.15	0.3	0.00121	-
Cyanide, wad	mg/L	ND	-	0.0056	ND	-
Iron, total recoverable	mg/L	0.0165	1.276	-	0.0952	-
Lead, dissolved	mg/L	0.0107	0.0026	0.1	0.000947	0.0012525
Lead, total	mg/L	0.0451	0.3	0.6	0.001472	-
Manganese, dissolved	mg/L	0.575	2.067	4.127	0.09418	1.5395
Mercury, total	mg/L	ND	0.001	0.002	ND	-
pH	mg/L	7.65	Report	-	7.661111111	7.375
Silver, dissolved	mg/L	ND	0.00008	Report	ND	ND
Zinc, dissolved	mg/L	0.0025	0.126	0.166	0.07527	0.4535
Zinc, total	mg/L	0.04	0.75	1.5	0.072066667	-
Residue, Filterable (TDS) @180C	mg/L	Not Tested	Report	-	199.3333333	221
Residue, Non-Filterable (TSS) @105C	mg/L	3.5	20	-	ND	ND

3. We will continue to monitor and report water quality within requirements under Permit No. CO000003

We have a submission deadline for DRMS TR#17 of September 1st, 2024 and we request acknowledgement of our Notification Letter no later than the deadline date.

Sincerely yours

Chris Skerik
Chief Operating Officer
Thorin Resources

Ecc: Lucas West, DRMS
Amy Yeldell, DRMS

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- ☐ Adult Signature Restricted Delivery $

Postage
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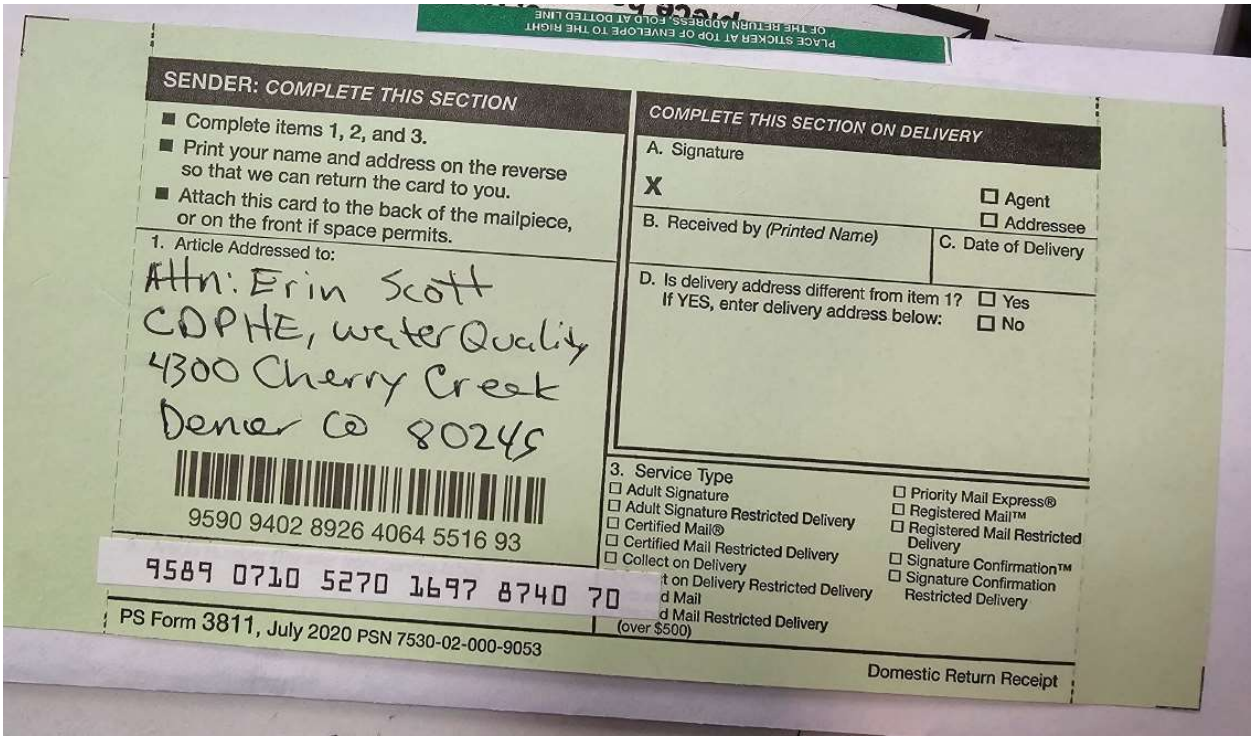
Total Postage and Fees
$

OURAY, CO 81427
JUL 26 2024
Postmark Here
USPS

Sent To: CDPHE - water Quality
Street and Apt. No., or PO Box No.: 4300 Cherry Creek
City, State, ZIP+4®: Denver CO 80246

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 1697 8740 70



SENDER: COMPLETE THIS SECTION
- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Attn: Erin Scott
CDPHE, water Quality
4300 Cherry Creek
Denver CO 80246

9590 9402 8926 4064 5516 93

9589 0710 5270 1697 8740 70

COMPLETE THIS SECTION ON DELIVERY

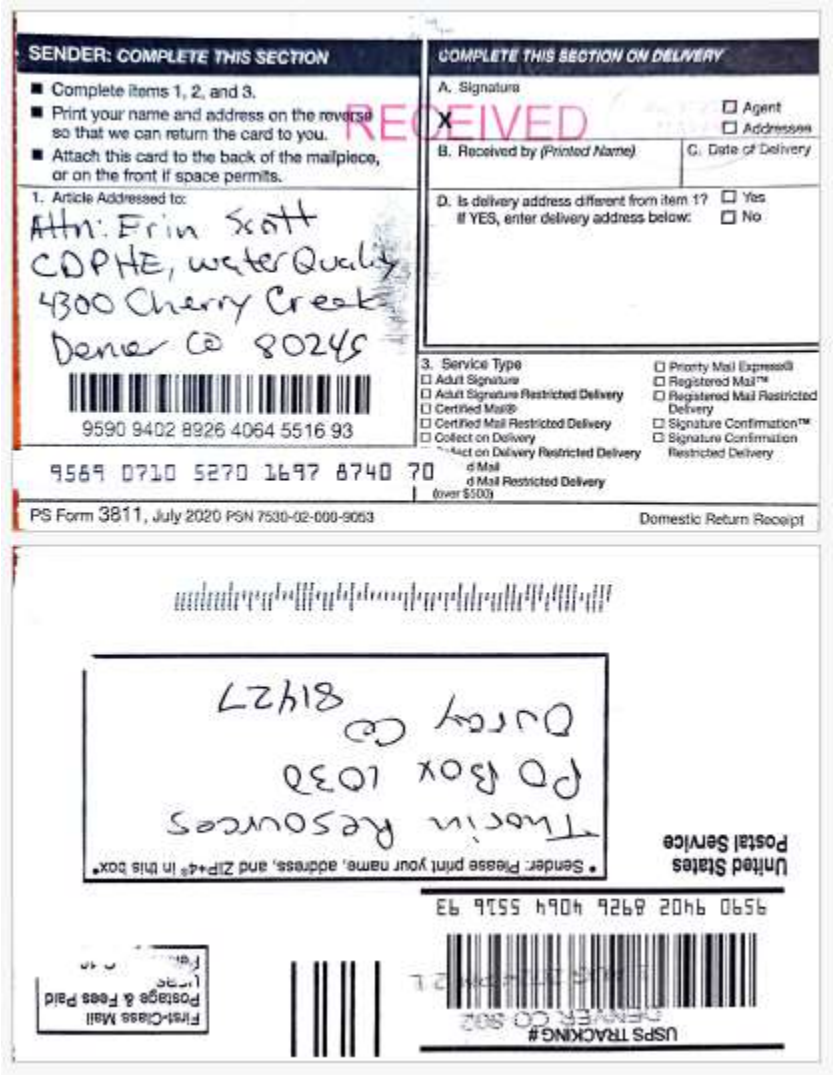
A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name)
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Registered Mail
- ☐ Registered Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Attn: Erin Scott
CDPHE, Water Quality
4300 Cherry Creek
Denver CO 80246

9590 9402 8926 4064 5516 93

9569 0710 5270 1697 8740 70

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery
d Mail
d Mail Restricted Delivery
(over $500)

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

RECEIVED

Attachment M – Revenue and Camp Bird Sample Locations

Map of Sample Location – Revenue Material

Map of Sample Location – Camp Bird Material

Attachment N – BioZem Material for Rail Yard Equipment Foundation

Material Safety Data Sheet

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY: **BioZem Canada Corp**.

DATE: **February 17, 2022**

Address:

PHONE: 403-710-6046

Address:

FAX: N/A

PRODUCT NAME: **BioZem**

PRODUCT USE: Concrete Admixture/Soil Stabilizer

CHEMICAL FAMILY: Mixture

CAS #: Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: D2A; D2B

WORKPLACE HAZARD: Potential carcinogen; contains free silica: Skin and eye irritant.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME: Not regulated under TDG.

TDG CLASSIFICATION: Not applicable.

UN NUMBER (PIN): Not applicable.

PACKING GROUP: Not applicable.

SECTION II: HAZARDOUS INGREDIENT

INGREDIENT	%(w/w)	CAS NUMBER	LD50 Oral-Rat	LC50 Inhal-Rat	ACGIH-TLV
Zeolite	30-60	68989-22-0	Not available	Not available	10 mg/m^3
Calcium Chloride	10-30	10043-52-4	1000 mg/kg	No information	Not established
Crystalline silica	1-5	14808-60-7	Not available	Not available	0.025 mg/m3 (respirable)

Material Safety Data Sheet

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: ✓ EYE CONTACT ✓ SKIN CONTACT ✓ INHALATION **X** INGESTION

EYE CONTACT: Contains an ingredient which will cause moderate to severe eye irritation with corneal injury that may be slow to heal. When dissolving, the heat produced may cause more intense effects as well as thermal burns.

SKIN CONTACT: Prolonged or repeated contact with the dust may irritate the skin or cause burns especially if skin is moist or if material is confined to skin.

INGESTION: Oral toxicity considered low. Swallowing solids may cause gastrointestinal irritation or ulceration.

INHALATION: May cause irritation of the upper respiratory tract. This product contains crystalline silica. Breathing silica containing dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Chronic inhalation may cause silicosis, a progressive, disabling and sometimes fatal lung disease. Chronic inhalation exposure to crystalline silica quartz has been observed to cause lymph node effects, kidney effects and auto-immune disease.

CARCINOGENICITY: Contains crystalline silica, which when inhaled from occupational sources, is considered as a human carcinogen by IARC (Class 1) and by NTP. ACGIH classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

TERATOGENICITY: No information available

REPRODUCTIVE TOXICITY: No information available.

MUTAGENICITY: Crystalline silica has been shown to cause mutagenic effects in human cells in-vitro.

SYNERGISTIC PRODUCTS: No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: If irritations occur or when shift end, wash with soap and water until clean.

EYE CONTACT: Wash affected area with soap and water. Remove contaminated clothing and shoes; wash before reuse. If irritation develops and persists obtain medical attention.

INGESTION: If large amounts ingested, get immediate medical attention.

INHALATION: Move to area free from dust. Apply oxygen or artificial respiration if required. If symptoms persist obtain medical attention.

Material Safety Data Sheet

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Light gray powder; odouless
SPECIFIC GRAVITY:	Not applicable
BOILING POINT (°C):	Not available
MELTING POINT (°C):	Not available
SOLUBILITY IN WATER:	Partially soluble pH: Not available
PERCENT VOLATILE BY VOLUME:	Not applicable
EVAPORATION RATE:	Not applicable
VAPOUR PRESSURE (mmHg):	Not applicable
VAPOUR DENSITY (air = 1):	Not applicable
BULK DENSITY:	Not available

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable.
FLAMMABLE LIMITS:	Not applicable.
EXTINGUISHING MEDIA:	Use media suitable for packaging and surrounding materials.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire-fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.
HAZARDOUS COMBUSTION PRODUCTS:	No information available.

SECTION VII: REACTIVITY DATA

STABILITY:	✓ STABLE	x UNSTABLE
INCOMPATIBILITY (CONDITIONS TO AVOID):	Avoid contact with strong oxidizing agents.	
CONDITIONS OF REACTIVITY:	Not available.	
HAZARDOUS DECOMPOSITION PRODUCTS:	None known.	
HAZARDOUS POLYMERIZATION:	✓ WILL NOT OCCUR	x MAY OCCUR

SECTION VIII: PREVENTIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	NIOSH/MESA approved respirators for silica bearing dust.
VENTILATION:	Use local ventilation to maintain PEL's/TLV's.

PROTECTIVE GLOVES:	Generally not necessary; personal preference.
EYE PROTECTION:	Suggest goggles or safety glasses.
OTHER PROTECTIVE EQUIPMENT:	Ensure eye wash station and safety shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid creating dust. Avoid breathing dust; wear an approved respirator. Practice reasonable caution and personal cleanliness. Avoid eye contact. Store in cool, dry area. Empty packages contain residual hazardous material: Handle and store as if full.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Wear an approved respirator. Vacuum if possible to avoid generating airborne dust. Collect uncontaminated material for repackaging. Collect contaminated material in an approved container for disposal. Avoid adding water; the product will become slippery when wet.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. It is the responsibility of the End-user to determine if material meets the criteria of hazardous waste at the time of disposal. It may be possible to dispose of uncontaminated zeolite in landfill; check with local operator. Empty packaging must be disposed of, or recycled, in accordance with local regulations.

SECTION IX: PREPARATION

The information contains herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED: February 22, 2022

SUPERSEDES: N/A

BY: Jordan Waddell

BioZem Toxicology Report

Leachate Inorganic- Toxicity characteristic leaching procedure (TCLP Leachate)

Toxicity characteristic leaching procedure is a soil sample extraction method for chemical analysis employed as an analytical method to simulate leaching through a landfill. All sample points are compliant with Alberta Tier 1 Soil Remediation Guidelines

Analyte		Units	Results	NDL
Antimony	TCLP Leachate	mg/L	0.015	0.005
Arsenic	TCLP Leachate	mg/L	0.003	0.002
Barium	TCLP Leachate	mg/L	0.83	0.05
Beryllium	TCLP Leachate	mg/L	<0.001	0.001
Boron	TCLP Leachate	mg/L	<0.2	0.2
Cadmium	TCLP Leachate	mg/L	<0.001	0.001
Chromium	TCLP Leachate	mg/L	0.038	0.005
Cobalt	TCLP Leachate	mg/L	0.004	0.001
Copper	TCLP Leachate	mg/L	<0.1	0.1
Iron	TCLP Leachate	mg/L	1.7	0.1
Lead	TCLP Leachate	mg/L	<0.05	0.05
Mercury	TCLP Leachate	mg/L	<0.001	0.0001
Nickel	TCLP Leachate	mg/L	<0.005	0.005
Selenium	TCLP Leachate	mg/L	<0.002	0.002
Silver	TCLP Leachate	mg/L	<0.005	0.005
Thallium	TCLP Leachate	mg/L	<0.0005	0.0005
Uranium	TCLP Leachate	mg/L	<0.005	0.005
Vanadium	TCLP Leachate	mg/L	0.01	0.01
Zinc	TCLP Leachate	mg/L	<0.1	0.1
Zirconium	TCLP Leachate	mg/L	<0.01	0.01
pH	Initial		10.4	
pH	Final		7.8	

BioZem Canada Corp.
202, 1001 – 1st Street SE
Calgary, AB, T2G 5G3
www.biozem.ca

Microtox-1:1 Soil 15 Minute Multiple Concentration Bioassay

Microtox is an in vitro testing system which uses bioluminescent bacteria to detect toxic substances in different substrates such as water, air, soils, and sediments. Interpretation of Energy Resource Conservation Board guidelines through Directive 050 (ERCB D050) has passed.

Analyte		Units	Results
Interpretation (ERCB D050)			Pass
EC50	15 minutes	% Sample	>100
EC50	5 minutes	% Sample	>100
EC20	15 minutes	% Sample	36
EC20	5 minutes	% Sample	45
Lab Treatment			None
Sample Type	1:01		Sludge 1:1
pH	Clarified Sample-Initial		8.5
Turbidity	As Received		High
Colour	As Received		Dark Brown
Colour	As Tested		Clear
Turbidity	As Tested		None
pH	Clarified Sample-Final		6.3
Colour Corrected Data			No

BioZem Canada Corp.
202, 1001 – 1st Street SE
Calgary, AB, T2G 5G3
www.biozem.ca

Salinity

Water salinity testing is used to determine the concentration of salts dissolved in a water sample. Salinity is measured to determine the suitability of water for drinking and for ecological monitoring of aquatic habitats. Based on the Alberta Tier 1 Groundwater Remediation Guidelines (ABT1GL) under General and Inorganic Parameters, the salinity testing has passed.

Analyte		Units	Results	NDL
pH	Saturated Paste	pH	11.6	
Electrical Conductivity	Saturated Paste	dS/m at 25 C	1.97	0.01
SAR	Saturated Paste		4.5	
% Saturation		%	42	
Calcium	Saturated Paste	meq/L	7.19	0.01
Calcium	Saturated Paste	mg/kg	60.6	
Magnesium	Saturated Paste	meq/L	<0.02	0.02
Magnesium	Saturated Paste	mg/kg	0.1	
Sodium	Saturated Paste	meq/L	8.47	0.04
Sodium	Saturated Paste	mg/kg	82	
Potassium	Saturated Paste	meq/L	2.14	0.03
Potassium	Saturated Paste	mg/kg	35	
Chloride	Saturated Paste	meq/L	8.08	0.06
Chloride	Saturated Paste	mg/kg	121	
Sulfate-S	Saturated Paste	meq/L	1.14	0.06
Sulfate-S	Saturated Paste	mg/kg	7.7	
Nitrate and Nitrite - N	Saturated Paste	meq/L	<0.4	0.05
Nitrate and Nitrite - N	Saturated Paste	mg/kg	<2	
TGR	Saturated Paste	T/ac	<0.1	

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