9.0 RULE 6.4.9: EXHIBIT I–SOILS INFORMATION

(1) In consultation with the Natural Resources Conservation Service (NRCS) or other qualified person, the Operator/Applicant shall indicate on a map (in Exhibit C) or by a statement, the general type, thickness and distribution of soil over the affected land. Such description will address suitability of topsoil (or other material) for establishment and maintenance of plant growth. If necessary, at its discretion, the Board may require additional information on soils or other growth media to be stockpiled and used in revegetation.

9.1 REGIONAL GEOLOGY

This section provides a brief discussion of geology and ore deposits typical of materials that may be processed at the Mill.

9.1.1 REGIONAL GEOLOGIC SETTING

The Mosquito Range, the study of whose geological structure formed a necessary basis for that of the ore deposits of the Leadville region, is the western boundary of the South Park, and has thus been considered from a topographical standpoint to form part of the Park Range. During Paleozoic times the boundaries of the depressions now known as the Parks were formed by the Archean land masses of the Colorado Range on the East and of the Sawatch and its continuation to the North, the Park Range on the West, and that the uplift of the Mosquito Range did not occur until the close of the Cretaceous.

Prior to this uplift the various porphyry bodies, which now form a prominent feature among the rock formations of the region, were intruded into the sedimentary beds deposited during Paleozoic and Mesozoic times, spreading out between the beds and sometimes crossing them, but being most uniformly distributed at the top of the Lower Carboniferous or Blue Limestone. It was in this limestone that the greater part of the ores (gold, silver, lead) were deposited, and the original deposition must have taken place after the intrusion of the porphyry and before the uplift of the range. In the uplift of the range both eruptive sheets and sedimentary beds, with the included ore deposits, were placated and faulted, and by subsequent erosion an immense thickness of rocks has been carried away, laying bare the very lowest rocks in the conformable series; the outcrops are, however, frequently buried beneath what is locally called "wash," a detrital formation of glacial origin. In the Leadville region, owing to the reduplication

overturned fold caused by faulting, a series of outcrops of easterly dipping beds of the Blue Limestone are exposed beneath the wash, of which all are metalliferous, and a considerable proportion carry pay mineralized ore.

The district is a highly faulted area; intruded with Tertiary quartz monzonite porphyries, on the East side of the Arkansas River graben, part of the Rio Grande Rift system.

The silver occurs associated with manganese and lead in veins, stock works, and manto-type deposits in the Mississippian Leadville Limestone (here a dolomite), the Devonian Dyer Dolomite, and the Ordovician Manitou Dolomite. Ore minerals are pyrite, sphalerite, and galena, in jasperoid and manganosiderite gangue. In upper levels, the ore minerals are oxidized to cerussite, anglesite, and smithsonite.

The site is located between the Mosquito Range to the East and the Sawatch Range to the West in Southern Rocky Mountain province. The province elevation ranges from 6,000ft to over 14,000ft. The rocks range in age from the Precambrian (950 to 1,800 million years old) consisting of igneous and metasediments largely granites, gneiss, and schist; and geologically recent Tertiary volcanic and intrusive rocks. The units are fractured crystalline aquifers that supply most of the domestic needs in the mountainous portion of the state. (Groundwater Atlas of Colorado, 2003).

9.1.2 ORE DEPOSITS

The principal ore deposits of Leadville occur, as summarized, in the Blue Limestone and at or near its contact with the overlying bodies of porphyry. The ores consist mainly of carbonate of lead, chloride of silver and argentiferous galena, in a gangue of silica and clay, with oxides of iron and manganese and some barite. These materials are mainly of secondary origin, and result from the alteration by surface waters of metallic sulfides. The study of these deposits has shown:

- Deposits were originally deposited as sulfides, and probably as a mixture, in varying proportions, of galena, and pyrite,
- Deposits were deposited from aqueous solutions,
- The process of deposition was a metasomatic interchanging between the materials brought in by the solutions and those forming the country rocks, consequently they do not fill pre-existing cavities,
- Ore currents from which they were deposited did not come directly from below, but were more probably descending currents, and
- Currents probably derived the material of which the ore deposits are formed mainly from the porphyry bodies, which occur at horizons above the Blue Limestone.

The geology is described in greater detail in USGS Professional Paper 148 by Emmons, Irving & Laughlin, 1927.

9.2 SOILS

The Mill sites soils shown in **Figure 3-5** and as described in the NRCS Soils Survey dated April 1990 by the USDA-Salida, Colorado District office is as follows.

9.2.1 LEADVILLE SERIES

The Leadville series consists of deep, well-drained soils on mountains. These soils formed in stony and cobbly, medium-textured glacial outwash. Slopes range from 3% to 35%. Elevation ranges from 8,200ft to 10,000ft. The plant cover is lodgepole pine, Engelmann spruce, and subalpine fir. The average annual precipitation is 16in to 20in. The average annual soil temperature is 38°F, and the average soil temperature in summer is 46°F. The frost-free season is 10 to 75 days.

In a representative profile, the surface layer is very dark brown sandy loam about 1in thick. The sub-surface layer is reddish-brown sandy loam that contains about 10% stones and is about 7in thick. The subsoil is yellowish-red and reddish-brown clay loam that contains 50% to 70% cobbles and stones and is about 32in thick. The substratum is reddish-brown loam that contains 70% stones. It extends to a depth of 60in. The soil is medium acidic in the surface and subsurface layers and slightly acidic or neutral in the subsoil.

Permeability in these soils is moderately slow, and the available water capacity is moderate. Effective rooting depth is 60in or more.

These soils are used for woodland, grazing, and recreation.

9.2.2 REPRESENTATIVE SOIL PROFILE

Representative profile of Leadville sandy loam, 3% to 35% slopes, in a forested area 1.2mi East of Highway 24 on Lake County Road No. 6, in the SW¼ of Section 25, Township 9 South, Range 80 West, Lake County proximate to the local landfill facility.

02 – 0-0.5in, organic mat consisting mainly of charred organic matter.

Al - 0-1in, dark grayish-brown (l0YR 4/2) sandy loam; very dark brown (l0YR 2/2) moist; weak, fine, granular structure; soft, very friable, slightly sticky; many fine roots; medium acid; abrupt, smooth boundary.

A2 - 1-8in, pink (7.5YR 7/3) stony sandy loam; reddish brown (7.5YR 5/4) moist; moderate, thin, platy structure parting to weak, fine, subangular blocky; slightly hard, very friable, slightly sticky; common fine and medium roots; 10% stones and gravel; medium acid; clear, wavy boundary.

B&A - 8-14in, reddish-brown (5YR 5/4) and pink (7.5YR 7/3) very stony sandy clay loam; reddish brown (5YR 4/4) and brown (7.5YR 5/4) moist; moderate, medium, subangular blocky structure; hard, friable, sticky; common coarse and medium roots; thin patchy clay films on faces of peds; 5% gravel; 15% stones, 10in to 30in in diameter; slightly acidic; gradual, wavy boundary.

B21t - 14-21in, yellowish-red (5YR 5/6) extremely stony clay loam; yellowish red (5YR 4/6) moist; moderate, medium, prismatic structure parting to moderate, medium, blocky; hard, friable, sticky; common fine and medium roots; thin continuous clay films on faces of peds; some pink (7.5YR 7 /3) coatings of A2 material on faces of peds; 60% stones, 10in to 30in in diameter; slightly acidic; clear, wavy boundary.

B22t - 21-30in, reddish-brown (5YR 5/4) extremely stony clay loam; reddish brown (5YR 4/ 4) moist; moderate, medium and fine, subangular blocky structure; hard, friable, sticky; few medium and coarse roots; thin nearly continuous clay films on faces of peds; 70% stones; neutral; gradual, wavy boundary.

B3t - 30-40in, reddish-brown (5YR 5/4) extremely stony clay loam; reddish brown (5YR 4/ 4) moist; weak, medium, subangular blocky structure; hard, friable, sticky; few fine and medium roots; few patchy clay films on faces of peds; 60% cobbles and stones, 6in to 30in in diameter; slightly acidic; gradual, wavy boundary.

C - 40-60in, reddish-brown (5YR 5/4) extremely stony loam; reddish brown (5YR 4/ 4) moist; massive; hard, very friable, slightly sticky; 70% stones and cobbles, 10in to 30in in diameter; neutral.

The A2 horizon is brown or reddish brown. Reaction is 5.6 to 6.5. The B2t horizon ranges from reddish brown to yellowish red or brown. It is sandy clay loam, clay loam, or clay loam modified by stones or cobbles. Content of coarse fragments exceeds 60%. Reaction is 6.1 to 7.3. Depth to the C horizon ranges from 30in to 45in. Uncomformable strata of cobbles and gravel can occur below a depth of 40in in places.

9.2.3 LEADVILLE SANDY LOAM (LeE)

This soil is on mountain slopes in the east-central part of Lake County. Included with it in mapping are small areas of Troutville gravelly sandy loam and small areas that have bedrock at a depth of less than 20in, although these features do not exist at the Mill site. Surface runoff is medium to rapid, and the hazard of erosion is moderate. Most of this soil, including the entire Mill site, is forested with lodgepole pine and some ponderosa pine. Engelmann spruce and subalpine fir are at the higher elevations. This soil is used as range in areas that have been logged or burned. (Capability unit VIe-4, nonirrigated; woodland suitability group 1).

	Degree and kind of limitations for -					
Soil series and map symbols	**Septic tank absorption fields**	**Sewage lagoons**	**Shallow Excavations**	**Dwellings without basements**	**Local roads and streets**	**Campsites**
Leadville: LeE	Severe: moderately slow permeability	Severe: slope; high content of stones	Severe: high content of stones.	Severe: high content of stones; slopes of more than 15% in some places	Severe: high content of stones; slopes of more than 15% in some places.	Moderate where slopes are 3 to 15% Severe where slopes are more than 15% high content of stones.

Suitability as a source of				Soil features affecting-		
Road Fill	**Sand**	**Gravel**	**Topsoil**	**Embankment, dikes, and levees**	**Drainage of cropland and pasture**	**Irrigation**
Poor; high content of stones.	Unsuited	Unsuited	Fair: high content of stones	High content of stones: far compaction characteristics	Not Applicable	Not Applicable

9.2.4 SITE SPECIFIC SOIL SAMPLING

Onsite soil samples, shown in **Figure 9-1**, were collected, and analyzed. Soils are described in **Table 9-1**. Soil analysis was performed by ACZ Laboratories and is included in **Appendix 9-1**. Analysis tests are shown in **Table 9-2**. Analysis results are shown on **Table 9-3**.

TABLE 9-1: SOIL DESCRIPTION

Sample	001A	001B	002A	002B	003A	003B	004	005	006	007	008
Location	ECS - between embankment &	ECS - between embankment &	SE-ECS & access road	SE-ECS & access road	SE-ECS	SE-ECS	SW-ECS	NE of Mill-North of fence line	NE of Mill	NW of Mill	(North of Sample 007)
Date	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22	26-Jun-22
Time	900	900	900	900	900-1200	900-1200	900-1200	900-1200	900-1200	900-1200	900-1200
Latitude	N39º13'47.56"	N39º13'45.56"	N39º13'49.26"	N39º13'49.26"	N39º13'45.18"	N39º13'45.18"	N39º13'45.29"	N39º13'53.69"	N39º13'56.05"	N39º13'53.93"	N39º13'57.91"
Longitude	W106º19'52.54"	W106º19'52.54"	W106º19'49.26"	W106º19'49.26"	W106º19'51.99"	W106º19'51.99"	W106º19'58.60"	W106º19'50.92"	W106º19'51.08"	W106º19'53.55"	W106º19'53.82"
Weather	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Temperature	40ºF	40ºF	40ºF	40ºF	40ºF	40ºF	40ºF	40ºF	40ºF	40ºF	40ºF
USCS Abbr.	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE	Leadville Soil Series LeE
Depth	0.0" to 4.5"	4.5" to 10"	0.0" to 6.0"	6.0" to 10.0"	0.0" to 5.0"	5.0" - 10.0"	0.0" - 4.0"	0.0" - 4.0"	0.0" - 4.0"	0.0" - 2.5"	0.0" - 2.0"
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Surface Cover	Short grasses, poderosa pine	Short grasses, poderosa pine	Short grasses, poderosa pine	Short grasses, poderosa pine	Short grasses - bare	Short grasses - bare	Short Grasses - ponderosa pine	light brown sandy friable - rocky below 4in - stones >4in	short grasses-bare - rocky below 4 inches - >2in stones	short grasses-bare	short grasses-bare
Description	Dark to light reddish brown sticky friable	Light reddish brown sticky sandy friable	Light reddish brown sticky sandy friable	Light reddish brown sticky sandy friable - clayey at depth	Dark brown surface-light brown sticky sandy friable - more clayey at depth	Light brown sticky sandy friable-more clayey at depth	Dark brown surfce-light brown sticky sandy friable	light brown sandy friable	Light brown sandy friable	Dark brown surface - light brown sandy friable-mixed at depth	Drak brown surface-light brown sticky friable-more calyey at depth
Color	Reddish brown	Reddish brown sandy loam	Reddish brown sandy loam	Reddish brown sandy loam	drak grayish brown sandy loam very dark brown very friable	light brown very friable	reddish brown sandy loam very friable	dark to light orangebrown sndy loam very friable	dark graysish brown sandy loam very dark brown friable	dark grayish brown sandy loam very dark brown very friable	Dark grayish brown sandy loam very dark brown very friable
Staining	-	-	-	-	-	-	-	-	-	-	-
Rooting	<4.5n - many fine roots	<10in - many fine roots	<6in - many fine roots	<10in-many fine roots	<3in-many fine roots	<10in-many fine roots	<4in-many fine roots	rooting depth < 2in	rooting depth < 2in	many fine roots	many fine roots
Moisture	moderate	low to moderate	moderate	moderate	low	low	moderdate	dry	dry	moist	moist
QA/QC	No	No	No	No	No	No	No	No	No	No	No
No. Containers	1	1	1	1	1	1	1	1	1	1	1
Preservatives	No	No	No	No	No	No	No	No	No	No	No
Comments	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit - Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.	Slopes range from 1%-9%, formed in calcaareous, gravellu, medratelsy coarse. Capability unit -Vle-4 nonirrigated, woodland suitability group 1. Lodgepole pine.

TABLE 9-2: SOIL PREPARATION

Parameter	EPA Method
AB-DTPA Extraction	ASA No. 9, 3-5.2.3
Air Dry @ 34ºC	USDA No. 1, 1972
Cation Exchnage Capacity Extraction	USDA No. 60 (19)
Staurated Paste Extraction	USDA No. 60 (2)
Sieve-2000um (2.0mm)	ASA No. 9, 15-4.2.2
Sieve-250um (60 mesh)	ASA No. 9, 15-4.4.4

TABLE 9-3: SOIL ANALYSIS

Parameter	EPA Method	Units	001A & 001B Composite	002A & 002B Composite	003A & 003B Composite	004	005	006	007	008
Metals Analysis										
Calcium, soluble (Sat. Paste)	M6010D ICP	meq/L	0.1680	0.5950	<0.025	0.1850	0.1070	0.0670	0.0356	0.1420
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	meq/100g	7.85	5.86	9.42	8.39	8.08	4.75	13	20.3
Copper, extractable (AB-DTPA)	M6010D ICP	mg/kg	107	6.21	142	23.5	21.3	9.62	64.7	54.3
Iron, extractable (AB-DTPA)	M6010D ICP	mg/kg	71.5	111	85	122	113	89.8	167	180
Magnesium, soluble (Sat. Paste)	M6010D ICP	meq/L	0.11	0.37	<0.08	0.38	0.37	0.16	<0.08	0.13
Manganese, extractable (AB-DTPA)	M6010D ICP	mg/kg	2.99	1.71	4.82	15.1	7.99	6.33	19.6	21.1
Potasium extractable (AB-DTPA)	M6010D ICP	mg/kg	68.8	102.0	86.1	95.3	96.0	71.1	134.0	238.0
Sodium Adsorption Ratio	Calculation	-	0.22	0.10	<1	<1	<1	<1	7.9	<1
Sodium , soluble (Sat. Paste)	M6010D ICP	meq/100g	0.08	0.07	<0.04	<0.04	<0.04	<0.04	1.05	<0.04
Zinc, extractable (AB-DTPA)	M6010D ICP	mg/kg	5.61	126	38.6	68.1	61.9	41	78.8	181
Soil Analysis										
Conductivity @ 25C	SM2510B									
Conductivity	-	mmhos/cm	0.1200	0.0656	0.0418	0.0499	0.0268	0.0311	0.1380	0.0666
Max Particle Size	-	um	2000	2000	2000	2000	2000	2000	2000	2000
Temperature	-	C	21.8	21.6	21.3	21.0	20.6	21.0	21.1	22.0
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	%	0.1	0.2	<0.1	0.2	0.1	<0.1	0.3	0.4
Organic Matter (Igniton @ 400)	EPA 600/2-78-054 M3.2.14	%	1.9	0.6	2.7	1.6	1.6	0.6	3.8	5.3
pH, Saturated Paste	EPA 600/2-78-054 Sec 3.2.2									
Max Particle Size	-	um	2000	2000	2000	2000	2000	2000	2000	2000
pH		-	3.9	5.4	4.4	4.8	5.2	4.8	4.9	4.6
Wet Chemistry										
Phosphorus, extractable (AB-DTPA)	M365.1 0 Automated Ascorbic Acid	mg/kg	3.83	9.34	4.81	2.36	1.81	<1	1.25	6.32


N
SS008
SS006
SS007
SS005
SS001
SS002
SS004
SS003
SCALE: NONE
SOURCE: LAKE COUNTY
CJK MILLING
REMOVE ▲ REUSE ▲ RESTORE
FIGURE 9-1
SOIL SAMPLE LOCATIONS
1.21.23

APPENDIX 9-1

SOILS ANALYSIS

ACZ LABORATORIES

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

Analytical Report

July 05, 2022

Report to:
George M.L. Robinson
R Squared Inc.
3926 North State Hwy 67
Sedalia, CO 80135

cc: Nick Michael

Bill to:
Stephanie Michael
R Squared Incorporated
6200 S Vivian St.
Littleton, CO 80127

Project ID:
ACZ Project ID: L73720

George M.L. Robinson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 07, 2022. This project has been assigned to ACZ's project number, L73720. 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 L73720. 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 04, 2022. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

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

Sue Webber has reviewed and approved this report.

R Squared Incorporated
Project ID:
Sample ID: 001 SAMPLE A AND B

ACZ Sample ID: ***L73720-01***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	0.168		*	meq/L	0.025	0.125	06/29/22 18:11	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	1	7.85		*	meq/100g	0.02	0.11	07/01/22 0:48	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	100	107			mg/Kg	1	5	07/02/22 4:43	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	100	71.5			mg/Kg	6	15	07/02/22 4:43	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	0.11	B	*	meq/L	0.08	0.41	06/29/22 18:11	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	100	2.99	B	*	mg/Kg	1	5	07/02/22 4:43	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	100	68.8	B	*	mg/Kg	20	100	07/02/22 4:43	wtc
Sodium Adsorption Ratio	Calculation		0.22						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	0.08	B	*	meq/L	0.04	0.22	06/29/22 18:11	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	100	5.61		*	mg/Kg	2	5	07/02/22 4:43	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.120		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	21.8		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	0.1	B	*	%	0.1	0.5	06/27/22 12:44	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	1.9		*	%	0.3	1	06/21/22 15:30	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	3.9		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 10:19	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 13:05	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/20/22 17:50	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:07	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:00	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 14:30	jpb

R Squared Incorporated
Project ID:
Sample ID: 001 SAMPLE A AND B

ACZ Sample ID: ***L73720-01***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	3.83	B	*	mg/Kg	1	5	07/02/22 23:30	pjb

R Squared Incorporated
Project ID:
Sample ID: 002 SAMPLE A AND B

ACZ Sample ID: ***L73720-02***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	0.595		*	meq/L	0.025	0.125	06/29/22 18:19	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	1	5.86		*	meq/100g	0.02	0.11	06/29/22 19:50	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	50	6.21			mg/Kg	0.5	2.5	07/02/22 4:50	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	50	111			mg/Kg	3	7.5	07/02/22 4:50	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	0.37	B	*	meq/L	0.08	0.41	06/29/22 18:19	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	50	1.71	B	*	mg/Kg	0.5	2.5	07/02/22 4:50	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	50	102		*	mg/Kg	10	50	07/02/22 4:50	wtc
Sodium Adsorption Ratio	Calculation		0.10						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	0.07	B	*	meq/L	0.04	0.22	06/29/22 18:19	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	50	126		*	mg/Kg	1	2.5	07/02/22 4:50	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.0656		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	21.6		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	0.2	B	*	%	0.1	0.5	06/27/22 13:01	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	0.6	B	*	%	0.3	1	06/21/22 18:32	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	5.4		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 10:57	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 13:13	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/20/22 21:32	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:12	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:04	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 14:36	jpb

R Squared Incorporated
Project ID:
Sample ID: 002 SAMPLE A AND B

ACZ Sample ID: ***L73720-02***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	9.34		*	mg/Kg	1	5	07/02/22 23:32	pjb

R Squared Incorporated
Project ID:
Sample ID: 003 SAMPLE A AND B

ACZ Sample ID: ***L73720-03***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	<0.025	U	*	meq/L	0.025	0.125	06/29/22 18:23	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	1	9.42		*	meq/100g	0.02	0.11	06/29/22 19:53	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	100	142			mg/Kg	1	5	07/02/22 5:01	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	100	85.0			mg/Kg	6	15	07/02/22 5:01	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	<0.08	U	*	meq/L	0.08	0.41	06/29/22 18:23	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	100	4.82	B	*	mg/Kg	1	5	07/02/22 5:01	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	100	86.1	B	*	mg/Kg	20	100	07/02/22 5:01	wtc
Sodium Adsorption Ratio	Calculation		<1						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	<0.04	U	*	meq/L	0.04	0.22	06/29/22 18:23	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	100	38.6		*	mg/Kg	2	5	07/02/22 5:01	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.0418		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	21.3		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	<0.1	U	*	%	0.1	0.5	06/27/22 13:18	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	2.7		*	%	0.3	1	06/21/22 21:34	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	4.4		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 11:17	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 13:21	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/20/22 23:23	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:15	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:08	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 14:42	jpb

R Squared Incorporated
Project ID:
Sample ID: 003 SAMPLE A AND B

ACZ Sample ID: ***L73720-03***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	4.81	B	*	mg/Kg	1	5	07/02/22 23:34	pjb

R Squared Incorporated
Project ID:
Sample ID: 004 SAMPLE A AND B

ACZ Sample ID: ***L73720-04***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	0.185		*	meq/L	0.025	0.125	06/29/22 18:27	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	25	8.39		*	meq/100g	0.54	2.72	07/01/22 0:56	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	50	23.5			mg/Kg	0.5	2.5	07/02/22 5:05	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	50	122			mg/Kg	3	7.5	07/02/22 5:05	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	0.38	B	*	meq/L	0.08	0.41	06/29/22 18:27	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	50	15.1		*	mg/Kg	0.5	2.5	07/02/22 5:05	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	50	95.3		*	mg/Kg	10	50	07/02/22 5:05	wtc
Sodium Adsorption Ratio	Calculation		<1						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	<0.04	U	*	meq/L	0.04	0.22	06/29/22 18:27	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	50	68.1		*	mg/Kg	1	2.5	07/02/22 5:05	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.0499		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	21.0		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	0.2	B	*	%	0.1	0.5	06/27/22 14:11	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	1.6		*	%	0.3	1	06/22/22 0:36	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	4.8		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 11:36	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 13:28	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/21/22 1:13	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:17	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:12	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 14:49	jpb

R Squared Incorporated
Project ID:
Sample ID: 004 SAMPLE A AND B

ACZ Sample ID: ***L73720-04***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	2.36	B	*	mg/Kg	1	5	07/02/22 23:35	pjb

R Squared Incorporated
Project ID:
Sample ID: 005 SAMPLE A

ACZ Sample ID: ***L73720-05***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	0.107	B	*	meq/L	0.025	0.125	06/29/22 18:31	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	1	8.08		*	meq/100g	0.02	0.11	06/29/22 20:05	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	50	21.3			mg/Kg	0.5	2.5	07/02/22 5:09	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	50	113			mg/Kg	3	7.5	07/02/22 5:09	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	0.37	B	*	meq/L	0.08	0.41	06/29/22 18:31	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	50	7.99		*	mg/Kg	0.5	2.5	07/02/22 5:09	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	50	96.0		*	mg/Kg	10	50	07/02/22 5:09	wtc
Sodium Adsorption Ratio	Calculation		<1						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	<0.04	U	*	meq/L	0.04	0.22	06/29/22 18:31	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	50	61.9		*	mg/Kg	1	2.5	07/02/22 5:09	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.0268		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	20.6		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	0.1	B	*	%	0.1	0.5	06/27/22 14:28	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	1.6		*	%	0.3	1	06/22/22 3:38	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	5.2		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 11:55	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 13:36	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/21/22 3:04	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:20	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:17	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 14:55	jpb

R Squared Incorporated
Project ID:
Sample ID: 005 SAMPLE A

ACZ Sample ID: ***L73720-05***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	1.81	B	*	mg/Kg	1	5	07/02/22 23:37	pjb

R Squared Incorporated
Project ID:
Sample ID: 006 SAMPLE A

ACZ Sample ID: ***L73720-06***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	0.0670	B	*	meq/L	0.025	0.125	06/29/22 18:35	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	1	4.75		*	meq/100g	0.02	0.11	06/29/22 20:09	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	50	9.62			mg/Kg	0.5	2.5	07/02/22 5:13	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	50	89.8			mg/Kg	3	7.5	07/02/22 5:13	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	0.16	B	*	meq/L	0.08	0.41	06/29/22 18:35	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	50	6.33		*	mg/Kg	0.5	2.5	07/02/22 5:13	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	50	71.1		*	mg/Kg	10	50	07/02/22 5:13	wtc
Sodium Adsorption Ratio	Calculation		<1						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	<0.04	U	*	meq/L	0.04	0.22	06/29/22 18:35	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	50	41.0		*	mg/Kg	1	2.5	07/02/22 5:13	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.0311		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	21.0		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	<0.1	U	*	%	0.1	0.5	06/27/22 14:45	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	0.6	B	*	%	0.3	1	06/22/22 6:40	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	4.8		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 12:14	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 13:44	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/21/22 4:55	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:22	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:21	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 15:02	jpb

R Squared Incorporated
Project ID:
Sample ID: 006 SAMPLE A

ACZ Sample ID: ***L73720-06***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	<1	U	*	mg/Kg	1	5	07/02/22 23:38	pjb

R Squared Incorporated
Project ID:
Sample ID: 007 SAMPLE A

ACZ Sample ID: ***L73720-07***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	0.0356	B	*	meq/L	0.025	0.125	06/29/22 18:39	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	25	13.0		*	meq/100g	0.54	2.72	07/01/22 1:08	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	50	64.7			mg/Kg	0.5	2.5	07/02/22 5:28	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	50	167			mg/Kg	3	7.5	07/02/22 5:28	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	<0.08	U	*	meq/L	0.08	0.41	06/29/22 18:39	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	50	19.6		*	mg/Kg	0.5	2.5	07/02/22 5:28	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	50	134		*	mg/Kg	10	50	07/02/22 5:28	wtc
Sodium Adsorption Ratio	Calculation		7.9						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	1.05		*	meq/L	0.04	0.22	06/29/22 18:39	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	50	78.8		*	mg/Kg	1	2.5	07/02/22 5:28	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.138		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	21.1		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	0.3	B	*	%	0.1	0.5	06/27/22 15:20	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	3.8		*	%	0.3	1	06/22/22 9:42	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	4.9		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 12:34	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 13:52	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/21/22 6:46	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:25	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:25	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 15:08	jpb

R Squared Incorporated
Project ID:
Sample ID: 007 SAMPLE A

ACZ Sample ID: ***L73720-07***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	1.25	B	*	mg/Kg	1	5	07/02/22 23:41	pjb

R Squared Incorporated
Project ID:
Sample ID: 008 SAMPLE A

ACZ Sample ID: ***L73720-08***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010D ICP	5	0.142		*	meq/L	0.025	0.125	06/29/22 18:43	keh1
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	1	20.3		*	meq/100g	0.02	0.11	06/29/22 20:33	keh1
Copper, extractable (AB-DTPA)	M6010D ICP	50	54.3			mg/Kg	0.5	2.5	07/02/22 5:32	wtc
Iron, extractable (AB-DTPA)	M6010D ICP	50	180			mg/Kg	3	7.5	07/02/22 5:32	wtc
Magnesium, soluble (Sat. Paste)	M6010D ICP	5	0.13	B	*	meq/L	0.08	0.41	06/29/22 18:43	keh1
Manganese, extractable (AB-DTPA)	M6010D ICP	50	21.1		*	mg/Kg	0.5	2.5	07/02/22 5:32	wtc
Potassium, extractable (AB-DTPA)	M6010D ICP	50	238		*	mg/Kg	10	50	07/02/22 5:32	wtc
Sodium Adsorption Ratio	Calculation		<1						07/05/22 0:00	calc
Sodium, soluble (Sat. Paste)	M6010D ICP	5	<0.04	U	*	meq/L	0.04	0.22	06/29/22 18:43	keh1
Zinc, extractable (AB-DTPA)	M6010D ICP	50	181		*	mg/Kg	1	2.5	07/02/22 5:32	wtc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	0.0666		*	mmhos/cm	0.001	0.01	06/21/22 0:00	scm
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
Temperature		1	22.0		*	C	0.1	0.1	06/21/22 0:00	scm
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	0.4	B	*	%	0.1	0.5	06/27/22 15:37	mep
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	1	5.3		*	%	0.3	1	06/22/22 12:45	jpb
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			06/21/22 0:00	scm
pH		1	4.6		*	units	0.1	0.1	06/21/22 0:00	scm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DTPA Extraction	ASA No. 9, 3-5.2.3								06/20/22 12:53	jpb
Air Dry at 34 Degrees C	USDA No. 1, 1972								06/14/22 14:00	scm
Cation Exchange Capacity Extraction	USDA No. 60 (19)								06/21/22 8:36	zln/jpb
Saturated Paste Extraction	USDA No. 60 (2)								06/20/22 9:27	scm
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								06/15/22 16:29	scm
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								06/21/22 15:15	jpb

R Squared Incorporated
Project ID:
Sample ID: 008 SAMPLE A

ACZ Sample ID: ***L73720-08***
Date Sampled: *05/26/22 00:00*
Date Received: *06/07/22*
Sample Matrix: *Soil*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	100	6.32		*	mg/Kg	1	5	07/02/22 23:42	pjb

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

R Squared Incorporated ACZ Project ID: ***L73720***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L73720-01	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	DD	Sample required dilution due to matrix color or odor.
			M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	DD	Sample required dilution due to matrix color or odor.
			M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).
L73720-02	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).

R Squared Incorporated

ACZ Project ID: ***L73720***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L73720-03	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	DD	Sample required dilution due to matrix color or odor.
			M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	DD	Sample required dilution due to matrix color or odor.
			M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).
L73720-04	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).

R Squared Incorporated

ACZ Project ID: ***L73720***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L73720-05	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).
L73720-06	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).

R Squared Incorporated

ACZ Project ID: ***L73720***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L73720-07	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).
L73720-08	WG545417	Calcium, soluble (Sat. Paste)	M6010D ICP	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.
		Magnesium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
	WG545623	Manganese, extractable (AB-DTPA)	M6010D ICP	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).
	WG545208	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	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).
	WG544866	Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14	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).
	WG545641	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic	DD	Sample required dilution due to matrix color or odor.
			M365.1 - Automated Ascorbic	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).
	WG545623	Potassium, extractable (AB-DTPA)	M6010D ICP	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).
			M6010D ICP	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.
	WG545417	Sodium, soluble (Sat. Paste)	M6010D ICP	DJ	Sample dilution required due to insufficient sample.
			M6010D ICP	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.
	WG545623	Zinc, extractable (AB-DTPA)	M6010D ICP	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).

R Squared Incorporated ACZ Project ID: ***L73720***

Metals Analysis

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

Cation Exchange Capacity (CEC)	USDA No. 60 (19)

Soil Analysis

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

Conductivity @25C	SM2510B
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
Organic Matter (Ignition @ 400)	EPA 600/2-78-054 M3.2.14
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2

Wet Chemistry

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

Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid

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

Sample Receipt

R Squared Incorporated

ACZ Project ID: L73720
Date Received: 06/07/2022 12:13
Received By:
Date Printed: 6/8/2022

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		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?
NA37716	18.5	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.

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[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 | L 73720

CHAIN of CUSTODY

Report to:

Name: George M.L. Robinson
Company: Union Milling Contractors
E-mail: grobinson@unionmilling.com
Address: 3926 North State Hwy 67
Sedalia, Colorado
Telephone: 720.641.2534

Copy of Report to:

Name: Nick Michael
Company: Union Milling Contractors
E-mail: nmichael @unionmilling.com
Telephone: 303.947.3499

Invoice to:

Name: Stephanie Michael
Company: Union Milling Contractors
E-mail: smichael@unionmilling.com
Address: 6200 S VivianStreet
Littleton Colorado 80127
Telephone: 720.413.5943

Copy of Invoice to:

Name: George Robinson
Company: (See Above)
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 PQL for Colorado.

Sampler's Name: G Robinson **Sampler's Site Information** **State** Colorado **Zip code** 80461 **Time Zone** Mtn
***Sampler's Signature:** 2b6780a2-bc73-4d9a-96ca-5b297b97b554 Digitally signed by 2b6780a2-bc73-4d9a-96ca-5b297b97b554 Date: 2022.05.31 09:25:41 -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 #:
PO#:
Reporting state for compliance testing: N/A
Check box if samples include NRC licensed material?

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See Attached							
001 Sample A and B	5/26/2022 00:00	SO	2	✓							
002 Sample A and B	5/26/2022 00:00	SO	2	✓							
003 Sample A and B	5/26/2022 00:00	SO	2	✓							
004 Sample A and B	5/26/2022 00:00	SO	2	✓							
005 Sample A	5/26/2022 00:00	SO	1	✓							
006 Sample A	5/26/2022 00:00	SO	1	✓							
007 Sample A	5/26/2022 00:00	SO	1	✓							
008 Sample A	5/26/2022 00:00	SO	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
2b6780a2-bc73-4d9a-96ca-5b297b97b554 Digitally signed by 2b6780a2-bc73-4d9a-96ca-5b297b97b554 Date: 2022.05.31 09:25:55 -06'00'	6/6/2022		6/7/22 14:11

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

L73720 Chain of Custod