TETRA TECH

February 17, 2023

Ms. Beth Haake
Senior Environmental Engineer
Martin Marietta
1910 Rand Ave
Colorado Springs, CO 80905

Subject: Third Quarter 2022 Surface Water and Groundwater Monitoring Results from Parkdale Quarry, Fremont County, Colorado

Dear Ms. Haake:

This letter report provides monitoring results and a summary of activities from the Third Quarter 2022 (3Q 2022) monitoring of surface water and groundwater monitoring at the Martin Marietta (MM) Parkdale Quarry in Fremont County, Colorado. This report summarizes the monitoring activities performed and incudes tabulated summaries of field measurements and water quality analyses, laboratory reports, and field data sheets. Monitoring and reporting were performed in accordance with Tetra Tech's *Surface Water and Groundwater Monitoring Proposal for Parkdale Quarry, Fremont County, Colorado* (September 2022) and Front Range Aggregates *Monitoring and Mitigation Plan for Surface and Groundwater Parkdale Quarry* (Monitoring and Mitigation Plan) (December 2021).

Surface water field parameters and analytical results are tabulated in Attachment A. Groundwater field parameters and analytical results are tabulated in Attachment B. Surface water field data and discharge measurements are provided in Attachment C. Groundwater Sampling Field Sheets are provided in Attachment D. Laboratory reports are provided in Attachment E.

Third Quarter 2022 surface water and groundwater monitoring was initially performed by Tetra Tech on September 28 and 29, 2022. In September 2022, samples were collected at two of the four stream locations (the other two were dry), and one of three planned groundwater monitoring wells (MW-3). Monitoring was not performed in September 2022 at monitoring well MW-1 due to lack of vehicle access. Sampling was attempted on September 29, 2022 at monitoring well MW-10 but failed due to high turbidity fouling pumping equipment. Subsequently, MM obtained approval from the Colorado Division of Reclamation, Mining and Safety (DRMS) to collect samples from wells MW-1 and MW-10 in October 2022 and include those results as a part of the 3Q 2022 monitoring. Sampling of MW-1 and MW-10 was performed by MM on October 19, 2022.

Surface water samples were collected at Current Creek monitoring locations CC-1 and CC-2 on September 29, 2022. Due to lack of vehicle access, the sample for CC-1 was collected approximately 1,000 feet downstream of the planned monitoring location. Tallahassee Creek monitoring locations TC-1 and TC-2 were both dry and no samples were collected at those sites.

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Monitoring well MW-3 was sampled by Tetra Tech on September 28, 2022 using the three-volume purge method. Sampling of MW-1 and MW-10 on October 2022 was performed using the micro-purge method.

General chemistry and metal analyses were performed by SGS North America, Inc (SGS) in Wheat Ridge, Colorado. Radionuclide analyses were subcontracted by SGS to Energy Laboratories of Casper, Wyoming. Samples and applicable laboratory report are shown in Table 1. Analytical results were received from the laboratories, with final notification of the status of analytical results on January 30, 2023; at that time, the laboratory indicated there would be no results for uranium isotopes for MW-10 as the sample was lost.

Table 1.

Sample Location	Report Numbers
CC-1	DA49619
CC-2	DA49619
MW-1	DA50245, DA50245X
MW-3	DA49610, DA49624-MDL, DA49624X, DA49624R
MW-10	DA50244, DA50244X

Field (FB) and equipment blank (EB) samples were collected by Tetra Tech during September 2022 sampling. Analytical results for FB and EB are provided in laboratory reports DA49610, DA49624-MDL, DA49624X, and DA49624R.

Field parameter and analytical results were compared to applicable water quality standards; three groundwater quality standards were exceeded on 3Q 2022 as shown in Table 2. No water quality standard was exceeded in the surface water samples from 3Q 2022.

Table 2.

Parameter	Standard (mg/L)	Sample Location	Result (mg/L)
Total Dissolved Solids (TDS)	400(1)	MW-1	454
Total Dissolved Solids (TDS)	400(1)	MW-10	458
Uranium (U)	0.03(2)	MW-10	0.0363

(1) from 5 CCR 1002-41, Table 4
(2) Maximum Containment Level

No uranium speciation was performed on the sample from MW-10 as the analytical laboratory lost the sample, as noted above. For that sample, adjusted gross alpha was calculated as:

Adjusted gross alpha (pCi/L) = Uranium (ug/L) x 0.67

For the samples from MW-1 and MW-3, Adjusted gross alpha was calculated as:

Adjusted gross alpha (pCi/L) = measured gross alpha (pCi/L)- [U-234 (pCi/L)+ U-238 (pCi/L)]

Equations for calculating adjusted gross alpha were provided by N. Graziano, CDPHE, personal communication, November 30, 2022.

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Except as noted above, quality assurance and validation of analytical data, field and laboratory operations, field sample handling and custody, and calibration procedures for field equipment indicate the data collected during 3Q 2022 monitoring met the objectives outlined in the Monitoring and Mitigation Plan.

Sincerely,
Tetra Tech

Fred Charles, PE, PhD
Senior Engineering Manager

Attachment A: Surface Water Data and Discharge Field Sheets
Attachment B: Groundwater Sampling Field Sheets
Attachment C: Laboratory Analytical Reports
Attachment D: Parkdale Quarry 3Q 2022 Surface Water Field and Analytical Results
Attachment E: Parkdale Quarry 3Q 2022 Groundwater Water Field and Analytical Results

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Attachment A

Attachment A: Parkdale Quarry 3Q 2022 Surface Water Field and Analytical Results

		Sample Location	**CC-1**		**CC-2**	
		Sample Date	**9/29/2022**		**9/29/2022**	
		Laboratory Report Number(s)	DA49619		DA49619	
Parameter / **Field**	**Units**	**Standard[1]**	**Result**	**Calculated Standard**	**Result**	**Calculated Standard**
Dissolved Oxygen (DO)	mg/L	>6	8.27		6.39	
pH	std units	--	8.36		8.07	
Specific Conductivity (SC)	µS/Cm	--	970		988	
Temperature (T)	Celsius	--	13.7		15.2	
Turbidity	NTU	--	0.26		1740	
Flow	cfs	--	0.51		0.11	
Solution Parameters, Nonmetals, Major Ions						
Ammonia (NH_3)	mg/L	TVS_{ch} [2]	<0.05	1.379	<0.05	2.101
Chloride	mg/L	250	69.5		66.3	
Fluoride	mg/L	2.0	0.84		0.8	
Sulfate	mg/L	250	96.9		95.5	
Sulfide	mg/L	0.002	0.5		<0.5	
Total Suspended Solids (TSS)	mg/L	--	8.9		7.3	
Nutrients						
Nitrogen, Nitrate	mg/L	10	0.046		0.63	
Nitrogen, Nitrite	mg/L	0.05	<0.02		<0.02	
Dissolved Metals						
Arsenic (As)	mg/L	0.34	<0.025		<0.025	
Cadmium (Cd)	mg/L	0.005	<0.01		<0.01	
Calcium	mg/L	--	78.9		82.6	
Chromium III (Cr 3)	mg/L	0.5	<0.02		<0.02	
Chromium VI (Cr 6)	mg/L	0.5	<0.01		<0.01	
Copper (Cu)	µg/L	ch[3]	<10	26.0	<10	26.2
Iron (Fe)	mg/L	1	<0.02		<0.02	
Lead (Pb)	mg/L	0.05	<0.05		<0.05	
Magnesium	mg/L	--	36.5		35.3	

Attachment A: Parkdale Quarry 3Q 2022 Surface Water Field and Analytical Results (continued)

		Sample Location	CC-1		CC-2	
		Sample Date	9/29/2022		9/29/2022	
Manganese (Mn)	mg/L	--	<0.005	0.050	<0.005	0.050
Molybdenum (Mo)	mg/L	150	0.0037		0.0042	
Nickel (Ni)	mg/L	0.1	<0.03		<0.03	
Selenium (Se)	mg/L	4.6	<0.05		<0.05	
Silver (Ag)	mg/L	ch(5)	<0.03	0.64	<0.03	0.65
Zinc (Zn)	mg/L	ch(6)	<0.03	376.01	<0.03	380.24
Oil and Grease			NS		NS	

Notes:

< = Reported value less than Reporting Limit

NS- Not collected/measured

-- = No Applicable Standard

TVS = Table Value Standard.

ac =acute

ch = chronic

(1) Standards from 5 CCR 1002-31 TABLE II and TABLE III: The referenced water quality standard is the lower of the drinking water standard, human health standard, agricultural standard, or TVS.

(2) TVS (chronic elsp) from 5 CCR 1002-31 TABLE II

(3) Cu chronic standard from 5 CCR 1002-31 TABLE III = exp(0.8545*[ln(hardness)]-1.7428)

(4) Mg chronic standard from 5 CCR 1002-31 TABLE III = exp(0.3331*[ln(hardness)]+5.8743)

(5) Ag chronic trout standard from 5 CCR 1002-31 TABLE III = exp(1.72*[ln(hardness)]-10.51)

(6) Zn chronic standard from 5 CCR 1002-31 TABLE III = 0.986*exp((0.9094*[ln(hardness)]+0.6235)

Hardness = (Ca*2.497) + (Mg*4.118)

Attachment B

Attachment B: Parkdale Quarry 3Q 2022 Groundwater Water Field and Analytical Results

			Sample Location	MW-1		MW-3		MW-10	
			Sample Date	10/19/2022		9/28/2022		10/18/2022	
			Laboratory Report Number(s)	DA50245		DA49624, DA49610[6]		DA50244	
Parameter	**Units**	**Standard[1]**	**Note**	**Result**	**Precision**	**Result**	**Precision**	**Result**	**Precision**
Field									
Dissolved Oxygen (DO)	mg/L	-	-	NS		0.7		NS	
pH	std units	6.5-8.5	DWS	7.7		7.64		7.09	
Specific Conductivity (SC)	µS/Cm	-	-	575		45.3		684	
Temperature (T)	Celsius	-	-	15.8		18.7		26.5	
Turbidity	NTU	-	-	NS		14.85		NS	
Solution Parameters, Nonmetals, Major Ions									
Chloride	mg/L	250	-	6.2		5.2		7.1	
Fluoride	mg/L	2	A	1.8		2.0		1.5	
Sulfate	mg/L	250	DWS	85.4		51		89.7	
Total Dissolved Solids (TDS)	mg/L	400	Note 2	***454***		278		***458***	
Total Suspended Solids (TSS)	mg/L	-	-	1080		9.1		168	
Corrosivity as pH	std units	Noncorrosive[7]	DWS	7.98		8.09		7.24	
Nutrients									
Nitrogen, Nitrate	mg/L	10	HHS	6.6		1.9		0.51	
Nitrogen, Nitrite	mg/L	1	HHS	<0.004		<0.004		<0.0080	
Total Nitrate + Nitrite	mg/L	10	HHS	NS		3.3		NS	
Dissolved Metals									
Aluminum (Al)	mg/L	5	A	0.471		<0.1		<0.1	
Antimony (Sb)	mg/L	0.006	HHS	<0.0008		<0.0008		<0.0008	
Arsenic (As)	mg/L	0.01	HHS	<0.0004		<0.007[4]		0.00041	
Barium (Ba)	mg/L	2	HHS	0.017		<0.01		0.0467	
Beryllium (Be)	mg/L	0.004	HHS	<0.0004		<0.002[4]		<0.0004	
Boron (B)	mg/L	0.75	A	<0.08		0.0518		<0.08	
Cadmium (Cd)	mg/L	0.005	HHS	<0.0002		<0.01		<0.0002	
Chromium, total	mg/L	0.1	HHS	<0.004		<0.01		<0.004	
Cobalt (Co)	mg/L	0.05	A	<0.0004		<0.005		<0.0004	
Copper (Cu)	mg/L	0.2	A	<0.004		<0.01		<0.004	
Iron (Fe)	mg/L	0.3	DWS	0.229		<0.02		<0.04	
Lead (Pb)	mg/L	0.05	HHS	<0.001		<0.05		<0.001	
Lithium (Li)	mg/L	2.5	A	0.0213		0.0212		0.0247	

Attachment B: Parkdale Quarry 3Q 2022 Groundwater Water Field and Analytical Results (continued)

				Sample Location	MW-1		MW-3		MW-10	
				Sample Date	10/19/2022		9/28/2022		10/18/2022	
Manganese (Mn)	mg/L	0.05	DWS		0.0037		<0.005		<0.002	
Molybdenum (Mo)	mg/L	0.21	HHS		0.018		0.022		0.0147	
Nickel (Ni)	mg/L	0.1	HHS		<0.004		<0.03		<0.004	
Selenium (Se)	mg/L	0.02	A		0.0046		<0.05		0.0029	
Silver (Ag)	mg/L	0.05	HHS		<0.0002		<0.03		<0.0002	
Thallium (Tl)	mg/L	0.002	HHS		<0.0004		<0.0001		<0.0004	
Uranium (U)	mg/L	0.03	MCL		0.0163		0.0247		***0.0363***	
Vanadium (V)	mg/L	0.1	A		<0.002		<0.01		0.0027	
Zinc (Zn)	mg/L	2	A		<0.02		<0.03		<0.02	
Radionuclides										
Gross Alpha	pCi/L	-			8.8	3.8	30.7	6.5	34.1	7.8
Adjusted Gross Alpha (calculated)	pCi/L	15	Note 3		-12.5	-	2.2	-	9.8	-
Gross Beta	pCi/L	50	Scrn Level		4	2	11.5	1.9	3	1.1
Radium 226	pCi/L	-	-		2.4	0.5	0.2	0.1	1.2	0.3
Radium 228	pCi/L	-	-		7	1.6	1.6	0.5	2.1	0.8
Radon 222	pCi/L	-	-		1740	73.8	4230	118	1310	70.2
Uranium 234	pCi/L	-	-		15.3	3	20.3	3.9	(5)	-
Uranium 235	pCi/L	-	-		0.8	0.2	0.9	0.2	(5)	-
Uranium 238	pCi/L	-	-		6	1.2	8.2	1.6	(5)	-

Bold italic numbers represent results exceeding applicable standard

Notes

NS- Not collected/measured

< = Reported value less than Reporting Limit

A - Agricultural Standard

DWS - Drinking Water Standard

HHS - Human Health Standard

MDC - Minimal Detectable Concentration

MCL-Maximum Containment Level

TVS: Table Value Standard

WS: Water Supply Standard

(1) Standards from 5 CCR 1002-41: The referenced water quality standard is the lower of the drinking water standard, human health standard, agricultural standard, or TVS.

(2) 5 CCR 1002-41, Table 4

(3) Adjusted Gross Alpha (pCi/L) = Gross Alpha (pCi/L)- [U 234 pCi/L + U 238 pCi/L].
If Uranium is not speciated, then Adjusted Gross Alpha (pCi/L) = Uranium (ug/L) * 0.67

(4) Not detected, value represents method detection limit

(5) No analysis performed

(6) Including QA/QC sample (Field Blank and Equipment Blank) results

(7) All samples reported as non-corrosive

Attachment C

DISCHARGE MEASUREMENT FORM

Sample Location: CC1 Date: 9/29/22 Samplers: DS EM

Method: velocity area Meter Type/Model/Serial No.:

Observations:

DIST FROM INIT POINT	WIDTH (FT)	DEPTH (FT)	OBSER DEPTH	REVS	TIME (SEC)	VELOCITY (F/S) AT POINT	VELOCITY (F/S) MEAN IN VERTICAL	AREA (FT)	DISCHARGE (CFS)
0.5	(LEW) or REW (circle one) at time= 1135								
1		0.68				0.14			
1.4		0.76				0.3			
1.8		0.8				0.35			
2.2		0.8				0.34			
2.6		0.7				0.25			
3		0.7				0.01			
3.4		0.68				0			
4		0.25				0			
2		0.8				0.36			
1.6		0.8				0.32			
2.4		0.77				0.34			
1.2		0.74				0.31			
	LEW or (REW) (circle one) at time=								

4.5 4/10 = 0.4 increments

SURFACE WATER DATA SHEET

IDENTIFICATION

Sample Location CC1 Date 9/29/22 Time 1145 Page 1 of 1

Sample Control Number _____ Samplers DS EH

WEATHER CONDITIONS

Ambient Air Temperature: 75 °C ☐ °F ☒ Not Measured? ☒

Precipitation: None ☐ Rain ☐ Snow ☐ Heavy ☐ Moderate ☐ Light ☒ Sunny ☐ Partly Cloudy ☐

SAMPLE LOCATION DESCRIPTION

1400 yards ds of CC1, very dense vegetation

SAMPLE COLLECTION PROCEDURE

grab sample

DISCHARGE MEASUREMENT

Method: velocity area

Comments/Observations:

Discharge

Final Sample Parameters

Sample Date	Sample Time	D.O (mg/L	pH	Cond. (µS/cm)	Temp. °C ☒ °F ☐	Turbidity (NTU)
9/29/22	1145	8.27	8.36	970	13.7	0.26

Was a duplicate sample collected? Yes ☐ No ☒ (sample control number _____)

Was a field blank collected? Yes ☐ No ☒ (sample control number _____)

Was a equipment blank collected? Yes ☐ No ☒ (sample control number _____)

Notes _____

DISCHARGE MEASUREMENT FORM

Sample Location: CC2 Date: 9/29/22 Samplers: DS EM

Method: _____ Meter Type/Model/Serial No.: _____

Observations: underwater vegetation

DIST FROM INIT POINT	WIDTH (FT)	DEPTH (FT)	OBSER DEPTH	REVS	TIME (SEC)	VELOCITY (F/S) AT POINT	VELOCITY (F/S) MEAN IN VERTICAL	AREA (FT)	DISCHARGE (CFS)
	LEW or REW (circle one) at time= 10:10								
4.0		0.75				0	10		
4.2		0.75				0			
4.4		0.8				0.08			
4.6		0.78				0.1			
4.8		0.82				0.13			
5.0		0.77				0.05			
5.2		0.75				0.26			
5.4		0.7				0.13			
5.6		0.6				0.01			
5.8		0.47				0			
6.0	LEW					0			
5.3		0.74				0.10			
4.9		0.8				0.09			
	LEW or REW (circle one) at time=								

7.4 / 12 = 0.2 ft increments

SURFACE WATER DATA SHEET

IDENTIFICATION
Sample Location CC2 Date 9/29/22 Time 1038 Page_ of
Sample Control Number_____ Samplers _____

WEATHER CONDITIONS
Ambient Air Temperature: 75 °C ☐ °F ☒ Not Measured? ☒
Precipitation: None ☐ Rain ☐ Snow ☐ Heavy ☐ Moderate ☐ Light ☐ Sunny ☒ Partly Cloudy ☐

SAMPLE LOCATION DESCRIPTION
approx 200 ft ds of CC2, dense vegetation

SAMPLE COLLECTION PROCEDURE
grab sample

DISCHARGE MEASUREMENT

Method: velocity area
Comments/Observations:
dense underwater vegetation, see discharge form

Discharge

Final Sample Parameters

Sample Date	Sample Time	D.O (mg/L	pH	Cond. (µS/cm)	Temp. °C ☒ °F ☐	Turbidity (NTU)
9/29/22	1034	6.39	8.07	988	15.2	1746

Was a duplicate sample collected? Yes ☐ No ☒ (sample control number_____)
Was a field blank collected? Yes ☐ No ☒ (sample control number_____)
Was a equipment blank collected? Yes ☐ No ☒ (sample control number_____)
Notes _____

Attachment D

GROUNDWATER SAMPLING FIELD DATA SHEET – MICRO-PURGE

Project Name: Parkdale	Sampler Name(s): Beth Haake	Monitoring Well #: MW-1	Date: 10/19/22

Groundwater Measurements and Purge Data

1. Water Level* (±0.01ft.)	141.08	4. Pump Rate (gal/min)	0.5 L/m
2. Bottom of Casing* (±0.01ft.)	**239 ft**	5. Actual Volume of Water Purged (gal)	10gal
3. Depth of Water (ft)	97.92	6. Casing Diameter (in.) / Screen Depth (ft)	**2" / 50'-250'**

*Measured from surveyed top of casing

Field Parameters

Date	Time	Volume Purged (gallons)	pH (s.u.)	Temperature (C)	SC (uS/cm)
	5:		7.67	16.3	601
	5:05		7.96	16.6	579
	5:10		7.86	16.5	580
	5:15		7.8	15.8	576
	:20		7.69	~~15.8~~ 15.7	585
	:25		~~7.91~~	15.9	569
	:30		7.70	15.7	570
	:35		7.70	15.8	575
	:40				
	:45				

GROUNDWATER SAMPLING FIELD DATA SHEET – MICRO-PURGE

Project Name: Parkdale	Sampler Name(s): Beth Haake	Monitoring Well #: MW-10	Date:

Groundwater Measurements and Purge Data

1. Water Level* (±0.01ft.)	30.27	4. Pump Rate (gal/min)	0.129 l/m
2. Bottom of Casing* (±0.01ft.)	**251 ft**	5. Actual Volume of Water Purged (gal)	
3. Depth of Water (ft)	220.73	6. Casing Diameter (in.) / Screen Depth (ft)	**2" / 50'-251'**

*Measured from surveyed top of casing

100'

Field Parameters

Date	Time	Volume Purged (gallons)	pH (s.u.)	Temperature (C)	SC (uS/cm)
10/19/22	~~11:05A~~				~~8~~
	11:10A		7.15	17.9	722
	11:15A		7.26	18.1	739
	11:20		7.49	18.6	729
	11:~~25~~		7.32	18.8	730
	11:30		7.04	20.4	734
	11:35		7.08	22.6	728
	11:40		7.14	22.4	660
	11:~~45~~		7.15	22.6	676
	11:50		7.10	23.4	678
	11:55		7.09	25.2	684
	12		7.11	24.8	676
	12:05		7.10	25.2	677
	12:10		7.09	24.5	684

MW-10

- encountered obstruction @ 75', able to get past
- pump intake to 100'
- 28.28 with assembly inside - ~~detec~~ from top of casing
- 29.25 - assembly in, water pumped
- 29.64 - pipe/hose full

12 sec - 125 mL

$\frac{125\ mL}{12\ sec} \frac{L}{1000\ mL} \frac{60\ sec}{min} = 0.72\ L/min$

.03 g/min 0.12 L/min 10.42 mL/s

11:05A start time

30.55
31.10
31.95
32.62
33.03
33.37
34.22
34.54
35.43
37.11
38.41
39.32
41.27

$\frac{1.5\ g}{hr} \frac{hr}{60\ min}$

2" 4.32 ft

1.5 gallons / 1 hour

1 hr

$\left(\frac{1.5\ gal}{1\ hr}\right)\left(\frac{1\ hr}{60\ min}\right) = \left(0.025\ \frac{gal}{min}\right)\left(\frac{3.785\ L}{1\ gal}\right)$

0.095 L/min

0.1 L/min

0.105 L/min

$\left(\frac{0.129\ L}{min}\right)\left(\frac{3.88\ m}{500\ mL}\right)\left(\frac{1000\ mL}{1\ L}\right)$

$\left(\frac{500\ mL}{3.88\ m}\right)\left(\frac{L}{1000\ mL}\right)$

$0.125\ in \left|\frac{ft}{12}\right. \frac{0.129\ L}{min} \cdot \frac{gal}{3.785\ L}$

175' 1/4"

1/4" => 1/8" r 0.125" .01'

.411 gal

.44 gal $\frac{3.785}{gal}$

MW-1

Water level @ start (no equip in)

141.08 — 97.92 ft of water

5gal
1

152.91
157.51
159.08
164.45
165.21

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GROUNDWATER DATA SHEET

Project Name	Parkland Quarry	Project No.	117-8741008
Site Location	Parkland Quarry	Date	9/23/22
Weather	cloudy		
Well ID	3	Well Depth	249 (ft btoc)
Static Water Level (SWL)	49.90 (ft btoc)	SWL Time	1430
Feet of Water	199.1 (ft)	casing volume = feet water* 1632	32.5
		Casing Volume x3	97.5 (gal)
		Casing Volume x5	162.5 (gal)
Condition of Well	Good Screen 20 - 249		
Purge Equipment	Grundfos BMI / MP1 - 115 V Serial MFG - MJ - 363 Redi-flow 2		

PURGING DATA

Time	Discharge Rate (mL/min)	D.O. mg/L	pH S.U	Temp °C	Specific Cond µS/cm	Turbidity NTU	Cumulative Volume gal	Depth to Water ft. btoc	Comments
1454									pump in
1506									pump off wl 84.38
1511									pump fixed
1720		1.03	7.66	18.7	446.7	14.52	97		
1725		0.75	7.64	18.7	444.5	15.12	100		
1728		0.72	7.64	18.7	444.8	14.04	102		
1731	~0.6	0.70	7.64	18.7	445.3	14.85	104		
Final Parameter Data									

Sample I.D	MW-3-092822	Sample Date/Time	9/20/22 1734
Sampler Name	DS EM		
Sample Depth	190 ft.	No. of Bottles	15
QC Samples	N/A	Field Duplicate ID	Date/time
		Field Blank ID	Date/time
		Equipment Blank ID	Date/time

Remarks/Comments

WL = 121.36 @ 1546

Sampler Signature _____ Date _____

Attachment E

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Tetra Tech Longmont

Parkdale Quarry

SGS Job Number: DA49610

Sampling Dates: 09/28/22 - 09/29/22

Report to:

Tetra Tech Inc
351 Coffman Street
Longmont, CO 80501
ed.muller@tetratech.com

ATTN: Fred Charles

Total number of pages in report: 17

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: Larisa DiMarco 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

Sections:

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SGS North America Inc.

Sample Summary

Tetra Tech Longmont

Parkdale Quarry

Job No: DA49610

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA49610-1	09/28/22	17:34	DSEM	09/30/22	AQ	Ground Water	MW-3-092822
DA49610-2	09/29/22	09:00	EM	09/30/22	AQ	Water	FB
DA49610-3	09/29/22	08:50	EM	09/30/22	AQ	Water	EB

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Tetra Tech Longmont	**Job No:**	DA49610
Site:	Parkdale Quarry	**Report Date**	10/13/2022 9:11:48 A

On 09/30/2022, 3 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 3.2 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA49610 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

General Chemistry By Method EPA300.0

Matrix: AQ **Batch ID:** GP32671

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49610-3MS, DA49610-3MSD were used as the QC samples for the Chloride, Nitrogen, Nitrite, Sulfate, Chloride, Nitrogen, Nitrate analysis.
- The matrix spike (MS) recovery(s) of Nitrogen, Nitrate are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Nitrogen, Nitrate are outside control limits. Probable cause due to matrix interference.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: DA49610
Account: Tetra Tech Longmont
Project: Parkdale Quarry
Collected: 09/28/22 thru 09/29/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA49610-1	**MW-3-092822**					
Chloride		5.2	0.50		mg/l	EPA300.0
Nitrogen, Nitrate		1.9	0.10		mg/l	EPA300.0
Sulfate		51.0	5.0		mg/l	EPA300.0
DA49610-2	**FB**					
Nitrogen, Nitrate		0.030	0.010		mg/l	EPA300.0
DA49610-3	**EB**					
Nitrogen, Nitrate		0.023	0.010		mg/l	EPA300.0

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-3-092822		
Lab Sample ID:	DA49610-1	**Date Sampled:**	09/28/22
Matrix:	AQ - Ground Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Chloride	5.2	0.50	mg/l	1	09/30/22 13:11	AP	EPA300.0
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	09/30/22 13:11	AP	EPA300.0
Nitrogen, Nitrate	1.9	0.10	mg/l	10	09/30/22 14:47	AP	EPA300.0
Sulfate	51.0	5.0	mg/l	10	09/30/22 14:47	AP	EPA300.0

RL = Reporting Limit

Report of Analysis

Client Sample ID: FB
Lab Sample ID: DA49610-2
Matrix: AQ - Water
Project: Parkdale Quarry

Date Sampled: 09/29/22
Date Received: 09/30/22
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Chloride	< 0.50	0.50	mg/l	1	09/30/22 13:25	AP	EPA300.0
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	09/30/22 13:25	AP	EPA300.0
Nitrogen, Nitrate	0.030	0.010	mg/l	1	09/30/22 13:25	AP	EPA300.0
Sulfate	< 0.50	0.50	mg/l	1	09/30/22 13:25	AP	EPA300.0

RL = Reporting Limit

Report of Analysis

Client Sample ID:	EB		
Lab Sample ID:	DA49610-3	**Date Sampled:**	09/29/22
Matrix:	AQ - Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Chloride	< 0.50	0.50	mg/l	1	09/30/22 13:39	AP	EPA300.0
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	09/30/22 13:39	AP	EPA300.0
Nitrogen, Nitrate	0.023	0.010	mg/l	1	09/30/22 13:39	AP	EPA300.0
Sulfate	< 0.50	0.50	mg/l	1	09/30/22 13:39	AP	EPA300.0

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

Page ___ of ___

Bottle Order Control #:
FED-EX Tracking #:
SGS Quote #:
SGS Job #: DA49610

Client / Reporting Information

Company: Tetra Tech
Street: 351 Coffman St.
City, State ZIP: Longmont, CO 80501
Project Contact: Fred Charles
Phone: 9704437065
Email: ed.muller@tetratech.com
Sampler(s) Name(s): Ed Muller

Project Information

Project Name: Parkdale Quarry
Street:
City, State ZIP:
Project #: 117-8741008
Client Purchase Order #:
Project Manager: Fred Charles

Billing Information (if different from Report to)

Company:
Street Address:
City, State ZIP:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB-Equipment Blank; RB - Rinse Blank; TB - Trip Blank

Field ID / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MeOH	ENCORE	Na2S2O3	NaHSO3	NO3O, NO2, SO4, CHL	LAB USE ONLY
MW-3-092922	9/28/22	1784	DS/EM	GW	1											X	1
FB	9/29/22	900	EM	WW	1											X	2
EB	9/29/22	850	EM	WW	1											X	3

Turnaround Time (Business days)

- [x] Standard 10 Business Days
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENC

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed.

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [x] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ (Results/QC/Narrative (+ chromatograms))
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format _____

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1	9/29/22 9:20	1	2		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3		3	4		4

Custody Seal # Intact [x] Not Intact [ ] Absent [ ]
Preserved where applicable [x]
Cooler Temp. °C: 3.6 Therm. ID: ID50
On Ice [x]

http://www.sgs.com/en/terms-and-conditions

EHSA-QAC-0027-00-FORM-Wheat Ridge - DW COC; Rev. Date: 4/10/18

5.1.5

DA49610: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA49610 **Client:** TETRA TECH **Project:** PARKDALE QUARRY

Date / Time Received: 9/30/2022 10:30:00 AM **Delivery Method:** FEDEX **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (3.2/3.2);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Problem Resolution

Job Number: DA49610

CSR: _____ **Response Date:** _____

Response:

DA49610: Chain of Custody
Page 3 of 3

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49610
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP32671/GN57874	0.050	0.0	mg/l	0.5	0.501	100.2	90-110%
Chloride	GP32671/GN57874	0.50	0.0	mg/l	5	4.92	98.4	90-110%
Fluoride	GP32671/GN57874	0.10	0.0	mg/l	1	0.988	98.8	90-110%
Nitrogen, Nitrate	GP32671/GN57874	0.010	0.0	mg/l	0.1	0.0992	99.2	90-110%
Nitrogen, Nitrite	GP32671/GN57874	0.0040	0.0	mg/l	0.05	0.0498	99.6	90-110%
Sulfate	GP32671/GN57874	0.50	0.0	mg/l	5	5.00	100.0	90-110%

Associated Samples:
Batch GP32671: DA49610-1, DA49610-2, DA49610-3
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49610
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP32671/GN57874	DA49610-3	mg/l	0.0	0.5	0.49	98.0	80-120%
Chloride	GP32671/GN57874	DA49610-3	mg/l	0.0	5	4.8	96.0	80-120%
Fluoride	GP32671/GN57874	DA49610-3	mg/l	0.0	1	0.96	96.0	80-120%
Nitrogen, Nitrate	GP32671/GN57874	DA49610-3	mg/l	0.023	0.1	0.099	76.0N(a)	80-120%
Nitrogen, Nitrite	GP32671/GN57874	DA49610-3	mg/l	0.0	0.05	0.048	96.0	80-120%
Sulfate	GP32671/GN57874	DA49610-3	mg/l	0.0	5	4.9	98.0	80-120%

Associated Samples:
Batch GP32671: DA49610-1, DA49610-2, DA49610-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49610
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP32671/GN57874	DA49610-3	mg/l	0.0	0.5	0.49	0.0	20%
Chloride	GP32671/GN57874	DA49610-3	mg/l	0.0	5	4.9	2.1	20%
Fluoride	GP32671/GN57874	DA49610-3	mg/l	0.0	1	0.98	2.1	20%
Nitrogen, Nitrate	GP32671/GN57874	DA49610-3	mg/l	0.023	0.1	0.10	1.0	20%
Nitrogen, Nitrite	GP32671/GN57874	DA49610-3	mg/l	0.0	0.05	0.048	0.0	20%
Sulfate	GP32671/GN57874	DA49610-3	mg/l	0.0	5	5.0	2.0	20%

Associated Samples:
Batch GP32671: DA49610-1, DA49610-2, DA49610-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Tetra Tech Longmont

Parkdale Quarry

117-8741008

SGS Job Number: DA49619

Sampling Date: 09/29/22

Report to:

Tetra Tech Inc
351 Coffman Street
Longmont, CO 80501
ed.muller@tetratech.com

ATTN: Fred Charles

Total number of pages in report: **36**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

Sections: 1 2 3 4 5 6 7

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SGS North America Inc.

Sample Summary

Tetra Tech Longmont

Job No: DA49619

Parkdale Quarry
Project No: 117-8741008

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA49619-1	09/29/22	10:38		09/30/22	AQ	Surface Water	CC-2-092922
DA49619-1F	09/29/22	10:38		09/30/22	AQ	Surface H2O Filtered	CC-2-092922
DA49619-2	09/29/22	11:45		09/30/22	AQ	Surface Water	CC-1-092922
DA49619-2F	09/29/22	11:45		09/30/22	AQ	Surface H2O Filtered	CC-1-092922

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Tetra Tech Longmont	**Job No:**	DA49619
Site:	Parkdale Quarry	**Report Date**	11/29/2022 4:22:02 P

On 09/30/2022, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA49619 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals Analysis By Method EPA 200.7

Matrix: AQ **Batch ID:** MP36189

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49484-1MS, DA49484-1MSD were used as the QC samples for the metals analysis.

Metals Analysis By Method EPA 200.8

Matrix: AQ **Batch ID:** MP36471

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA51003-1MS, DA51003-1MSD were used as the QC samples for the metals analysis.

General Chemistry By Method CALCULATION

Matrix: AQ **Batch ID:** R59078

- The data for CALCULATION meets quality control requirements.
- DA49619-1F for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix: AQ **Batch ID:** R59082

- The data for CALCULATION meets quality control requirements.
- DA49619-2F for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

General Chemistry By Method EPA300.0

Matrix:	AQ	Batch ID:	GP32671

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49610-3MS, DA49610-3MSD were used as the QC samples for the Chloride, Fluoride, Nitrogen, Nitrite, Sulfate, Chloride, Nitrogen, Nitrate analysis.
- The matrix spike (MS) recovery(s) of Nitrogen, Nitrate are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Nitrogen, Nitrate are outside control limits. Probable cause due to matrix interference.
- DA49619-2 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.
- DA49619-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

General Chemistry By Method SM 2540D-2011

Matrix:	AQ	Batch ID:	GN57880

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49634-1DUP were used as the QC samples for the Solids, Total Suspended analysis.

General Chemistry By Method SM 3500CR B-2011

Matrix:	AQ	Batch ID:	GN57980

- All method blanks for this batch meet method specific criteria.
- Sample(s) DA42058-21DUP, DA42058-21MS, DA42058-21MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- The following samples were run outside of holding time for method SM 3500CR B-2011: DA49619-1F, DA49619-2F Sample preserved within 24hrs. to extend the hold time.

General Chemistry By Method SM 4500NH3 D-2011

Matrix:	AQ	Batch ID:	GP32689

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TD83200-3ADUP, TD83200-3AMS, TD83200-3AMSD were used as the QC samples for the Nitrogen, Ammonia analysis.

General Chemistry By Method SM 4500S2 F-2011

Matrix:	AQ	Batch ID:	GN57911

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49619-2DUP were used as the QC samples for the Sulfide analysis.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: DA49619
Account: Tetra Tech Longmont
Project: Parkdale Quarry
Collected: 09/29/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA49619-1	**CC-2-092922**					
Fluoride		0.80	0.50		mg/l	EPA300.0
Chloride		66.3	2.5		mg/l	EPA300.0
Nitrogen, Nitrate		0.63	0.050		mg/l	EPA300.0
Sulfate		95.5	2.5		mg/l	EPA300.0
Solids, Total Suspended		7.3	5.0		mg/l	SM 2540D-2011
DA49619-1F	**CC-2-092922**					
Calcium		82600	400		ug/l	EPA 200.7
Magnesium		35300	200		ug/l	EPA 200.7
Molybdenum		4.2	2.0		ug/l	EPA 200.8
DA49619-2	**CC-1-092922**					
Fluoride		0.84	0.50		mg/l	EPA300.0
Chloride		69.5	2.5		mg/l	EPA300.0
Nitrogen, Nitrate		0.046	0.020		mg/l	EPA300.0
Sulfate		96.9	2.5		mg/l	EPA300.0
Solids, Total Suspended		8.9	5.0		mg/l	SM 2540D-2011
Sulfide		0.50	0.50		mg/l	SM 4500S2 F-2011
DA49619-2F	**CC-1-092922**					
Calcium		78900	400		ug/l	EPA 200.7
Magnesium		36500	200		ug/l	EPA 200.7
Molybdenum		3.7	2.0		ug/l	EPA 200.8

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	CC-2-092922		
Lab Sample ID:	DA49619-1	**Date Sampled:**	09/29/22
Matrix:	AQ - Surface Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	0.80	0.50	mg/l	5	09/30/22 15:01	AP	EPA300.0
Chloride	66.3	2.5	mg/l	5	09/30/22 15:01	AP	EPA300.0
Nitrogen, Nitrite [a]	< 0.020	0.020	mg/l	5	09/30/22 15:01	AP	EPA300.0
Nitrogen, Nitrate	0.63	0.050	mg/l	5	09/30/22 15:01	AP	EPA300.0
Sulfate	95.5	2.5	mg/l	5	09/30/22 15:01	AP	EPA300.0
Nitrogen, Ammonia	< 0.050	0.050	mg/l	1	10/04/22 15:33	TH	SM 4500NH3 D-2011
Solids, Total Suspended	7.3	5.0	mg/l	1	10/03/22	KH	SM 2540D-2011
Sulfide	< 0.50	0.50	mg/l	1	10/05/22	KH	SM 4500S2 F-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: CC-2-092922
Lab Sample ID: DA49619-1F
Matrix: AQ - Surface H2O Filtered
Project: Parkdale Quarry

Date Sampled: 09/29/22
Date Received: 09/30/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 25	25	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Cadmium	< 10	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Calcium	82600	400	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Chromium	< 10	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Copper	< 10	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Iron	< 20	20	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Lead	< 50	50	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Magnesium	35300	200	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Manganese	< 5.0	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Molybdenum	4.2	2.0	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [2]	EPA 200.8 [4]
Nickel	< 30	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Selenium	< 50	50	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Silver	< 30	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Zinc	< 30	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA15764
(2) Instrument QC Batch: MA15923
(3) Prep QC Batch: MP36189
(4) Prep QC Batch: MP36471

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CC-2-092922		
Lab Sample ID:	DA49619-1F	**Date Sampled:**	09/29/22
Matrix:	AQ - Surface H2O Filtered	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	10/10/22 12:24	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.020	0.020	mg/l	1	10/14/22 16:35	CDL	CALCULATION

(a) Sample preserved within 24hrs. to extend the hold time.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CC-1-092922		
Lab Sample ID:	DA49619-2	**Date Sampled:**	09/29/22
Matrix:	AQ - Surface Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	0.84	0.50	mg/l	5	09/30/22 15:15	AP	EPA300.0
Chloride	69.5	2.5	mg/l	5	09/30/22 15:15	AP	EPA300.0
Nitrogen, Nitrite [a]	< 0.020	0.020	mg/l	5	09/30/22 15:15	AP	EPA300.0
Nitrogen, Nitrate	0.046	0.020	mg/l	2	09/30/22 18:04	AP	EPA300.0
Sulfate	96.9	2.5	mg/l	5	09/30/22 15:15	AP	EPA300.0
Nitrogen, Ammonia	< 0.050	0.050	mg/l	1	10/04/22 15:33	TH	SM 4500NH3 D-2011
Solids, Total Suspended	8.9	5.0	mg/l	1	10/03/22	KH	SM 2540D-2011
Sulfide	0.50	0.50	mg/l	1	10/05/22	KH	SM 4500S2 F-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: CC-1-092922
Lab Sample ID: DA49619-2F
Matrix: AQ - Surface H2O Filtered
Project: Parkdale Quarry

Date Sampled: 09/29/22
Date Received: 09/30/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 25	25	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Cadmium	< 10	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Calcium	78900	400	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Chromium	< 10	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Copper	< 10	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Iron	< 20	20	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Lead	< 50	50	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Magnesium	36500	200	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Manganese	< 5.0	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Molybdenum	3.7	2.0	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [2]	EPA 200.8 [4]
Nickel	< 30	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Selenium	< 50	50	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Silver	< 30	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]
Zinc	< 30	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA15764
(2) Instrument QC Batch: MA15923
(3) Prep QC Batch: MP36189
(4) Prep QC Batch: MP36471

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CC-1-092922		
Lab Sample ID:	DA49619-2F	**Date Sampled:**	09/29/22
Matrix:	AQ - Surface H2O Filtered	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	10/10/22 12:25	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.020	0.020	mg/l	1	10/14/22 16:40	CDL	CALCULATION

(a) Sample preserved within 24hrs. to extend the hold time.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

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Bottle Order Control #	FED-EX Tracking #
SGS Quote #	SGS Job # DA49619

Client / Reporting Information

Company:	Tetra Tech
Street:	351 Coffman St.
City, State ZIP:	Longmont, CO 80501
Project Contact:	Fred Charles
Phone:	9704437065
Email:	ed.muller@tetratech.com
Sampler(s) Name(s):	

Project Information

Project Name:	Parkdale Quarry
Street:	
City, State ZIP:	
Project #:	117-8741008
Client Purchase Order #:	
Project Manager:	Fred Charles

Billing Information (if different from Report to)

Company:	
Street Address:	
City, State ZIP:	
Attention:	

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL- Sludge, SED-Sediment, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe, FB - Field Blank, EB-Equipment Blank, RB - Rinse Blank, TB - Trip Blank

Field ID / Point of Collection	Date	Time	Sampled by	Matrix	# of bottles	NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	Na2SO3	F	DISS METAL EPA 200.7 As, Cd, Cr3, Cr6, Cu, Fe, Pb, Mn, Mo, Ni, Se, Ag, Zn	TSS	AMN	S	NO3O, NO2, SO4, CHL	OG1664	CORR	LAB USE ONLY
~~TC-2~~ DS				SW																				
~~TC-1~~ DS				SW																				
CC-2-092922	9/29/22	1038		SW	6											X	X	X	X	X	X			1
CC-1-092922	9/29/22	1145		SW	6											X	X	X	X	X	X			2

Turnaround Time (Business days)

- [x] Standard 10 Business Days
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed.

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [x] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ [Results/QC/Narrative (+ chromatograms)]
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format ______

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1 [signature]	Date/Time: 5/30/22 11:17	Received By: 1	Relinquished By: 2	Date/Time:	Received By: 2
Relinquished by Sampler: 3	Date/Time:	Received By: 3	Relinquished By: 4	Date/Time:	Received By: 4
Custody Seal #	Intact [x] Not Intact [ ] Absent [ ]	Preserved where applicable [x]	Cooler Temp. °C: 4.0	Therm. ID: 1036	On Ice [x]

http://www.sgs.com/en/terms-and-conditions

EHSA-QAC-0027-00-FORM-Wheat Ridge - DW COC: Rev. Date: 4/10/18

5.1

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DA49619: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA49619 **Client:** TETRA TECH **Project:** PARKDALE QUARRY

Date / Time Received: 9/30/2022 11:19:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (4/4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Problem Resolution

Job Number: DA49619

CSR: _____ **Response Date:** _____

Response:

DA49619: Chain of Custody
Page 3 of 3

Metals Analysis

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	46	50		
Antimony	30	14	20		
Arsenic	25	22	7	1.5	<25
Barium	10	.3	3		
Beryllium	10	1	2		
Boron	50	3.3	10		
Cadmium	10	1.9	5	0.80	<10
Calcium	400	6.6	61	4.6	<400
Chromium	10	1.1	2	0.0	<10
Cobalt	5.0	2.7	4		
Copper	10	4.6	6	0.60	<10
Iron	20	8.9	10	3.8	<20
Lead	50	13	15	-1.0	<50
Lithium	5.0	.6	4		
Magnesium	200	50	40	-2.1	<200
Manganese	5.0	.5	1	0.20	<5.0
Molybdenum	10	8.5	3		
Nickel	30	6.2	10	0.0	<30
Phosphorus	150	91	110		
Potassium	1000	84	300		
Selenium	50	30	30	-11	<50
Silicon	100	41	50		
Silver	30	.6	5	0.30	<30
Sodium	400	13	150		
Strontium	5.0	.1	1		
Thallium	12	17	11		
Tin	60	41	51		
Titanium	10	.5	2		
Uranium	50	3.9	20		
Vanadium	10	.9	2		
Zinc	30	9	7	1.7	<30

Associated samples MP36189: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	0.0	1030	1000	103.0	70-130
Barium	anr				
Beryllium	anr				
Boron	anr				
Cadmium	0.0	502	500	100.4	70-130
Calcium	32700	56500	25000	95.2	70-130
Chromium	1.4	474	500	94.5	70-130
Cobalt	anr				
Copper	35.6	540	500	100.9	70-130
Iron	370	5190	5000	96.4	70-130
Lead	0.0	914	1000	91.4	70-130
Lithium	anr				
Magnesium	9410	34500	25000	100.4	70-130
Manganese	20.5	957	1000	93.5	70-130
Molybdenum	anr				
Nickel	11.1	280	500	93.8	70-130
Phosphorus					
Potassium	anr				
Selenium	0.0	918	1000	91.8	70-130
Silicon					
Silver	0.0	187	200	93.5	70-130
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium	anr				
Uranium	anr				
Vanadium	anr				
Zinc	24.6	512	500	97.5	70-130

Associated samples MP36189: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original MS	Spikelot ICPALL5	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	0.0	1050	1000	105.0	1.9	20
Barium	anr					
Beryllium	anr					
Boron	anr					
Cadmium	0.0	504	500	100.8	0.4	20
Calcium	32700	57000	25000	97.2	0.9	20
Chromium	1.4	478	500	95.3	0.8	20
Cobalt	anr					
Copper	35.6	545	500	101.9	0.9	20
Iron	370	5220	5000	97.0	0.6	20
Lead	0.0	924	1000	92.4	1.1	20
Lithium	anr					
Magnesium	9410	34800	25000	101.6	0.9	20
Manganese	20.5	956	1000	93.5	0.1	20
Molybdenum	anr					
Nickel	11.1	485	500	94.8	1.0	20
Phosphorus						
Potassium	anr					
Selenium	0.0	941	1000	94.1	2.5	20
Silicon						
Silver	0.0	185	200	92.5	1.1	20
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium	anr					
Uranium	anr					
Vanadium	anr					
Zinc	24.6	518	500	98.7	1.2	20

Associated samples MP36189: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original MSD	Spikelot ICPALL5 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	1010	1000	101.0	85-115
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	505	500	101.0	85-115
Calcium	24600	25000	98.4	85-115
Chromium	473	500	94.6	85-115
Cobalt	anr			
Copper	462	500	92.4	85-115
Iron	4830	5000	96.6	85-115
Lead	946	1000	94.6	85-115
Lithium	anr			
Magnesium	25000	25000	100.0	85-115
Manganese	928	1000	92.8	85-115
Molybdenum	anr			
Nickel	465	500	93.0	85-115
Phosphorus				
Potassium	anr			
Selenium	965	1000	96.5	85-115
Silicon				
Silver	171	200	85.5	85-115
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium	anr			
Uranium	anr			
Vanadium	anr			
Zinc	483	500	96.6	85-115

Associated samples MP36189: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/21/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3		
Arsenic	0.20	.05	.05		
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04		
Calcium	400	25	100		
Chromium	2.0	.087	.25		
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81		
Iron	20	1.6	10		
Lead	0.50	.094	.13		
Magnesium	100	10	25		
Manganese	1.0	.079	.51		
Molybdenum	1.0	.037	.27	0.050	<1.0
Nickel	2.0	.098	.35		
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1		
Silver	0.10	.0081	.025		
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05		
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05		
Vanadium	1.0	.14	.2		
Zinc	10	.05	2.1		

Associated samples MP36471: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/21/22

Metal	DA51003-1 Original MS		Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium					
Beryllium					
Boron	anr				
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum	1.9	104	100	102.1	70-130
Nickel	anr				
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium	anr				
Vanadium					
Zinc	anr				

Associated samples MP36471: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/21/22

Metal	DA51003-1 Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium						
Beryllium						
Boron	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum	1.9	105	100	103.1	1.0	20
Nickel	anr					
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	anr					

Associated samples MP36471: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/21/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium				
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	102	100	102.0	85-115
Nickel	anr			
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	anr			

Associated samples MP36471: DA49619-1F, DA49619-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP32671/GN57874	0.050	0.0	mg/l	0.5	0.501	100.2	90-110%
Chloride	GP32671/GN57874	0.50	0.0	mg/l	5	4.92	98.4	90-110%
Chromium, Hexavalent	GN57980	0.010	0.0	mg/l	0.1	0.109	109.0	90-110%
Fluoride	GP32671/GN57874	0.10	0.0	mg/l	1	0.988	98.8	90-110%
Nitrogen, Ammonia	GP32689/GN57902	0.050	0.0	mg/l	0.2	0.21	105.0	90-110%
Nitrogen, Nitrate	GP32671/GN57874	0.010	0.0	mg/l	0.1	0.0992	99.2	90-110%
Nitrogen, Nitrite	GP32671/GN57874	0.0040	0.0	mg/l	0.05	0.0498	99.6	90-110%
Solids, Total Suspended	GN57880	5.0	0.0	mg/l	500	472	94.4	90-110%
Sulfate	GP32671/GN57874	0.50	0.0	mg/l	5	5.00	100.0	90-110%
Sulfide	GN57911	0.50	0.0	mg/l	3.285	4.2	85.7	60-120%

Associated Samples:
Batch GN57880: DA49619-1, DA49619-2
Batch GN57911: DA49619-1, DA49619-2
Batch GN57980: DA49619-1F, DA49619-2F
Batch GP32671: DA49619-1, DA49619-2
Batch GP32689: DA49619-1, DA49619-2
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN57980	DA42058-21	mg/l	0.024	0.021	13.3	0-20%
Nitrogen, Ammonia	GP32689/GN57902	TD83200-3A	mg/l	0.0	0.0	4.3	0-20%
Solids, Total Suspended	GN57880	DA49634-1	mg/l	6.2	6.4	3.2	0-5.44%
Sulfide	GN57911	DA49619-2	mg/l	0.50	0.50	0.0	0-20%

Associated Samples:
Batch GN57880: DA49619-1, DA49619-2
Batch GN57911: DA49619-1, DA49619-2
Batch GN57980: DA49619-1F, DA49619-2F
Batch GP32689: DA49619-1, DA49619-2
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP32671/GN57874	DA49610-3	mg/l	0.0	0.5	0.49	98.0	80-120%
Chloride	GP32671/GN57874	DA49610-3	mg/l	0.0	5	4.8	96.0	80-120%
Chromium, Hexavalent	GN57980	DA42058-21	mg/l	0.024	0.1	0.12	96.0	85-115%
Fluoride	GP32671/GN57874	DA49610-3	mg/l	0.0	1	0.96	96.0	80-120%
Nitrogen, Ammonia	GP32689/GN57902	TD83200-3A	mg/l	0.0	0.5	0.58	112.0	80-120%
Nitrogen, Nitrate	GP32671/GN57874	DA49610-3	mg/l	0.023	0.1	0.099	76.0N(a)	80-120%
Nitrogen, Nitrite	GP32671/GN57874	DA49610-3	mg/l	0.0	0.05	0.048	96.0	80-120%
Sulfate	GP32671/GN57874	DA49610-3	mg/l	0.0	5	4.9	98.0	80-120%

Associated Samples:
Batch GN57980: DA49619-1F, DA49619-2F
Batch GP32671: DA49619-1, DA49619-2
Batch GP32689: DA49619-1, DA49619-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49619
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP32671/GN57874	DA49610-3	mg/l	0.0	0.5	0.49	0.0	20%
Chloride	GP32671/GN57874	DA49610-3	mg/l	0.0	5	4.9	2.1	20%
Chromium, Hexavalent	GN57980	DA42058-21	mg/l	0.024	0.1	0.13	8.0	20%
Fluoride	GP32671/GN57874	DA49610-3	mg/l	0.0	1	0.98	2.1	20%
Nitrogen, Ammonia	GP32689/GN57902	TD83200-3A	mg/l	0.0	0.5	0.62	6.6	20%
Nitrogen, Nitrate	GP32671/GN57874	DA49610-3	mg/l	0.023	0.1	0.10	1.0	20%
Nitrogen, Nitrite	GP32671/GN57874	DA49610-3	mg/l	0.0	0.05	0.048	0.0	20%
Sulfate	GP32671/GN57874	DA49610-3	mg/l	0.0	5	5.0	2.0	20%

Associated Samples:
Batch GN57980: DA49619-1F, DA49619-2F
Batch GP32671: DA49619-1, DA49619-2
Batch GP32689: DA49619-1, DA49619-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Tetra Tech Longmont

Parkdale Quarry

117-8741008

SGS Job Number: DA49624

Sampling Dates: 09/28/22 - 09/29/22

Report to:

Tetra Tech Inc
351 Coffman Street
Longmont, CO 80501
ed.muller@tetratech.com

ATTN: Edward Muller

Total number of pages in report: 59

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

December 19, 2022

Edward Muller
Tetra Tech Inc
351 Coffman Street
Longmont, CO 80501

Subject: Report Reissue for SGS Job: DA49624

As requested per your email, MDLs were added to the analyses.

This reissue report is complete. Please accept our apologies for any inconvenience this may have caused you.

Any questions or concerns should be directed to the undersigned at 303-425-6021.

Sincerely,

Becky Nichols
General Manager

Sections: 1 2 3 4 5 6 7 8 9

Table of Contents

SGS North America Inc.

Sample Summary

Tetra Tech Longmont

Job No: DA49624

Parkdale Quarry
Project No: 117-8741008

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA49624-1	09/28/22	17:34	DSEM	09/30/22	AQ	Ground Water	MW-3-092822
DA49624-1F	09/28/22	17:34	DSEM	09/30/22	AQ	Groundwater Filtered	MW-3-092822
DA49624-2	09/29/22	08:50	DSEM	09/30/22	AQ	Equipment Blank	EB
DA49624-2F	09/29/22	08:50	DSEM	09/30/22	AQ	Equip Blank Filtered	EB
DA49624-3	09/29/22	09:00	DSEM	09/30/22	AQ	Field Blank Water	FB
DA49624-3F	09/29/22	09:00	DSEM	09/30/22	AQ	Field Blank Filtered	FB

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Tetra Tech Longmont	**Job No:**	DA49624
Site:	Parkdale Quarry	**Report Date**	11/29/2022 4:22:27 P

On 09/30/2022, 3 sample(s), 0 Trip Blank(s), and 2 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA49624 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals Analysis By Method EPA 200.7

Matrix: AQ **Batch ID:** MP36189

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49484-1MS, DA49484-1MSD were used as the QC samples for the metals analysis.

Metals Analysis By Method EPA 200.8

Matrix: AQ **Batch ID:** MP36177

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49516-2FAMS, DA49516-2FAMSD were used as the QC samples for the metals analysis.

Matrix: AQ **Batch ID:** MP36178

- The data for EPA 200.8 meets quality control requirements.

Matrix: AQ **Batch ID:** MP36471

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA51003-1MS, DA51003-1MSD were used as the QC samples for the metals analysis.

General Chemistry By Method CALCULATION

Matrix: AQ **Batch ID:** R59079

- The data for CALCULATION meets quality control requirements.
- DA49624-1F for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix: AQ **Batch ID:** R59080

- The data for CALCULATION meets quality control requirements.
- DA49624-2F for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix: AQ **Batch ID:** R59081

- The data for CALCULATION meets quality control requirements.
- DA49624-3F for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

General Chemistry By Method EPA 353.2/LACHAT

Matrix:	AQ	Batch ID:	N:GP42685

- The data for EPA 353.2/LACHAT meets quality control requirements.
- DA49624-3 for Nitrogen, Nitrate + Nitrite: Analysis performed at SGS Dayton, NJ.
- DA49624-2 for Nitrogen, Nitrate + Nitrite: Analysis performed at SGS Dayton, NJ.
- DA49624-1 for Nitrogen, Nitrate + Nitrite: Analysis performed at SGS Dayton, NJ.

General Chemistry By Method EPA300.0

Matrix:	AQ	Batch ID:	GP32695

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49605-1MS, DA49605-1MSD were used as the QC samples for the Fluoride analysis.

General Chemistry By Method SM 2540C-2011

Matrix:	AQ	Batch ID:	GN57885

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49682-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.
- The duplicate RPD(s) for Solids, Total Dissolved are outside control limits for sample GN57885-D. High RPD due to possible sample nonhomogeneity.

General Chemistry By Method SM 2540D-2011

Matrix:	AQ	Batch ID:	GN57880

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49634-1DUP were used as the QC samples for the Solids, Total Suspended analysis.

General Chemistry By Method SM 3500CR B-2011

Matrix:	AQ	Batch ID:	GN57980

- All method blanks for this batch meet method specific criteria.
- Sample(s) DA42058-21DUP, DA42058-21MS, DA42058-21MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- The following samples were run outside of holding time for method SM 3500CR B-2011: DA49624-1F, DA49624-2F, DA49624-3F Sample preserved within 24hrs. to extend the hold time.
- DA49624-1F for Chromium, Hexavalent: Sample received outside the holding time.

General Chemistry By Method SW846 7.2/9040C

Matrix:	AQ	Batch ID:	GN57878

- The data for SW846 7.2/9040C meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	SGS Wheat Ridge, CO	**Job No:**	DA49624
Site:	TETTCOL: Parkdale Quarry	**Report Date**	10/6/2022 5:37:53 PM

On 10/04/2022, 2 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 2.7 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of DA49624 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ **Batch ID:** GP42685

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD52358-2DUP, JD52358-2MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.
- Matrix Spike Recovery(s) for Nitrogen, Nitrate + Nitrite are outside control limits. Spike recovery indicates possible matrix interference.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: DA49624
Account: Tetra Tech Longmont
Project: Parkdale Quarry
Collected: 09/28/22 thru 09/29/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA49624-1	**MW-3-092822**					
Uranium		24.7	0.40	0.10	ug/l	EPA 200.8
Fluoride		2.0	0.10	0.050	mg/l	EPA300.0
Corrosivity as pH		8.09			su	SW846 7.2/9040C
Nitrogen, Nitrate + Nitrite [a]		3.3	0.10	0.090	mg/l	EPA 353.2/LACHAT
Solids, Total Dissolved		278	10	6.5	mg/l	SM 2540C-2011
Solids, Total Suspended		9.1	5.0	2.5	mg/l	SM 2540D-2011
DA49624-1F	**MW-3-092822**					
Barium		7.4 B	10	3.0	ug/l	EPA 200.7
Boron		51.8	50	10	ug/l	EPA 200.7
Lithium		21.2	5.0	4.0	ug/l	EPA 200.7
Manganese		2.1 B	5.0	1.0	ug/l	EPA 200.7
Molybdenum		22.0	2.0	0.54	ug/l	EPA 200.8
DA49624-2	**EB**					
Corrosivity as pH		6.06			su	SW846 7.2/9040C
Nitrogen, Nitrate + Nitrite [a]		0.11	0.10	0.090	mg/l	EPA 353.2/LACHAT
Solids, Total Dissolved		22.0	10	6.5	mg/l	SM 2540C-2011
DA49624-2F	**EB**					
Barium		7.4 B	10	3.0	ug/l	EPA 200.7
Copper		26.2	10	6.0	ug/l	EPA 200.7
Iron		10.6 B	20	10	ug/l	EPA 200.7
Manganese		1.7 B	5.0	1.0	ug/l	EPA 200.7
Zinc		18.0 B	30	7.0	ug/l	EPA 200.7
DA49624-3	**FB**					
Corrosivity as pH		5.56			su	SW846 7.2/9040C
Solids, Total Dissolved		38.0	10	6.5	mg/l	SM 2540C-2011
DA49624-3F	**FB**					

No hits reported in this sample.

(a) Analysis performed at SGS Dayton, NJ.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-3-092822		
Lab Sample ID:	DA49624-1	**Date Sampled:**	09/28/22
Matrix:	AQ - Ground Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Uranium	24.7	0.40	0.10	ug/l	2	10/05/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA15810
(2) Prep QC Batch: MP36177

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-3-092822		
Lab Sample ID:	DA49624-1	**Date Sampled:**	09/28/22
Matrix:	AQ - Ground Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
300.0								
Fluoride	2.0	0.10	0.050	mg/l	1	10/04/22 15:21	DM	EPA300.0
Corrosivity as pH	8.09			su	1	10/03/22	TM	SW846 7.2/9040C
Nitrogen, Nitrate + Nitrite [a]	3.3	0.10	0.090	mg/l	1	10/06/22 14:33	ANJ	EPA 353.2/LACHAT
Solids, Total Dissolved	278	10	6.5	mg/l	1	10/04/22 10:00	JW	SM 2540C-2011
Solids, Total Suspended	9.1	5.0	2.5	mg/l	1	10/03/22	KH	SM 2540D-2011

(a) Analysis performed at SGS Dayton, NJ.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: MW-3-092822
Lab Sample ID: DA49624-1F
Matrix: AQ - Groundwater Filtered
Project: Parkdale Quarry

Date Sampled: 09/28/22
Date Received: 09/30/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	50 U	100	50	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Antimony	0.60 U	0.80	0.60	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [3]	EPA 200.8 [5]
Arsenic	7.0 U	25	7.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Barium	7.4 B	10	3.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Beryllium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Boron	51.8	50	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Cadmium	5.0 U	10	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Chromium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Cobalt	4.0 U	5.0	4.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Copper	6.0 U	10	6.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Iron	10 U	20	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Lead	15 U	50	15	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Lithium	21.2	5.0	4.0	ug/l	1	10/07/22	10/18/22	CDL	EPA 200.7 [2]	EPA 200.7 [4]
Manganese	2.1 B	5.0	1.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Molybdenum	22.0	2.0	0.54	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [3]	EPA 200.8 [5]
Nickel	10 U	30	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Selenium	30 U	50	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Silver	5.0 U	30	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Thallium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Uranium	20 U	50	20	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Vanadium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Zinc	7.0 U	30	7.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]

(1) Instrument QC Batch: MA15764
(2) Instrument QC Batch: MA15776
(3) Instrument QC Batch: MA15923
(4) Prep QC Batch: MP36189
(5) Prep QC Batch: MP36471

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-3-092822		
Lab Sample ID:	DA49624-1F	**Date Sampled:**	09/28/22
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	0.0090 U	0.010	0.0090	mg/l	1	10/10/22 12:22	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	0.011 U	0.020	0.011	mg/l	1	10/14/22 16:45	CDL	CALCULATION

(a) Sample received outside the holding time.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EB		
Lab Sample ID:	DA49624-2	**Date Sampled:**	09/29/22
Matrix:	AQ - Equipment Blank	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Uranium	0.10 U	0.40	0.10	ug/l	2	10/05/22	11/03/22	DU	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA15830
(2) Prep QC Batch: MP36178

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EB		
Lab Sample ID:	DA49624-2	**Date Sampled:**	09/29/22
Matrix:	AQ - Equipment Blank	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
300.0								
Fluoride	0.050 U	0.10	0.050	mg/l	1	10/04/22 15:35	DM	EPA300.0
Corrosivity as pH	6.06			su	1	10/03/22	TM	SW846 7.2/9040C
Nitrogen, Nitrate + Nitrite [a]	0.11	0.10	0.090	mg/l	1	10/06/22 14:34	ANJ	EPA 353.2/LACHAT
Solids, Total Dissolved	22.0	10	6.5	mg/l	1	10/04/22 10:00	JW	SM 2540C-2011
Solids, Total Suspended	2.5 U	5.0	2.5	mg/l	1	10/03/22	KH	SM 2540D-2011

(a) Analysis performed at SGS Dayton, NJ.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: EB
Lab Sample ID: DA49624-2F
Matrix: AQ - Equip Blank Filtered
Project: Parkdale Quarry

Date Sampled: 09/29/22
Date Received: 09/30/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	50 U	100	50	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Antimony	0.60 U	0.80	0.60	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [3]	EPA 200.8 [5]
Arsenic	7.0 U	25	7.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Barium	7.4 B	10	3.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Beryllium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Boron	10 U	50	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Cadmium	5.0 U	10	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Chromium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Cobalt	4.0 U	5.0	4.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Copper	26.2	10	6.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Iron	10.6 B	20	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Lead	15 U	50	15	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Lithium	4.0 U	5.0	4.0	ug/l	1	10/07/22	10/18/22	CDL	EPA 200.7 [2]	EPA 200.7 [4]
Manganese	1.7 B	5.0	1.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Molybdenum	0.54 U	2.0	0.54	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [3]	EPA 200.8 [5]
Nickel	10 U	30	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Selenium	30 U	50	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Silver	5.0 U	30	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Thallium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Uranium	20 U	50	20	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Vanadium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Zinc	18.0 B	30	7.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]

(1) Instrument QC Batch: MA15764
(2) Instrument QC Batch: MA15776
(3) Instrument QC Batch: MA15923
(4) Prep QC Batch: MP36189
(5) Prep QC Batch: MP36471

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EB		
Lab Sample ID:	DA49624-2F	**Date Sampled:**	09/29/22
Matrix:	AQ - Equip Blank Filtered	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	0.0090 U	0.010	0.0090	mg/l	1	10/10/22 12:26	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	0.011 U	0.020	0.011	mg/l	1	10/14/22 16:50	CDL	CALCULATION

(a) Sample preserved within 24hrs. to extend the hold time.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	FB		
Lab Sample ID:	DA49624-3	**Date Sampled:**	09/29/22
Matrix:	AQ - Field Blank Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Uranium	0.10 U	0.40	0.10	ug/l	2	10/05/22	11/03/22	DU	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA15830
(2) Prep QC Batch: MP36178

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	FB		
Lab Sample ID:	DA49624-3	**Date Sampled:**	09/29/22
Matrix:	AQ - Field Blank Water	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
300.0								
Fluoride	0.050 U	0.10	0.050	mg/l	1	10/04/22 15:49	DM	EPA300.0
Corrosivity as pH	5.56			su	1	10/03/22	TM	SW846 7.2/9040C
Nitrogen, Nitrate + Nitrite [a]	0.090 U	0.10	0.090	mg/l	1	10/06/22 14:35	ANJ	EPA 353.2/LACHAT
Solids, Total Dissolved	38.0	10	6.5	mg/l	1	10/04/22 10:00	JW	SM 2540C-2011
Solids, Total Suspended	2.5 U	5.0	2.5	mg/l	1	10/03/22	KH	SM 2540D-2011

(a) Analysis performed at SGS Dayton, NJ.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: FB
Lab Sample ID: DA49624-3F
Matrix: AQ - Field Blank Filtered
Project: Parkdale Quarry

Date Sampled: 09/29/22
Date Received: 09/30/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	50 U	100	50	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Antimony	0.60 U	0.80	0.60	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [3]	EPA 200.8 [5]
Arsenic	7.0 U	25	7.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Barium	3.0 U	10	3.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Beryllium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Boron	10 U	50	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Cadmium	5.0 U	10	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Chromium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Cobalt	4.0 U	5.0	4.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Copper	6.0 U	10	6.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Iron	10 U	20	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Lead	15 U	50	15	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Lithium	4.0 U	5.0	4.0	ug/l	1	10/07/22	10/18/22	CDL	EPA 200.7 [2]	EPA 200.7 [4]
Manganese	1.0 U	5.0	1.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Molybdenum	0.54 U	2.0	0.54	ug/l	2	11/21/22	11/23/22	DU	EPA 200.8 [3]	EPA 200.8 [5]
Nickel	10 U	30	10	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Selenium	30 U	50	30	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Silver	5.0 U	30	5.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Thallium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Uranium	20 U	50	20	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Vanadium	2.0 U	10	2.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Zinc	7.0 U	30	7.0	ug/l	1	10/07/22	10/14/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]

(1) Instrument QC Batch: MA15764
(2) Instrument QC Batch: MA15776
(3) Instrument QC Batch: MA15923
(4) Prep QC Batch: MP36189
(5) Prep QC Batch: MP36471

RL = Reporting Limit
MDL = Method Detection Limit
U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	FB		
Lab Sample ID:	DA49624-3F	**Date Sampled:**	09/29/22
Matrix:	AQ - Field Blank Filtered	**Date Received:**	09/30/22
		Percent Solids:	n/a
Project:	Parkdale Quarry		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	0.0090 U	0.010	0.0090	mg/l	1	10/10/22 12:27	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	0.011 U	0.020	0.011	mg/l	1	10/14/22 16:55	CDL	CALCULATION

(a) Sample preserved within 24hrs. to extend the hold time.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

Page ___ of ___

Bottle Order Control #	FED-EX Tracking #
SGS Quote #	SGS Job # DA49624

Client / Reporting Information

Company: Tetra Tech
Street: 351 Coffman St
City, State ZIP: Longmont CO 80501
Project Contact: Fred Charles
Phone: 970 443 7065
Email: ed.miller@tetratech.com
Sampler(s) Name(s): Dianna Snyder Ed Miller

Project Information

Project Name: Parkdale Quarry
Street:
City, State ZIP:
Project #: 117-8741008
Client Purchase Order #:
Project Manager: Fred Charles

Billing Information (if different from Report to)

Company:
Street Address:
City, State ZIP:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

Field ID / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	Na2SO3	Filtered	Dissolved Metals EPA 200.7 Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mn, Ni, Se, Ag, Tl, U, V, Zn	TDS	TSS	NO3	GR-A, GR-B (2 bottles)	Rad- 226	Rad 228	UMS	Radon	Corrosivity	LAB USE ONLY
MW-3-092822	9/28/22	1734	DS/EM	GW	14											X	X	X	X	X	X	X	X	X	X	1
EB	9/29/22	850	EM	WW	14											X	X	X	X	X	X	X	X	X	X	2
FB	9/29/22	900	EM	WW	14											X	X	X	X	X	X	X	X	X	X	3
																										3TB

Turnaround Time (Business days)

- [x] Standard 10 Business Days
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENC

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed.

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [x] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ [Results/QC/Narrative (+ chromatograms)]
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format _____

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1	Date/Time: 9/29/22 1135	Received By: 1	Relinquished By: 2	Date/Time:	Received By: 2
Relinquished by Sampler: 3	Date/Time:	Received By: 3	Relinquished By: 4	Date/Time:	Received By: 4

Custody Seal # | Intact [ ] | Not Intact [ ] | Absent [ ]
Preserved where applicable [x] | Cooler Temp. °C: 4.0 | Therm. ID: 900 | On Ice [x]

http://www.sgs.com/en/terms-and-conditions

DA49624: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA49624 **Client:** TETRA TECH **Project:** PARKDALE QUARRY

Date / Time Received: 9/30/2022 11:23:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (4/4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Problem Resolution

Job Number: DA49624

CSR: _____ **Response Date:** _____

Response:

Metals Analysis

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36177
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/05/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3		
Arsenic	0.20	.05	.05		
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04		
Calcium	400	25	100		
Chromium	2.0	.087	.25		
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81		
Iron	20	1.6	10		
Lead	0.50	.094	.13		
Magnesium	100	10	25		
Manganese	1.0	.079	.51		
Molybdenum	1.0	.037	.27		
Nickel	2.0	.098	.35		
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1		
Silver	0.10	.0081	.025		
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05		
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.00071	<0.20
Vanadium	1.0	.14	.2		
Zinc	10	.05	2.1		

Associated samples MP36177: DA49624-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36177
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/05/22

Metal	DA49516-2FA Original MS		Spikelot ICPMS5	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron	anr				
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	anr				
Selenium	anr				
Silver	anr				
Sodium	anr				
Strontium	anr				
Thallium	anr				
Tin					
Titanium					
Uranium	0.99	229	200	114.0	70-130
Vanadium					
Zinc	anr				

Associated samples MP36177: DA49624-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36177 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/05/22

Metal	DA49516-2FA Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silver	anr					
Sodium	anr					
Strontium	anr					
Thallium	anr					
Tin						
Titanium						
Uranium	0.99	228	200	113.5	0.4	20
Vanadium						
Zinc	anr					

Associated samples MP36177: DA49624-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36177
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/05/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin				
Titanium				
Uranium	218	200	109.0	85-115
Vanadium				
Zinc	anr			

Associated samples MP36177: DA49624-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36178
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/05/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3		
Arsenic	0.20	.05	.05		
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04		
Calcium	400	25	100		
Chromium	2.0	.087	.25		
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81		
Iron	20	1.6	10		
Lead	0.50	.094	.13		
Magnesium	100	10	25		
Manganese	1.0	.079	.51		
Molybdenum	1.0	.037	.27		
Nickel	2.0	.098	.35		
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1		
Silver	0.10	.0081	.025		
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05		
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05		
Vanadium	1.0	.14	.2		
Zinc	10	.05	2.1		

Associated samples MP36178: DA49624-2, DA49624-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36178
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/05/22

Metal	DA49642-1F Original MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium				
Strontium	anr			
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP36178: DA49624-2, DA49624-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36178 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/05/22

Metal	DA49642-1F Original MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron	anr				
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	anr				
Selenium	anr				
Silver	anr				
Sodium					
Strontium	anr				
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP36178: DA49624-2, DA49624-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36178
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/05/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium				
Strontium	anr			
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP36178: DA49624-2, DA49624-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	46	50	-14	<100
Antimony	30	14	20		
Arsenic	25	22	7	1.5	<25
Barium	10	.3	3	-0.50	<10
Beryllium	10	1	2	0.0	<10
Boron	50	3.3	10	1.8	<50
Cadmium	10	1.9	5	0.80	<10
Calcium	400	6.6	61		
Chromium	10	1.1	2	0.0	<10
Cobalt	5.0	2.7	4	0.30	<5.0
Copper	10	4.6	6	0.60	<10
Iron	20	8.9	10	3.8	<20
Lead	50	13	15	-1.0	<50
Lithium	5.0	.6	4	1.4	<5.0
Magnesium	200	50	40		
Manganese	5.0	.5	1	0.20	<5.0
Molybdenum	10	8.5	3		
Nickel	30	6.2	10	0.0	<30
Phosphorus	150	91	110		
Potassium	1000	84	300		
Selenium	50	30	30	-11	<50
Silicon	100	41	50		
Silver	30	.6	5	0.30	<30
Sodium	400	13	150		
Strontium	5.0	.1	1		
Thallium	12	17	11		
Tin	60	41	51		
Titanium	10	.5	2	0.80	<10
Uranium	50	3.9	20	0.70	<50
Vanadium	10	.9	2	0.10	<10
Zinc	30	9	7	1.7	<30

Associated samples MP36189: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	0.0	4840	5000	96.8	70-130
Antimony					
Arsenic	0.0	1030	1000	103.0	70-130
Barium	18.1	2000	2000	99.1	70-130
Beryllium	0.0	502	500	100.4	70-130
Boron	174	2250	2000	104.0	70-130
Cadmium	0.0	502	500	100.4	70-130
Calcium	anr				
Chromium	1.4	474	500	94.5	70-130
Cobalt	0.0	471	500	94.2	70-130
Copper	35.6	540	500	100.9	70-130
Iron	370	5190	5000	96.4	70-130
Lead	0.0	914	1000	91.4	70-130
Lithium	30.4	990	1000	96.0	70-130
Magnesium	anr				
Manganese	20.5	957	1000	93.5	70-130
Molybdenum	anr				
Nickel	11.1	280	500	93.8	70-130
Phosphorus					
Potassium	anr				
Selenium	0.0	918	1000	91.8	70-130
Silicon					
Silver	0.0	187	200	93.5	70-130
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium	2.4	499	500	99.3	70-130
Uranium	0.0	914	1000	91.4	70-130
Vanadium	0.0	494	500	98.8	70-130
Zinc	24.6	512	500	97.5	70-130

Associated samples MP36189: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original MS	Spikelot ICPALL5	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum	0.0	4860	5000	97.2	0.4	20
Antimony						
Arsenic	0.0	1050	1000	105.0	1.9	20
Barium	18.1	2000	2000	99.1	0.0	20
Beryllium	0.0	503	500	100.6	0.2	20
Boron	174	2280	2000	105.5	1.3	20
Cadmium	0.0	504	500	100.8	0.4	20
Calcium	anr					
Chromium	1.4	478	500	95.3	0.8	20
Cobalt	0.0	476	500	95.2	1.1	20
Copper	35.6	545	500	101.9	0.9	20
Iron	370	5220	5000	97.0	0.6	20
Lead	0.0	924	1000	92.4	1.1	20
Lithium	30.4	992	1000	96.2	0.2	20
Magnesium	anr					
Manganese	20.5	956	1000	93.5	0.1	20
Molybdenum	anr					
Nickel	11.1	485	500	94.8	1.0	20
Phosphorus						
Potassium	anr					
Selenium	0.0	941	1000	94.1	2.5	20
Silicon						
Silver	0.0	185	200	92.5	1.1	20
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium	2.4	499	500	99.3	0.0	20
Uranium	0.0	929	1000	92.9	1.6	20
Vanadium	0.0	498	500	99.6	0.8	20
Zinc	24.6	518	500	98.7	1.2	20

Associated samples MP36189: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/07/22

Metal	DA49484-1 Original MSD	Spikelot ICPALL5 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	4780	5000	95.6	85-115
Antimony				
Arsenic	1010	1000	101.0	85-115
Barium	1950	2000	97.5	85-115
Beryllium	504	500	100.8	85-115
Boron	1990	2000	99.5	85-115
Cadmium	505	500	101.0	85-115
Calcium	anr			
Chromium	473	500	94.6	85-115
Cobalt	462	500	92.4	85-115
Copper	462	500	92.4	85-115
Iron	4830	5000	96.6	85-115
Lead	946	1000	94.6	85-115
Lithium	934	1000	93.4	85-115
Magnesium	anr			
Manganese	928	1000	92.8	85-115
Molybdenum	anr			
Nickel	465	500	93.0	85-115
Phosphorus				
Potassium	anr			
Selenium	965	1000	96.5	85-115
Silicon				
Silver	171	200	85.5	85-115
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium	491	500	98.2	85-115
Uranium	932	1000	93.2	85-115
Vanadium	488	500	97.6	85-115
Zinc	483	500	96.6	85-115

Associated samples MP36189: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36189
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/07/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/21/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3	0.027	<0.40
Arsenic	0.20	.05	.05		
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04		
Calcium	400	25	100		
Chromium	2.0	.087	.25		
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81		
Iron	20	1.6	10		
Lead	0.50	.094	.13		
Magnesium	100	10	25		
Manganese	1.0	.079	.51		
Molybdenum	1.0	.037	.27	0.050	<1.0
Nickel	2.0	.098	.35		
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1		
Silver	0.10	.0081	.025		
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05		
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05		
Vanadium	1.0	.14	.2		
Zinc	10	.05	2.1		

Associated samples MP36471: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/21/22

Metal	DA51003-1 Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr				
Antimony	0.60	112	100	111.4	70-130
Arsenic	anr				
Barium					
Beryllium					
Boron	anr				
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum	1.9	104	100	102.1	70-130
Nickel	anr				
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium	anr				
Vanadium					
Zinc	anr				

Associated samples MP36471: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/21/22

Metal	DA51003-1 Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	0.60	113	100	112.4	0.9	20
Arsenic	anr					
Barium						
Beryllium						
Boron	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum	1.9	105	100	103.1	1.0	20
Nickel	anr					
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	anr					

Associated samples MP36471: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

QC Batch ID: MP36471
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/21/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr			
Antimony	108	100	108.0	85-115
Arsenic	anr			
Barium				
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	102	100	102.0	85-115
Nickel	anr			
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	anr			

Associated samples MP36471: DA49624-1F, DA49624-2F, DA49624-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP32695/GN57909	0.050	0.0	mg/l	0.5	0.499	99.8	90-110%
Chloride	GP32695/GN57909	0.50	0.0	mg/l	5	4.96	99.2	90-110%
Chromium, Hexavalent	GN57980	0.010	0.0	mg/l	0.1	0.109	109.0	90-110%
Fluoride	GP32695/GN57909	0.10	0.0	mg/l	1	0.976	97.6	90-110%
Solids, Total Dissolved	GN57885	10	0.0	mg/l				
Solids, Total Dissolved	GN57885	10	0.0	mg/l	400	227	91.0	90-110%
Solids, Total Dissolved	GN57885			mg/l	400	227	91.0	90-110%
Solids, Total Suspended	GN57880	5.0	0.0	mg/l	500	472	94.4	90-110%
Sulfate	GP32695/GN57909	0.50	0.0	mg/l	5	4.99	99.8	90-110%

Associated Samples:
Batch GN57880: DA49624-1, DA49624-2, DA49624-3
Batch GN57885: DA49624-1, DA49624-2, DA49624-3
Batch GN57980: DA49624-1F, DA49624-2F, DA49624-3F
Batch GP32695: DA49624-1, DA49624-2, DA49624-3
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN57980	DA42058-21	mg/l	0.024	0.021	13.3	0-20%
Solids, Total Dissolved	GN57885	DA49682-1	mg/l	934	1010	7.4*(a)	0-5.44%
Solids, Total Dissolved	GN57885	DA49682-1	mg/l	934	1010	7.4*(a)	0-5.44%
Solids, Total Suspended	GN57880	DA49634-1	mg/l	6.2	6.4	3.2	0-5.44%

Associated Samples:
Batch GN57880: DA49624-1, DA49624-2, DA49624-3
Batch GN57885: DA49624-1, DA49624-2, DA49624-3
Batch GN57980: DA49624-1F, DA49624-2F, DA49624-3F
(*) Outside of QC limits
(a) High RPD due to possible sample nonhomogeneity.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP32695/GN57909	DA49605-1	mg/l	2.4 B	25	27.2	99.2	80-120%
Chloride	GP32695/GN57909	DA49605-1	mg/l	455	250	721	106.4	80-120%
Chromium, Hexavalent	GN57980	DA42058-21	mg/l	0.024	0.1	0.12	96.0	85-115%
Fluoride	GP32695/GN57909	DA49605-1	mg/l	5.7	50	55.9	100.4	80-120%
Sulfate	GP32695/GN57909	DA49605-1	mg/l	20 U	250	264	105.6	80-120%

Associated Samples:
Batch GN57980: DA49624-1F, DA49624-2F, DA49624-3F
Batch GP32695: DA49624-1, DA49624-2, DA49624-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49624
Account: TETTCOL - Tetra Tech Longmont
Project: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP32695/GN57909	DA49605-1	mg/l	2.4 B	25	27.7	1.8	20%
Chloride	GP32695/GN57909	DA49605-1	mg/l	455	250	718	0.4	20%
Chromium, Hexavalent	GN57980	DA42058-21	mg/l	0.024	0.1	0.13	8.0	20%
Fluoride	GP32695/GN57909	DA49605-1	mg/l	5.7	50	55.6	0.5	20%
Sulfate	GP32695/GN57909	DA49605-1	mg/l	20 U	250	260	1.5	20%

Associated Samples:
Batch GN57980: DA49624-1F, DA49624-2F, DA49624-3F
Batch GP32695: DA49624-1, DA49624-2, DA49624-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Misc. Forms

Custody Documents and Other Forms

(SGS Dayton, NJ)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

FED-EX Tracking # 5290 - 4415 - 7872 | Bottle Order Control #
SGS Quote # | SGS Job # DA49624

Client / Reporting Information

Company Name: SGS North America Inc.
Street Address: 4036 Youngfield Street
City State Zip: Wheat Ridge, CO 8003:
Project Contact E-mail: jeremy.dechant@sgs.com
Phone # Fax #: 303-425-6021
Sampler(s) Name(s) Phone: DSEM

Project Information

Project Name: Parkdale Quarry
Street
City State
Project #
Client Purchase Order #
Project Manager

Billing Information (if different from Report to)

Company Name
Street Address
City State Zip
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	NO32	LAB USE ONLY
1	MW-3-092822		9/28/22	5:34:00 PM	DSEM	AQ										X	
2	EB		9/28/22	8:50:00 AM	DSEM	AQ										X	
3	FB		9/28/22	9:00:00 AM	DSEM	AQ										X	

Turnaround Time (Business days)

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [X] other Due 10/7/2022

Emergency & Rush T/A data available via Lablink. Approval needed for RUSH/Emergency TAT

Approved By (SGS PM): / Date: Project Manager: NA 10/3/22

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other
- [X] CC

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		10/3/22	Fedex	Fedex	10/4/22	9:20
3						
5						

Relinquished By: 4 | Received By: 4

Custody Seal # | Intact | Not intact | Preserved where applicable | Therm. ID | On Ice | Cooler Temp. 2.

8.1

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SGS Sample Receipt Summary

Job Number: DA49624 **Client:** SGS NORTH AMERICA INC **Project:** PARKDALE

Date / Time Received: 10/4/2022 9:20:00 AM **Delivery Method:** FEDEX **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.1);

Cooler Temps (Corrected) °C: Cooler 1: (2.7);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

8.1

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DA49624: Chain of Custody
Page 2 of 2

General Chemistry

QC Data Summaries

(SGS Dayton, NJ)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49624
Account: ALMS - SGS Wheat Ridge, CO
Project: TETTCOL: Parkdale Quarry

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Nitrogen, Nitrate + Nitrite	GP42685/GN34127	0.10	0.0	mg/l	2	1.73	86.5	80-120%

Associated Samples:
Batch GP42685: DA49624-1, DA49624-2, DA49624-3
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49624
Account: ALMS - SGS Wheat Ridge, CO
Project: TETTCOL: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Nitrogen, Nitrate + Nitrite	GP42685/GN34127	JD52358-2	mg/l	0.0	0.0	0.0	0-33%

Associated Samples:
Batch GP42685: DA49624-1, DA49624-2, DA49624-3
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA49624
Account: ALMS - SGS Wheat Ridge, CO
Project: TETTCOL: Parkdale Quarry

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Nitrogen, Nitrate + Nitrite	GP42685/GN34127	JD52358-2	mg/l	0.0	1	0.76	76.0N(a)	80-120%

Associated Samples:
Batch GP42685: DA49624-1, DA49624-2, DA49624-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Tetra Tech Longmont

Parkdale Quarry

117-8741008

SGS Job Number: DA49624R

Sampling Dates: 09/28/22 - 09/29/22

Report to:

Tetra Tech Inc
351 Coffman Street
Longmont, CO 80501
ed.muller@tetratech.com

ATTN: Fred Charles

Total number of pages in report: **15**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

Sections:

1
2
3

Table of Contents

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SGS North America Inc.

Sample Summary

Tetra Tech Longmont

Job No: DA49624R

Parkdale Quarry
Project No: 117-8741008

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA49624-1R	09/28/22	17:34	DSEM	09/30/22	AQ	Ground Water	MW-3-092822
DA49624-2R	09/29/22	08:50	DSEM	09/30/22	AQ	Equipment Blank	EB
DA49624-3R	09/29/22	09:00	DSEM	09/30/22	AQ	Field Blank Water	FB

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

November 21, 2022

SGS Accutest
4036 Youngfield St
Wheat Ridge, CO 80033-3862

Work Order: C22110381

Project Name: DA49624R

Energy Laboratories, Inc. Casper WY received the following 3 samples for SGS Accutest on 11/9/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22110381-001	DA49624R-1R	09/28/22 17:34	11/09/22	Aqueous	Uranium, Isotopic, Total
C22110381-002	DA49624R-2R	09/29/22 8:50	11/09/22	Aqueous	Same As Above
C22110381-003	DA49624R-3R	09/29/22 9:00	11/09/22	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA49624R
Lab ID: C22110381-001
Client Sample ID: DA49624R-1R

Report Date: 11/21/22
Collection Date: 09/28/22 17:34
DateReceived: 11/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Uranium 234	20.3	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 precision (±)	3.9	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 MDC	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235	0.9	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 precision (±)	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 MDC	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238	8.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 precision (±)	1.6	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 MDC	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA49624R
Lab ID: C22110381-002
Client Sample ID: DA49624R-2R

Report Date: 11/21/22
Collection Date: 09/29/22 08:50
DateReceived: 11/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Uranium 234	0.3	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 precision (±)	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 MDC	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 precision (±)	0.08	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 MDC	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 precision (±)	0.09	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 MDC	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA49624R
Lab ID: C22110381-003
Client Sample ID: DA49624R-3R

Report Date: 11/21/22
Collection Date: 09/29/22 09:00
DateReceived: 11/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Uranium 234	0.5	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 precision (±)	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 MDC	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 precision (±)	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 MDC	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238	0.4	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 precision (±)	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 MDC	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22110381 **Report Date:** 11/15/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1005	
Lab ID: MB-RA-U-ISO-1005	9	Method Blank				Run: EGG-ORTEC_ALL_221109B			11/10/22 14:30	
Uranium 234		0.3	pCi/L							
Uranium 234 precision (±)		0.07	pCi/L							
Uranium 234 MDC		0.08	pCi/L							
Uranium 235		0.1	pCi/L							
Uranium 235 precision (±)		0.06	pCi/L							
Uranium 235 MDC		0.07	pCi/L							
Uranium 238		0.1	pCi/L							
Uranium 238 precision (±)		0.05	pCi/L							
Uranium 238 MDC		0.05	pCi/L							
Lab ID: LCS-RA-U-ISO-1005	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_221109B			11/10/22 14:30	
Uranium 234		9.8	pCi/L		93	70	130			
Uranium 234 precision (±)		1.9	pCi/L							
Uranium 234 MDC		0.089	pCi/L							
Uranium 238		11	pCi/L		106	70	130			
Uranium 238 precision (±)		2.2	pCi/L							
Uranium 238 MDC		0.081	pCi/L							
Lab ID: C22100849-001ADUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_221109B			11/10/22 14:30	
Uranium 234		14	pCi/L					13	30	
Uranium 234 precision (±)		2.6	pCi/L							
Uranium 234 MDC		0.22	pCi/L							
Uranium 235		0.74	pCi/L					1.9	30	
Uranium 235 precision (±)		0.20	pCi/L							
Uranium 235 MDC		0.16	pCi/L							
Uranium 238		5.0	pCi/L					18	30	
Uranium 238 precision (±)		0.98	pCi/L							
Uranium 238 MDC		0.17	pCi/L							

- The RER result for U234 is 0.46, U235 is 0.05, and U238 is 0.64.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

2

Work Order Receipt Checklist

SGS Accutest

C22110381

Login completed by: Kirsten L. Smith
Date Received: 11/9/2022

Reviewed by: cjohnson
Received by: kls

Reviewed Date: 11/9/2022
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	7.6°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

These sample were originally received in the lab on 10/03/2022. Teri emailed requesting additional analysis on remaining sample volume. Chantel S. Johnson 11/09/2022

These samples were preserved in the laboratory upon receipt 10/03/2022. All samples were received with pH 7, 2mL of HN03 was added to each sample to preserve to pH <2 Chantel S. Johnson 11/09/2022

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

FED-EX Tracking #: | Bottle Order Control #:
SGS Quote #: | SGS Job #: DA49624R

Client / Reporting Information	Project Information	Billing Information (If different from Report to)
Company Name: SGS North America Inc.	Project Name: DA49624R	
Street Address: 4036 Youngfield Street	Street:	Company Name:
City / State / Zip: Wheat Ridge, CO 8003	City / State:	Street Address:
Project Contact / E-mail: Donald.McDonald@sgs.com	Project #:	City / State / Zip:
Phone # / Fax #: 303-425-6021	Client Purchase Order #:	Attention:
Sampler(s) Name(s) / Phone: DSEM	Project Manager:	

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Uranium by 234, 235, and 238	LAB USE ONLY
1R	DA49624R		9/28/22	5:34:00 PM	DSEM	AQ										X	
2R	DA49624R		9/29/22	8:50:00 AM	DSEM	AQ										X	
3R	DA49624R		9/29/22	9:00:00 AM	DSEM	AQ										X	

Turnaround Time (Business days)

Approved By (SGS PM) / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [X] other Standard

Emergency & Rush T/A data available via Lablink. Approval needed for RUSH/Emergency TAT

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other
- [X] CC

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1	Date Time:	Received By: 1	Relinquished By: 2	Date Time: 11/9/2022	Received By: 2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 9:39	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # / Intact / Not Intact	Preserved where applicable / On Ice / Cooler Temp.	Therm. ID:

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

Page ___ of ___

Bottle Order Control #	FED-EX Tracking #
SGS Quote #	SGS Job # DA49624

Client / Reporting Information

Company: Tetra Tech
Street: 351 Coffman St
City, State ZIP: Longmont CO 80501
Project Contact: Fred Charles
Phone: 970 443 7065
Email: ed.miller@tetratech.com
Sampler(s) Name(s): Dianna Snyder Ed Miller

Project Information

Project Name: Parkdale Quarry
Street:
City, State ZIP:
Project #: 117-8741008
Client Purchase Order #:
Project Manager: Fred Charles

Billing Information (if different from Report to)

Company:
Street Address:
City, State ZIP:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

Field ID / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	Na2SO3	1L	Diss Metal EPA 200.7 Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mn, Ni, Se, Ag, Tl, U, V, Zn	TDS	TSS	NO3Z	GR-A, GR-B (2 bottles)	Rad- 226	Rad 228	UMS	Radon	Corrosivity	LAB USE ONLY
MW-3-092822	9/28/22	1734	DS/EM	GW	14											X	X	X	X	X	X	X	X	X	X	X	1
EB	9/29/22	850	EM	WW	14											X	X	X	X	X	X	X	X	X	X	X	2
FB	9/29/22	900	EM	WW	14											X	X	X	X	X	X	X	X	X	X	X	3
																											3TB

Turnaround Time (Business days)

- [x] Standard 10 Business Days
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENC

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed.

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [x] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ [Results/QC/Narrative (+ chromatograms)]
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format _____

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1	9/29/22 1135	1	2		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3		3	4		4

Custody Seal # Intact [ ] Not intact [ ] Absent [ ]
Preserved where applicable [x] NO
Cooler Temp. °C: 4.0 Therm. ID: 900
On Ice [x]

http://www.sgs.com/en/terms-and-conditions

EHSA-QAC-0027-00-FORM-Wheat Ridge - DW COC: Rev. Date: 4/10/18

SGS Sample Receipt Summary

Job Number: DA49624 **Client:** TETRA TECH **Project:** PARKDALE QUARRY

Date / Time Received: 9/30/2022 11:23:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (4/4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

DA49624R: Chain of Custody
Page 2 of 3

Problem Resolution

Job Number: DA49624

CSR: _____ **Response Date:** _____

Response:

DA49624R: Chain of Custody
Page 3 of 3

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Tetra Tech Longmont

Parkdale Quarry

117-8741008

SGS Job Number: DA49624X

Sampling Dates: 09/28/22 - 09/29/22

Report to:

Tetra Tech Inc
351 Coffman Street
Longmont, CO 80501
ed.muller@tetratech.com

ATTN: Fred Charles

Total number of pages in report: **19**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

Sections:

1

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SGS North America Inc.

Sample Summary

Tetra Tech Longmont

Job No: DA49624X

Parkdale Quarry
Project No: 117-8741008

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA49624-1X	09/28/22	17:34	DSEM	09/30/22	AQ	Ground Water	MW-3-092822
DA49624-2X	09/29/22	08:50	DSEM	09/30/22	AQ	Equipment Blank	EB
DA49624-3X	09/29/22	09:00	DSEM	09/30/22	AQ	Field Blank Water	FB

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

October 20, 2022

SGS Accutest
4036 Youngfield St
Wheat Ridge, CO 80033-3862

Work Order: C22100003 Quote ID: C5800

Project Name: DA49624X

Energy Laboratories, Inc. Casper WY received the following 3 samples for SGS Accutest on 10/3/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22100003-001	DA49624X-1X	09/28/22 17:34	10/03/22	Aqueous	Gross Alpha, Gross Beta, Total pH Check for Nitric Radiochem FIRST Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Radon 222, Total
C22100003-002	DA49624X-2X	09/29/22 8:50	10/03/22	Aqueous	Same As Above
C22100003-003	DA49624X-3X	09/29/22 9:00	10/03/22	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA49624X
Lab ID: C22100003-001
Client Sample ID: DA49624X-1X

Report Date: 10/20/22
Collection Date: 09/28/22 17:34
DateReceived: 10/03/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Gross Alpha	30.7	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Alpha precision (±)	6.5	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Alpha MDC	2.3	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Beta	11.5	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Beta precision (±)	1.9	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Beta MDC	2.8	pCi/L				E900.0	10/14/22 05:24 / haw
Radium 226	0.2	pCi/L	U			E903.0	10/17/22 13:27 / kdk
Radium 226 precision (±)	0.1	pCi/L				E903.0	10/17/22 13:27 / kdk
Radium 226 MDC	0.2	pCi/L				E903.0	10/17/22 13:27 / kdk
Radon 222	4230	pCi/L				D5072-92	10/03/22 14:24 / dmf
Radon 222 precision (±)	118	pCi/L				D5072-92	10/03/22 14:24 / dmf
Radon 222 MDC	123	pCi/L				D5072-92	10/03/22 14:24 / dmf
Radium 228	1.6	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 226 + Radium 228	1.8	pCi/L				A7500-RA	10/19/22 11:08 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	10/19/22 11:08 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	10/19/22 11:08 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA49624X
Lab ID: C22100003-002
Client Sample ID: DA49624X-2X

Report Date: 10/20/22
Collection Date: 09/29/22 08:50
DateReceived: 10/03/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Gross Alpha	1.5	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Alpha precision (±)	1.3	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Alpha MDC	1.5	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Beta	2.2	pCi/L	U			E900.0	10/14/22 05:24 / haw
Gross Beta precision (±)	1.4	pCi/L				E900.0	10/14/22 05:24 / haw
Gross Beta MDC	2.5	pCi/L				E900.0	10/14/22 05:24 / haw
Radium 226	-0.06	pCi/L	U			E903.0	10/17/22 13:27 / kdk
Radium 226 precision (±)	0.1	pCi/L				E903.0	10/17/22 13:27 / kdk
Radium 226 MDC	0.2	pCi/L				E903.0	10/17/22 13:27 / kdk
Radon 222	20.5	pCi/L	U			D5072-92	10/03/22 14:24 / dmf
Radon 222 precision (±)	64.5	pCi/L				D5072-92	10/03/22 14:24 / dmf
Radon 222 MDC	111	pCi/L				D5072-92	10/03/22 14:24 / dmf
Radium 228	0.7	pCi/L	U			RA-05	10/10/22 11:59 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 228 MDC	0.8	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	10/19/22 11:08 / dmf
Radium 226 + Radium 228 precision (±)	0.5	pCi/L				A7500-RA	10/19/22 11:08 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	10/19/22 11:08 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA49624X
Lab ID: C22100003-003
Client Sample ID: DA49624X-3X

Report Date: 10/20/22
Collection Date: 09/29/22 09:00
DateReceived: 10/03/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Gross Alpha	45.3	pCi/L				E900.0	10/15/22 01:59 / haw
Gross Alpha precision (±)	9.3	pCi/L				E900.0	10/15/22 01:59 / haw
Gross Alpha MDC	2.4	pCi/L				E900.0	10/15/22 01:59 / haw
Gross Beta	5.0	pCi/L				E900.0	10/13/22 02:57 / haw
Gross Beta precision (±)	1.0	pCi/L				E900.0	10/13/22 02:57 / haw
Gross Beta MDC	3.2	pCi/L				E900.0	10/13/22 02:57 / haw
Radium 226	0.005	pCi/L	U			E903.0	10/17/22 13:27 / kdk
Radium 226 precision (±)	0.1	pCi/L				E903.0	10/17/22 13:27 / kdk
Radium 226 MDC	0.2	pCi/L				E903.0	10/17/22 13:27 / kdk
Radon 222	-20	pCi/L	U			D5072-92	10/03/22 14:24 / dmf
Radon 222 precision (±)	64.2	pCi/L				D5072-92	10/03/22 14:24 / dmf
Radon 222 MDC	112	pCi/L				D5072-92	10/03/22 14:24 / dmf
Radium 228	1.7	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 228 MDC	0.7	pCi/L				RA-05	10/10/22 11:59 / trs
Radium 226 + Radium 228	1.7	pCi/L				A7500-RA	10/19/22 11:08 / dmf
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	10/19/22 11:08 / dmf
Radium 226 + Radium 228 MDC	0.8	pCi/L				A7500-RA	10/19/22 11:08 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100003 **Report Date:** 10/19/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **D5072-92**										Batch: R287802
Lab ID: **MB-R287802**	3	Method Blank				Run: TRICARB LSC_221003A				10/03/22 14:24
Radon 222		-30	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: **LCS-R287802**	3	Laboratory Control Sample				Run: TRICARB LSC_221003A				10/03/22 14:24
Radon 222		2200	pCi/L		98	70	130			
Radon 222 precision (±)		650	pCi/L							
Radon 222 MDC		51	pCi/L							
Lab ID: **C22100003-001CDUP**	3	Sample Duplicate				Run: TRICARB LSC_221003A				10/03/22 14:24
Radon 222		4300	pCi/L					0.8	30	
Radon 222 precision (±)		120	pCi/L							
Radon 222 MDC		120	pCi/L							

- The RER result is 0.22.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100003 **Report Date:** 10/19/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3093
Lab ID: Th230-GrAB-3093	3	Laboratory Control Sample				Run: G5000W_221007A				10/13/22 07:53
Gross Alpha		320	pCi/L		126	70	130			
Gross Alpha precision (±)		62	pCi/L							
Gross Alpha MDC		1.4	pCi/L							
Lab ID: Sr90-GrAB-3093	3	Laboratory Control Sample				Run: G5000W_221007A				10/13/22 07:53
Gross Beta		520	pCi/L		106	70	130			
Gross Beta precision (±)		52	pCi/L							
Gross Beta MDC		2.7	pCi/L							
Lab ID: MB-GrAB-3093	6	Method Blank				Run: G5000W_221007A				10/13/22 07:53
Gross Alpha		1	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		1	pCi/L							
Gross Beta		-1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C22100003-001AMS	3	Sample Matrix Spike				Run: G5000W_221007A				10/14/22 05:24
Gross Alpha		220	pCi/L		75	70	130			
Gross Alpha precision (±)		43	pCi/L							
Gross Alpha MDC		2.7	pCi/L							
Lab ID: C22100003-001AMSD	3	Sample Matrix Spike Duplicate				Run: G5000W_221007A				10/14/22 05:24
Gross Alpha		190	pCi/L		65	70	130	11	30	S
Gross Alpha precision (±)		38	pCi/L							
Gross Alpha MDC		2.3	pCi/L							
- The RER result is 0.41.										
Lab ID: C22100003-002AMS1	3	Sample Matrix Spike				Run: G5000W_221007A				10/13/22 07:53
Gross Beta		540	pCi/L		111	70	130			
Gross Beta precision (±)		55	pCi/L							
Gross Beta MDC		2.7	pCi/L							
Lab ID: C22100003-002AMSD	3	Sample Matrix Spike Duplicate				Run: G5000W_221007A				10/13/22 07:53
Gross Beta		490	pCi/L		99	70	130	11	30	
Gross Beta precision (±)		49	pCi/L							
Gross Beta MDC		2.5	pCi/L							
- The RER result is 0.75.										

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100003 **Report Date:** 10/19/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3094R
Lab ID: Th230-GrAB-3094	3	Laboratory Control Sample				Run: G542M-2_221007C				10/15/22 01:59
Gross Alpha		300	pCi/L		121	70	130			
Gross Alpha precision (±)		59	pCi/L							
Gross Alpha MDC		2.1	pCi/L							
Lab ID: MB-GrAB-3094	3	Method Blank				Run: G542M-2_221007C				10/15/22 01:59
Gross Alpha		-3	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		2	pCi/L							
Lab ID: C22091083-002DMS	3	Sample Matrix Spike				Run: G542M-2_221007C				10/15/22 01:59
Gross Alpha		290	pCi/L		112	70	130			
Gross Alpha precision (±)		57	pCi/L							
Gross Alpha MDC		2.4	pCi/L							
Lab ID: C22091083-002DMSD	3	Sample Matrix Spike Duplicate				Run: G542M-2_221007C				10/15/22 01:59
Gross Alpha		330	pCi/L		128	70	130	13	30	
Gross Alpha precision (±)		64	pCi/L							
Gross Alpha MDC		2.7	pCi/L							
- The RER result is 0.46.										
Method: E900.0										Batch: GrAB-3094
Lab ID: Sr90-GrAB-3094	3	Laboratory Control Sample				Run: TENNELEC-4_221007B				10/13/22 02:57
Gross Beta		520	pCi/L		107	70	130			
Gross Beta precision (±)		53	pCi/L							
Gross Beta MDC		2.8	pCi/L							
Lab ID: MB-GrAB-3094	3	Method Blank				Run: TENNELEC-4_221007B				10/13/22 02:57
Gross Beta		-1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C22091083-003DMS1	3	Sample Matrix Spike				Run: TENNELEC-4_221007B				10/13/22 02:57
Gross Beta		600	pCi/L		117	70	130			
Gross Beta precision (±)		61	pCi/L							
Gross Beta MDC		3.0	pCi/L							
Lab ID: C22091083-003DMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_221007B				10/13/22 02:57
Gross Beta		560	pCi/L		109	70	130	6.6	30	
Gross Beta precision (±)		57	pCi/L							
Gross Beta MDC		2.7	pCi/L							
- The RER result is 0.46.										

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100003 **Report Date:** 10/19/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-10657
Lab ID: LCS-RA226-10657	3	Laboratory Control Sample				Run: G542M-2_221006A				10/17/22 11:53
Radium 226		9.2	pCi/L		92	70	130			
Radium 226 precision (±)		1.8	pCi/L							
Radium 226 MDC		0.22	pCi/L							
Lab ID: MB-RA226-10657	3	Method Blank				Run: G542M-2_221006A				10/17/22 11:53
Radium 226		-0.04	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C22091203-001GDUP	3	Sample Duplicate				Run: G542M-2_221006A				10/17/22 11:54
Radium 226		-0.035	pCi/L					450	30	UR
Radium 226 precision (±)		0.12	pCi/L							
Radium 226 MDC		0.21	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 0.72.

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100003 **Report Date:** 10/19/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: RA228-6926
Lab ID: **LCS-228-RA226-10657**	3	Laboratory Control Sample				Run: TENNELEC-4_221006A				10/10/22 11:59
Radium 228		6.2	pCi/L		82	70	130			
Radium 228 precision (±)		1.3	pCi/L							
Radium 228 MDC		0.80	pCi/L							
Lab ID: **MB-RA226-10657**	3	Method Blank				Run: TENNELEC-4_221006A				10/10/22 11:59
Radium 228		0.1	pCi/L							U
Radium 228 precision (±)		0.5	pCi/L							
Radium 228 MDC		0.8	pCi/L							
Lab ID: **C22091203-001GDUP**	3	Sample Duplicate				Run: TENNELEC-4_221006A				10/10/22 11:59
Radium 228		1.6	pCi/L					160	30	R
Radium 228 precision (±)		0.55	pCi/L							
Radium 228 MDC		0.78	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 1.95.

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

2

Work Order Receipt Checklist

SGS Accutest

C22100003

Login completed by: Magdalena V. Jdanoff
Date Received: 10/3/2022

Reviewed by: cjohnson
Received by: cch

Reviewed Date: 10/4/2022
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	7.6°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

1 out of 2 VOAs for DA49624-2 has headspace <1/4." MJ 10/3/2022
Samples for Radionuclides were received at pH~ 7, 2 mLs of HN03 was added per 250mL to preserve to pH <2.

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

FED-EX Tracking #: | Bottle Order Control #:
SGS Quote #: | SGS Job #: DA49624X

Client / Reporting Information

Company Name: SGS North America Inc.

Send Report and Invoice to:
Larisa.Dimarco@sgs.com; Angela.Wu2@sgs.com
John.Barnhill@sgs.com; Rebecca.Nichols@sgs.com;
Eric.Hoffman@sgs.com;Terri.Mcnulty-Patterson@sgs.com;
Laurie.Peterson-Wright@sgs.com

303-425-6021

Sampler(s) Name(s): DSEM | Phone | Project Manager

Project Information

Project Name: DA49624X

Billing information (if different from Report to)
Company Name
Street Address
City | State | Zip
Attention

Requested Analysis (see TEST CODE sheet)

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH	HNO3	H2SO4	NONE	Na Water	MEOH	DI/ORE	GR-A ,GR-B ,RA-226 ,RA-228 ,RADON ,	LAB USE ONLY
1X	DA49624X		9/28/22	5:34:00 PM	DSEM	AQ										X	
2X	DA49624X		9/28/22	8:50:00 AM	DSEM	AQ										X	
3X	DA49624X		9/28/22	9:00:00 AM	DSEM	AQ										X	
			9/29/22														

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Turnaround Time (Business days)

Approved By (SGS PM) / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [x] other STD TAT

Emergency & Rush TAT data available via Lablink. Approval needed for RUSH/Emergency TAT

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1	Date Time: 9/29/22	Received By: 1 10-3 8:20a	Relinquished By: 2	Date Time:	Received By: 2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 6	Date Time:	Received By: 5	Custody Seal # ☐ Intact ☐ Not Intact	Preserved where applicable ☐ Therm. ID	On Ice ☐ Cooler Temp.

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

Page ___ of ___

Bottle Order Control #	FED-EX Tracking #
SGS Quote #	SGS Job # DA49624

Client / Reporting Information

Company: Tetra Tech
Street: 351 Coffman St
City, State ZIP: Longmont CO 80501
Project Contact: Fred Charles
Phone: 970 443 7065
Email: ed.muller@tetratech.com
Sampler(s) Name(s): Diana Snyder Ed Muller

Project Information

Project Name: Parkdale Quarry
Street:
City, State ZIP:
Project #: 117-8741008
Client Purchase Order #:
Project Manager: Fred Charles

Billing Information (if different from Report to)
Company:
Street Address:
City, State ZIP:
Attention:

Requested Analysis (see TEST CODE sheet)

Analyses: F; Diss Metal EPA 200.7 Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Ni, Se, Ag, Ti, U, V, Zn; TDS; TSS; NO32; GR-A, GR-B (2 bottles); Rad 226; Rad 228; UMS; Radon; Corrosivity

Field ID / Point of Collection	Date	Time	Sampled by	Matrix	# of bottles	NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	Na2SO3	F	Diss Metals	TDS	TSS	NO32	GR-A, GR-B	Rad 226	Rad 228	UMS	Radon	Corrosivity	LAB USE ONLY
MW-3-092822	9/28/22	1734	DS/EM	GW	14											X	X	X	X	X	X	X	X	X	X	X	1
EB	9/29/22	850	EM	WW	14											X	X	X	X	X	X	X	X	X	X	X	2
FB	9/29/22	900	EM	WW	14											X	X	X	X	X	X	X	X	X	X	X	3
																											3 TB

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

Turnaround Time (Business days)

- [x] Standard 10 Business Days
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed.

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [x] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ [Results/QC/Narrative (+ chromatograms)]
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format ________

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1 [signature]	9/29/22 1123	1 [signature]	2		2
Relinquished by Sampler: 3	Date/Time:	Received By: 3	Relinquished By: 4	Date/Time:	Received By: 4
Custody Seal #	Intact [x] Not intact [ ] Absent [ ]	Preserved where applicable [x]	Cooler Temp. °C: 4.0	Therm. ID: [illegible]	On Ice [x]

http://www.sgs.com/en/terms-and-conditions

EHSA-QAC-0027-00-FORM-Wheat Ridge - DW COC; Rev. Date: 4/10/18

DA49624X: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA49624 **Client:** TETRA TECH **Project:** PARKDALE QUARRY

Date / Time Received: 9/30/2022 11:23:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (4/4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

DA49624X: Chain of Custody
Page 2 of 3

Problem Resolution

Job Number: DA49624

CSR: _____ **Response Date:** _____

Response:

DA49624X: Chain of Custody
Page 3 of 3

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Martin Marietta Materials

Parkdale Project

SGS Job Number: DA50244

Sampling Date: 10/18/22

Report to:

Martin Marietta Materials
1627 Cole Blvd Suite 200
Lakewood, CO 80401
erin.kunkel@martinmarietta.com; Beth.Haake@martinmarietta.com

ATTN: Erin Kunkel

Total number of pages in report: 45

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

Sections: 1 2 3 4 5 6 7 8

Table of Contents

SGS North America Inc.

Sample Summary

Martin Marietta Materials

Parkdale Project

Job No: DA50244

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA50244-1	10/18/22	13:32	BH	10/20/22	AQ	Ground Water	MW-10
DA50244-1F	10/18/22	13:32	BH	10/20/22	AQ	Groundwater Filtered	MW-10

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Martin Marietta Materials **Job No:** DA50244

Site: Parkdale Project **Report Date** 11/28/2022 7:01:14 P

On 10/20/2022, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA50244 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals Analysis By Method EPA 200.7

Matrix: AQ **Batch ID:** MP36335

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50258-1FMS, DA50258-1FMSD were used as the QC samples for the metals analysis.

Metals Analysis By Method EPA 200.8

Matrix: AQ **Batch ID:** MP36289

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50184-1FMS, DA50184-1FMSD were used as the QC samples for the metals analysis.

Matrix: AQ **Batch ID:** MP36308

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49959-7MS, DA49959-7MSD were used as the QC samples for the metals analysis.

General Chemistry By Method EPA300.0

Matrix: AQ **Batch ID:** GP32847

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50258-2MS, DA50258-2MSD were used as the QC samples for the Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Chloride analysis.
- DA50244-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

General Chemistry By Method SM 2540C-2011

Matrix: AQ **Batch ID:** GN58160

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50311-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

General Chemistry By Method SM 2540D-2011

Matrix:	AQ	Batch ID:	GN58141

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50232-1DUP were used as the QC samples for the Solids, Total Suspended analysis.
- The duplicate RPD(s) for Solids, Total Suspended are outside control limits for sample GN58141-DUP. RPD acceptable due to low duplicate and sample concentrations.

General Chemistry By Method SW846 7.2/9040C

Matrix:	AQ	Batch ID:	GN58151

- The data for SW846 7.2/9040C meets quality control requirements.
- DA50244-1 for Corrosivity as pH: Non Corrosive

Field Data By Method FIELD

Matrix:	AQ	Batch ID:	R59232

- The data for FIELD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: DA50244
Account: Martin Marietta Materials
Project: Parkdale Project
Collected: 10/18/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA50244-1	**MW-10**					
Uranium		35.5	0.40		ug/l	EPA 200.8
Fluoride		1.5	0.20		mg/l	EPA300.0
Chloride		7.1	1.0		mg/l	EPA300.0
Nitrogen, Nitrate		0.51	0.25		mg/l	EPA300.0
Sulfate		89.7	13		mg/l	EPA300.0
Corrosivity as pH [a]		7.24			su	SW846 7.2/9040C
Solids, Total Dissolved		458	10		mg/l	SM 2540C-2011
Solids, Total Suspended		168	5.0		mg/l	SM 2540D-2011
pH (Field)		7.07			su	FIELD
Specific Conductivity (Field)		634	0.50		umhos/cm	FIELD
DA50244-1F	**MW-10**					
Arsenic		0.41	0.40		ug/l	EPA 200.8
Barium		46.7	4.0		ug/l	EPA 200.8
Lithium		24.7	5.0		ug/l	EPA 200.7
Molybdenum		14.7	2.0		ug/l	EPA 200.8
Selenium		2.9	0.80		ug/l	EPA 200.8
Uranium		36.3	0.40		ug/l	EPA 200.8
Vanadium		2.7	2.0		ug/l	EPA 200.8

(a) Non Corrosive

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-10		
Lab Sample ID:	DA50244-1	**Date Sampled:**	10/18/22
Matrix:	AQ - Ground Water	**Date Received:**	10/20/22
		Percent Solids:	n/a
Project:	Parkdale Project		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Uranium	35.5	0.40	ug/l	2	10/21/22	11/02/22	DU	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA15825
(2) Prep QC Batch: MP36289

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-10		
Lab Sample ID:	DA50244-1	**Date Sampled:**	10/18/22
Matrix:	AQ - Ground Water	**Date Received:**	10/20/22
		Percent Solids:	n/a
Project:	Parkdale Project		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	1.5	0.20	mg/l	2	10/20/22 11:41	AP	EPA300.0
Chloride	7.1	1.0	mg/l	2	10/20/22 11:41	AP	EPA300.0
Nitrogen, Nitrite [a]	< 0.0080	0.0080	mg/l	2	10/20/22 11:41	AP	EPA300.0
Nitrogen, Nitrate	0.51	0.25	mg/l	25	10/20/22 11:58	AP	EPA300.0
Sulfate	89.7	13	mg/l	25	10/20/22 11:58	AP	EPA300.0
Corrosivity as pH [b]	7.24		su	1	10/21/22	KH	SW846 7.2/9040C
Solids, Total Dissolved	458	10	mg/l	1	10/24/22 09:00	JW	SM 2540C-2011
Solids, Total Suspended	168	5.0	mg/l	1	10/21/22	TM	SM 2540D-2011

Field Parameters

Specific Conductivity (Field)	634	0.50	umhos/cm	1	11/01/22	SUB	FIELD
pH (Field)	7.07		su	1	11/01/22	SUB	FIELD

(a) Elevated detection limit due to matrix interference.
(b) Non Corrosive

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-10
Lab Sample ID: DA50244-1F
Matrix: AQ - Groundwater Filtered
Project: Parkdale Project

Date Sampled: 10/18/22
Date Received: 10/20/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 100	100	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Antimony	< 0.80	0.80	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Arsenic	0.41	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Barium	46.7	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Beryllium	< 0.40	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Boron	< 80	80	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Cadmium	< 0.20	0.20	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Chromium	< 4.0	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Cobalt	< 0.40	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Copper	< 4.0	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Iron	< 40	40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Lead	< 1.0	1.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Lithium	24.7	5.0	ug/l	1	10/31/22	11/21/22	CDL	EPA 200.7 [2]	EPA 200.7 [4]
Manganese	< 2.0	2.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Molybdenum	14.7	2.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Nickel	< 4.0	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Selenium	2.9	0.80	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Silver	< 0.20	0.20	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Thallium	< 0.40	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Uranium	36.3	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Vanadium	2.7	2.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Zinc	< 20	20	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]

(1) Instrument QC Batch: MA15810
(2) Instrument QC Batch: MA15917
(3) Prep QC Batch: MP36308
(4) Prep QC Batch: MP36335

RL = Reporting Limit

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

November 21, 2022

SGS Accutest
4036 Youngfield St
Wheat Ridge, CO 80033-3862

Work Order: C22100848 Quote ID: C5800
Project Name: DA50244X

Energy Laboratories, Inc. Casper WY received the following 1 sample for SGS Accutest on 10/21/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22100848-001	DA50244X-1X	10/18/22 13:32	10/21/22	Aqueous	Gross Alpha, Gross Beta, Total Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Radon 222, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA50244X
Lab ID: C22100848-001
Client Sample ID: DA50244X-1X

Report Date: 11/21/22
Collection Date: 10/18/22 13:32
DateReceived: 10/21/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Gross Alpha	34.1	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Alpha precision (±)	7.8	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Alpha MDC	3.5	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Beta	3.0	pCi/L	U			E900.0	11/02/22 03:02 / haw
Gross Beta precision (±)	1.1	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Beta MDC	3.6	pCi/L				E900.0	11/02/22 03:02 / haw
Radium 226	1.2	pCi/L				E903.0	11/16/22 11:05 / trs
Radium 226 precision (±)	0.3	pCi/L				E903.0	11/16/22 11:05 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	11/16/22 11:05 / trs
Radon 222	1310	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radon 222 precision (±)	70.2	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radon 222 MDC	93.2	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radium 228	2.1	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 228 precision (±)	0.8	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 228 MDC	1.1	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 226 + Radium 228	3.3	pCi/L				A7500-RA	11/17/22 14:17 / dmf
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	11/17/22 14:17 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	11/17/22 14:17 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **D5072-92**										Batch: R288538
Lab ID: **MB-R288538**	3	Method Blank				Run: PACKARD 3100TR_221021A				10/21/22 12:39
Radon 222		-10	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: **LCS-R288538**	3	Laboratory Control Sample				Run: PACKARD 3100TR_221021A				10/21/22 12:39
Radon 222		2200	pCi/L		99	70	130			
Radon 222 precision (±)		660	pCi/L							
Radon 222 MDC		51	pCi/L							
Lab ID: **C22100848-001BDUP**	3	Sample Duplicate				Run: PACKARD 3100TR_221021A				10/21/22 12:39
Radon 222		1500	pCi/L					15	30	
Radon 222 precision (±)		73	pCi/L							
Radon 222 MDC		94	pCi/L							

- The RER result is 2.04.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3103
Lab ID: Th230-GrAB-3103	3	Laboratory Control Sample				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		86	pCi/L		86	70	130			
Gross Alpha precision (±)		17	pCi/L							
Gross Alpha MDC		1.8	pCi/L							
Lab ID: Sr90-GrAB-3103	3	Laboratory Control Sample				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		540	pCi/L		110	70	130			
Gross Beta precision (±)		54	pCi/L							
Gross Beta MDC		3.6	pCi/L							
Lab ID: MB-GrAB-3103	6	Method Blank				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		-2	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		2	pCi/L							
Gross Beta		-3	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		4	pCi/L							
Lab ID: C22100848-001AMS	3	Sample Matrix Spike				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		81	pCi/L		47	70	130			S
Gross Alpha precision (±)		17	pCi/L							
Gross Alpha MDC		3.4	pCi/L							
Lab ID: C22100848-001AMSD	3	Sample Matrix Spike Duplicate				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		110	pCi/L		71	70	130	25	30	
Gross Alpha precision (±)		21	pCi/L							
Gross Alpha MDC		3.8	pCi/L							
- The RER result is 0.88.										
Lab ID: C22100849-001AMS1	3	Sample Matrix Spike				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		600	pCi/L		123	70	130			
Gross Beta precision (±)		61	pCi/L							
Gross Beta MDC		3.6	pCi/L							
Lab ID: C22100849-001AMSD	3	Sample Matrix Spike Duplicate				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		550	pCi/L		113	70	130	8.0	30	
Gross Beta precision (±)		56	pCi/L							
Gross Beta MDC		3.5	pCi/L							
- The RER result is 0.56.										

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-10701
Lab ID: LCS-RA226-10701	3	Laboratory Control Sample				Run: G5000W_221102D				11/16/22 11:05
Radium 226		9.9	pCi/L		99	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: MB-RA226-10701	3	Method Blank				Run: G5000W_221102D				11/16/22 11:05
Radium 226		-0.05	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C22100980-001ADUP	3	Sample Duplicate				Run: G5000W_221102D				11/16/22 12:45
Radium 226		0.42	pCi/L					26	30	
Radium 226 precision (±)		0.17	pCi/L							
Radium 226 MDC		0.20	pCi/L							

- The RER result is 0.42.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6949
Lab ID: LCS-228-RA226-10701	3	Laboratory Control Sample				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		9.5	pCi/L		127	70	130			
Radium 228 precision (±)		2.0	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-10701	3	Method Blank				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		0.3	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C22100980-001ADUP	3	Sample Duplicate				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		0.62	pCi/L					66	30	UR
Radium 228 precision (±)		0.66	pCi/L							
Radium 228 MDC		1.1	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 0.65.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

Work Order Receipt Checklist

SGS Accutest

C22100848

Login completed by: Madison A. Ray
Date Received: 10/21/2022
Reviewed by: cjohnson
Received by: hrj
Reviewed Date: 10/25/2022
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	14.8°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

The COC was not signed when relinquished.

The collection times on the bottles vary from the COC.

10/21/2022 MR

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

FED-EX Tracking #: | Bottle Order Control #:
SGS Quote #: | SGS Job #: DA50244X

Client / Reporting Information

Company Name: SGS North America Inc.
Street: 4
City: W
Proj: je
Phone: 303-425-6021
Sampler(s) Name(s): BH

Project Information

Project Name: DA50244X
Project Manager:
Attention:

Send Report and Invoice to:
Larisa.Dimarco@sgs.com; Angela.Wu2@sgs.com
John.Barnhill@sgs.com; Rebecca.Nichols@sgs.com;
Eric.Hoffman@sgs.com;Terri.Mcnulty-Patterson@sgs.com;
Laurie.Peterson-Wright@sgs.com

Information (if different from Report to)
Company Name:
Address:
State: Zip:

Requested Analysis (see TEST CODE sheet)

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	GR-A ,GR-B ,RA-226 ,RA-228 ,RADON
1X	DA50244X		10/18/22	1:32:00 PM	BH	AQ										X

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

LAB USE ONLY: CH100848

Turnaround Time (Business days)

Approved By (SGS PM): / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [X] other STD TAT

Emergency & Rush T/A data available via Lablink. Approval needed for RUSH/Emergency TAT

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		1	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4 10/19/22 10:15
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not Intact	Preserved where applicable [ ] Therm. ID: [ ] On Ice Cooler Temp.

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ensusa

Bottle Order Control #:
FED-EX Tracking #:
SGS Quote #:
SGS Job #: DA50244

Client / Reporting Information	Project Information	Billing Information (if different from Report to)
Company: Martin Marietta Materials	Project Name: Parkdale Groundwater Monitoring	Company: Same as Reporting
Street: 1627 Cole Blvd, Suite 200	Street:	Street Address:
City, State: Lakewood, CO 80401	City, State:	City, State ZIP:
Project Contact: Beth Haake	Project #:	Attention:
Phone: 720-249-7447	Client Purchase Order #:	
Email: see comments below		
Sampler(s) Name(s): Beth Haake	Sampler(s) Signature:	

Requested Analysis (see TEST CODE sheet)

Field ID / Point of Collection	Collection: Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HDPE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	NaHSO3	Ascorbic	CORR	DISS METALS	F	SO4,NO3,NO2,CHL	TDS	TSS	UMS	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-10	10/18/2022	1:32pm		GW	15	7			6							2	X	X	X	X	X	X	X	X	X	X	1
Special Instructions: pH Measurement	pH	Cond																									
Name of person measuring pH sample: Beth Haake	7.07	6.54																									
Signature of person measuring pH sample:																											
Date and Time of Measurement: 10/19/22 12:04																											

Special Instructions: pH Calibration

Name of person calibrating the pH meter: Erin Kunkel	pH 7: 6.98
Signature of person calibrating the pH meter:	pH 10: 10.09
Date and Time of Calibration: 10/19/2022 8:20AM	Conductivity 1413, 1606

Turnaround Time (Business days)

- [x] Standard 10 Business Days
- [ ] 5 Business Days
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed.

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [ ] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ (Results/QC/Narrative (+ chromatograms))
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format _____

Comments / Special Instructions

Report to: beth.haake@martinmarietta.com, see the attached table with parameters and required DL/RL

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1	ERIN KUNKEL 10/20/22 11:05	1	2		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3	10/21/22 11:05	3	4		4

Custody Seal #: Intact [ ] Not Intact [ ] Absent [ ]
Preserved where applicable [ ] Cooler Temp. °C: 4.0 Therm. ID: 113 On Ice [x]

SGS Sample Receipt Summary

Job Number: DA50244 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 10/20/2022 11:05:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (4/4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

DA50244: Chain of Custody
Page 2 of 3

Problem Resolution

Job Number: DA50244

CSR: _____ **Response Date:** _____

Response:

DA50244: Chain of Custody
Page 3 of 3

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/21/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3		
Arsenic	0.20	.05	.05		
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04		
Calcium	400	25	100		
Chromium	2.0	.087	.25		
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81		
Iron	20	1.6	10		
Lead	0.50	.094	.13		
Magnesium	100	10	25		
Manganese	1.0	.079	.51		
Molybdenum	1.0	.037	.27		
Nickel	2.0	.098	.35		
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1		
Silver	0.10	.0081	.025		
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05		
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.0019	<0.20
Vanadium	1.0	.14	.2		
Zinc	10	.05	2.1		

Associated samples MP36289: DA50244-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/21/22

Metal	DA50184-1F Original MS		Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silver					
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium	39.7	255	200	107.7	70-130
Vanadium					
Zinc	anr				

Associated samples MP36289: DA50244-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/21/22

Metal	DA50184-1F Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silver						
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium	39.7	249	200	104.7	2.4	20
Vanadium						
Zinc	anr					

Associated samples MP36289: DA50244-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/21/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silver				
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	213	200	106.5	85-115
Vanadium				
Zinc	anr			

Associated samples MP36289: DA50244-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13	0.91	<50
Antimony	0.40	.01	.3	-0.014	<0.40
Arsenic	0.20	.05	.05	0.0041	<0.20
Barium	2.0	.096	.25	0.049	<2.0
Beryllium	0.20	.077	.1	0.0085	<0.20
Boron	40	18	20	2.0	<40
Cadmium	0.10	.03	.04	0.00060	<0.10
Calcium	400	25	100		
Chromium	2.0	.087	.25	-0.026	<2.0
Cobalt	0.20	.04	.05	-0.0021	<0.20
Copper	2.0	.05	.81	0.23	<2.0
Iron	20	1.6	10	2.8	<20
Lead	0.50	.094	.13	0.019	<0.50
Magnesium	100	10	25		
Manganese	1.0	.079	.51	0.039	<1.0
Molybdenum	1.0	.037	.27	0.014	<1.0
Nickel	2.0	.098	.35	-0.071	<2.0
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1	-0.0044	<0.40
Silver	0.10	.0081	.025	0.00023	<0.10
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05	0.00077	<0.20
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.0027	<0.20
Vanadium	1.0	.14	.2	0.13	<1.0
Zinc	10	.05	2.1	0.90	<10

Associated samples MP36308: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	DA49959-7 Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	142	1150	1000	100.8	70-130
Antimony	0.69	108	100	107.3	70-130
Arsenic	0.52	219	200	109.2	70-130
Barium	27.6	438	400	102.6	70-130
Beryllium	0.0	105	100	105.0	70-130
Boron	53.5	490	400	109.1	70-130
Cadmium	0.11	109	100	108.9	70-130
Calcium	anr				
Chromium	8.7	109	100	100.3	70-130
Cobalt	0.17	102	100	101.8	70-130
Copper	40.2	145	100	104.8	70-130
Iron	321	1330	1000	100.9	70-130
Lead	0.59	208	200	103.7	70-130
Magnesium	anr				
Manganese	10.5	211	200	100.3	70-130
Molybdenum	6.3	108	100	101.7	70-130
Nickel	108	207	100	99.0	70-130
Phosphorus					
Potassium					
Selenium	0.73	211	200	105.1	70-130
Silver	0.037	40.7	40	101.7	70-130
Sodium					
Strontium					
Thallium	0.0	216	200	108.0	70-130
Tin					
Titanium					
Uranium	0.72	204	200	101.6	70-130
Vanadium	0.79	100	100	99.2	70-130
Zinc	30.8	132	100	101.2	70-130

Associated samples MP36308: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	DA49959-7 Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	142	1170	1000	102.8	1.7	20
Antimony	0.69	110	100	109.3	1.8	20
Arsenic	0.52	224	200	111.7	2.3	20
Barium	27.6	447	400	104.9	2.0	20
Beryllium	0.0	104	100	104.0	1.0	20
Boron	53.5	492	400	109.6	0.4	20
Cadmium	0.11	111	100	110.9	1.8	20
Calcium	anr					
Chromium	8.7	109	100	100.3	0.0	20
Cobalt	0.17	104	100	103.8	1.9	20
Copper	40.2	148	100	107.8	2.0	20
Iron	321	1380	1000	105.9	3.7	20
Lead	0.59	208	200	103.7	0.0	20
Magnesium	anr					
Manganese	10.5	217	200	103.3	2.8	20
Molybdenum	6.3	111	100	104.7	2.7	20
Nickel	108	212	100	104.0	2.4	20
Phosphorus						
Potassium						
Selenium	0.73	209	200	104.1	1.0	20
Silver	0.037	41.9	40	104.7	2.9	20
Sodium						
Strontium						
Thallium	0.0	209	200	104.5	3.3	20
Tin						
Titanium						
Uranium	0.72	208	200	103.6	1.9	20
Vanadium	0.79	101	100	100.2	1.0	20
Zinc	30.8	135	100	104.2	2.2	20

Associated samples MP36308: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	1050	1000	105.0	85-115
Antimony	106	100	106.0	85-115
Arsenic	223	200	111.5	85-115
Barium	423	400	105.8	85-115
Beryllium	99.0	100	99.0	85-115
Boron	424	400	106.0	85-115
Cadmium	111	100	111.0	85-115
Calcium	anr			
Chromium	104	100	104.0	85-115
Cobalt	103	100	103.0	85-115
Copper	107	100	107.0	85-115
Iron	1050	1000	105.0	85-115
Lead	216	200	108.0	85-115
Magnesium	anr			
Manganese	205	200	102.5	85-115
Molybdenum	104	100	104.0	85-115
Nickel	103	100	103.0	85-115
Phosphorus				
Potassium				
Selenium	208	200	104.0	85-115
Silver	41.8	40	104.5	85-115
Sodium				
Strontium				
Thallium	216	200	108.0	85-115
Tin				
Titanium				
Uranium	211	200	105.5	85-115
Vanadium	102	100	102.0	85-115
Zinc	107	100	107.0	85-115

Associated samples MP36308: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	46	50		
Antimony	30	14	20		
Arsenic	25	22	7		
Barium	10	.3	3		
Beryllium	10	1	2		
Boron	50	3.3	10		
Cadmium	10	1.9	5		
Calcium	400	6.6	61		
Chromium	10	1.1	2		
Cobalt	5.0	2.7	4		
Copper	10	4.6	6		
Iron	20	8.9	10		
Lead	50	13	15		
Lithium	5.0	.6	4	1.7	<5.0
Magnesium	200	50	40		
Manganese	5.0	.5	1		
Molybdenum	10	8.5	3		
Nickel	30	6.2	10		
Phosphorus	150	91	110		
Potassium	1000	84	300		
Selenium	50	30	30		
Silicon	100	41	50		
Silver	30	.6	5		
Sodium	400	13	150		
Strontium	5.0	.1	1		
Thallium	12	17	11		
Tin	60	41	51		
Titanium	10	.5	2		
Uranium	50	3.9	20		
Vanadium	10	.9	2		
Zinc	30	9	7		

Associated samples MP36335: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/31/22

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	DA50258-1F Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	anr				
Chromium					
Cobalt					
Copper	anr				
Iron	anr				
Lead					
Lithium	3.1	1130	1000	112.7	70-130
Magnesium					
Manganese	anr				
Molybdenum					
Nickel					
Phosphorus					
Potassium	anr				
Selenium					
Silicon					
Silver					
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP36335: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	DA50258-1F Original MS	Spikelot ICPALL5	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	DA50258-1F Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	anr					
Chromium						
Cobalt						
Copper	anr					
Iron	anr					
Lead						
Lithium	3.1	1130	1000	112.7	0.0	20
Magnesium						
Manganese	anr					
Molybdenum						
Nickel						
Phosphorus						
Potassium	anr					
Selenium						
Silicon						
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP36335: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/31/22

Metal	DA50258-1F Original MSD	Spikelot ICPALL5 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	anr			
Chromium				
Cobalt				
Copper	anr			
Iron	anr			
Lead				
Lithium	1110	1000	111.0	85-115
Magnesium				
Manganese	anr			
Molybdenum				
Nickel				
Phosphorus				
Potassium	anr			
Selenium				
Silicon				
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP36335: DA50244-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP32847/GN58136	0.50	0.0	mg/l	5	4.74	94.8	90-110%
Fluoride	GP32847/GN58136	0.10	0.0	mg/l	1	0.961	96.1	90-110%
Nitrogen, Nitrate	GP32847/GN58136	0.010	0.0	mg/l	0.1	0.0950	95.0	90-110%
Nitrogen, Nitrite	GP32847/GN58136	0.0040	0.0	mg/l	0.05	0.0484	96.8	90-110%
Solids, Total Dissolved	GN58160	10	0.0	mg/l	400	257	102.8	90-110%
Solids, Total Suspended	GN58141	5.0	0.0	mg/l	500	495	99.0	90-110%
Sulfate	GP32847/GN58136	0.50	0.0	mg/l	5	4.78	95.6	90-110%

Associated Samples:
Batch GN58141: DA50244-1
Batch GN58160: DA50244-1
Batch GP32847: DA50244-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN58160	DA50311-1	mg/l	728	741	1.8	0-5.44%
Solids, Total Suspended	GN58141	DA50232-1	mg/l	0.0	0.0	200.0(a)	0-5.44%

Associated Samples:
Batch GN58141: DA50244-1
Batch GN58160: DA50244-1
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP32847/GN58136	DA50258-2	mg/l	9.1	5	13.9	96.0	80-120%
Fluoride	GP32847/GN58136	DA50258-2	mg/l	0.23	1	1.2	97.0	80-120%
Nitrogen, Nitrate	GP32847/GN58136	DA50258-2	mg/l	0.11	0.1	0.21	100.0	80-120%
Nitrogen, Nitrite	GP32847/GN58136	DA50258-2	mg/l	0.0030 U	0.05	0.040	80.0	80-120%
Sulfate	GP32847/GN58136	DA50258-2	mg/l	4.7	5	9.7	100.0	80-120%

Associated Samples:
Batch GP32847: DA50244-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50244
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP32847/GN58136	DA50258-2	mg/l	9.1	5	13.8	0.7	20%
Fluoride	GP32847/GN58136	DA50258-2	mg/l	0.23	1	1.2	0.0	20%
Nitrogen, Nitrate	GP32847/GN58136	DA50258-2	mg/l	0.11	0.1	0.20	4.9	20%
Nitrogen, Nitrite	GP32847/GN58136	DA50258-2	mg/l	0.0030 U	0.05	0.041	2.5	20%
Sulfate	GP32847/GN58136	DA50258-2	mg/l	4.7	5	9.6	1.0	20%

Associated Samples:
Batch GP32847: DA50244-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Martin Marietta Materials

Parkdale Project

SGS Job Number: DA50244X

Sampling Date: 10/18/22

Report to:

Martin Marietta Materials
1627 Cole Blvd Suite 200
Lakewood, CO 80401
erin.kunkel@martinmarietta.com; Beth.Haake@martinmarietta.com

ATTN: Erin Kunkel

Total number of pages in report: **16**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

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SGS North America Inc.

Sample Summary

Martin Marietta Materials

Parkdale Project

Job No: DA50244X

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA50244-1X	10/18/22	13:32	BH	10/20/22	AQ	Ground Water	MW-10

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

November 21, 2022

SGS Accutest
4036 Youngfield St
Wheat Ridge, CO 80033-3862

Work Order: C22100848 Quote ID: C5800

Project Name: DA50244X

Energy Laboratories, Inc. Casper WY received the following 1 sample for SGS Accutest on 10/21/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22100848-001	DA50244X-1X	10/18/22 13:32	10/21/22	Aqueous	Gross Alpha, Gross Beta, Total Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Radon 222, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA50244X
Lab ID: C22100848-001
Client Sample ID: DA50244X-1X

Report Date: 11/21/22
Collection Date: 10/18/22 13:32
DateReceived: 10/21/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Gross Alpha	34.1	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Alpha precision (±)	7.8	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Alpha MDC	3.5	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Beta	3.0	pCi/L	U			E900.0	11/02/22 03:02 / haw
Gross Beta precision (±)	1.1	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Beta MDC	3.6	pCi/L				E900.0	11/02/22 03:02 / haw
Radium 226	1.2	pCi/L				E903.0	11/16/22 11:05 / trs
Radium 226 precision (±)	0.3	pCi/L				E903.0	11/16/22 11:05 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	11/16/22 11:05 / trs
Radon 222	1310	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radon 222 precision (±)	70.2	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radon 222 MDC	93.2	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radium 228	2.1	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 228 precision (±)	0.8	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 228 MDC	1.1	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 226 + Radium 228	3.3	pCi/L				A7500-RA	11/17/22 14:17 / dmf
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	11/17/22 14:17 / dmf
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	11/17/22 14:17 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **D5072-92**										Batch: R288538
Lab ID: **MB-R288538**	3	Method Blank				Run: PACKARD 3100TR_221021A				10/21/22 12:39
Radon 222		-10	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: **LCS-R288538**	3	Laboratory Control Sample				Run: PACKARD 3100TR_221021A				10/21/22 12:39
Radon 222		2200	pCi/L		99	70	130			
Radon 222 precision (±)		660	pCi/L							
Radon 222 MDC		51	pCi/L							
Lab ID: **C22100848-001BDUP**	3	Sample Duplicate				Run: PACKARD 3100TR_221021A				10/21/22 12:39
Radon 222		1500	pCi/L					15	30	
Radon 222 precision (±)		73	pCi/L							
Radon 222 MDC		94	pCi/L							

- The RER result is 2.04.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3103
Lab ID: Th230-GrAB-3103	3	Laboratory Control Sample				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		86	pCi/L		86	70	130			
Gross Alpha precision (±)		17	pCi/L							
Gross Alpha MDC		1.8	pCi/L							
Lab ID: Sr90-GrAB-3103	3	Laboratory Control Sample				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		540	pCi/L		110	70	130			
Gross Beta precision (±)		54	pCi/L							
Gross Beta MDC		3.6	pCi/L							
Lab ID: MB-GrAB-3103	6	Method Blank				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		-2	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		2	pCi/L							
Gross Beta		-3	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		4	pCi/L							
Lab ID: C22100848-001AMS	3	Sample Matrix Spike				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		81	pCi/L		47	70	130			S
Gross Alpha precision (±)		17	pCi/L							
Gross Alpha MDC		3.4	pCi/L							
Lab ID: C22100848-001AMSD	3	Sample Matrix Spike Duplicate				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		110	pCi/L		71	70	130	25	30	
Gross Alpha precision (±)		21	pCi/L							
Gross Alpha MDC		3.8	pCi/L							
- The RER result is 0.88.										
Lab ID: C22100849-001AMS1	3	Sample Matrix Spike				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		600	pCi/L		123	70	130			
Gross Beta precision (±)		61	pCi/L							
Gross Beta MDC		3.6	pCi/L							
Lab ID: C22100849-001AMSD	3	Sample Matrix Spike Duplicate				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		550	pCi/L		113	70	130	8.0	30	
Gross Beta precision (±)		56	pCi/L							
Gross Beta MDC		3.5	pCi/L							
- The RER result is 0.56.										

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-10701
Lab ID: LCS-RA226-10701	3	Laboratory Control Sample				Run: G5000W_221102D				11/16/22 11:05
Radium 226		9.9	pCi/L		99	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: MB-RA226-10701	3	Method Blank				Run: G5000W_221102D				11/16/22 11:05
Radium 226		-0.05	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C22100980-001ADUP	3	Sample Duplicate				Run: G5000W_221102D				11/16/22 12:45
Radium 226		0.42	pCi/L					26	30	
Radium 226 precision (±)		0.17	pCi/L							
Radium 226 MDC		0.20	pCi/L							

- The RER result is 0.42.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100848 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: RA228-6949
Lab ID: **LCS-228-RA226-10701**	3	Laboratory Control Sample				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		9.5	pCi/L		127	70	130			
Radium 228 precision (±)		2.0	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: **MB-RA226-10701**	3	Method Blank				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		0.3	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C22100980-001ADUP**	3	Sample Duplicate				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		0.62	pCi/L					66	30	UR
Radium 228 precision (±)		0.66	pCi/L							
Radium 228 MDC		1.1	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 0.65.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

2

Work Order Receipt Checklist

SGS Accutest

C22100848

Login completed by: Madison A. Ray
Date Received: 10/21/2022
Reviewed by: cjohnson
Received by: hrj
Reviewed Date: 10/25/2022
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	14.8°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

The COC was not signed when relinquished.

The collection times on the bottles vary from the COC.

10/21/2022 MR

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

FED-EX Tracking #: | Bottle Order Control #:
SGS Quote #: | SGS Job #: DA50244X

Client / Reporting Information

Company Name: SGS North America Inc.
Street: 4
City: V
Proj: je
Phone: 303-425-6021
Sampler(s) Name(s): BH

Project Information

Project Name: DA50244X
Project Manager:
Attention:

Send Report and Invoice to:
Larisa.Dimarco@sgs.com; Angela.Wu2@sgs.com
John.Barnhill@sgs.com; Rebecca.Nichols@sgs.com;
Eric.Hoffman@sgs.com;Terri.Mcnulty-Patterson@sgs.com;
Laurie.Peterson-Wright@sgs.com

Information (if different from Report to)
ny Name
Address
State Zip

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	GR-A ,GR-B ,RA-226 ,RA-228 ,RADON	LAB USE ONLY
1X	DA50244X		10/18/22	1:32:00 PM	BH	AQ										X	

LAB USE ONLY: CM100848

Turnaround Time (Business days)

Approved By (SGS PM): / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [X] other STD TAT

Emergency & Rush T/A data available via Lablink. Approval needed for RUSH/Emergency TAT

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		1	2		2
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		3	4		4 10/19/22 10:15
Relinquished by:	Date Time:	Received By:	Custody Seal #	Intact / Not Intact	Preserved where applicable / On Ice / Cooler Temp. / Therm. ID:
5		5			

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ensusa

Bottle Order Control #:
FED-EX Tracking #:
SGS Quote #:
SGS Job #: DA50244X

Client / Reporting Information	Project Information	Billing Information (if different from Report to)
Company: Martin Marietta Materials	Project Name: Parkdale Groundwater Monitoring	
Street: 1627 Cole Blvd, Suite 200	Street:	Company: Same as Reporting
City, State: Lakewood, CO 80401	City, State:	Street Address:
Project Contact: Beth Haake	Project #:	City, State ZIP:
Phone: 720-249-7447	Client Purchase Order #:	Attention:
Email: see comments below		
Sampler(s) Name(s): Beth Haake	Sampler(s) Signature:	

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED - Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB - Equipment Blank; RB - Rinse Blank; TB - Trip Blank

Field ID / Point of Collection	Collection: Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HDPE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	NaHSO3	Ascorbic	CORR	DISS METALS	F	SO4,NO3,NO2,CHL	TDS	TSS	UMS	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-10	10/18/2022	Various 1:32pm		GW	15	7			6							2	X	X	X	X	X	X	X	X	X	X	

Special Instructions: pH Measurement

	pH	Cond
Name of person measuring pH sample: Beth Haake		
Signature of person measuring pH sample:		
Date and Time of Measurement: 10/19/22 1403	7.07	6.54

Special Instructions: pH Calibration

Name of person calibrating the pH meter: Erin Kunkel	pH 7: 6.98
Signature of person calibrating the pH meter:	pH 10: 10.09
Date and Time of Calibration: 10/19/2022 8:20AM	Conductivity 1413, 1606

Turnaround Time (Business days)

- [X] Standard 10 Business Days
- [ ] 5 Business Days
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed.

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [ ] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ (Results/QC/Narrative (+ chromatograms))
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format _____

Comments / Special Instructions

Report to: beth.haake@martinmarietta.com, see the attached table with parameters and required DL/RL

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1		1	2		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3	10/22/22 1105	3	4		4

Custody Seal #: Intact [ ] Not Intact [ ] Absent [ ]
Preserved where applicable [ ] Cooler Temp. °C: 4.0 Therm. ID: [illegible] On ice [✓]

DA50244X: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA50244 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 10/20/2022 11:05:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (4/4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Problem Resolution

Job Number: DA50244

CSR: _____ **Response Date:** _____

Response:

DA50244X: Chain of Custody
Page 3 of 3

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Martin Marietta Materials

Parkdale Project

SGS Job Number: DA50245

Sampling Date: 10/18/22

Report to:

Martin Marietta Materials
1627 Cole Blvd Suite 200
Lakewood, CO 80401
erin.kunkel@martinmarietta.com; Beth.Haake@martinmarietta.com

ATTN: Erin Kunkel

Total number of pages in report: 37

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

Sections: 1 2 3 4 5 6 7

Table of Contents

SGS North America Inc.

Sample Summary

Martin Marietta Materials

Parkdale Project

Job No: DA50245

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA50245-1	10/18/22	17:37	BH	10/20/22	AQ	Ground Water	MW-1
DA50245-1F	10/18/22	17:37	BH	10/20/22	AQ	Groundwater Filtered	MW-1

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Martin Marietta Materials **Job No:** DA50245

Site: Parkdale Project **Report Date** 11/28/2022 7:01:48 P

On 10/20/2022, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA50245 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals Analysis By Method EPA 200.7

Matrix: AQ **Batch ID:** MP36335

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50258-1FMS, DA50258-1FMSD were used as the QC samples for the metals analysis.

Metals Analysis By Method EPA 200.8

Matrix: AQ **Batch ID:** MP36289

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50184-1FMS, DA50184-1FMSD were used as the QC samples for the metals analysis.

Matrix: AQ **Batch ID:** MP36308

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA49959-7MS, DA49959-7MSD were used as the QC samples for the metals analysis.

General Chemistry By Method EPA300.0

Matrix: AQ **Batch ID:** GP32847

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50258-2MS, DA50258-2MSD were used as the QC samples for the Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Chloride analysis.

General Chemistry By Method SM 2540C-2011

Matrix: AQ **Batch ID:** GN58160

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50311-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

General Chemistry By Method SM 2540D-2011

Matrix:	AQ	Batch ID:	GN58141

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA50232-1DUP were used as the QC samples for the Solids, Total Suspended analysis.
- The duplicate RPD(s) for Solids, Total Suspended are outside control limits for sample GN58141-DUP. RPD acceptable due to low duplicate and sample concentrations.

General Chemistry By Method SW846 7.2/9040C

Matrix:	AQ	Batch ID:	GN58151

- The data for SW846 7.2/9040C meets quality control requirements.
- DA50245-1 for Corrosivity as pH: Non Corrosive

Field Data By Method FIELD

Matrix:	AQ	Batch ID:	R59233

- The data for FIELD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: DA50245
Account: Martin Marietta Materials
Project: Parkdale Project
Collected: 10/18/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA50245-1	**MW-1**					
Uranium		16.0	0.40		ug/l	EPA 200.8
Fluoride		1.8	0.10		mg/l	EPA300.0
Chloride		6.2	0.50		mg/l	EPA300.0
Nitrogen, Nitrate		6.6	0.25		mg/l	EPA300.0
Sulfate		85.4	5.0		mg/l	EPA300.0
Corrosivity as pH [a]		7.98			su	SW846 7.2/9040C
Solids, Total Dissolved		454	10		mg/l	SM 2540C-2011
Solids, Total Suspended		1080	5.0		mg/l	SM 2540D-2011
pH (Field)		7.7			su	FIELD
Specific Conductivity (Field)		570	0.50		umhos/cm	FIELD
DA50245-1F	**MW-1**					
Aluminum		471	100		ug/l	EPA 200.8
Barium		17.0	4.0		ug/l	EPA 200.8
Iron		229	40		ug/l	EPA 200.8
Lithium		21.3	5.0		ug/l	EPA 200.7
Manganese		3.7	2.0		ug/l	EPA 200.8
Molybdenum		18.0	2.0		ug/l	EPA 200.8
Selenium		4.6	0.80		ug/l	EPA 200.8
Uranium		16.3	0.40		ug/l	EPA 200.8

(a) Non Corrosive

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	DA50245-1	**Date Sampled:**	10/18/22
Matrix:	AQ - Ground Water	**Date Received:**	10/20/22
		Percent Solids:	n/a
Project:	Parkdale Project		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Uranium	16.0	0.40	ug/l	2	10/21/22	11/02/22	DU	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA15825
(2) Prep QC Batch: MP36289

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	DA50245-1	**Date Sampled:**	10/18/22
Matrix:	AQ - Ground Water	**Date Received:**	10/20/22
		Percent Solids:	n/a
Project:	Parkdale Project		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	1.8	0.10	mg/l	1	10/20/22 12:26	AP	EPA300.0
Chloride	6.2	0.50	mg/l	1	10/20/22 12:26	AP	EPA300.0
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	10/20/22 12:26	AP	EPA300.0
Nitrogen, Nitrate	6.6	0.25	mg/l	25	10/20/22 12:54	AP	EPA300.0
Sulfate	85.4	5.0	mg/l	10	10/20/22 12:40	AP	EPA300.0
Corrosivity as pH [a]	7.98		su	1	10/21/22	KH	SW846 7.2/9040C
Solids, Total Dissolved	454	10	mg/l	1	10/24/22 09:00	JW	SM 2540C-2011
Solids, Total Suspended	1080	5.0	mg/l	1	10/21/22	TM	SM 2540D-2011

Field Parameters

Specific Conductivity (Field)	570	0.50	umhos/cm	1	11/01/22	SUB	FIELD
pH (Field)	7.7		su	1	11/01/22	SUB	FIELD

(a) Non Corrosive

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-1
Lab Sample ID: DA50245-1F
Matrix: AQ - Groundwater Filtered
Project: Parkdale Project

Date Sampled: 10/18/22
Date Received: 10/20/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	471	100	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Antimony	< 0.80	0.80	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Arsenic	< 0.40	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Barium	17.0	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Beryllium	< 0.40	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Boron	< 80	80	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Cadmium	< 0.20	0.20	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Chromium	< 4.0	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Cobalt	< 0.40	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Copper	< 4.0	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Iron	229	40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Lead	< 1.0	1.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Lithium	21.3	5.0	ug/l	1	10/31/22	11/21/22	CDL	EPA 200.7 [2]	EPA 200.7 [4]
Manganese	3.7	2.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Molybdenum	18.0	2.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Nickel	< 4.0	4.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Selenium	4.6	0.80	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Silver	< 0.20	0.20	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Thallium	< 0.40	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Uranium	16.3	0.40	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Vanadium	< 2.0	2.0	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Zinc	< 20	20	ug/l	2	10/25/22	10/27/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]

(1) Instrument QC Batch: MA15810
(2) Instrument QC Batch: MA15917
(3) Prep QC Batch: MP36308
(4) Prep QC Batch: MP36335

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

Bottle Order Control #	FED-EX Tracking #
SGS Quote #	SGS Job # DA50245

Client / Reporting Information		Project Information	
Company	Martin Marietta Materials	Project Name	Parkdale Groundwater Monitoring
Street	1627 Cole Blvd, Suite 200	Street	
City, State	Lakewood, CO 80401	City, State	
Project Contact	Beth Haake	Project #	
Phone	720-249-7447	Client Purchase Order #	
Email	see comments below		
Sampler(s) Name(s)	Beth Haake	Sampler(s) Signature:	

Billing Information (if different from Report to)
Company: Same as Reporting
Street Address:
City, State ZIP:
Attention:

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB-Equipment Blank; RB - Rinse Blank; TB - Trip Blank

Field ID / Point of Collection	Date	Time	Sampled by	Matrix	# of bottles	NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	Na2SO3	Ascorbic A	CORR	DISS METALS	F	SO4,NO3O,NO2,CHL	TDS	TSS	UMS	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-1	10/18/2022	Varies 5:37 pm	DAIT	GW	15	7			6							2	X	X	X	X	X	X	X	X	X	X	/

Special Instructions: pH Measurement	pH	Cond
Name of person measuring pH sample: Beth Haake	7.70	5.70
Signature of person measuring pH sample:		
Date and Time of Measurement: 10/18/22 5:40p		

Special Instructions: pH Calibration	
Name of person calibrating the pH meter: Erin Kunkel	pH 7: 6.98
Signature of person calibrating the pH meter:	pH 10: 10.09
Date and Time of Calibration: 10/18/2022 8:30AM	Conductivity 1413: 1606

Turnaround Time (Business days)
- [X] Standard 10 Business Days
- [ ] 5 Business Days
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed

Data Deliverable Information
- [ ] Commercial "A" (Level 1, Results Only)
- [ ] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ (Results/QC/Narrative (+ chromatograms))
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format ________

Comments / Special Instructions
Report to: beth.haake@martinmarietta.com, see the attached table with parameters and required DL/RL

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1 ERIN KUNKEL	10/20/22 11:05	1	2		2
Relinquished by Sampler: 3	Date/Time:	Received By: 3	Relinquished By: 4	Date/Time:	Received By: 4

Custody Seal # ☐ Intact ☐ Not intact ☐ Absent — Preserved where applicable ☑ — Cooler Temp. °C: ____ Therm. ID: ____ On Ice ☑

http://www.sgs.com/en/terms-and-conditions

DA50245: Chain of Custody
Page 1 of 4

SGS Sample Receipt Summary

Job Number: DA50245 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 10/20/2022 11:05:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (0.04/0.04);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Problem Resolution

Job Number: DA50245

CSR: _____ **Response Date:** _____

Response:

Job Change Order: DA50245

Requested Date:	11/8/2022	**Received Date:**	10/20/2022
Account Name:	Martin Marietta Materials	**Due Date:**	11/8/2022
Project Description:	Parkdale Project	**Deliverable:**	COMMB
C/O Initiated By:	TERRI.MCN **PM:** PP	**TAT (Days):**	0

Sample #: DA50245-1
Dept:
TAT: 0

MW-1

Change:
Cancelling UMS and Running Uranium by 234, 235, and 238.

Above Changes Per: Customer **Date/Time:** 11/8/2022

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

5.1

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DA50245: Chain of Custody
Page 4 of 4

Metals Analysis

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/21/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3		
Arsenic	0.20	.05	.05		
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04		
Calcium	400	25	100		
Chromium	2.0	.087	.25		
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81		
Iron	20	1.6	10		
Lead	0.50	.094	.13		
Magnesium	100	10	25		
Manganese	1.0	.079	.51		
Molybdenum	1.0	.037	.27		
Nickel	2.0	.098	.35		
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1		
Silver	0.10	.0081	.025		
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05		
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.0019	<0.20
Vanadium	1.0	.14	.2		
Zinc	10	.05	2.1		

Associated samples MP36289: DA50245-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/21/22

Metal	DA50184-1F Original MS		Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silver					
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium	39.7	255	200	107.7	70-130
Vanadium					
Zinc	anr				

Associated samples MP36289: DA50245-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/21/22

Metal	DA50184-1F Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silver						
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium	39.7	249	200	104.7	2.4	20
Vanadium						
Zinc	anr					

Associated samples MP36289: DA50245-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36289
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/21/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silver				
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	213	200	106.5	85-115
Vanadium				
Zinc	anr			

Associated samples MP36289: DA50245-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13	0.91	<50
Antimony	0.40	.01	.3	-0.014	<0.40
Arsenic	0.20	.05	.05	0.0041	<0.20
Barium	2.0	.096	.25	0.049	<2.0
Beryllium	0.20	.077	.1	0.0085	<0.20
Boron	40	18	20	2.0	<40
Cadmium	0.10	.03	.04	0.00060	<0.10
Calcium	400	25	100		
Chromium	2.0	.087	.25	-0.026	<2.0
Cobalt	0.20	.04	.05	-0.0021	<0.20
Copper	2.0	.05	.81	0.23	<2.0
Iron	20	1.6	10	2.8	<20
Lead	0.50	.094	.13	0.019	<0.50
Magnesium	100	10	25		
Manganese	1.0	.079	.51	0.039	<1.0
Molybdenum	1.0	.037	.27	0.014	<1.0
Nickel	2.0	.098	.35	-0.071	<2.0
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1	-0.0044	<0.40
Silver	0.10	.0081	.025	0.00023	<0.10
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05	0.00077	<0.20
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.0027	<0.20
Vanadium	1.0	.14	.2	0.13	<1.0
Zinc	10	.05	2.1	0.90	<10

Associated samples MP36308: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	DA49959-7 Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	142	1150	1000	100.8	70-130
Antimony	0.69	108	100	107.3	70-130
Arsenic	0.52	219	200	109.2	70-130
Barium	27.6	438	400	102.6	70-130
Beryllium	0.0	105	100	105.0	70-130
Boron	53.5	490	400	109.1	70-130
Cadmium	0.11	109	100	108.9	70-130
Calcium	anr				
Chromium	8.7	109	100	100.3	70-130
Cobalt	0.17	102	100	101.8	70-130
Copper	40.2	145	100	104.8	70-130
Iron	321	1330	1000	100.9	70-130
Lead	0.59	208	200	103.7	70-130
Magnesium	anr				
Manganese	10.5	211	200	100.3	70-130
Molybdenum	6.3	108	100	101.7	70-130
Nickel	108	207	100	99.0	70-130
Phosphorus					
Potassium					
Selenium	0.73	211	200	105.1	70-130
Silver	0.037	40.7	40	101.7	70-130
Sodium					
Strontium					
Thallium	0.0	216	200	108.0	70-130
Tin					
Titanium					
Uranium	0.72	204	200	101.6	70-130
Vanadium	0.79	100	100	99.2	70-130
Zinc	30.8	132	100	101.2	70-130

Associated samples MP36308: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	DA49959-7 Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	142	1170	1000	102.8	1.7	20
Antimony	0.69	110	100	109.3	1.8	20
Arsenic	0.52	224	200	111.7	2.3	20
Barium	27.6	447	400	104.9	2.0	20
Beryllium	0.0	104	100	104.0	1.0	20
Boron	53.5	492	400	109.6	0.4	20
Cadmium	0.11	111	100	110.9	1.8	20
Calcium	anr					
Chromium	8.7	109	100	100.3	0.0	20
Cobalt	0.17	104	100	103.8	1.9	20
Copper	40.2	148	100	107.8	2.0	20
Iron	321	1380	1000	105.9	3.7	20
Lead	0.59	208	200	103.7	0.0	20
Magnesium	anr					
Manganese	10.5	217	200	103.3	2.8	20
Molybdenum	6.3	111	100	104.7	2.7	20
Nickel	108	212	100	104.0	2.4	20
Phosphorus						
Potassium						
Selenium	0.73	209	200	104.1	1.0	20
Silver	0.037	41.9	40	104.7	2.9	20
Sodium						
Strontium						
Thallium	0.0	209	200	104.5	3.3	20
Tin						
Titanium						
Uranium	0.72	208	200	103.6	1.9	20
Vanadium	0.79	101	100	100.2	1.0	20
Zinc	30.8	135	100	104.2	2.2	20

Associated samples MP36308: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36308
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/25/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	1050	1000	105.0	85-115
Antimony	106	100	106.0	85-115
Arsenic	223	200	111.5	85-115
Barium	423	400	105.8	85-115
Beryllium	99.0	100	99.0	85-115
Boron	424	400	106.0	85-115
Cadmium	111	100	111.0	85-115
Calcium	anr			
Chromium	104	100	104.0	85-115
Cobalt	103	100	103.0	85-115
Copper	107	100	107.0	85-115
Iron	1050	1000	105.0	85-115
Lead	216	200	108.0	85-115
Magnesium	anr			
Manganese	205	200	102.5	85-115
Molybdenum	104	100	104.0	85-115
Nickel	103	100	103.0	85-115
Phosphorus				
Potassium				
Selenium	208	200	104.0	85-115
Silver	41.8	40	104.5	85-115
Sodium				
Strontium				
Thallium	216	200	108.0	85-115
Tin				
Titanium				
Uranium	211	200	105.5	85-115
Vanadium	102	100	102.0	85-115
Zinc	107	100	107.0	85-115

Associated samples MP36308: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	46	50		
Antimony	30	14	20		
Arsenic	25	22	7		
Barium	10	.3	3		
Beryllium	10	1	2		
Boron	50	3.3	10		
Cadmium	10	1.9	5		
Calcium	400	6.6	61		
Chromium	10	1.1	2		
Cobalt	5.0	2.7	4		
Copper	10	4.6	6		
Iron	20	8.9	10		
Lead	50	13	15		
Lithium	5.0	.6	4	1.7	<5.0
Magnesium	200	50	40		
Manganese	5.0	.5	1		
Molybdenum	10	8.5	3		
Nickel	30	6.2	10		
Phosphorus	150	91	110		
Potassium	1000	84	300		
Selenium	50	30	30		
Silicon	100	41	50		
Silver	30	.6	5		
Sodium	400	13	150		
Strontium	5.0	.1	1		
Thallium	12	17	11		
Tin	60	41	51		
Titanium	10	.5	2		
Uranium	50	3.9	20		
Vanadium	10	.9	2		
Zinc	30	9	7		

Associated samples MP36335: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	DA50258-1F Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	anr				
Chromium					
Cobalt					
Copper	anr				
Iron	anr				
Lead					
Lithium	3.1	1130	1000	112.7	70-130
Magnesium					
Manganese	anr				
Molybdenum					
Nickel					
Phosphorus					
Potassium	anr				
Selenium					
Silicon					
Silver					
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP36335: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/31/22

	DA50258-1F	Spikelot		QC
Metal	Original MS	ICPALL5	% Rec	Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/31/22

Metal	DA50258-1F Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	anr					
Chromium						
Cobalt						
Copper	anr					
Iron	anr					
Lead						
Lithium	3.1	1130	1000	112.7	0.0	20
Magnesium						
Manganese	anr					
Molybdenum						
Nickel						
Phosphorus						
Potassium	anr					
Selenium						
Silicon						
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP36335: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/31/22

Metal	DA50258-1F Original MSD	Spikelot ICPALL5 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	anr			
Chromium				
Cobalt				
Copper	anr			
Iron	anr			
Lead				
Lithium	1110	1000	111.0	85-115
Magnesium				
Manganese	anr			
Molybdenum				
Nickel				
Phosphorus				
Potassium	anr			
Selenium				
Silicon				
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP36335: DA50245-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

QC Batch ID: MP36335
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/31/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP32847/GN58136	0.50	0.0	mg/l	5	4.74	94.8	90-110%
Fluoride	GP32847/GN58136	0.10	0.0	mg/l	1	0.961	96.1	90-110%
Nitrogen, Nitrate	GP32847/GN58136	0.010	0.0	mg/l	0.1	0.0950	95.0	90-110%
Nitrogen, Nitrite	GP32847/GN58136	0.0040	0.0	mg/l	0.05	0.0484	96.8	90-110%
Solids, Total Dissolved	GN58160	10	0.0	mg/l	400	257	102.8	90-110%
Solids, Total Suspended	GN58141	5.0	0.0	mg/l	500	495	99.0	90-110%
Sulfate	GP32847/GN58136	0.50	0.0	mg/l	5	4.78	95.6	90-110%

Associated Samples:
Batch GN58141: DA50245-1
Batch GN58160: DA50245-1
Batch GP32847: DA50245-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN58160	DA50311-1	mg/l	728	741	1.8	0-5.44%
Solids, Total Suspended	GN58141	DA50232-1	mg/l	0.0	0.0	200.0(a)	0-5.44%

Associated Samples:
Batch GN58141: DA50245-1
Batch GN58160: DA50245-1
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP32847/GN58136	DA50258-2	mg/l	9.1	5	13.9	96.0	80-120%
Fluoride	GP32847/GN58136	DA50258-2	mg/l	0.23	1	1.2	97.0	80-120%
Nitrogen, Nitrate	GP32847/GN58136	DA50258-2	mg/l	0.11	0.1	0.21	100.0	80-120%
Nitrogen, Nitrite	GP32847/GN58136	DA50258-2	mg/l	0.0030 U	0.05	0.040	80.0	80-120%
Sulfate	GP32847/GN58136	DA50258-2	mg/l	4.7	5	9.7	100.0	80-120%

Associated Samples:
Batch GP32847: DA50245-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA50245
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Project

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP32847/GN58136	DA50258-2	mg/l	9.1	5	13.8	0.7	20%
Fluoride	GP32847/GN58136	DA50258-2	mg/l	0.23	1	1.2	0.0	20%
Nitrogen, Nitrate	GP32847/GN58136	DA50258-2	mg/l	0.11	0.1	0.20	4.9	20%
Nitrogen, Nitrite	GP32847/GN58136	DA50258-2	mg/l	0.0030 U	0.05	0.041	2.5	20%
Sulfate	GP32847/GN58136	DA50258-2	mg/l	4.7	5	9.6	1.0	20%

Associated Samples:
Batch GP32847: DA50245-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Martin Marietta Materials

Parkdale Project

SGS Job Number: DA50245X

Sampling Date: 10/18/22

Report to:

Martin Marietta Materials
1627 Cole Blvd Suite 200
Lakewood, CO 80401
erin.kunkel@martinmarietta.com; Beth.Haake@martinmarietta.com

ATTN: Erin Kunkel

Total number of pages in report: **19**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Rebecca Nichols
General Manager

Client Service contact: terri.mcnulty-patterson@sgs.com 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011), NV (CO00049)

Sections:

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SGS North America Inc.

Sample Summary

Martin Marietta Materials

Parkdale Project

Job No: DA50245X

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA50245-1X	10/18/22	17:37	BH	10/20/22	AQ	Ground Water	MW-1

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

November 21, 2022

SGS Accutest
4036 Youngfield St
Wheat Ridge, CO 80033-3862

Work Order: C22100849 Quote ID: C5800

Project Name: DA50245X

Energy Laboratories, Inc. Casper WY received the following 1 sample for SGS Accutest on 10/21/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22100849-001	DA50245X; 1X	10/18/22 17:37	10/21/22	Aqueous	Gross Alpha, Gross Beta, Total Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Radon 222, Total Uranium, Isotopic, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

CLIENT: SGS Accutest
Project: DA50245X
Work Order: C22100849

Report Date: 11/21/22

CASE NARRATIVE

Additional analysis for Uranium 234, 235, and 238 were added per the email from Terri McNulty-Patterson on 11/08/2022.

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA50245X
Lab ID: C22100849-001
Client Sample ID: DA50245X; 1X

Report Date: 11/21/22
Collection Date: 10/18/22 17:37
DateReceived: 10/21/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Gross Alpha	8.8	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Alpha precision (±)	3.8	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Alpha MDC	3.9	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Beta	4.0	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Beta precision (±)	2.0	pCi/L				E900.0	11/02/22 03:02 / haw
Gross Beta MDC	3.9	pCi/L				E900.0	11/02/22 03:02 / haw
Radium 226	2.4	pCi/L				E903.0	11/16/22 12:45 / trs
Radium 226 precision (±)	0.5	pCi/L				E903.0	11/16/22 12:45 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	11/16/22 12:45 / trs
Radon 222	1740	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radon 222 precision (±)	73.8	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radon 222 MDC	91.6	pCi/L				D5072-92	10/21/22 12:39 / dmf
Radium 228	7.0	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 228 precision (±)	1.6	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 228 MDC	1.1	pCi/L				RA-05	11/09/22 11:31 / haw
Radium 226 + Radium 228	9.3	pCi/L				A7500-RA	11/17/22 14:17 / dmf
Radium 226 + Radium 228 precision (±)	1.7	pCi/L				A7500-RA	11/17/22 14:17 / dmf
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	11/17/22 14:17 / dmf
Uranium 234	15.3	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 precision (±)	3.0	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 234 MDC	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235	0.8	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 precision (±)	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 235 MDC	0.1	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238	6.0	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 precision (±)	1.2	pCi/L				A7500-U C	11/10/22 14:30 / sec
Uranium 238 MDC	0.2	pCi/L				A7500-U C	11/10/22 14:30 / sec

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100849 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1005	
Lab ID: MB-RA-U-ISO-1005	9	Method Blank				Run: EGG-ORTEC_ALL_221109B			11/10/22 14:30	
Uranium 234		0.3	pCi/L							
Uranium 234 precision (±)		0.07	pCi/L							
Uranium 234 MDC		0.08	pCi/L							
Uranium 235		0.1	pCi/L							
Uranium 235 precision (±)		0.06	pCi/L							
Uranium 235 MDC		0.07	pCi/L							
Uranium 238		0.1	pCi/L							
Uranium 238 precision (±)		0.05	pCi/L							
Uranium 238 MDC		0.05	pCi/L							
Lab ID: LCS-RA-U-ISO-1005	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_221109B			11/10/22 14:30	
Uranium 234		9.8	pCi/L		93	70	130			
Uranium 234 precision (±)		1.9	pCi/L							
Uranium 234 MDC		0.089	pCi/L							
Uranium 238		11	pCi/L		106	70	130			
Uranium 238 precision (±)		2.2	pCi/L							
Uranium 238 MDC		0.081	pCi/L							
Lab ID: C22100849-001ADUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_221109B			11/10/22 14:30	
Uranium 234		14	pCi/L					13	30	
Uranium 234 precision (±)		2.6	pCi/L							
Uranium 234 MDC		0.22	pCi/L							
Uranium 235		0.74	pCi/L					1.9	30	
Uranium 235 precision (±)		0.20	pCi/L							
Uranium 235 MDC		0.16	pCi/L							
Uranium 238		5.0	pCi/L					18	30	
Uranium 238 precision (±)		0.98	pCi/L							
Uranium 238 MDC		0.17	pCi/L							

- The RER result for U234 is 0.46, U235 is 0.05, and U238 is 0.64.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100849 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **D5072-92**										Batch: R288538
Lab ID: **MB-R288538**	3	Method Blank				Run: PACKARD 3100TR_221021A			10/21/22 12:39	
Radon 222		-10	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: **LCS-R288538**	3	Laboratory Control Sample				Run: PACKARD 3100TR_221021A			10/21/22 12:39	
Radon 222		2200	pCi/L		99	70	130			
Radon 222 precision (±)		660	pCi/L							
Radon 222 MDC		51	pCi/L							
Lab ID: **C22100762-002HDUP**	3	Sample Duplicate				Run: PACKARD 3100TR_221021A			10/21/22 12:39	
Radon 222		-3.6	pCi/L					260	30	UR
Radon 222 precision (±)		46	pCi/L							
Radon 222 MDC		79	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 0.49.										
Lab ID: **C22100848-001BDUP**	3	Sample Duplicate				Run: PACKARD 3100TR_221021A			10/21/22 12:39	
Radon 222		1500	pCi/L					15	30	
Radon 222 precision (±)		73	pCi/L							
Radon 222 MDC		94	pCi/L							
- The RER result is 2.04.										

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100849 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3103
Lab ID: Th230-GrAB-3103	3	Laboratory Control Sample				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		86	pCi/L		86	70	130			
Gross Alpha precision (±)		17	pCi/L							
Gross Alpha MDC		1.8	pCi/L							
Lab ID: Sr90-GrAB-3103	3	Laboratory Control Sample				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		540	pCi/L		110	70	130			
Gross Beta precision (±)		54	pCi/L							
Gross Beta MDC		3.6	pCi/L							
Lab ID: MB-GrAB-3103	6	Method Blank				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		-2	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		2	pCi/L							
Gross Beta		-3	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		4	pCi/L							
Lab ID: C22100848-001AMS	3	Sample Matrix Spike				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		81	pCi/L		47	70	130			S
Gross Alpha precision (±)		17	pCi/L							
Gross Alpha MDC		3.4	pCi/L							
Lab ID: C22100848-001AMSD	3	Sample Matrix Spike Duplicate				Run: G542M-2_221028A				11/02/22 03:02
Gross Alpha		110	pCi/L		71	70	130	25	30	
Gross Alpha precision (±)		21	pCi/L							
Gross Alpha MDC		3.8	pCi/L							
- The RER result is 0.88.										
Lab ID: C22100849-001AMS1	3	Sample Matrix Spike				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		600	pCi/L		123	70	130			
Gross Beta precision (±)		61	pCi/L							
Gross Beta MDC		3.6	pCi/L							
Lab ID: C22100849-001AMSD	3	Sample Matrix Spike Duplicate				Run: G542M-2_221028A				11/02/22 03:02
Gross Beta		550	pCi/L		113	70	130	8.0	30	
Gross Beta precision (±)		56	pCi/L							
Gross Beta MDC		3.5	pCi/L							
- The RER result is 0.56.										

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100849 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-10701
Lab ID: LCS-RA226-10701	3	Laboratory Control Sample				Run: G5000W_221102D				11/16/22 11:05
Radium 226		9.9	pCi/L		99	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: MB-RA226-10701	3	Method Blank				Run: G5000W_221102D				11/16/22 11:05
Radium 226		-0.05	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C22100980-001ADUP	3	Sample Duplicate				Run: G5000W_221102D				11/16/22 12:45
Radium 226		0.42	pCi/L					26	30	
Radium 226 precision (±)		0.17	pCi/L							
Radium 226 MDC		0.20	pCi/L							

- The RER result is 0.42.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22100849 **Report Date:** 11/17/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: RA228-6949
Lab ID: **LCS-228-RA226-10701**	3	Laboratory Control Sample				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		9.5	pCi/L		127	70	130			
Radium 228 precision (±)		2.0	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: **MB-RA226-10701**	3	Method Blank				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		0.3	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C22100980-001ADUP**	3	Sample Duplicate				Run: TENNELEC-4_221102B				11/09/22 11:31
Radium 228		0.62	pCi/L					66	30	UR
Radium 228 precision (±)		0.66	pCi/L							
Radium 228 MDC		1.1	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 0.65.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

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Work Order Receipt Checklist

SGS Accutest

C22100849

Login completed by: Madison A. Ray
Date Received: 10/21/2022
Reviewed by: cjohnson
Received by: hrj
Reviewed Date: 10/25/2022
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	14.8°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

The COC was not signed when relinquished.

The collection times on the bottles vary from the COC.

10/21/2022 MR

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

FED-EX Tracking #: | Bottle Order Control #:
SGS Quote #: | SGS Job #: DA50245X

Client / Reporting Information

Company Name: SGS North America Inc.

Project Information

Project Name: DA50245X

Send Report and Invoice to:
Larisa.Dimarco@sgs.com; Angela.Wu2@sgs.com
John.Barnhill@sgs.com; Rebecca.Nichols@sgs.com;
Eric.Hoffman@sgs.com;Terri.Mcnulty-Patterson@sgs.com;
Laurie.Peterson-Wright@sgs.com

Billing Information (if different from Report to)
Company Name:
Street Address:
City State Zip:

303-425-6021

Sampler(s) Name(s): BH | Phone: | Project Manager: | Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	GR-A, GR-B, RA-226, RA-228, RADON	LAB USE ONLY
1X	DA50245X		10/18/22	5:37:00 PM	BH	AQ										X	

Turnaround Time (Business days)

Approved By (SGS PM): / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [X] other STD TAT

Emergency & Rush T/A data available via Lablink. Approval needed for RUSH/Emergency TAT

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		1	2		2
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		3	4		4
Relinquished by:	Date Time:	Received By:	Custody Seal #	Intact / Not intact	Preserved where applicable / Therm. ID
5		5			On Ice / Cooler Temp.

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

Bottle Order Control #:
FED-EX Tracking #:
SGS Quote #:
SGS Job #: DA50245

Client / Reporting Information

Company: Martin Marietta Materials
Street: 1627 Cole Blvd, Suite 200
City, State: Lakewood, CO 80401
Project Contact: Beth Haake
Phone: 720-249-7447
Email: see comments below
Sampler(s) Name(s): Beth Haake

Project Information

Project Name: Parkdale Groundwater Monitoring
Street:
City, State:
Project #:
Client Purchase Order #:
Sampler(s) Signature:

Billing Information (if different from Report to)

Company: Same as Reporting
Street Address:
City, State ZIP:
Attention:

Requested Analysis (see TEST CODE sheet)

Field ID / Point of Collection	Collection: Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	HCl	NaOH	HNO3	H2SO4	Zn Acetate	EnCore	Na2S2O3	Ascorbic Acid	CORR	DISS METALS	F	SO4,NO3O,NO2,CHL	TDS	TSS	UMS	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-1	10/18/2022	Varies 5:37 pm	BAH	GW	15	7			6					2	X	X	X	X	X	X	X	X	X	X	1

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

Special Instructions: pH Measurement	pH	Cond
Name of person measuring pH sample: Beth Haake	7.70	5.90
Signature of person measuring pH sample:		
Date and Time of Measurement: 10/18/22 5:46p		

Special Instructions: pH Calibration

Name of person calibrating the pH meter: Erin Kunkel
Signature of person calibrating the pH meter:
Date and Time of Calibration: 10/20/2022 9:20AM

pH 7: 6.98
pH 10: 10.09
Conductivity 1413: 1606

Turnaround Time (Business days)

- [X] Standard 10 Business Days
- [ ] 5 Business Days
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY

Emergency & Rush T/A data available via LabLink. RUSH TAT approval needed

Special Reporting Instructions
- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [ ] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ (Results/QC/Narrative (+ chromatograms))
- [ ] REDT2
- [ ] FULT1
- [ ] EDD Format

Comments / Special Instructions

Report to: beth.haake@martinmarietta.com, see the attached table with parameters and required DL/RL

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1 ERIN KUNKEL	10/20/22 11:05	1	2		2
Relinquished by Sampler: 3	Date/Time:	Received By: 3	Relinquished By: 4	Date/Time:	Received By: 4

Custody Seal #: Intact [ ] Not intact [ ] Absent [ ]
Preserved where applicable [ ] Cooler Temp. °C: Therm. ID: On Ice [ ]

http://www.sgs.com/en/terms-and-conditions

DA50245X: Chain of Custody
Page 1 of 4

SGS Sample Receipt Summary

Job Number: DA50245 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 10/20/2022 11:05:00 AM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (0.04/0.04);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IR Gun;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	0		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

DA50245X: Chain of Custody
Page 2 of 4

Problem Resolution

Job Number: DA50245

CSR: _____ **Response Date:** _____

Response:

Job Change Order: DA50245

Requested Date:	11/8/2022	**Received Date:**	10/20/2022
Account Name:	Martin Marietta Materials	**Due Date:**	11/8/2022
Project Description:	Parkdale Project	**Deliverable:**	COMMB
C/O Initiated By:	TERRI.MCN **PM:** PP	**TAT (Days):**	0

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Sample #: DA50245-1

Dept:

TAT: 0

MW-1

Change:
Cancelling UMS and Running Uranium by 234, 235, and 238.

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Above Changes Per: Customer **Date/Time:** 11/8/2022

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.