Beth Haake
Senior Environmental Engineer

March 3, 2023

Re: Martin Marietta Materials, Inc Parkdale Quarry Surface and Groundwater Monitoring 4th Quarter 2022

Surface and groundwater sampling for the 4th quarter of 2022 occurred on December 6, 2022. Samples were collected from CC-1, CC-2, MW-1, MW-3 and MW-10. TC-1 and TC-2 were not flowing on the sampling date.

Attached is a summary of the data for each of the required analytes at each sampling location. The lab reports and field data sheets are also provided.

Please note there were two (2) exceedances of the applicable water quality standards:

Parameter	Standard (mg/L)	Sample Location	Result (mg/L)
TDS	400	MW-10	401
Uranium (U)	0.03 (MCL)	MW-3	0.0498

Should you have any questions or need additional information regarding this submittal please do not hesitate to contact me at (720) 249-7447 or beth.haake@martinmarietta.com.

Sincerely,

Beth Haake

Beth Haake
Environmental Engineer

Martin Marietta | West Division
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m. (720) 249-7447 e. beth.haake@martinmarietta.com
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			Sample Location	MW-1			MW-3			MW-10		
			Sample Date	12/6/2022			12/6/2022			12/6/2022		
			Laboratory Report Number(s)	DA51642			DA51641			DA51640		
Parameter	**Units**	**Standard[1]**	**Note**	**Result**	**Precision**	**MDC**	**Result**	**Precision**	**MDC**	**Result**	**Precision**	**MDC**
Field												
pH	std units	6.5-8.5	DWS	7.02			7.26			6.76		
Specific Conductivity (SC)	µS/Cm	-	-	560.19			440.64			672.56		
Temperature (T)	Celsius	-	-	15.6			15.11			13.37		
Turbidity	NTU	-	-	67.21			11.37			219.05		
Solution Paramters, Nonmetals, Major Ions												
Chloride	mg/L	250	-	6.4			5.5			7.4		
Fluoride	mg/L	2	A	1.9			2			1.5		
Sulfate	mg/L	250	DWS	86.7			52.3			91.2		
Total Dissolved Solids (TDS)	mg/L	400	Note 2	306			213			***401***		
Total Suspended Solids (TSS)	mg/L	-	-	103			25.6			362		
Nutrients												
Nitrogen, Nitrate	mg/L	10	HHS				2			0.37		
Nitrogen, Nitrite	mg/L	1	HHS				<0.004			<0.0080		
Dissolved Metals												
Aluminum (Al)	mg/L	5	A	<0.1			<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			0.00071			0.00043		
Barium (Ba)	mg/L	2	HHS	0.013			0.00081			0.0405		
Berylium (Be)	mg/L	0.004	HHS	<0.0004			<0.0004			<0.0004		
Boron (B)	mg/L	0.75	A	<0.08			<0.08			<0.08		
Cadmium (Cd)	mg/L	0.005	HHS	<0.0002			<0.0002			<0.0002		
Chromium (Cr)	mg/L	0.1	HHS	<0.004			<0.004			<0.004		
Chromium III (Cr 3)	mg/L			<0.00001			<0.00001					
Chromium VI (Cr 6)	mg/L			<0.000014			<0.000014					
Cobalt (Co)	mg/L	0.05	A	<0.0004			<0.0004			<0.0004		
Copper (Cu)	mg/L	0.2	A	0.0192			0.00096			<0.004		
Iron (Fe)	mg/L	0.3	DWS	<0.04			<0.04			<0.04		
Lead (Pb)	mg/L	0.05	HHS	<0.001			<0.001			<0.001		
Lithium (Li)	mg/L	2.5	A	0.0201			0.0195			0.0249		
Manganese (Mn)	mg/L	0.05	DWS	<0.002			<0.002			<0.002		
Molybdenum (Mo)	mg/L	0.21	HHS	0.0206			0.0251			0.0161		
Nickel (Ni)	mg/L	0.1	HHS	<0.004			<0.004			<0.004		
Selenium (Se)	mg/L	0.02	A	0.0044			0.0033			0.003		
Silver (Ag)	mg/L	0.05	HHS	<0.0002			<0.0002			<0.0002		
Thalium (Tl)	mg/L	0.002	HHS	<0.0004			<0.0004			<0.0004		
Uranium (U), unspeciated	mg/L	0.03	MCL	0.0165			0.0237			***0.0498***		
Vanadium (V)	mg/L	0.1	A	0.002			0.0025			0.0029		
Zinc (Zn)	mg/L	2	A	<0.02			<0.02			<0.02		
Radionuclides												
Gross Alpha	pCi/L	-		23.6	56	2.8	29.5	6.5	2.2	55.4	12	3.9
Adjusted Gross Alpha (calculated)	pCi/L	15	Note 3	2.7	-	-	1	-	-	13.3	-	-
Gross Beta	pCi/L	50	Scrn Levl	16.1	2.7	3.5	19.8	3.1	3.8	38.9	4.7	3.5
Radium 226	pCi/L	-	-	0.6	0.2	0.2	0.3	0.2	0.2	1	0.3	0.3
Radium 228	pCi/L	-	-	-0.7	0.6	1.1	2.6	1.1	1.5	2.2	1.2	1.6
Radon 222	pCi/L	-	-	1760	78.8	99.3	1930	77.5	94.2	1720	76.9	96.8
Uranium 234	pCi/L	-	-	14.6	2.8	0.5	20.6	4	0.6	27.3	5.3	0.8
Uranium 235	pCi/L	-	-	0.3	0.3	0.5	1.4	0.3	0.6	1.7	0.3	0.5
Uranium 238	pCi/L	-	-	6.3	1.2	0.6	7.9	1.5	0.5	14.8	2.9	0.5

Parkdale Q4 2022 Surface Water Field and Analytical Results

			Sample Location	CC-1		CC-2	
			Sample Date	12/6/2022		12/6/2022	
			Laboratory Report Number(s)	DA51639		DA51638	
Parameter							
Field	**Units**	**Standard[1]**		**Result**	**Calculated Standard**	**Result**	**Calculated Standard**
Dissolved Oxygen (DO)	mg/L	>6		10.61		11	
pH	std units	--		7.96		7.84	
Specific Conductivity (SC)	µS/Cm	--		974		981	
Temperature (T)	Celsius	--		NS		NS	
Turbidity	NTU	--		3.47		10.15	
Solution Paramters, Nonmetals, Major Ions							
Ammonia (NH_3)	mg/L	TVS_{ch} [2]		<0.050	2.576	0.05	2.897
Chloride	mg/L	250		70.2		71	
Fluoride	mg/L	2.0		0.79		0.73	
Sulfate	mg/L	250		97.2		97.2	
Sulfide	mg/L	0.002		<0.50		<0.50	
Total Suspended Solids (TSS)	mg/L	--		<5.0		13.2	
Nutrients							
Nitrogen, Nitrate	mg/L	10		96		0.25	
Nitrogen, Nitrite	mg/L	0.05		<0.10		<0.020	
Dissolved Metals							
Arsenic (As)	mg/L	0.34		0.99		0.9	
Cadmium (Cd)	mg/L	0.005		<0.20		<0.20	
Calcuim	mg/L	--		86700		80500	
Chromium III (Cr 3)	mg/L	0.5		<0.014		<0.014	
Chromium VI (Cr 6)	mg/L	0.5		<0.010		<0.010	
Copper (Cu)	µg/L	ch[3]		<4	10180.8	<4	9917.7
Iron (Fe)	mg/L	1		<0.04		0.197	
Lead (Pb)	mg/L	0.05		<1		<1	
Magnesium	mg/L	--		38900		39900	
Manganese (Mn)	mg/L	--		<2.0	0.510	11.7	0.504
Molybdenum (Mo)	mg/L	150		4.3		3.9	
Nickel (Ni)	mg/L	0.1		<4.0		<4.0	
Selenium (Se)	mg/L	4.6		5.3		3.7	
Silver (Ag)	mg/L	ch[5]		<0.20	106227.75	<0.20	100775.88
Zinc (Zn)	mg/L	ch[6]		NS	216495.60	NS	210548.03
Oil and Grease (visual)	Yes/No			No		No	
Oil and Grease	mg/L			N/A		N/A	

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)

SURFACE WATER SAMPLING FIELD DATASHEET

Project Name: **Parkdale**	Sampler Name(s): BH
Date: 12/6/22	

Sampling Point	CC-2	CC-1	TC-2	TC-1
Is the stream flowing?	(Yes) / No	(Yes) / No	Yes / (No) 9:12A	(Yes) / No 9:30A
Time sampling started:	9:35A	10:17A		
Field Parameters:				
pH (su)	7.84	7.96	N/A	N/A
Dissolved Oxygen (mg/l)	11.00	10.61	N/A	N/A
Turbidity (ntu)	10.15	3.47	N/A	N/A
Visible Sheen?	Y / (N)	Y / (N)	Y / (N/A)	Y / (N/A)
Cond	981	974		

pH cal - 12/6 8:25A

GROUNDWATER SAMPLING FIELD DATA SHEET – MICRO-PURGE

Project Name: Parkdale	Sampler Name(s): ~~Beth Haake~~ ERIN KUNKEL	Monitoring Well #: MW-1	Date: 12/6/22

Groundwater Measurements and Purge Data

1. Water Level* (±0.01ft.)	141.33	4. Pump Rate (gal/min)	0.132 gal/min 0.5 L/min
2. Bottom of Casing* (±0.01ft.)	239 ft	5. Actual Volume of Water Purged (gal)	6.2 gal
3. Depth of Water (ft)	97.67	6. Casing Diameter (in.) / Screen Depth (ft)	2" / 50'-250'

*Measured from surveyed top of casing

PUMP SET @ 200 FT → PUMP SET @ 155 → 160

0.66 gal / 5 min
0.55 gal / 4 min
0.39 gal / 3 min
0.26 gal / 2 min

Field Parameters

Date	Time	Volume Purged (gallons) TURB NTU	pH (s.u.)	Temperature (C)	SC (uS/cm)
141.33	9:55 AM	159.11	7.02	14.80 °C	571.45
	9:58 AM	152.43	6.90	15.02	569.83
	10:01 AM	158.25	6.88	15.03	566.11
↓ 0.98 gal	10:04 AM	91.68	6.92	15.10	569.63
	10:06 AM	94.67	6.96	15.25	566.92
	10:08 AM	72.60	6.96	15.30	565.90
12/6/22	10:10 AM	89.84	6.99	15.38	566.64
	10:12 AM	76.81	7.00	15.51	568.92
147.25	10:14 AM	2.51 gal 76.37	7.02	15.48	563.97
	10:16 AM	72.01	7.03	15.58	565.75
	10:18 AM	84.65	7.05	15.54	564.58
	10:20 AM	57.30	7.07	15.58	562.71
	10:22 AM	55.68	7.08	15.54	563.81
147.73	10:24 AM	67.42	7.08	15.70	562.51
	10:26 AM	62.54	7.08	15.68	562.09
	10:28 AM	57.89	7.08	15.53	564.05
	10:30 AM	53.86	7.07	15.59	562.96
	10:32 AM	57.50	7.07	15.71	569.42
	10:34 AM	61.27	7.06	15.62	565.91
148.37	10:36 AM	63.91	7.03	15.54	564.25
	10:38 AM	65.26	7.03	15.62	562.94
	10:40 AM	64.30	7.02	15.67	559.71
148.98	10:42 AM	67.21	7.02	15.60	560.19

~~T2:00~~ FINISHED SAMPLING 11:02 AM

GROUNDWATER SAMPLING FIELD DATA SHEET – MICRO-PURGE

Project Name: Parkdale	Sampler Name(s): Beth Haake	Monitoring Well #: MW-10	Date: 12/6/22

FINAL 58.41

Groundwater Measurements and Purge Data

0.132 gal

1. Water Level* (±0.01ft.)	31.28	4. Pump Rate (gal/min)	0.5 L/min
2. Bottom of Casing* (±0.01ft.)	251 ft	5. Actual Volume of Water Purged (gal)	42 min / 5.544 gal
3. Depth of Water (ft)	219.72	6. Casing Diameter (in.) / Screen Depth (ft)	2" / 50'-251'

*Measured from surveyed top of casing

125' → PUMP DEPTH

2 min = 0.264 gal

PUMP SET @ 27 → 40

Field Parameters

Date	Time	~~Volume Purged~~ TURB ~~(gallons)~~ NTU	pH (s.u.)	Temperature (C)	SC (uS/cm)
	12:35 PM	340.96	6.76	13.24	682.82
	12:37 PM	272.35	6.76	13.23	682.69
	12:39 PM	233.45	6.75	13.16	682.38
	12:41 PM	305.14	6.76	13.17	681.65
	12:43 PM	182.32	6.75	13.21	681.64
	12:45 PM	173.71	6.77	13.11	681.21
	12:47 PM	179.78	6.76	13.16	680.78
37.7	12:49 PM	169.95	6.77	13.17	680.87
12/6/22	12:51 PM	179.96	6.77	13.17	680.06
	12:53 PM	183.62	6.77	13.19	680.84
	12:55 PM	138.76	6.76	13.21	679.72
	12:57 PM	168.20	6.77	13.24	679.91
	12:59 PM	134.17	6.76	13.25	679.61
	1:01 PM	144.63	6.76	13.23	678.81
43.31	1:03 PM	211.24	6.75	13.20	676.38
	1:05 PM	171.43	6.76	13.23	678.82
	1:07 PM	248.65	6.75	13.32	676.56
	1:09 PM	232.51	6.76	13.34	675.47
	1:11 PM	280.66	6.74	13.38	674.12
	1:13 PM	217.90	6.76	13.37	673.54
	1:15 PM	226.14	6.75	13.40	672.08
50.43	1:17 PM	219.05	6.76	13.37	672.56

GROUNDWATER SAMPLING FIELD DATA SHEET – MICRO-PURGE

Project Name: Parkdale	Sampler Name(s): Beth Haake	Monitoring Well #: MW-3	Date: 12/6/2022

Groundwater Measurements and Purge Data

0.132 gal/min

1. Water Level* (±0.01ft.)	50.81	4. Pump Rate (gal/min)	0.5 L/min
2. Bottom of Casing* (±0.01ft.)	249 ft	5. Actual Volume of Water Purged (gal)	32 min / 4.224
3. Depth of Water (ft)	198.19	6. Casing Diameter (in.) / Screen Depth (ft)	2" / 50'-251'

*Measured from surveyed top of casing 125' WELL WATER IS EXTREMELY CLEAR

PUMP IS SET @ 40

Field Parameters

Date	Time	~~Volume Purged (gallons)~~ TURB NTU	pH (s.u.)	Temperature (C)	SC (uS/cm)
	2:25 PM	12.72	7.71	14.29	521.69
	2:27 PM	12.71	7.68	14.57	749.69
	2:29 PM	13.79	7.39	14.79	440.59
	2:31 PM	13.13	7.34	14.76	441.69
	2:33 PM	15.06	7.32	14.93	440.23
12/6/2022	2:35 PM	9.39	7.30	14.80	440.06
	2:37 PM	10.58	7.28	15.05	441.50
56.59	2:39 PM	12.58	7.27	14.99	439.75
	2:41 PM	13.16	7.26	15.01	440.98
	2:43 PM	12.32	7.27	14.99	440.32
	2:45 PM	11.90	7.26	14.98	441.06
	2:47 PM	11.81	7.27	15.08	440.36
	2:49 PM	11.68	7.26	15.12	440.34
	2:51 PM	11.86	7.25	15.16	440.38
	2:53 PM	11.46	7.26	15.13	440.48
	2:55 PM	11.69	7.25	15.16	440.37
60.09	2:57 PM	11.37	7.26	15.11	440.69
60.68					

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 Surface Water Monitoring

SGS Job Number: DA51639

Sampling Date: 12/06/22

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: 22

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

Table of Contents

SGS North America Inc.

Sample Summary

Martin Marietta Materials

Job No: DA51639

Parkdale Surface Water Monitoring

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA51639-1	12/06/22	10:17	BH	12/07/22	AQ	Water	CC-1
DA51639-1F	12/06/22	10:17	BH	12/07/22	AQ	Water Filtered	CC-1

Summary of Hits

Job Number: DA51639
Account: Martin Marietta Materials
Project: Parkdale Surface Water Monitoring
Collected: 12/06/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA51639-1	**CC-1**					
Fluoride		0.79	0.20		mg/l	EPA300.0
Chloride		70.2	13		mg/l	EPA300.0
Nitrogen, Nitrate		0.96	0.25		mg/l	EPA300.0
Sulfate		97.2	13		mg/l	EPA300.0
DA51639-1F	**CC-1**					
Arsenic		0.99	0.40		ug/l	EPA 200.8
Calcium		86700	800		ug/l	EPA 200.8
Magnesium		38900	200		ug/l	EPA 200.8
Molybdenum		4.3	2.0		ug/l	EPA 200.8
Selenium		5.3	0.80		ug/l	EPA 200.8

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	CC-1		
Lab Sample ID:	DA51639-1	**Date Sampled:**	12/06/22
Matrix:	AQ - Water	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Surface Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	0.79	0.20	mg/l	2	12/07/22 19:10	DM	EPA300.0
Chloride	70.2	13	mg/l	25	12/07/22 19:24	DM	EPA300.0
Nitrogen, Nitrite [a]	< 0.10	0.10	mg/l	25	12/07/22 19:24	DM	EPA300.0
Nitrogen, Nitrate	0.96	0.25	mg/l	25	12/07/22 19:24	DM	EPA300.0
Sulfate	97.2	13	mg/l	25	12/07/22 19:24	DM	EPA300.0
Nitrogen, Ammonia	< 0.050	0.050	mg/l	1	12/09/22 16:10	TH	SM 4500NH3 D-2011
Solids, Total Suspended	< 5.0	5.0	mg/l	1	12/08/22 08:00	JW	SM 2540D-2011
Sulfide	< 0.50	0.50	mg/l	1	12/09/22 11:00	DM	SM 4500S2 F-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CC-1		
Lab Sample ID:	DA51639-1F	**Date Sampled:**	12/06/22
Matrix:	AQ - Water Filtered	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Surface Water Monitoring		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	0.99	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Cadmium	< 0.20	0.20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Calcium	86700	800	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Chromium	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Copper	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Iron	< 40	40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Lead	< 1.0	1.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Magnesium	38900	200	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Manganese	< 2.0	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Molybdenum	4.3	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Nickel	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Selenium	5.3	0.80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Silver	< 0.20	0.20	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [2]	EPA 200.8 [3]

(1) Instrument QC Batch: MA16004
(2) Instrument QC Batch: MA16052
(3) Prep QC Batch: MP36585

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CC-1		
Lab Sample ID:	DA51639-1F	**Date Sampled:**	12/06/22
Matrix:	AQ - Water Filtered	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Surface Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	12/16/22 12:58	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.014	0.014	mg/l	1	12/22/22 19:51	CDL	CALCULATION

(a) Sample received beyond recommended holding 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

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 #: DA51639

Client / Reporting Information		Project Information		Billing Information (if different from Report to)	
Company:	Martin Marietta Materials	Project Name:	Parkdale Surface Water 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:	303-253-2558	Client Purchase Order #:			
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: NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	Na2S2O3 Zn Acetate	TSS	SO4,NO3O,NO2,CHL	DISS MET (As, Ca, Cd, Cr3, Cr6, Cu, Fe, Pb, Mg, Mn, Mo, Ni, Se, Ag,)	Sulfide	Ammonia	Fluoride	O&G	LAB USE ONLY
CC-1	12/6/22	10:17A	BAH	W	6	4				1					1	X	X	X	X	X	X		1

Special Instructions: Field Measurement	pH	Cond	Turb	DO	O&G?
Name of person measuring pH sample: Beth Haake	7.96	974	3.47	10.6	N
Signature of person measuring pH sample:					
Date and Time of Measurement: 12/6/22 10:17A					

Special Instructions: pH Calibration		DO Meter Calibration	Turbidity Meter Calibration
Name of person calibrating the pH meter: Beth Haake	pH 7: 7.01	Name of person calibrating the DO meter:	Name of person calibrating the Turbidity meter:
Signature of person calibrating the pH meter:	pH 10: 10.02	Signature of person calibrating the DO meter:	Signature of person calibrating the Turbidity meter:
Date and Time of Calibration: 12/6/22 9:25a	Conductivity 1413: 1601	Date and Time of Calibration:	Date and Time of Calibration:

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	12/6/22 3:55P	1	2		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3 Beth Haake		3	4		4

Custody Seal # Intact ☐ Not Intact ☐ Absent ☐ | Preserved where applicable ☐ | Cooler Temp. °C: 5.0 | Therm. ID: FAN | On Ice ☐

DA51639: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA51639 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5);

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:	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:	☐		☐	☑

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: DA51639

CSR: _____ **Response Date:** _____

Response:

DA51639: 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: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3		
Arsenic	0.20	.05	.05	0.024	<0.20
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04	0.0022	<0.10
Calcium	400	25	100	9.4	<400
Chromium	2.0	.087	.25	0.057	<2.0
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81	-0.00079	<2.0
Iron	20	1.6	10	3.5	<20
Lead	0.50	.094	.13	-0.00075	<0.50
Magnesium	100	10	25	10.5	<100
Manganese	1.0	.079	.51	0.013	<1.0
Molybdenum	1.0	.037	.27	0.0087	<1.0
Nickel	2.0	.098	.35	-0.57	<2.0
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1	0.012	<0.40
Silver	0.10	.0081	.025	0.0012	<0.10
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 MP36585: DA51639-1F

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: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	0.53	226	200	112.7	70-130
Barium	anr				
Beryllium	anr				
Boron	anr				
Cadmium	0.0	105	100	105.0	70-130
Calcium	128000	134000	5000	120.0	70-130
Chromium	0.31	97.9	100	97.6	70-130
Cobalt	anr				
Copper	1.9	103	100	101.1	70-130
Iron	31.5	1040	1000	100.8	70-130
Lead	0.19	212	200	105.9	70-130
Magnesium	41900	47700	5000	116.0	70-130
Manganese	34.8	236	200	100.6	70-130
Molybdenum	2.9	107	100	104.1	70-130
Nickel	0.92	98.9	100	98.3	70-130
Phosphorus					
Potassium	anr				
Selenium	0.99	212	200	105.5	70-130
Silver	0.025	39.4	40	98.4	70-130
Sodium	anr				
Strontium	anr				
Thallium	anr				
Tin					
Titanium					
Uranium	anr				
Vanadium	anr				
Zinc	anr				

Associated samples MP36585: DA51639-1F

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: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36585 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	0.53	225	200	112.2	0.4	20
Barium	anr					
Beryllium	anr					
Boron	anr					
Cadmium	0.0	105	100	105.0	0.0	20
Calcium	128000	128000	5000	0.0 (a)	4.6	20
Chromium	0.31	97.3	100	97.0	0.6	20
Cobalt	anr					
Copper	1.9	102	100	100.1	1.0	20
Iron	31.5	1030	1000	99.8	1.0	20
Lead	0.19	212	200	105.9	0.0	20
Magnesium	41900	46000	5000	82.0	3.6	20
Manganese	34.8	236	200	100.6	0.0	20
Molybdenum	2.9	108	100	105.1	0.9	20
Nickel	0.92	98.7	100	98.1	0.2	20
Phosphorus						
Potassium	anr					
Selenium	0.99	218	200	108.5	2.8	20
Silver	0.025	40.2	40	100.4	2.0	20
Sodium	anr					
Strontium	anr					
Thallium	anr					
Tin						
Titanium						
Uranium	anr					
Vanadium	anr					
Zinc	anr					

Associated samples MP36585: DA51639-1F

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
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	226	200	113.0	85-115
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	107	100	107.0	85-115
Calcium	5270	5000	105.4	85-115
Chromium	103	100	103.0	85-115
Cobalt	anr			
Copper	105	100	105.0	85-115
Iron	1040	1000	104.0	85-115
Lead	211	200	105.5	85-115
Magnesium	5310	5000	106.2	85-115
Manganese	205	200	102.5	85-115
Molybdenum	103	100	103.0	85-115
Nickel	102	100	102.0	85-115
Phosphorus				
Potassium	anr			
Selenium	214	200	107.0	85-115
Silver	40.7	40	101.8	85-115
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium	anr			
Zinc	anr			

Associated samples MP36585: DA51639-1F

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

General Chemistry

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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: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.504	100.8	90-110%
Chloride	GP33209/GN58684	0.50	0.0	mg/l	5	5.13	102.6	90-110%
Chromium, Hexavalent	GN58795	0.010	0.0	mg/l	0.1	0.0975	97.5	90-110%
Fluoride	GP33209/GN58684	0.10	0.0	mg/l	1	1.02	102.0	90-110%
Nitrogen, Ammonia	GP33225/GN58703	0.050	0.0	mg/l	0.2	0.21	106.6	90-110%
Nitrogen, Nitrate	GP33209/GN58684	0.010	0.0	mg/l	0.1	0.108	108.0	90-110%
Nitrogen, Nitrite	GP33209/GN58684	0.0040	0.0	mg/l	0.05	0.0531	106.2	90-110%
Phosphate, Ortho	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.536	107.2	90-110%
Solids, Total Suspended	GN58679	5.0	0.0	mg/l	500	490	98.0	90-110%
Sulfate	GP33209/GN58684	0.50	0.52*(a)	mg/l	5	5.03	100.6	90-110%
Sulfide	GN58701	0.50	0.0	mg/l	3.285	2.0	93.0	60-120%

Associated Samples:
Batch GN58679: DA51639-1
Batch GN58701: DA51639-1
Batch GN58795: DA51639-1F
Batch GP33209: DA51639-1
Batch GP33225: DA51639-1
(*) Outside of QC limits
(a) This MB has a hit for SO4 that is more the half the RL, the associated samples are either non-detect or have hits for SO4 that are more than 10 times the hits in the MB.

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN58795	DA51616-2	mg/l	0.0090 U	0.0	0.0	0-20%
Nitrogen, Ammonia	GP33225/GN58703	DA51548-2	mg/l	0.040	0.40	4.5	0-20%
Solids, Total Suspended	GN58679	DA51598-1	mg/l	4.8	4.6	4.0	0-5.44%

Associated Samples:
Batch GN58679: DA51639-1
Batch GN58795: DA51639-1F
Batch GP33225: DA51639-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.50	100.0	80-120%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.4	102.0	80-120%
Chromium, Hexavalent	GN58795	DA51616-2	mg/l	0.0090 U	0.1	0.097	97.0	85-115%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	99.0	80-120%
Nitrogen, Ammonia	GP33225/GN58703	DA51548-2	mg/l	0.040	0.5	0.59	104.6	80-120%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.29	100.0	80-120%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.051	102.0	80-120%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.54	108.0	80-120%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.2	102.0	80-120%
Sulfide	GN58701	DA51728-11	mg/l	0.50	3.285	2.1	74.4	60-120%

Associated Samples:
Batch GN58701: DA51639-1
Batch GN58795: DA51639-1F
Batch GP33209: DA51639-1
Batch GP33225: DA51639-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51639
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.51	2.0	20%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.3	1.6	20%
Chromium, Hexavalent	GN58795	DA51616-2	mg/l	0.0090 U	0.1	0.099	2.0	20%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	0.0	20%
Nitrogen, Ammonia	GP33225/GN58703	DA51548-2	mg/l	0.040	0.5	0.56	1.8	20%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.28	3.5	20%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.052	1.9	20%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.50	7.7	20%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.1	0.8	20%

Associated Samples:
Batch GN58795: DA51639-1F
Batch GP33209: DA51639-1
Batch GP33225: DA51639-1
(*) 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 Surface Water Monitoring

SGS Job Number: DA51638

Sampling Date: 12/06/22

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: 22

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

Table of Contents

SGS North America Inc.

Sample Summary

Martin Marietta Materials

Parkdale Surface Water Monitoring

Job No: DA51638

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA51638-1	12/06/22	09:30	BH	12/07/22	AQ	Water	CC-2
DA51638-1F	12/06/22	09:30	BH	12/07/22	AQ	Water Filtered	CC-2

Summary of Hits

Job Number: DA51638
Account: Martin Marietta Materials
Project: Parkdale Surface Water Monitoring
Collected: 12/06/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA51638-1	**CC-2**					
Fluoride		0.73	0.10		mg/l	EPA300.0
Chloride		71.0	2.5		mg/l	EPA300.0
Nitrogen, Nitrate		0.25	0.050		mg/l	EPA300.0
Sulfate		97.2	2.5		mg/l	EPA300.0
Nitrogen, Ammonia		0.050	0.050		mg/l	SM 4500NH3 D-2011
Solids, Total Suspended		13.2	5.0		mg/l	SM 2540D-2011
DA51638-1F	**CC-2**					
Arsenic		0.90	0.40		ug/l	EPA 200.8
Calcium		80500	800		ug/l	EPA 200.8
Iron		197	40		ug/l	EPA 200.8
Magnesium		39900	200		ug/l	EPA 200.8
Manganese		11.7	2.0		ug/l	EPA 200.8
Molybdenum		3.9	2.0		ug/l	EPA 200.8
Selenium		3.7	0.80		ug/l	EPA 200.8

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	CC-2		
Lab Sample ID:	DA51638-1	**Date Sampled:**	12/06/22
Matrix:	AQ - Water	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Surface Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	0.73	0.10	mg/l	1	12/07/22 18:42	DM	EPA300.0
Chloride	71.0	2.5	mg/l	5	12/07/22 18:56	DM	EPA300.0
Nitrogen, Nitrite [a]	< 0.020	0.020	mg/l	5	12/07/22 18:56	DM	EPA300.0
Nitrogen, Nitrate	0.25	0.050	mg/l	5	12/07/22 18:56	DM	EPA300.0
Sulfate	97.2	2.5	mg/l	5	12/07/22 18:56	DM	EPA300.0
Nitrogen, Ammonia	0.050	0.050	mg/l	1	12/09/22 16:10	TH	SM 4500NH3 D-2011
Solids, Total Suspended	13.2	5.0	mg/l	1	12/08/22 08:00	JW	SM 2540D-2011
Sulfide	< 0.50	0.50	mg/l	1	12/09/22 11:00	DM	SM 4500S2 F-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CC-2		
Lab Sample ID:	DA51638-1F	**Date Sampled:**	12/06/22
Matrix:	AQ - Water Filtered	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Surface Water Monitoring		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	0.90	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Cadmium	< 0.20	0.20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Calcium	80500	800	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Chromium	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Copper	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Iron	197	40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Lead	< 1.0	1.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Magnesium	39900	200	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Manganese	11.7	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Molybdenum	3.9	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Nickel	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Selenium	3.7	0.80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [1]	EPA 200.8 [3]
Silver	< 0.20	0.20	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [2]	EPA 200.8 [3]

(1) Instrument QC Batch: MA16004
(2) Instrument QC Batch: MA16052
(3) Prep QC Batch: MP36578

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CC-2		
Lab Sample ID:	DA51638-1F	**Date Sampled:**	12/06/22
Matrix:	AQ - Water Filtered	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Surface Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	12/08/22 16:46	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.014	0.014	mg/l	1	12/22/22 19:29	CDL	CALCULATION

(a) Sample received beyond recommended holding 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

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 # DA51638

Client / Reporting Information

Company: Martin Marietta Materials
Street: 1627 Cole Blvd, Suite 200
City, State: Lakewood, CO 80401
Project Contact: Beth Haake
Phone: 303-253-2558
Email: see comments below
Sampler(s) Name(s): Beth Haake

Project Information

Project Name: Parkdale Surface Water 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	DI Water	MEOH	ENCORE	Na2S2O3	Na2SO3	TSS	SO4,NO3O,NO2,CHL	DISS MET (As, Ca, Cd, Cr3, Cr6, Cu, Fe, Pb, Mg, Mn, Mo, Ni, Se, Ag,)	Sulfide	Ammonia	Fluoride	O&G	LAB USE ONLY
CC-2	12/6/22	9:35A	BAH	W	6										1	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: Field Measurement

	pH	Cond	Turb	DO	O&G?
Name of person measuring pH sample: Beth Haake	7.54	981	10.15	11.00	N
Signature of person measuring pH sample:					
Date and Time of Measurement: 12/6/22 9:35A					

Special Instructions: pH Calibration

Name of person calibrating the pH meter: Beth Haake	pH 7: 7.01
Signature of person calibrating the pH meter:	pH 10: 10.02
Date and Time of Calibration: 12/6/22 8:15A	Conductivity 1413: 1001

DO Meter Calibration

Name of person calibrating the DO meter:
Signature of person calibrating the DO meter:
Date and Time of Calibration:

Turbidity Meter Calibration

Name of person calibrating the Turbidity meter:
Signature of person calibrating the Turbidity meter:
Date and Time of Calibration:

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	12/6/22 3:55P	1	2		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3 Beth Haake		3	4		4

Custody Seal # Intact [ ] Not Intact [ ] Absent [ ]
Preserved where applicable [ ] Cooler Temp. °C: 5.0 Therm. ID: TB1 On Ice [ ]

SGS Sample Receipt Summary

Job Number: DA51638 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (5/5);

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: DA51638

CSR: _____ **Response Date:** _____

Response:

DA51638: 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: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36578
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13		
Antimony	0.40	.01	.3		
Arsenic	0.20	.05	.05	0.0060	<0.20
Barium	2.0	.096	.25		
Beryllium	0.20	.077	.1		
Boron	40	18	20		
Cadmium	0.10	.03	.04	0.0017	<0.10
Calcium	400	25	100	2.5	<400
Chromium	2.0	.087	.25	0.072	<2.0
Cobalt	0.20	.04	.05		
Copper	2.0	.05	.81	0.038	<2.0
Iron	20	1.6	10	2.0	<20
Lead	0.50	.094	.13	-0.0048	<0.50
Magnesium	100	10	25	9.8	<100
Manganese	1.0	.079	.51	0.036	<1.0
Molybdenum	1.0	.037	.27	0.038	<1.0
Nickel	2.0	.098	.35	-0.41	<2.0
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1	-0.0028	<0.40
Silver	0.10	.0081	.025	0.00094	<0.10
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 MP36578: DA51638-1F

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: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36578
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51616-3FA Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	0.23	223	200	111.4	70-130
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	0.44	106	100	105.6	70-130
Calcium	39400	44400	5000	116.0	70-130
Chromium	0.29	98.7	100	98.4	70-130
Cobalt	anr				
Copper	4.3	105	100	100.7	70-130
Iron	62.1	1060	1000	99.7	70-130
Lead	0.54	208	200	103.7	70-130
Magnesium	8640	14100	5000	100.6	70-130
Manganese	42.5	242	200	99.6	70-130
Molybdenum	3.1	107	100	103.8	70-130
Nickel	1.3	100	100	99.0	70-130
Phosphorus					
Potassium	anr				
Selenium	0.22	211	200	105.4	70-130
Silver	0.021	40.1	40	100.2	70-130
Sodium	anr				
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	anr				

Associated samples MP36578: DA51638-1F

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: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36578 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51616-3FA Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	0.23	228	200	113.9	2.2	20
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	0.44	108	100	107.6	1.9	20
Calcium	39400	45400	5000	136.0(a)	2.2	20
Chromium	0.29	102	100	101.7	3.3	20
Cobalt	anr					
Copper	4.3	107	100	102.7	1.9	20
Iron	62.1	1050	1000	98.7	0.9	20
Lead	0.54	217	200	108.2	4.2	20
Magnesium	8640	14600	5000	110.6	3.5	20
Manganese	42.5	247	200	102.1	2.0	20
Molybdenum	3.1	109	100	105.8	1.9	20
Nickel	1.3	102	100	101.0	2.0	20
Phosphorus						
Potassium	anr					
Selenium	0.22	215	200	107.4	1.9	20
Silver	0.021	39.8	40	99.4	0.8	20
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	anr					

Associated samples MP36578: DA51638-1F

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
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

QC Batch ID: MP36578
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	222	200	111.0	85-115
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	106	100	106.0	85-115
Calcium	5290	5000	105.8	85-115
Chromium	102	100	102.0	85-115
Cobalt	anr			
Copper	103	100	103.0	85-115
Iron	1040	1000	104.0	85-115
Lead	206	200	103.0	85-115
Magnesium	5280	5000	105.6	85-115
Manganese	200	200	100.0	85-115
Molybdenum	103	100	103.0	85-115
Nickel	100	100	100.0	85-115
Phosphorus				
Potassium	anr			
Selenium	214	200	107.0	85-115
Silver	41.7	40	104.3	85-115
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP36578: DA51638-1F

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

General Chemistry

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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: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.504	100.8	90-110%
Chloride	GP33209/GN58684	0.50	0.0	mg/l	5	5.13	102.6	90-110%
Chromium, Hexavalent	GN58738	0.010	0.0	mg/l	0.1	0.0995	99.5	90-110%
Fluoride	GP33209/GN58684	0.10	0.0	mg/l	1	1.02	102.0	90-110%
Nitrogen, Ammonia	GP33225/GN58703	0.050	0.0	mg/l	0.2	0.21	106.6	90-110%
Nitrogen, Nitrate	GP33209/GN58684	0.010	0.0	mg/l	0.1	0.108	108.0	90-110%
Nitrogen, Nitrite	GP33209/GN58684	0.0040	0.0	mg/l	0.05	0.0531	106.2	90-110%
Phosphate, Ortho	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.536	107.2	90-110%
Solids, Total Suspended	GN58679	5.0	0.0	mg/l	500	490	98.0	90-110%
Sulfate	GP33209/GN58684	0.50	0.52*(a)	mg/l	5	5.03	100.6	90-110%
Sulfide	GN58701	0.50	0.0	mg/l	3.285	2.0	93.0	60-120%

Associated Samples:
Batch GN58679: DA51638-1
Batch GN58701: DA51638-1
Batch GN58738: DA51638-1F
Batch GP33209: DA51638-1
Batch GP33225: DA51638-1
(*) Outside of QC limits
(a) This MB has a hit for SO4 that is more the half the RL, the associated samples are either non-detect or have hits for SO4 that are more than 10 times the hits in the MB.

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.0	0.0	0-20%
Nitrogen, Ammonia	GP33225/GN58703	DA51548-2	mg/l	0.040	0.40	4.5	0-20%
Solids, Total Suspended	GN58679	DA51598-1	mg/l	4.8	4.6	4.0	0-5.44%

Associated Samples:
Batch GN58679: DA51638-1
Batch GN58738: DA51638-1F
Batch GP33225: DA51638-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.50	100.0	80-120%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.4	102.0	80-120%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.098	98.0	85-115%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	99.0	80-120%
Nitrogen, Ammonia	GP33225/GN58703	DA51548-2	mg/l	0.040	0.5	0.59	104.6	80-120%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.29	100.0	80-120%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.051	102.0	80-120%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.54	108.0	80-120%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.2	102.0	80-120%
Sulfide	GN58701	DA51728-11	mg/l	0.50	3.285	2.1	74.4	60-120%

Associated Samples:
Batch GN58701: DA51638-1
Batch GN58738: DA51638-1F
Batch GP33209: DA51638-1
Batch GP33225: DA51638-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51638
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Surface Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.51	2.0	20%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.3	1.6	20%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.10	2.0	20%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	0.0	20%
Nitrogen, Ammonia	GP33225/GN58703	DA51548-2	mg/l	0.040	0.5	0.56	1.8	20%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.28	3.5	20%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.052	1.9	20%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.50	7.7	20%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.1	0.8	20%

Associated Samples:
Batch GN58738: DA51638-1F
Batch GP33209: DA51638-1
Batch GP33225: DA51638-1
(*) 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 Groundwater Water Monitoring

SGS Job Number: DA51642X

Sampling Date: 12/06/22

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: **20**

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

Sample Summary

Martin Marietta Materials

Job No: DA51642X

Parkdale Groundwater Water Monitoring

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA51642-1X	12/06/22	11:02	EK	12/07/22	AQ	Ground Water	MW-1

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

February 06, 2023

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

Work Order: C22120379 Quote ID: C5800

Project Name: DA51642X

Energy Laboratories, Inc. Casper WY received the following 1 sample for SGS Accutest on 12/9/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22120379-001	DA51642X-1X	12/06/22 11:02	12/09/22	Aqueous	Gross Alpha, Gross Beta, Total Gross Alpha, Gross Beta, Dissolved Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Radon 222, Total Uranium, Isotopic, Dissolved 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:

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA51642X
Lab ID: C22120379-001
Client Sample ID: DA51642X-1X

Report Date: 02/06/23
Collection Date: 12/06/22 11:02
DateReceived: 12/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, DISSOLVED							
Gross Alpha	17.5	pCi/L				E900.0	12/28/22 00:45 / haw
Gross Alpha precision (±)	4.6	pCi/L				E900.0	12/28/22 00:45 / haw
Gross Alpha MDC	2.9	pCi/L				E900.0	12/28/22 00:45 / haw
Gross Beta	7.9	pCi/L				E900.0	12/28/22 00:45 / haw
Gross Beta precision (±)	1.9	pCi/L				E900.0	12/28/22 00:45 / haw
Gross Beta MDC	3.4	pCi/L				E900.0	12/28/22 00:45 / haw
Uranium 234	16.2	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 234 precision (±)	3.2	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 234 MDC	0.4	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235	0.7	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235 precision (±)	0.4	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235 MDC	0.3	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238	5.3	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238 precision (±)	1.0	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238 MDC	0.3	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium, dissolved (234+235+238)	22.2	pCi/L				A7500-U C	01/04/23 11:20 / sec
RADIONUCLIDES, TOTAL							
Gross Alpha	23.6	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Alpha precision (±)	5.6	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Alpha MDC	2.8	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta	16.1	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta precision (±)	2.7	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta MDC	3.5	pCi/L				E900.0	01/14/23 00:13 / haw
Radium 226	0.6	pCi/L				E903.0	12/28/22 11:10 / kdk
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/28/22 11:10 / kdk
Radium 226 MDC	0.2	pCi/L				E903.0	12/28/22 11:10 / kdk
Radon 222	1760	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radon 222 precision (±)	78.8	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radon 222 MDC	99.3	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radium 228	-0.7	pCi/L	U			RA-05	12/19/22 13:30 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	12/19/22 13:30 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	12/19/22 13:30 / trs
Radium 226 + Radium 228	1.2	pCi/L				A7500-RA	12/28/22 15:45 / meh
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	12/28/22 15:45 / meh
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	12/28/22 15:45 / meh
Uranium 234	14.6	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 234 precision (±)	2.8	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 234 MDC	0.5	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 235	0.3	pCi/L	U			A7500-U C	01/10/23 10:39 / sec
Uranium 235 precision (±)	0.3	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 235 MDC	0.5	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 238	6.3	pCi/L				A7500-U C	01/10/23 10:39 / sec

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: DA51642X
Lab ID: C22120379-001
Client Sample ID: DA51642X-1X

Report Date: 02/06/23
Collection Date: 12/06/22 11:02
DateReceived: 12/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Uranium 238 precision (±)	1.2	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 238 MDC	0.6	pCi/L				A7500-U C	01/10/23 10:39 / 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:** C22120379 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1018	
Lab ID: MB-RA-U-ISO-1018	9	Method Blank				Run: EGG-ORTEC_ALL_221228D			01/04/23 11:20	
Uranium 234		0.2	pCi/L							U
Uranium 234 precision (±)		0.1	pCi/L							
Uranium 234 MDC		0.2	pCi/L							
Uranium 235		0.1	pCi/L							
Uranium 235 precision (±)		0.1	pCi/L							
Uranium 235 MDC		0.1	pCi/L							
Uranium 238		0.02	pCi/L							U
Uranium 238 precision (±)		0.07	pCi/L							
Uranium 238 MDC		0.1	pCi/L							
Lab ID: LCS-RA-U-ISO-1018	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_221228D			01/05/23 06:57	
Uranium 234		12	pCi/L		116	70	130			
Uranium 234 precision (±)		2.4	pCi/L							
Uranium 234 MDC		0.26	pCi/L							
Uranium 238		11	pCi/L		107	70	130			
Uranium 238 precision (±)		2.2	pCi/L							
Uranium 238 MDC		0.21	pCi/L							
Lab ID: C22120379-001DDUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_221228D			01/04/23 11:20	
Uranium 234		15	pCi/L					6.1	30	
Uranium 234 precision (±)		3.0	pCi/L							
Uranium 234 MDC		0.37	pCi/L							
Uranium 235		0.58	pCi/L					20	30	
Uranium 235 precision (±)		0.34	pCi/L							
Uranium 235 MDC		0.31	pCi/L							
Uranium 238		4.7	pCi/L					11	30	
Uranium 238 precision (±)		0.92	pCi/L							
Uranium 238 MDC		0.37	pCi/L							

- The RER result for U234 is 0.22, U235 is 0.25, and U238 is 0.40.

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:** C22120379 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1023	
Lab ID: MB-RA-U-ISO-1023	9	Method Blank				Run: EGG-ORTEC_ALL_230106A			01/10/23 10:39	
Uranium 234		0.1	pCi/L							U
Uranium 234 precision (±)		0.2	pCi/L							
Uranium 234 MDC		0.2	pCi/L							
Uranium 235		0.02	pCi/L							U
Uranium 235 precision (±)		0.1	pCi/L							
Uranium 235 MDC		0.2	pCi/L							
Uranium 238		0.08	pCi/L							U
Uranium 238 precision (±)		0.1	pCi/L							
Uranium 238 MDC		0.2	pCi/L							
Lab ID: LCS-RA-U-ISO-1023	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_230106A			01/10/23 10:39	
Uranium 234		11	pCi/L		104	70	130			
Uranium 234 precision (±)		2.1	pCi/L							
Uranium 234 MDC		0.22	pCi/L							
Uranium 238		12	pCi/L		109	70	130			
Uranium 238 precision (±)		2.3	pCi/L							
Uranium 238 MDC		0.18	pCi/L							
Lab ID: C22120377-001BDUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_230106A			01/11/23 07:17	
Uranium 234		17	pCi/L					22	30	
Uranium 234 precision (±)		3.2	pCi/L							
Uranium 234 MDC		1.9	pCi/L							
Uranium 235		1.6	pCi/L					12	30	U
Uranium 235 precision (±)		0.33	pCi/L							
Uranium 235 MDC		2.1	pCi/L							
Uranium 238		8.1	pCi/L					2.3	30	
Uranium 238 precision (±)		1.6	pCi/L							
Uranium 238 MDC		1.5	pCi/L							

- The RER result for U234 is 0.79, U235 is 0.42 and U238 is 0.08.

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:** C22120379 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										Batch: R290277
Lab ID: MB-R290269	3	Method Blank				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		-30	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: LCS-R290269	3	Laboratory Control Sample				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		2200	pCi/L		98	70	130			
Radon 222 precision (±)		660	pCi/L							
Radon 222 MDC		51	pCi/L							
Lab ID: C22120377-001CDUP	3	Sample Duplicate				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		1900	pCi/L					1.5	30	
Radon 222 precision (±)		78	pCi/L							
Radon 222 MDC		95	pCi/L							

- The RER result is 0.26.

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:** C22120379 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3131
Lab ID: Th230-GrAB-3131	3	Laboratory Control Sample				Run: G5000W_221221A				12/28/22 00:45
Gross Alpha		120	pCi/L		120	70	130			
Gross Alpha precision (±)		24	pCi/L							
Gross Alpha MDC		1.9	pCi/L							
Lab ID: Sr90-GrAB-3131	3	Laboratory Control Sample				Run: G5000W_221221A				12/28/22 00:45
Gross Beta		530	pCi/L		110	70	130			
Gross Beta precision (±)		54	pCi/L							
Gross Beta MDC		3.6	pCi/L							
Lab ID: MB-GrAB-3131	6	Method Blank				Run: G5000W_221221A				12/28/22 00:45
Gross Alpha		-0.6	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		2	pCi/L							
Gross Beta		0.8	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C22120495-002GMS	3	Sample Matrix Spike				Run: G5000W_221221A				12/28/22 22:09
Gross Alpha		120	pCi/L		66	70	130			S
Gross Alpha precision (±)		24	pCi/L							
Gross Alpha MDC		3.1	pCi/L							
Lab ID: C22120495-002GMSD	3	Sample Matrix Spike Duplicate				Run: G5000W_221221A				12/28/22 22:09
Gross Alpha		100	pCi/L		50	70	130	15	30	S
Gross Alpha precision (±)		20	pCi/L							
Gross Alpha MDC		2.6	pCi/L							
- The RER result is 0.51.										
Lab ID: C22120495-002HMS1	3	Sample Matrix Spike				Run: G5000W_221221A				12/28/22 00:45
Gross Beta		590	pCi/L		119	70	130			
Gross Beta precision (±)		60	pCi/L							
Gross Beta MDC		3.7	pCi/L							
Lab ID: C22120495-002HMSD	3	Sample Matrix Spike Duplicate				Run: G5000W_221221A				12/28/22 00:45
Gross Beta		650	pCi/L		131	70	130	9.5	30	S
Gross Beta precision (±)		66	pCi/L							
Gross Beta MDC		3.8	pCi/L							
- The RER result is 0.66.										

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:** C22120379 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3135
Lab ID: Th230-GrAB-3135	3	Laboratory Control Sample				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		120	pCi/L		116	70	130			
Gross Alpha precision (±)		23	pCi/L							
Gross Alpha MDC		1.6	pCi/L							
Lab ID: Sr90-GrAB-3135	3	Laboratory Control Sample				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		520	pCi/L		107	70	130			
Gross Beta precision (±)		53	pCi/L							
Gross Beta MDC		3.5	pCi/L							
Lab ID: MB-GrAB-3135	6	Method Blank				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		-0.9	pCi/L							U
Gross Alpha precision (±)		0.8	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: C22120377-001BMS	3	Sample Matrix Spike				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		100	pCi/L		73	70	130			
Gross Alpha precision (±)		21	pCi/L							
Gross Alpha MDC		3.1	pCi/L							
Lab ID: C22120377-001BMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		100	pCi/L		71	70	130	2.1	30	
Gross Alpha precision (±)		20	pCi/L							
Gross Alpha MDC		2.5	pCi/L							
- The RER result is 0.07.										
Lab ID: C22120379-001BMS1	3	Sample Matrix Spike				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		520	pCi/L		104	70	130			
Gross Beta precision (±)		52	pCi/L							
Gross Beta MDC		3.2	pCi/L							
Lab ID: C22120379-001BMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		580	pCi/L		117	70	130	12	30	
Gross Beta precision (±)		59	pCi/L							
Gross Beta MDC		3.7	pCi/L							
- The RER result is 0.85.										

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:** C22120379 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-10746
Lab ID: LCS-RA226-10746	3	Laboratory Control Sample				Run: G5000W_221213A				12/28/22 09:27
Radium 226		9.8	pCi/L		98	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: MB-RA226-10746	3	Method Blank				Run: G5000W_221213A				12/28/22 09:27
Radium 226		0.05	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C22120365-001FMS	3	Sample Matrix Spike				Run: G5000W_221213A				12/28/22 09:27
Radium 226		13	pCi/L		92	70	130			
Radium 226 precision (±)		2.4	pCi/L							
Radium 226 MDC		0.19	pCi/L							
Lab ID: C22120365-001FMSD	3	Sample Matrix Spike Duplicate				Run: G5000W_221213A				12/28/22 11:10
Radium 226		13	pCi/L		96	70	130	3.1	30	
Radium 226 precision (±)		2.5	pCi/L							
Radium 226 MDC		0.18	pCi/L							

- The RER result is 0.12

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:** C22120379 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6983
Lab ID: LCS-228-RA226-10746	3	Laboratory Control Sample				Run: TENNELEC-4_221213B				12/19/22 11:58
Radium 228		6.5	pCi/L		88	70	130			
Radium 228 precision (±)		1.5	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: MB-RA226-10746	3	Method Blank				Run: TENNELEC-4_221213B				12/19/22 11:58
Radium 228		-0.2	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C22120365-001FMS4	3	Sample Matrix Spike				Run: TENNELEC-4_221213B				12/19/22 11:58
Radium 228		11	pCi/L		94	70	130			
Radium 228 precision (±)		2.1	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: C22120365-001FMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-4_221213B				12/19/22 11:58
Radium 228		10	pCi/L		85	70	130	6.6	30	
Radium 228 precision (±)		2.0	pCi/L							
Radium 228 MDC		1.0	pCi/L							
- The RER result is 0.23.										
Lab ID: C22110380-009EDUP	3	Sample Duplicate				Run: TENNELEC-4_221213B				12/19/22 11:58
Radium 228		12	pCi/L					23	30	
Radium 228 precision (±)		2.4	pCi/L							
Radium 228 MDC		1.1	pCi/L							
- The RER result is 0.79.										

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

2

Work Order Receipt Checklist

SGS Accutest

C22120379

Login completed by: Ciara M. Leis
Date Received: 12/9/2022
Reviewed by: cjohnson
Received by: cch
Reviewed Date: 12/12/2022
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:	14.6°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:

Additional cooler received at 14.4°C
Jeremy Dechant confirmed the field filtered bottles are for dissolved Gross Alpha, Gross Beta, and Uranium.

C2212379

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 #: DA51642X

Client / Reporting Information	Project Information
Company Name: SGS North America Inc.	Project Name: DA51642X
Street Address: 4036 Youngfield Street	Street:

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

Send Report and Invoice to: Angela.Wu2@sgs.com; Rebecca.Nichols@sgs.com; Daniel.Shi2@sgs.com; Annette.Kenp@sgs.com;Parna.EskandariPayandeh@sgs.com; Terri.Mcnulty-Patterson@sgs.com;Eric.Hoffman@sgs.com

EK

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 , U-234,235,238	LAB USE ONLY
1X	DA51642X		12/6/22	11:02:00 AM	EK	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	11/8/22	12.9 10:30a	2		2
3	Date Time:	3	4	Date Time:	4
5	Date Time:	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

Page 1 of 1

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 #: DA51642

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): EDIN KUNKEL

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 Analyses (see TEST CODE sheet)

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	Na2S2O3	Ascorbic A	CORR	DISS METALS (Al, Sb, As, Ba, Be, B, Cd, Cr, Cr3, Cr6, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Ag, Tl, U, V, Zn)	SO4,NO3O,NO2,CHL, F	TDS	TSS	UMS - U234, U235, U238	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-1	12/6/22	11:02 AM	EDK	GW	14	6			6							2	X	X	X	X	X	X	X	X	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

Special Instructions: pH Measurement

	pH	Cond		
Name of person measuring pH sample:				
Signature of person measuring pH sample:				
Date and Time of Measurement:				

Special Instructions: pH Calibration

Name of person calibrating the pH meter:	pH 7:
Signature of person calibrating the pH meter:	pH 10:
Date and Time of Calibration:	Conductivity 1413:

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	12/6/2022 11:30	1	2		2
Relinquished by Sampler: EDIN KUNKEL	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3		3	4		4

Custody Seal # Intact: [ ] Not Intact: [ ] Absent: [ ]
Preserved where applicable: [ ] NO
Cooler Temp. °C: 5.0 Therm. ID: 007
On Ice: [X]

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

DA51642X: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA51642 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5);

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:	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:	☑		☐	☐

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: DA51642

CSR: _____ **Response Date:** _____

Response:

DA51642X: 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 Groundwater Water Monitoring

SGS Job Number: DA51642

Sampling Date: 12/06/22

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: 30

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

Table of Contents

SGS North America Inc.

Sample Summary

Martin Marietta Materials

Job No: DA51642

Parkdale Groundwater Water Monitoring

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA51642-1	12/06/22	11:02	EK	12/07/22	AQ	Ground Water	MW-1
DA51642-1F	12/06/22	11:02	EK	12/07/22	AQ	Groundwater Filtered	MW-1

Summary of Hits

Job Number: DA51642
Account: Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring
Collected: 12/06/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA51642-1	**MW-1**					
Fluoride		1.9	0.10		mg/l	EPA300.0
Chloride		6.4	0.50		mg/l	EPA300.0
Nitrogen, Nitrate		7.2	0.25		mg/l	EPA300.0
Sulfate		86.7	5.0		mg/l	EPA300.0
Corrosivity as pH		7.79			su	SW846 7.2/9040C
Solids, Total Dissolved		306	10		mg/l	SM 2540C-2011
Solids, Total Suspended		103	5.0		mg/l	SM 2540D-2011
DA51642-1F	**MW-1**					
Barium		13.1	4.0		ug/l	EPA 200.8
Copper		19.2	4.0		ug/l	EPA 200.8
Lithium		20.1	5.0		ug/l	EPA 200.7
Molybdenum		20.6	2.0		ug/l	EPA 200.8
Selenium		4.4	0.80		ug/l	EPA 200.8
Uranium		16.5	0.40		ug/l	EPA 200.8
Vanadium		2.0	2.0		ug/l	EPA 200.8

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	DA51642-1	**Date Sampled:**	12/06/22
Matrix:	AQ - Ground Water	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Groundwater Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	1.9	0.10	mg/l	1	12/07/22 21:03	DM	EPA300.0
Chloride	6.4	0.50	mg/l	1	12/07/22 21:03	DM	EPA300.0
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	12/07/22 21:03	DM	EPA300.0
Nitrogen, Nitrate	7.2	0.25	mg/l	25	12/07/22 21:31	DM	EPA300.0
Sulfate	86.7	5.0	mg/l	10	12/07/22 21:17	DM	EPA300.0
Corrosivity as pH	7.79		su	1	12/13/22	TM	SW846 7.2/9040C
Solids, Total Dissolved	306	10	mg/l	1	12/08/22 12:00	JW	SM 2540C-2011
Solids, Total Suspended	103	5.0	mg/l	1	12/12/22	KH	SM 2540D-2011

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-1
Lab Sample ID: DA51642-1F
Matrix: AQ - Groundwater Filtered
Project: Parkdale Groundwater Water Monitoring

Date Sampled: 12/06/22
Date Received: 12/07/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 100	100	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Antimony	< 0.80	0.80	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [3]	EPA 200.8 [5]
Arsenic	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Barium	13.1	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Beryllium	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Boron	< 80	80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Cadmium	< 0.20	0.20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Chromium	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Cobalt	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Copper	19.2	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Iron	< 40	40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Lead	< 1.0	1.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Lithium	20.1	5.0	ug/l	1	12/13/22	12/15/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Manganese	< 2.0	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Molybdenum	20.6	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Nickel	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Selenium	4.4	0.80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Silver	< 0.20	0.20	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [3]	EPA 200.8 [5]
Thallium	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Uranium	16.5	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Vanadium	2.0	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Zinc	< 20	20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]

(1) Instrument QC Batch: MA16001
(2) Instrument QC Batch: MA16004
(3) Instrument QC Batch: MA16052
(4) Prep QC Batch: MP36584
(5) Prep QC Batch: MP36585

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	DA51642-1F	**Date Sampled:**	12/06/22
Matrix:	AQ - Groundwater Filtered	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Groundwater Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	12/08/22 14:47	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.014	0.014	mg/l	1	12/22/22 19:59	CDL	CALCULATION

(a) Sample received beyond recommended holding 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

Bottle Order Control #	FED-EX Tracking #
SGS Quote #	SGS Job # DA51642

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): ERIN KUNKEL

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 Analyses (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	DI Water	MEOH	ENCORE	Na2S2O3	Na2SO3	Ascorbic A	CORR	DISS METALS (Al, Sb, As, Ba, Be, B, Cd, Cr, Cr3, Cr6, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Ag, Tl, U, V, Zn)	SO4,NO3O,NO2,CHL, F	TDS	TSS	UMS - U234, U235, U238	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-1	12/6/22	11:02 AM	ERK	GW	14	6			6							2	X	X	X	X	X	X	X	X	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

Special Instructions: pH Measurement	pH	Cond		
Name of person measuring pH sample:				
Signature of person measuring pH sample:				
Date and Time of Measurement:				

Special Instructions: pH Calibration

Name of person calibrating the pH meter:	pH 7:
Signature of person calibrating the pH meter:	pH 10:
Date and Time of Calibration:	Conductivity 1413:

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	12/6/2022 11:30	1	2		2
Relinquished by Sampler: 3 ERIN KUNKEL	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: 5.0 Therm. ID: 007 On Ice: [X]

NO

SGS Sample Receipt Summary

Job Number: DA51642 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5);

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:	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:	☑		☐	☐

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: DA51642

CSR: _____ **Response Date:** _____

Response:

DA51642: 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: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

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	0.30	<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 MP36584: DA51642-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	anr				
Lithium	63.6	1120	1000	105.6	70-130
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	anr				

Associated samples MP36584: DA51642-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 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: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	anr					
Lithium	63.6	1120	1000	105.6	0.0	20
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	anr					

Associated samples MP36584: DA51642-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 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: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium	1020	1000	102.0	85-115
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP36584: DA51642-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13	3.9	<50
Antimony	0.40	.01	.3	0.036	<0.40
Arsenic	0.20	.05	.05	0.024	<0.20
Barium	2.0	.096	.25	0.019	<2.0
Beryllium	0.20	.077	.1	-0.062	<0.20
Boron	40	18	20	4.7	<40
Cadmium	0.10	.03	.04	0.0022	<0.10
Calcium	400	25	100		
Chromium	2.0	.087	.25	0.057	<2.0
Cobalt	0.20	.04	.05	0.0057	<0.20
Copper	2.0	.05	.81	-0.00079	<2.0
Iron	20	1.6	10	3.5	<20
Lead	0.50	.094	.13	-0.00075	<0.50
Magnesium	100	10	25		
Manganese	1.0	.079	.51	0.013	<1.0
Molybdenum	1.0	.037	.27	0.0087	<1.0
Nickel	2.0	.098	.35	-0.57	<2.0
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1	0.012	<0.40
Silver	0.10	.0081	.025	0.0012	<0.10
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05	0.0014	<0.20
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.023	<0.20
Vanadium	1.0	.14	.2	0.18	<1.0
Zinc	10	.05	2.1	0.37	<10

Associated samples MP36585: DA51642-1F

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: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	13.3	1020	1000	100.7	70-130
Antimony	1.3	110	100	108.9	70-130
Arsenic	0.53	226	200	112.7	70-130
Barium	19.7	445	400	106.3	70-130
Beryllium	0.0	98.5	100	98.5	70-130
Boron	314	716	400	100.5	70-130
Cadmium	0.0	105	100	105.0	70-130
Calcium	anr				
Chromium	0.31	97.9	100	97.6	70-130
Cobalt	0.37	101	100	100.6	70-130
Copper	1.9	103	100	101.1	70-130
Iron	31.5	1040	1000	100.8	70-130
Lead	0.19	212	200	105.9	70-130
Magnesium	anr				
Manganese	34.8	236	200	100.6	70-130
Molybdenum	2.9	107	100	104.1	70-130
Nickel	0.92	98.9	100	98.3	70-130
Phosphorus					
Potassium	anr				
Selenium	0.99	212	200	105.5	70-130
Silver	0.025	39.4	40	98.4	70-130
Sodium	anr				
Strontium	anr				
Thallium	0.043	218	200	109.0	70-130
Tin					
Titanium					
Uranium	5.4	220	200	107.3	70-130
Vanadium	0.22	99.1	100	98.7	70-130
Zinc	56.0	136	100	80.0	70-130

Associated samples MP36585: DA51642-1F

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: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	13.3	1010	1000	99.7	1.0	20
Antimony	1.3	113	100	111.9	2.7	20
Arsenic	0.53	225	200	112.2	0.4	20
Barium	19.7	450	400	107.6	1.1	20
Beryllium	0.0	100	100	100.0	1.5	20
Boron	314	734	400	105.0	2.5	20
Cadmium	0.0	105	100	105.0	0.0	20
Calcium	anr					
Chromium	0.31	97.3	100	97.0	0.6	20
Cobalt	0.37	101	100	100.6	0.0	20
Copper	1.9	102	100	100.1	1.0	20
Iron	31.5	1030	1000	99.8	1.0	20
Lead	0.19	212	200	105.9	0.0	20
Magnesium	anr					
Manganese	34.8	236	200	100.6	0.0	20
Molybdenum	2.9	108	100	105.1	0.9	20
Nickel	0.92	98.7	100	98.1	0.2	20
Phosphorus						
Potassium	anr					
Selenium	0.99	218	200	108.5	2.8	20
Silver	0.025	40.2	40	100.4	2.0	20
Sodium	anr					
Strontium	anr					
Thallium	0.043	213	200	106.5	2.3	20
Tin						
Titanium						
Uranium	5.4	219	200	106.8	0.5	20
Vanadium	0.22	98.2	100	97.8	0.9	20
Zinc	56.0	136	100	80.0	0.0	20

Associated samples MP36585: DA51642-1F

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: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	1050	1000	105.0	85-115
Antimony	100	100	100.0	85-115
Arsenic	226	200	113.0	85-115
Barium	430	400	107.5	85-115
Beryllium	97.7	100	97.7	85-115
Boron	430	400	107.5	85-115
Cadmium	107	100	107.0	85-115
Calcium	anr			
Chromium	103	100	103.0	85-115
Cobalt	104	100	104.0	85-115
Copper	105	100	105.0	85-115
Iron	1040	1000	104.0	85-115
Lead	211	200	105.5	85-115
Magnesium	anr			
Manganese	205	200	102.5	85-115
Molybdenum	103	100	103.0	85-115
Nickel	102	100	102.0	85-115
Phosphorus				
Potassium	anr			
Selenium	214	200	107.0	85-115
Silver	40.7	40	101.8	85-115
Sodium	anr			
Strontium	anr			
Thallium	211	200	105.5	85-115
Tin				
Titanium				
Uranium	208	200	104.0	85-115
Vanadium	103	100	103.0	85-115
Zinc	108	100	108.0	85-115

Associated samples MP36585: DA51642-1F

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

General Chemistry

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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: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.504	100.8	90-110%
Chloride	GP33209/GN58684	0.50	0.0	mg/l	5	5.13	102.6	90-110%
Chromium, Hexavalent	GN58738	0.010	0.0	mg/l	0.1	0.107	107.0	90-110%
Fluoride	GP33209/GN58684	0.10	0.0	mg/l	1	1.02	102.0	90-110%
Nitrogen, Nitrate	GP33209/GN58684	0.010	0.0	mg/l	0.1	0.108	108.0	90-110%
Nitrogen, Nitrite	GP33209/GN58684	0.0040	0.0	mg/l	0.05	0.0531	106.2	90-110%
Phosphate, Ortho	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.536	107.2	90-110%
Solids, Total Dissolved	GN58686			mg/l	400	238	95.2	90-110%
Solids, Total Dissolved	GN58686	10	0.0	mg/l	400	238	95.2	90-110%
Solids, Total Dissolved	GN58686	10	0.0	mg/l				
Solids, Total Suspended	GN58718	5.0	0.0	mg/l	500	499	99.8	90-110%
Sulfate	GP33209/GN58684	0.50	0.52*(a)	mg/l	5	5.03	100.6	90-110%

Associated Samples:
Batch GN58686: DA51642-1
Batch GN58718: DA51642-1
Batch GN58738: DA51642-1F
Batch GP33209: DA51642-1
(*) Outside of QC limits
(a) This MB has a hit for SO4 that is more the half the RL, the associated samples are either non-detect or have hits for SO4 that are more than 10 times the hits in the MB.

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.0	0.0	0-20%
Solids, Total Dissolved	GN58686	DA51666-2	mg/l	298	295	1.0	0-5.44%
Solids, Total Dissolved	GN58686	DA51666-2	mg/l	298	295	1.0	0-5.44%
Solids, Total Suspended	GN58718	DA51640-1	mg/l	362	358	1.1	0-5.44%

Associated Samples:
Batch GN58686: DA51642-1
Batch GN58718: DA51642-1
Batch GN58738: DA51642-1F
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.50	100.0	80-120%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.4	102.0	80-120%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.098	98.0	85-115%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	99.0	80-120%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.29	100.0	80-120%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.051	102.0	80-120%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.54	108.0	80-120%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.2	102.0	80-120%

Associated Samples:
Batch GN58738: DA51642-1F
Batch GP33209: DA51642-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51642
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.51	2.0	20%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.3	1.6	20%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.10	2.0	20%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	0.0	20%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.28	3.5	20%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.052	1.9	20%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.50	7.7	20%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.1	0.8	20%

Associated Samples:
Batch GN58738: DA51642-1F
Batch GP33209: DA51642-1
(*) 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 Groundwater Water Monitoring

SGS Job Number: DA51641X

Sampling Date: 12/06/22

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: 21

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

Job No: DA51641X

Parkdale Groundwater Water Monitoring

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA51641-1X	12/06/22	15:10	EK	12/07/22	AQ	Ground Water	MW-3

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

January 18, 2023

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

Work Order: C22120377 Quote ID: C5800

Project Name: DA51641X

Energy Laboratories, Inc. Casper WY received the following 1 sample for SGS Accutest on 12/9/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22120377-001	DA51641X-1X	12/06/22 15:10	12/09/22	Aqueous	Gross Alpha, Gross Beta, Total Gross Alpha, Gross Beta, Dissolved Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Radon 222, Total Uranium, Isotopic, Dissolved 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:

Work Order Sample Summary

CLIENT: SGS Accutest
Project: DA51641X
Work Order: C22120377 **Report Date:** 01/18/23

Lab ID	Client Sample ID	Collection Date	Date Received
C22120377-001	DA51641X-1X	12/6/2022 3:10:00 PM	12/9/2022

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA51641X
Lab ID: C22120377-001
Client Sample ID: DA51641X-1X

Report Date: 01/18/23
Collection Date: 12/06/22 15:10
DateReceived: 12/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, DISSOLVED							
Gross Alpha	23.4	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Alpha precision (±)	5.6	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Alpha MDC	2.7	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Beta	7.0	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Beta precision (±)	1.8	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Beta MDC	3.2	pCi/L				E900.0	12/29/22 01:21 / haw
Uranium 234	19.2	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 234 precision (±)	3.7	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 234 MDC	0.3	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235	0.9	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235 precision (±)	0.4	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235 MDC	0.3	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238	7.2	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238 precision (±)	1.4	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238 MDC	0.3	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium, dissolved (234+235+238)	27.4	pCi/L				A7500-U C	01/04/23 11:20 / sec
RADIONUCLIDES, TOTAL							
Gross Alpha	29.5	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Alpha precision (±)	6.5	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Alpha MDC	2.2	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta	19.8	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta precision (±)	3.1	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta MDC	3.8	pCi/L				E900.0	01/14/23 00:13 / haw
Radium 226	0.3	pCi/L				E903.0	12/21/22 12:12 / kdk
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/21/22 12:12 / kdk
Radium 226 MDC	0.2	pCi/L				E903.0	12/21/22 12:12 / kdk
Radon 222	1930	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radon 222 precision (±)	77.5	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radon 222 MDC	94.2	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radium 228	2.6	pCi/L				RA-05	12/16/22 12:44 / trs
Radium 228 precision (±)	1.1	pCi/L				RA-05	12/16/22 12:44 / trs
Radium 228 MDC	1.5	pCi/L				RA-05	12/16/22 12:44 / trs
Radium 226 + Radium 228	2.9	pCi/L				A7500-RA	12/22/22 10:25 / dmf
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	12/22/22 10:25 / dmf
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	12/22/22 10:25 / dmf
Uranium 234	20.6	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 234 precision (±)	4.0	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 234 MDC	0.6	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 235	1.4	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 235 precision (±)	0.3	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 235 MDC	0.6	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 238	7.9	pCi/L				A7500-U C	01/10/23 10:39 / 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: DA51641X
Lab ID: C22120377-001
Client Sample ID: DA51641X-1X

Report Date: 01/18/23
Collection Date: 12/06/22 15:10
DateReceived: 12/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Uranium 238 precision (±)	1.5	pCi/L				A7500-U C	01/10/23 10:39 / sec
Uranium 238 MDC	0.5	pCi/L				A7500-U C	01/10/23 10:39 / 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:** C22120377 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1018	
Lab ID: MB-RA-U-ISO-1018	9	Method Blank				Run: EGG-ORTEC_ALL_221228D			01/04/23 11:20	
Uranium 234		0.2	pCi/L							U
Uranium 234 precision (±)		0.1	pCi/L							
Uranium 234 MDC		0.2	pCi/L							
Uranium 235		0.1	pCi/L							
Uranium 235 precision (±)		0.1	pCi/L							
Uranium 235 MDC		0.1	pCi/L							
Uranium 238		0.02	pCi/L							U
Uranium 238 precision (±)		0.07	pCi/L							
Uranium 238 MDC		0.1	pCi/L							
Lab ID: LCS-RA-U-ISO-1018	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_221228D			01/05/23 06:57	
Uranium 234		12	pCi/L		116	70	130			
Uranium 234 precision (±)		2.4	pCi/L							
Uranium 234 MDC		0.26	pCi/L							
Uranium 238		11	pCi/L		107	70	130			
Uranium 238 precision (±)		2.2	pCi/L							
Uranium 238 MDC		0.21	pCi/L							
Lab ID: C22120379-001DDUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_221228D			01/04/23 11:20	
Uranium 234		15	pCi/L					6.1	30	
Uranium 234 precision (±)		3.0	pCi/L							
Uranium 234 MDC		0.37	pCi/L							
Uranium 235		0.58	pCi/L					20	30	
Uranium 235 precision (±)		0.34	pCi/L							
Uranium 235 MDC		0.31	pCi/L							
Uranium 238		4.7	pCi/L					11	30	
Uranium 238 precision (±)		0.92	pCi/L							
Uranium 238 MDC		0.37	pCi/L							

- The RER result for U234 is 0.22, U235 is 0.25, and U238 is 0.40.

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:** C22120377 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1023	
Lab ID: MB-RA-U-ISO-1023	9	Method Blank				Run: EGG-ORTEC_ALL_230106A			01/10/23 10:39	
Uranium 234		0.1	pCi/L							U
Uranium 234 precision (±)		0.2	pCi/L							
Uranium 234 MDC		0.2	pCi/L							
Uranium 235		0.02	pCi/L							U
Uranium 235 precision (±)		0.1	pCi/L							
Uranium 235 MDC		0.2	pCi/L							
Uranium 238		0.08	pCi/L							U
Uranium 238 precision (±)		0.1	pCi/L							
Uranium 238 MDC		0.2	pCi/L							
Lab ID: LCS-RA-U-ISO-1023	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_230106A			01/10/23 10:39	
Uranium 234		11	pCi/L		104	70	130			
Uranium 234 precision (±)		2.1	pCi/L							
Uranium 234 MDC		0.22	pCi/L							
Uranium 238		12	pCi/L		109	70	130			
Uranium 238 precision (±)		2.3	pCi/L							
Uranium 238 MDC		0.18	pCi/L							
Lab ID: C22120377-001BDUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_230106A			01/11/23 07:17	
Uranium 234		17	pCi/L					22	30	
Uranium 234 precision (±)		3.2	pCi/L							
Uranium 234 MDC		1.9	pCi/L							
Uranium 235		1.6	pCi/L					12	30	U
Uranium 235 precision (±)		0.33	pCi/L							
Uranium 235 MDC		2.1	pCi/L							
Uranium 238		8.1	pCi/L					2.3	30	
Uranium 238 precision (±)		1.6	pCi/L							
Uranium 238 MDC		1.5	pCi/L							

- The RER result for U234 is 0.79, U235 is 0.42 and U238 is 0.08.

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:** C22120377 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										Batch: R290277
Lab ID: MB-R290269	3	Method Blank				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		-30	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: LCS-R290269	3	Laboratory Control Sample				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		2200	pCi/L		98	70	130			
Radon 222 precision (±)		660	pCi/L							
Radon 222 MDC		51	pCi/L							
Lab ID: C22120377-001CDUP	3	Sample Duplicate				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		1900	pCi/L					1.5	30	
Radon 222 precision (±)		78	pCi/L							
Radon 222 MDC		95	pCi/L							

- The RER result is 0.26.

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:** C22120377 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3130
Lab ID: Th230-GrAB-3130	3	Laboratory Control Sample				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		120	pCi/L		116	70	130			
Gross Alpha precision (±)		23	pCi/L							
Gross Alpha MDC		1.5	pCi/L							
Lab ID: Sr90-GrAB-3130	3	Laboratory Control Sample				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Beta		530	pCi/L		109	70	130			
Gross Beta precision (±)		54	pCi/L							
Gross Beta MDC		3.3	pCi/L							
Lab ID: MB-GrAB-3130	6	Method Blank				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		-0.3	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		2	pCi/L							
Gross Beta		1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C22120199-002DMS	3	Sample Matrix Spike				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		130	pCi/L		125	70	130			
Gross Alpha precision (±)		25	pCi/L							
Gross Alpha MDC		1.8	pCi/L							
Lab ID: C22120199-002DMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		120	pCi/L		123	70	130	1.8	30	
Gross Alpha precision (±)		24	pCi/L							
Gross Alpha MDC		1.6	pCi/L							
- The RER result is 0.06.										
Lab ID: C22120377-001AMS1	3	Sample Matrix Spike				Run: TENNELEC-3_221221A				12/29/22 01:21
Gross Beta		570	pCi/L		116	70	130			
Gross Beta precision (±)		58	pCi/L							
Gross Beta MDC		3.4	pCi/L							
Lab ID: C22120377-001AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_221221A				12/29/22 01:21
Gross Beta		570	pCi/L		116	70	130	0.4	30	
Gross Beta precision (±)		58	pCi/L							
Gross Beta MDC		3.4	pCi/L							
- The RER result is 0.03.										

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:** C22120377 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3135
Lab ID: Th230-GrAB-3135	3	Laboratory Control Sample				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		120	pCi/L		116	70	130			
Gross Alpha precision (±)		23	pCi/L							
Gross Alpha MDC		1.6	pCi/L							
Lab ID: Sr90-GrAB-3135	3	Laboratory Control Sample				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		520	pCi/L		107	70	130			
Gross Beta precision (±)		53	pCi/L							
Gross Beta MDC		3.5	pCi/L							
Lab ID: MB-GrAB-3135	6	Method Blank				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		-0.9	pCi/L							U
Gross Alpha precision (±)		0.8	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: C22120377-001BMS	3	Sample Matrix Spike				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		100	pCi/L		73	70	130			
Gross Alpha precision (±)		21	pCi/L							
Gross Alpha MDC		3.1	pCi/L							
Lab ID: C22120377-001BMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		100	pCi/L		71	70	130	2.1	30	
Gross Alpha precision (±)		20	pCi/L							
Gross Alpha MDC		2.5	pCi/L							
- The RER result is 0.07.										
Lab ID: C22120379-001BMS1	3	Sample Matrix Spike				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		520	pCi/L		104	70	130			
Gross Beta precision (±)		52	pCi/L							
Gross Beta MDC		3.2	pCi/L							
Lab ID: C22120379-001BMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		580	pCi/L		117	70	130	12	30	
Gross Beta precision (±)		59	pCi/L							
Gross Beta MDC		3.7	pCi/L							
- The RER result is 0.85.										

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:** C22120377 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-10745	
Lab ID: LCS-RA226-10745	3	Laboratory Control Sample				Run: G542M-2_221213D			12/21/22 10:33	
Radium 226		9.7	pCi/L		97	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.24	pCi/L							
Lab ID: MB-RA226-10745	3	Method Blank				Run: G542M-2_221213D			12/21/22 10:33	
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C22120185-001DDUP	3	Sample Duplicate				Run: G542M-2_221213D			12/21/22 10:33	
Radium 226		1.1	pCi/L					9.2	30	
Radium 226 precision (±)		0.28	pCi/L							
Radium 226 MDC		0.21	pCi/L							

- The RER result is 0.25.

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:** C22120377 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6982
Lab ID: LCS-228-RA226-10745	3	Laboratory Control Sample				Run: G542M-2_221213A				12/16/22 11:09
Radium 228		7.7	pCi/L		105	70	130			
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		1.2	pCi/L							
Lab ID: MB-RA226-10745	3	Method Blank				Run: G542M-2_221213A				12/16/22 11:09
Radium 228		0.3	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C22120185-001DDUP	3	Sample Duplicate				Run: G542M-2_221213A				12/16/22 11:09
Radium 228		0.85	pCi/L					11	30	U
Radium 228 precision (±)		0.71	pCi/L							
Radium 228 MDC		1.1	pCi/L							

- The RER result is 0.09.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

2

Work Order Receipt Checklist

SGS Accutest

C22120377

Login completed by: Ciara M. Leis
Date Received: 12/9/2022
Reviewed by: cjohnson
Received by: cch
Reviewed Date: 12/12/2022
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:	14.6°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:

Cooler 1-14.6 ° C
Cooler 2-14.4 ° C
Jeremy Dechant confirmed the field filtered bottles are for dissolved Gross Alpha, Gross Beta, and Uranium.

C22120377

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 #: DA51641X

Client / Reporting Information

Company Name: SGS North America Inc.
Street Address: 4036 Youngfield Street
Street:

Project Information

Project Name: DA51641X

Billing Information (if different from Report to)

Company Name:
Street Address:
City State Zip
Attention:

Send Report and Invoice to: Angela.Wu2@sgs.com; Rebecca.Nichols@sgs.com; Daniel.Shi2@sgs.com; Annette.Kenp@sgs.com;Parna.EskandariPayandeh@sgs.com; Terri.Mcnulty-Patterson@sgs.com;Eric.Hoffman@sgs.com

EK

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 ,U-234,235,238	LAB USE ONLY
1X	DA51641X		12/6/22	3:10:00 PM	EK	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

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	12/8/22	1 12-9 10:30a	2		2
3		3	4		4
5		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/ehsusa

Bottle Order Control #:
FED-EX Tracking #:
SGS Quote #:
SGS Job #: DA51641

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): ERIN KUNKEL

Project Information

Project Name: Parkdale DRMS Water 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)

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	NaSO3	Ascorbic A	CORR	DISS METALS (Al, Sb, As, Ba, Be, B, Cd, Cr, Cr3, Cr6, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Ag, Tl, U, V, Zn)	F	SO4,NO3O,NO2,CHL	TDS	TSS	UMS - U234, U235, U238	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-3	12/6/22	3:10PM	ESK	GW	14	6			6							2	X	X	X	X	X	X	X	X	X	X	1

Special Instructions: pH Measurement
Name of person measuring pH sample:
Signature of person measuring pH sample:
Date and Time of Measurement:

	pH	Cond

Special Instructions: pH Calibration
Name of person calibrating the pH meter:
Signature of person calibrating the pH meter:
Date and Time of Calibration:

pH 7:
pH 10:
Conductivity 1413:

Turnaround Time (Business days)

- [X] Standard 10 Business Days
- [ ] 6 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	12/6/22 3:25PM	1	2		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3		3	4		4

Custody Seals: Intact ☐ Not Intact ☐ Absent ☐
Preserved where applicable ☑
Cooler Temp. °C: 5.0
Therm. ID: _____
On Ice ☐

DA51641X: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA51641 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5);

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:	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:	☑		☐	☐

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: DA51641

CSR: _____ **Response Date:** _____

Response:

DA51641X: 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 Groundwater Water Monitoring

SGS Job Number: DA51641

Sampling Date: 12/06/22

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: 30

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

Table of Contents

SGS North America Inc.

Sample Summary

Martin Marietta Materials

Job No: DA51641

Parkdale Groundwater Water Monitoring

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA51641-1	12/06/22	15:10	EK	12/07/22	AQ	Ground Water	MW-3
DA51641-1F	12/06/22	15:10	EK	12/07/22	AQ	Groundwater Filtered	MW-3

Summary of Hits

Job Number: DA51641
Account: Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring
Collected: 12/06/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA51641-1	**MW-3**					
Fluoride		2.0	0.10		mg/l	EPA300.0
Chloride		5.5	0.50		mg/l	EPA300.0
Nitrogen, Nitrate		2.0	0.10		mg/l	EPA300.0
Sulfate		52.3	5.0		mg/l	EPA300.0
Corrosivity as pH		7.85			su	SW846 7.2/9040C
Solids, Total Dissolved		213	10		mg/l	SM 2540C-2011
Solids, Total Suspended		25.6	5.0		mg/l	SM 2540D-2011
DA51641-1F	**MW-3**					
Arsenic		0.71	0.40		ug/l	EPA 200.8
Barium		8.1	4.0		ug/l	EPA 200.8
Copper		9.6	4.0		ug/l	EPA 200.8
Lithium		19.5	5.0		ug/l	EPA 200.7
Molybdenum		25.1	2.0		ug/l	EPA 200.8
Selenium		3.3	0.80		ug/l	EPA 200.8
Uranium		23.7	0.40		ug/l	EPA 200.8
Vanadium		2.5	2.0		ug/l	EPA 200.8

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	DA51641-1	**Date Sampled:**	12/06/22
Matrix:	AQ - Ground Water	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Groundwater Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	2.0	0.10	mg/l	1	12/07/22 20:35	DM	EPA300.0
Chloride	5.5	0.50	mg/l	1	12/07/22 20:35	DM	EPA300.0
Nitrogen, Nitrite [a]	< 0.0040	0.0040	mg/l	1	12/07/22 20:35	DM	EPA300.0
Nitrogen, Nitrate	2.0	0.10	mg/l	10	12/07/22 20:49	DM	EPA300.0
Sulfate	52.3	5.0	mg/l	10	12/07/22 20:49	DM	EPA300.0
Corrosivity as pH	7.85		su	1	12/13/22	TM	SW846 7.2/9040C
Solids, Total Dissolved	213	10	mg/l	1	12/08/22 12:00	JW	SM 2540C-2011
Solids, Total Suspended	25.6	5.0	mg/l	1	12/12/22	KH	SM 2540D-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-3
Lab Sample ID: DA51641-1F
Matrix: AQ - Groundwater Filtered
Project: Parkdale Groundwater Water Monitoring

Date Sampled: 12/06/22
Date Received: 12/07/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 100	100	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Antimony	< 0.80	0.80	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [3]	EPA 200.8 [5]
Arsenic	0.71	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Barium	8.1	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Beryllium	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Boron	< 80	80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Cadmium	< 0.20	0.20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Chromium	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Cobalt	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Copper	9.6	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Iron	< 40	40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Lead	< 1.0	1.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Lithium	19.5	5.0	ug/l	1	12/13/22	12/15/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Manganese	< 2.0	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Molybdenum	25.1	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Nickel	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Selenium	3.3	0.80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Silver	< 0.20	0.20	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [3]	EPA 200.8 [5]
Thallium	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Uranium	23.7	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Vanadium	2.5	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Zinc	< 20	20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]

(1) Instrument QC Batch: MA16001
(2) Instrument QC Batch: MA16004
(3) Instrument QC Batch: MA16052
(4) Prep QC Batch: MP36584
(5) Prep QC Batch: MP36585

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	DA51641-1F	**Date Sampled:**	12/06/22
Matrix:	AQ - Groundwater Filtered	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Groundwater Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	12/08/22 14:46	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.014	0.014	mg/l	1	12/22/22 19:56	CDL	CALCULATION

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

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

Bottle Order Control #:
FED-EX Tracking #:
SGS Quote #:
SGS Job #: DA51641

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): ERIN KUNKEL

Project Information

Project Name: Parkdale DRMS Water 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	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	NaSO3	Ascorbic A	CORR	DISS METALS (Al, Sb, As, Ba, Be, B, Cd, Cr, Cr3, Cr6, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Ag, Tl, U, V, Zn)	F	SO4,NO3O,NO2,CHL	TDS	TSS	UMS - U234, U235, U238	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-3	12/6/22	3:10PM	ESK	GW	14	6			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:		
Signature of person measuring pH sample:		
Date and Time of Measurement:		

Special Instructions: pH Calibration

Name of person calibrating the pH meter:
Signature of person calibrating the pH meter:
Date and Time of Calibration:
pH 7:
pH 10:
Conductivity 1413:

Turnaround Time (Business days)

- [X] Standard 10 Business Days
- [ ] 6 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	12/6/22 3:25PM	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 ☑
Cooler Temp. °C: 5.0 Therm. ID: _____ On Ice ☐

SGS Sample Receipt Summary

Job Number: DA51641 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5);

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:	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:	☑		☐	☐

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: DA51641

CSR: _____ **Response Date:** _____

Response:

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: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

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	0.30	<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 MP36584: DA51641-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	anr				
Lithium	63.6	1120	1000	105.6	70-130
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	anr				

Associated samples MP36584: DA51641-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 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: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	anr					
Lithium	63.6	1120	1000	105.6	0.0	20
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	anr					

Associated samples MP36584: DA51641-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 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: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium	1020	1000	102.0	85-115
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP36584: DA51641-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13	3.9	<50
Antimony	0.40	.01	.3	0.036	<0.40
Arsenic	0.20	.05	.05	0.024	<0.20
Barium	2.0	.096	.25	0.019	<2.0
Beryllium	0.20	.077	.1	-0.062	<0.20
Boron	40	18	20	4.7	<40
Cadmium	0.10	.03	.04	0.0022	<0.10
Calcium	400	25	100		
Chromium	2.0	.087	.25	0.057	<2.0
Cobalt	0.20	.04	.05	0.0057	<0.20
Copper	2.0	.05	.81	-0.00079	<2.0
Iron	20	1.6	10	3.5	<20
Lead	0.50	.094	.13	-0.00075	<0.50
Magnesium	100	10	25		
Manganese	1.0	.079	.51	0.013	<1.0
Molybdenum	1.0	.037	.27	0.0087	<1.0
Nickel	2.0	.098	.35	-0.57	<2.0
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1	0.012	<0.40
Silver	0.10	.0081	.025	0.0012	<0.10
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05	0.0014	<0.20
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.023	<0.20
Vanadium	1.0	.14	.2	0.18	<1.0
Zinc	10	.05	2.1	0.37	<10

Associated samples MP36585: DA51641-1F

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: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	13.3	1020	1000	100.7	70-130
Antimony	1.3	110	100	108.9	70-130
Arsenic	0.53	226	200	112.7	70-130
Barium	19.7	445	400	106.3	70-130
Beryllium	0.0	98.5	100	98.5	70-130
Boron	314	716	400	100.5	70-130
Cadmium	0.0	105	100	105.0	70-130
Calcium	anr				
Chromium	0.31	97.9	100	97.6	70-130
Cobalt	0.37	101	100	100.6	70-130
Copper	1.9	103	100	101.1	70-130
Iron	31.5	1040	1000	100.8	70-130
Lead	0.19	212	200	105.9	70-130
Magnesium	anr				
Manganese	34.8	236	200	100.6	70-130
Molybdenum	2.9	107	100	104.1	70-130
Nickel	0.92	98.9	100	98.3	70-130
Phosphorus					
Potassium	anr				
Selenium	0.99	212	200	105.5	70-130
Silver	0.025	39.4	40	98.4	70-130
Sodium	anr				
Strontium	anr				
Thallium	0.043	218	200	109.0	70-130
Tin					
Titanium					
Uranium	5.4	220	200	107.3	70-130
Vanadium	0.22	99.1	100	98.7	70-130
Zinc	56.0	136	100	80.0	70-130

Associated samples MP36585: DA51641-1F

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: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	13.3	1010	1000	99.7	1.0	20
Antimony	1.3	113	100	111.9	2.7	20
Arsenic	0.53	225	200	112.2	0.4	20
Barium	19.7	450	400	107.6	1.1	20
Beryllium	0.0	100	100	100.0	1.5	20
Boron	314	734	400	105.0	2.5	20
Cadmium	0.0	105	100	105.0	0.0	20
Calcium	anr					
Chromium	0.31	97.3	100	97.0	0.6	20
Cobalt	0.37	101	100	100.6	0.0	20
Copper	1.9	102	100	100.1	1.0	20
Iron	31.5	1030	1000	99.8	1.0	20
Lead	0.19	212	200	105.9	0.0	20
Magnesium	anr					
Manganese	34.8	236	200	100.6	0.0	20
Molybdenum	2.9	108	100	105.1	0.9	20
Nickel	0.92	98.7	100	98.1	0.2	20
Phosphorus						
Potassium	anr					
Selenium	0.99	218	200	108.5	2.8	20
Silver	0.025	40.2	40	100.4	2.0	20
Sodium	anr					
Strontium	anr					
Thallium	0.043	213	200	106.5	2.3	20
Tin						
Titanium						
Uranium	5.4	219	200	106.8	0.5	20
Vanadium	0.22	98.2	100	97.8	0.9	20
Zinc	56.0	136	100	80.0	0.0	20

Associated samples MP36585: DA51641-1F

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: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	1050	1000	105.0	85-115
Antimony	100	100	100.0	85-115
Arsenic	226	200	113.0	85-115
Barium	430	400	107.5	85-115
Beryllium	97.7	100	97.7	85-115
Boron	430	400	107.5	85-115
Cadmium	107	100	107.0	85-115
Calcium	anr			
Chromium	103	100	103.0	85-115
Cobalt	104	100	104.0	85-115
Copper	105	100	105.0	85-115
Iron	1040	1000	104.0	85-115
Lead	211	200	105.5	85-115
Magnesium	anr			
Manganese	205	200	102.5	85-115
Molybdenum	103	100	103.0	85-115
Nickel	102	100	102.0	85-115
Phosphorus				
Potassium	anr			
Selenium	214	200	107.0	85-115
Silver	40.7	40	101.8	85-115
Sodium	anr			
Strontium	anr			
Thallium	211	200	105.5	85-115
Tin				
Titanium				
Uranium	208	200	104.0	85-115
Vanadium	103	100	103.0	85-115
Zinc	108	100	108.0	85-115

Associated samples MP36585: DA51641-1F

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

General Chemistry

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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: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.504	100.8	90-110%
Chloride	GP33209/GN58684	0.50	0.0	mg/l	5	5.13	102.6	90-110%
Chromium, Hexavalent	GN58738	0.010	0.0	mg/l	0.1	0.107	107.0	90-110%
Fluoride	GP33209/GN58684	0.10	0.0	mg/l	1	1.02	102.0	90-110%
Nitrogen, Nitrate	GP33209/GN58684	0.010	0.0	mg/l	0.1	0.108	108.0	90-110%
Nitrogen, Nitrite	GP33209/GN58684	0.0040	0.0	mg/l	0.05	0.0531	106.2	90-110%
Phosphate, Ortho	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.536	107.2	90-110%
Solids, Total Dissolved	GN58686			mg/l	400	238	95.2	90-110%
Solids, Total Dissolved	GN58686	10	0.0	mg/l	400	238	95.2	90-110%
Solids, Total Dissolved	GN58686	10	0.0	mg/l				
Solids, Total Suspended	GN58718	5.0	0.0	mg/l	500	499	99.8	90-110%
Sulfate	GP33209/GN58684	0.50	0.52*(a)	mg/l	5	5.03	100.6	90-110%

Associated Samples:
Batch GN58686: DA51641-1
Batch GN58718: DA51641-1
Batch GN58738: DA51641-1F
Batch GP33209: DA51641-1
(*) Outside of QC limits
(a) This MB has a hit for SO4 that is more the half the RL, the associated samples are either non-detect or have hits for SO4 that are more than 10 times the hits in the MB.

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.0	0.0	0-20%
Solids, Total Dissolved	GN58686	DA51666-2	mg/l	298	295	1.0	0-5.44%
Solids, Total Dissolved	GN58686	DA51666-2	mg/l	298	295	1.0	0-5.44%
Solids, Total Suspended	GN58718	DA51640-1	mg/l	362	358	1.1	0-5.44%

Associated Samples:
Batch GN58686: DA51641-1
Batch GN58718: DA51641-1
Batch GN58738: DA51641-1F
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.50	100.0	80-120%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.4	102.0	80-120%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.098	98.0	85-115%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	99.0	80-120%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.29	100.0	80-120%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.051	102.0	80-120%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.54	108.0	80-120%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.2	102.0	80-120%

Associated Samples:
Batch GN58738: DA51641-1F
Batch GP33209: DA51641-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51641
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.51	2.0	20%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.3	1.6	20%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.10	2.0	20%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	0.0	20%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.28	3.5	20%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.052	1.9	20%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.50	7.7	20%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.1	0.8	20%

Associated Samples:
Batch GN58738: DA51641-1F
Batch GP33209: DA51641-1
(*) 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 Groundwater Water Monitoring

SGS Job Number: DA51640X

Sampling Date: 12/06/22

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: 21

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

Job No: DA51640X

Parkdale Groundwater Water Monitoring

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA51640-1X	12/06/22	13:30	EK	12/07/22	AQ	Ground Water	MW-10

Subcontract Lab Data

Report of Analysis

ANALYTICAL SUMMARY REPORT

January 18, 2023

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

Work Order: C22120378 Quote ID: C5800

Project Name: DA51640X

Energy Laboratories, Inc. Casper WY received the following 1 sample for SGS Accutest on 12/9/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22120378-001	DA51640X-1X	12/06/22 13:30	12/09/22	Aqueous	Gross Alpha, Gross Beta, Total Gross Alpha, Gross Beta, Dissolved Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Radon 222, Total Uranium, Isotopic, Dissolved 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:

Work Order Sample Summary

CLIENT: SGS Accutest
Project: DA51640X
Work Order: C22120378 **Report Date:** 01/18/23

Lab ID	Client Sample ID	Collection Date	Date Received
C22120378-001	DA51640X-1X	12/6/2022 1:30:00 PM	12/9/2022

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA51640X
Lab ID: C22120378-001
Client Sample ID: DA51640X-1X

Report Date: 01/18/23
Collection Date: 12/06/22 13:30
DateReceived: 12/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, DISSOLVED							
Gross Alpha	37.0	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Alpha precision (±)	8.3	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Alpha MDC	3.4	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Beta	4.1	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Beta precision (±)	1.6	pCi/L				E900.0	12/29/22 01:21 / haw
Gross Beta MDC	3.9	pCi/L				E900.0	12/29/22 01:21 / haw
Uranium 234	25.0	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 234 precision (±)	4.9	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 234 MDC	0.7	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235	1.4	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235 precision (±)	0.3	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 235 MDC	0.5	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238	15.9	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238 precision (±)	3.1	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium 238 MDC	0.6	pCi/L				A7500-U C	01/04/23 11:20 / sec
Uranium, dissolved (234+235+238)	42.2	pCi/L				A7500-U C	01/04/23 11:20 / sec
RADIONUCLIDES, TOTAL							
Gross Alpha	55.4	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Alpha precision (±)	12.0	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Alpha MDC	3.9	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta	38.9	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta precision (±)	4.7	pCi/L				E900.0	01/14/23 00:13 / haw
Gross Beta MDC	3.5	pCi/L				E900.0	01/14/23 00:13 / haw
Radium 226	1.0	pCi/L				E903.0	12/21/22 12:12 / kdk
Radium 226 precision (±)	0.3	pCi/L				E903.0	12/21/22 12:12 / kdk
Radium 226 MDC	0.3	pCi/L				E903.0	12/21/22 12:12 / kdk
Radon 222	1720	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radon 222 precision (±)	76.9	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radon 222 MDC	96.8	pCi/L				D5072-92	12/09/22 23:50 / dmf
Radium 228	2.2	pCi/L				RA-05	12/16/22 12:44 / trs
Radium 228 precision (±)	1.2	pCi/L				RA-05	12/16/22 12:44 / trs
Radium 228 MDC	1.6	pCi/L				RA-05	12/16/22 12:44 / trs
Radium 226 + Radium 228	3.2	pCi/L				A7500-RA	12/22/22 10:25 / dmf
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	12/22/22 10:25 / dmf
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	12/22/22 10:25 / dmf
Uranium 234	27.3	pCi/L				A7500-U C	01/17/23 11:43 / sec
Uranium 234 precision (±)	5.3	pCi/L				A7500-U C	01/17/23 11:43 / sec
Uranium 234 MDC	0.8	pCi/L				A7500-U C	01/17/23 11:43 / sec
Uranium 235	1.7	pCi/L				A7500-U C	01/17/23 11:43 / sec
Uranium 235 precision (±)	0.3	pCi/L				A7500-U C	01/17/23 11:43 / sec
Uranium 235 MDC	0.5	pCi/L				A7500-U C	01/17/23 11:43 / sec
Uranium 238	14.8	pCi/L				A7500-U C	01/17/23 11:43 / sec

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

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: DA51640X
Lab ID: C22120378-001
Client Sample ID: DA51640X-1X

Report Date: 01/18/23
Collection Date: 12/06/22 13:30
DateReceived: 12/09/22
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Uranium 238 precision (±)	2.9	pCi/L				A7500-U C	01/17/23 11:43 / sec
Uranium 238 MDC	0.5	pCi/L				A7500-U C	01/17/23 11:43 / 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:** C22120378 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1018	
Lab ID: MB-RA-U-ISO-1018	9	Method Blank				Run: EGG-ORTEC_ALL_221228D			01/04/23 11:20	
Uranium 234		0.2	pCi/L							U
Uranium 234 precision (±)		0.1	pCi/L							
Uranium 234 MDC		0.2	pCi/L							
Uranium 235		0.1	pCi/L							
Uranium 235 precision (±)		0.1	pCi/L							
Uranium 235 MDC		0.1	pCi/L							
Uranium 238		0.02	pCi/L							U
Uranium 238 precision (±)		0.07	pCi/L							
Uranium 238 MDC		0.1	pCi/L							
Lab ID: LCS-RA-U-ISO-1018	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_221228D			01/05/23 06:57	
Uranium 234		12	pCi/L		116	70	130			
Uranium 234 precision (±)		2.4	pCi/L							
Uranium 234 MDC		0.26	pCi/L							
Uranium 238		11	pCi/L		107	70	130			
Uranium 238 precision (±)		2.2	pCi/L							
Uranium 238 MDC		0.21	pCi/L							
Lab ID: C22120379-001DDUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_221228D			01/04/23 11:20	
Uranium 234		15	pCi/L					6.1	30	
Uranium 234 precision (±)		3.0	pCi/L							
Uranium 234 MDC		0.37	pCi/L							
Uranium 235		0.58	pCi/L					20	30	
Uranium 235 precision (±)		0.34	pCi/L							
Uranium 235 MDC		0.31	pCi/L							
Uranium 238		4.7	pCi/L					11	30	
Uranium 238 precision (±)		0.92	pCi/L							
Uranium 238 MDC		0.37	pCi/L							

- The RER result for U234 is 0.22, U235 is 0.25, and U238 is 0.40.

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:** C22120378 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A7500-U C									Batch: RA-U-ISO-1024	
Lab ID: MB-RA-U-ISO-1024	9	Method Blank				Run: EGG-ORTEC_ALL_230112A			01/17/23 11:43	
Uranium 234		-0.02	pCi/L							U
Uranium 234 precision (±)		0.1	pCi/L							
Uranium 234 MDC		0.3	pCi/L							
Uranium 235		0.1	pCi/L							U
Uranium 235 precision (±)		0.2	pCi/L							
Uranium 235 MDC		0.2	pCi/L							
Uranium 238		0.03	pCi/L							U
Uranium 238 precision (±)		0.1	pCi/L							
Uranium 238 MDC		0.2	pCi/L							
Lab ID: LCS-RA-U-ISO-1024	6	Laboratory Control Sample				Run: EGG-ORTEC_ALL_230112A			01/17/23 11:43	
Uranium 234		10	pCi/L		98	70	130			
Uranium 234 precision (±)		2.0	pCi/L							
Uranium 234 MDC		0.34	pCi/L							
Uranium 238		12	pCi/L		112	70	130			
Uranium 238 precision (±)		2.3	pCi/L							
Uranium 238 MDC		0.31	pCi/L							
Lab ID: C23010167-005ADUP	9	Sample Duplicate				Run: EGG-ORTEC_ALL_230112A			01/17/23 11:43	
Uranium 234		4.3	pCi/L					15	30	
Uranium 234 precision (±)		0.84	pCi/L							
Uranium 234 MDC		0.54	pCi/L							
Uranium 235		0.12	pCi/L					29	30	U
Uranium 235 precision (±)		0.30	pCi/L							
Uranium 235 MDC		0.57	pCi/L							
Uranium 238		2.1	pCi/L					42	30	R
Uranium 238 precision (±)		0.41	pCi/L							
Uranium 238 MDC		0.51	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 for U234 is 0.55 and U238 is 1.47.
- The RER result for U234 is 0.55 and for U235 is 0.10.

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:** C22120378 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										Batch: R290277
Lab ID: MB-R290269	3	Method Blank				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		-30	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: LCS-R290269	3	Laboratory Control Sample				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		2200	pCi/L		98	70	130			
Radon 222 precision (±)		660	pCi/L							
Radon 222 MDC		51	pCi/L							
Lab ID: C22120377-001CDUP	3	Sample Duplicate				Run: PACKARD 3100TR_221209A				12/09/22 23:50
Radon 222		1900	pCi/L					1.5	30	
Radon 222 precision (±)		78	pCi/L							
Radon 222 MDC		95	pCi/L							

- The RER result is 0.26.

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:** C22120378 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3130
Lab ID: Th230-GrAB-3130	3	Laboratory Control Sample				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		120	pCi/L		116	70	130			
Gross Alpha precision (±)		23	pCi/L							
Gross Alpha MDC		1.5	pCi/L							
Lab ID: Sr90-GrAB-3130	3	Laboratory Control Sample				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Beta		530	pCi/L		109	70	130			
Gross Beta precision (±)		54	pCi/L							
Gross Beta MDC		3.3	pCi/L							
Lab ID: MB-GrAB-3130	6	Method Blank				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		-0.3	pCi/L							U
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		2	pCi/L							
Gross Beta		1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C22120199-002DMS	3	Sample Matrix Spike				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		130	pCi/L		125	70	130			
Gross Alpha precision (±)		25	pCi/L							
Gross Alpha MDC		1.8	pCi/L							
Lab ID: C22120199-002DMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_221221A				12/28/22 00:10
Gross Alpha		120	pCi/L		123	70	130	1.8	30	
Gross Alpha precision (±)		24	pCi/L							
Gross Alpha MDC		1.6	pCi/L							
- The RER result is 0.06.										
Lab ID: C22120377-001AMS1	3	Sample Matrix Spike				Run: TENNELEC-3_221221A				12/29/22 01:21
Gross Beta		570	pCi/L		116	70	130			
Gross Beta precision (±)		58	pCi/L							
Gross Beta MDC		3.4	pCi/L							
Lab ID: C22120377-001AMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_221221A				12/29/22 01:21
Gross Beta		570	pCi/L		116	70	130	0.4	30	
Gross Beta precision (±)		58	pCi/L							
Gross Beta MDC		3.4	pCi/L							
- The RER result is 0.03.										

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:** C22120378 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-3135
Lab ID: Th230-GrAB-3135	3	Laboratory Control Sample				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		120	pCi/L		116	70	130			
Gross Alpha precision (±)		23	pCi/L							
Gross Alpha MDC		1.6	pCi/L							
Lab ID: Sr90-GrAB-3135	3	Laboratory Control Sample				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		520	pCi/L		107	70	130			
Gross Beta precision (±)		53	pCi/L							
Gross Beta MDC		3.5	pCi/L							
Lab ID: MB-GrAB-3135	6	Method Blank				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		-0.9	pCi/L							U
Gross Alpha precision (±)		0.8	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: C22120377-001BMS	3	Sample Matrix Spike				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		100	pCi/L		73	70	130			
Gross Alpha precision (±)		21	pCi/L							
Gross Alpha MDC		3.1	pCi/L							
Lab ID: C22120377-001BMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Alpha		100	pCi/L		71	70	130	2.1	30	
Gross Alpha precision (±)		20	pCi/L							
Gross Alpha MDC		2.5	pCi/L							
- The RER result is 0.07.										
Lab ID: C22120379-001BMS1	3	Sample Matrix Spike				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		520	pCi/L		104	70	130			
Gross Beta precision (±)		52	pCi/L							
Gross Beta MDC		3.2	pCi/L							
Lab ID: C22120379-001BMSD	3	Sample Matrix Spike Duplicate				Run: TENNELEC-3_230110B				01/14/23 00:13
Gross Beta		580	pCi/L		117	70	130	12	30	
Gross Beta precision (±)		59	pCi/L							
Gross Beta MDC		3.7	pCi/L							
- The RER result is 0.85.										

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:** C22120378 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-10745	
Lab ID: LCS-RA226-10745	3	Laboratory Control Sample				Run: G542M-2_221213D			12/21/22 10:33	
Radium 226		9.7	pCi/L		97	70	130			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.24	pCi/L							
Lab ID: MB-RA226-10745	3	Method Blank				Run: G542M-2_221213D			12/21/22 10:33	
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C22120185-001DDUP	3	Sample Duplicate				Run: G542M-2_221213D			12/21/22 10:33	
Radium 226		1.1	pCi/L					9.2	30	
Radium 226 precision (±)		0.28	pCi/L							
Radium 226 MDC		0.21	pCi/L							

- The RER result is 0.25.

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:** C22120378 **Report Date:** 01/18/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6982
Lab ID: LCS-228-RA226-10745	3	Laboratory Control Sample				Run: G542M-2_221213A				12/16/22 11:09
Radium 228		7.7	pCi/L		105	70	130			
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		1.2	pCi/L							
Lab ID: MB-RA226-10745	3	Method Blank				Run: G542M-2_221213A				12/16/22 11:09
Radium 228		0.3	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C22120185-001DDUP	3	Sample Duplicate				Run: G542M-2_221213A				12/16/22 11:09
Radium 228		0.85	pCi/L					11	30	U
Radium 228 precision (±)		0.71	pCi/L							
Radium 228 MDC		1.1	pCi/L							

- The RER result is 0.09.

Qualifiers:

RL - Analyte Reporting 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

C22120378

Login completed by: Madison A. Ray
Date Received: 12/9/2022

Reviewed by: cjohnson
Received by: cch

Reviewed Date: 12/12/2022
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:	14.6°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:

Cooler 1: 14.6°C, Cooler 2: 14.4°C. 12/9/2022 MR
Jeremy Dechant confirmed the field filtered bottles are for dissolved Gross Alpha, Gross Beta, and Uranium.

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 #: DA51640X

Client / Reporting Information	Project Information
Company Name: SGS North America Inc.	Project Name: DA51640X
Street Address: 4036 Youngfield Street	Street:

Send Report and Invoice to: Angela.Wu2@sgs.com; Rebecca.Nichols@sgs.com; Daniel.Shi2@sgs.com; Annette.Kenp@sgs.com;Parna.EskandariPayandeh@sgs.com; Terri.Mcnulty-Patterson@sgs.com;Eric.Hoffman@sgs.com

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	GR-A ,GR-B ,RA-226 ,RA-228 ,RADON ,U -234,235,238	LAB USE ONLY
1X	DA51640X		12/6/22	1:30:00 PM	EK	AQ										X	C22120578

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		12/9/22	12-9 10:30	2		2
3			3	4		4
5			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

Bottle Order Control #: | FED-EX Tracking #:
SGS Quote #: | SGS Job # DA51640

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): ERIN KUNKEL

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	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O3	NaOH+ Ascorbic A	CORR	DISS METALS (Al, Sb, As, Ba, Be, B, Cd, Cr, Cr3, Cr6, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Ag, Tl, U, V, Zn)	F	SO4,NO3O,NO2,CHL	TDS	TSS	UMS - U234, U235, U238	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-10	12/6/22	1:30 PM	ESL	GW	14	6			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:				
Signature of person measuring pH sample:				
Date and Time of Measurement:				

Special Instructions: pH Calibration

Name of person calibrating the pH meter:	pH 7:
Signature of person calibrating the pH meter:	pH 10:
Date and Time of Calibration:	Conductivity 1413:

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	12/6/22 1:40 PM	1	2		2
3	Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
			3	4		4

Custody Seal # Intact ☐ Not Intact ☐ Absent ☐ | Preserved where applicable ☑ | Cooler Temp. °C: 5.0 | Therm. ID: NM | On Ice ☐

DA51640X: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA51640 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (5/5);

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: DA51640

CSR: _____ **Response Date:** _____

Response:

DA51640X: 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 Groundwater Water Monitoring

SGS Job Number: DA51640

Sampling Date: 12/06/22

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: 30

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

Table of Contents

SGS North America Inc.

Sample Summary

Martin Marietta Materials

Job No: DA51640

Parkdale Groundwater Water Monitoring

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
DA51640-1	12/06/22	13:30	EK	12/07/22	AQ	Ground Water	MW-10
DA51640-1F	12/06/22	13:30	EK	12/07/22	AQ	Groundwater Filtered	MW-10

2

Summary of Hits

Job Number: DA51640
Account: Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring
Collected: 12/06/22

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA51640-1	**MW-10**					
Fluoride		1.5	0.20		mg/l	EPA300.0
Chloride		7.4	1.0		mg/l	EPA300.0
Nitrogen, Nitrate		0.37	0.25		mg/l	EPA300.0
Sulfate		91.2	13		mg/l	EPA300.0
Corrosivity as pH		7.39			su	SW846 7.2/9040C
Solids, Total Dissolved		401	10		mg/l	SM 2540C-2011
Solids, Total Suspended		362	5.0		mg/l	SM 2540D-2011
DA51640-1F	**MW-10**					
Arsenic		0.43	0.40		ug/l	EPA 200.8
Barium		40.5	4.0		ug/l	EPA 200.8
Lithium		24.9	5.0		ug/l	EPA 200.7
Molybdenum		16.1	2.0		ug/l	EPA 200.8
Selenium		3.0	0.80		ug/l	EPA 200.8
Uranium		49.8	0.40		ug/l	EPA 200.8
Vanadium		2.9	2.0		ug/l	EPA 200.8

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-10		
Lab Sample ID:	DA51640-1	**Date Sampled:**	12/06/22
Matrix:	AQ - Ground Water	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Groundwater Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
300.0							
Fluoride	1.5	0.20	mg/l	2	12/07/22 19:38	DM	EPA300.0
Chloride	7.4	1.0	mg/l	2	12/07/22 19:38	DM	EPA300.0
Nitrogen, Nitrite [a]	< 0.0080	0.0080	mg/l	2	12/07/22 19:38	DM	EPA300.0
Nitrogen, Nitrate	0.37	0.25	mg/l	25	12/07/22 19:52	DM	EPA300.0
Sulfate	91.2	13	mg/l	25	12/07/22 19:52	DM	EPA300.0
Corrosivity as pH	7.39		su	1	12/13/22	TM	SW846 7.2/9040C
Solids, Total Dissolved	401	10	mg/l	1	12/08/22 12:00	JW	SM 2540C-2011
Solids, Total Suspended	362	5.0	mg/l	1	12/12/22	KH	SM 2540D-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-10
Lab Sample ID: DA51640-1F
Matrix: AQ - Groundwater Filtered
Project: Parkdale Groundwater Water Monitoring

Date Sampled: 12/06/22
Date Received: 12/07/22
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 100	100	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Antimony	< 0.80	0.80	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [3]	EPA 200.8 [5]
Arsenic	0.43	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Barium	40.5	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Beryllium	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Boron	< 80	80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Cadmium	< 0.20	0.20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Chromium	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Cobalt	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Copper	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Iron	< 40	40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Lead	< 1.0	1.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Lithium	24.9	5.0	ug/l	1	12/13/22	12/15/22	CDL	EPA 200.7 [1]	EPA 200.7 [4]
Manganese	< 2.0	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Molybdenum	16.1	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Nickel	< 4.0	4.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Selenium	3.0	0.80	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Silver	< 0.20	0.20	ug/l	2	12/13/22	01/10/23	DU	EPA 200.8 [3]	EPA 200.8 [5]
Thallium	< 0.40	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Uranium	49.8	0.40	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Vanadium	2.9	2.0	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]
Zinc	< 20	20	ug/l	2	12/13/22	12/22/22	CDL	EPA 200.8 [2]	EPA 200.8 [5]

(1) Instrument QC Batch: MA16001
(2) Instrument QC Batch: MA16004
(3) Instrument QC Batch: MA16052
(4) Prep QC Batch: MP36584
(5) Prep QC Batch: MP36585

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-10		
Lab Sample ID:	DA51640-1F	**Date Sampled:**	12/06/22
Matrix:	AQ - Groundwater Filtered	**Date Received:**	12/07/22
		Percent Solids:	n/a
Project:	Parkdale Groundwater Water Monitoring		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	12/08/22 14:45	MB	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.014	0.014	mg/l	1	12/22/22 19:53	CDL	CALCULATION

(a) Sample received beyond recommended holding 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

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 #: DA51640

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): ERIN KUNKEL

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)

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	NaZSO3	Ascorbic Acid	CORR	DISS METALS (Al, Sb, As, Ba, Be, B, Cd, Cr, Cr3, Cr6, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Ag, Tl, U, V, Zn)	F	SO4,NO3O,NO2,CHL	TDS	TSS	UMS - U234, U235, U238	RAD-226, RAD-228	GR-A, GR-B	RADON	LAB USE ONLY
MW-10	12/6/22	1:30 PM	ERK	GW	14	6			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:				
Signature of person measuring pH sample:				
Date and Time of Measurement:				

Special Instructions: pH Calibration

Name of person calibrating the pH meter:	pH 7:
Signature of person calibrating the pH meter:	pH 10:
Date and Time of Calibration:	Conductivity 1413:

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	12/6/22 1:40 PM	1	2		2
3	Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
			3	4		4

Custody Seal # Intact ☐ Not Intact ☐ Absent ☐
Preserved where applicable ☑ Cooler Temp. °C: 5.0 Therm. ID: NM On Ice ☐

DA51640: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: DA51640 **Client:** MARTIN MARIETTA **Project:** PARKDALE

Date / Time Received: 12/7/2022 1:00:00 PM **Delivery Method:** HD **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #0: (5/5);

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: DA51640

CSR: _____ **Response Date:** _____

Response:

DA51640: Chain of Custody
Page 3 of 3

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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: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

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	0.30	<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 MP36584: DA51640-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	anr				
Lithium	63.6	1120	1000	105.6	70-130
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	anr				

Associated samples MP36584: DA51640-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 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: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	anr					
Lithium	63.6	1120	1000	105.6	0.0	20
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	anr					

Associated samples MP36584: DA51640-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/13/22

Metal	DA51695-1 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: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium	1020	1000	102.0	85-115
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP36584: DA51640-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36584
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.52	13	3.9	<50
Antimony	0.40	.01	.3	0.036	<0.40
Arsenic	0.20	.05	.05	0.024	<0.20
Barium	2.0	.096	.25	0.019	<2.0
Beryllium	0.20	.077	.1	-0.062	<0.20
Boron	40	18	20	4.7	<40
Cadmium	0.10	.03	.04	0.0022	<0.10
Calcium	400	25	100		
Chromium	2.0	.087	.25	0.057	<2.0
Cobalt	0.20	.04	.05	0.0057	<0.20
Copper	2.0	.05	.81	-0.00079	<2.0
Iron	20	1.6	10	3.5	<20
Lead	0.50	.094	.13	-0.00075	<0.50
Magnesium	100	10	25		
Manganese	1.0	.079	.51	0.013	<1.0
Molybdenum	1.0	.037	.27	0.0087	<1.0
Nickel	2.0	.098	.35	-0.57	<2.0
Phosphorus	60	7.6	25		
Potassium	200	2	50		
Selenium	0.40	.05	.1	0.012	<0.40
Silver	0.10	.0081	.025	0.0012	<0.10
Sodium	500	10	130		
Strontium	20	.1	5		
Thallium	0.20	.032	.05	0.0014	<0.20
Tin	10	.22	2.5		
Titanium	2.0	.05	.37		
Uranium	0.20	.015	.05	0.023	<0.20
Vanadium	1.0	.14	.2	0.18	<1.0
Zinc	10	.05	2.1	0.37	<10

Associated samples MP36585: DA51640-1F

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: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MS	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	13.3	1020	1000	100.7	70-130
Antimony	1.3	110	100	108.9	70-130
Arsenic	0.53	226	200	112.7	70-130
Barium	19.7	445	400	106.3	70-130
Beryllium	0.0	98.5	100	98.5	70-130
Boron	314	716	400	100.5	70-130
Cadmium	0.0	105	100	105.0	70-130
Calcium	anr				
Chromium	0.31	97.9	100	97.6	70-130
Cobalt	0.37	101	100	100.6	70-130
Copper	1.9	103	100	101.1	70-130
Iron	31.5	1040	1000	100.8	70-130
Lead	0.19	212	200	105.9	70-130
Magnesium	anr				
Manganese	34.8	236	200	100.6	70-130
Molybdenum	2.9	107	100	104.1	70-130
Nickel	0.92	98.9	100	98.3	70-130
Phosphorus					
Potassium	anr				
Selenium	0.99	212	200	105.5	70-130
Silver	0.025	39.4	40	98.4	70-130
Sodium	anr				
Strontium	anr				
Thallium	0.043	218	200	109.0	70-130
Tin					
Titanium					
Uranium	5.4	220	200	107.3	70-130
Vanadium	0.22	99.1	100	98.7	70-130
Zinc	56.0	136	100	80.0	70-130

Associated samples MP36585: DA51640-1F

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: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	DA51643-1FA Original	MSD	Spikelot ICPMS5	% Rec	MSD RPD	QC Limit
Aluminum	13.3	1010	1000	99.7	1.0	20
Antimony	1.3	113	100	111.9	2.7	20
Arsenic	0.53	225	200	112.2	0.4	20
Barium	19.7	450	400	107.6	1.1	20
Beryllium	0.0	100	100	100.0	1.5	20
Boron	314	734	400	105.0	2.5	20
Cadmium	0.0	105	100	105.0	0.0	20
Calcium	anr					
Chromium	0.31	97.3	100	97.0	0.6	20
Cobalt	0.37	101	100	100.6	0.0	20
Copper	1.9	102	100	100.1	1.0	20
Iron	31.5	1030	1000	99.8	1.0	20
Lead	0.19	212	200	105.9	0.0	20
Magnesium	anr					
Manganese	34.8	236	200	100.6	0.0	20
Molybdenum	2.9	108	100	105.1	0.9	20
Nickel	0.92	98.7	100	98.1	0.2	20
Phosphorus						
Potassium	anr					
Selenium	0.99	218	200	108.5	2.8	20
Silver	0.025	40.2	40	100.4	2.0	20
Sodium	anr					
Strontium	anr					
Thallium	0.043	213	200	106.5	2.3	20
Tin						
Titanium						
Uranium	5.4	219	200	106.8	0.5	20
Vanadium	0.22	98.2	100	97.8	0.9	20
Zinc	56.0	136	100	80.0	0.0	20

Associated samples MP36585: DA51640-1F

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: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

QC Batch ID: MP36585
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/13/22

Metal	BSP Result	Spikelot ICPMS5	% Rec	QC Limits
Aluminum	1050	1000	105.0	85-115
Antimony	100	100	100.0	85-115
Arsenic	226	200	113.0	85-115
Barium	430	400	107.5	85-115
Beryllium	97.7	100	97.7	85-115
Boron	430	400	107.5	85-115
Cadmium	107	100	107.0	85-115
Calcium	anr			
Chromium	103	100	103.0	85-115
Cobalt	104	100	104.0	85-115
Copper	105	100	105.0	85-115
Iron	1040	1000	104.0	85-115
Lead	211	200	105.5	85-115
Magnesium	anr			
Manganese	205	200	102.5	85-115
Molybdenum	103	100	103.0	85-115
Nickel	102	100	102.0	85-115
Phosphorus				
Potassium	anr			
Selenium	214	200	107.0	85-115
Silver	40.7	40	101.8	85-115
Sodium	anr			
Strontium	anr			
Thallium	211	200	105.5	85-115
Tin				
Titanium				
Uranium	208	200	104.0	85-115
Vanadium	103	100	103.0	85-115
Zinc	108	100	108.0	85-115

Associated samples MP36585: DA51640-1F

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

General Chemistry

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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: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.504	100.8	90-110%
Chloride	GP33209/GN58684	0.50	0.0	mg/l	5	5.13	102.6	90-110%
Chromium, Hexavalent	GN58738	0.010	0.0	mg/l	0.1	0.107	107.0	90-110%
Fluoride	GP33209/GN58684	0.10	0.0	mg/l	1	1.02	102.0	90-110%
Nitrogen, Nitrate	GP33209/GN58684	0.010	0.0	mg/l	0.1	0.108	108.0	90-110%
Nitrogen, Nitrite	GP33209/GN58684	0.0040	0.0	mg/l	0.05	0.0531	106.2	90-110%
Phosphate, Ortho	GP33209/GN58684	0.050	0.0	mg/l	0.5	0.536	107.2	90-110%
Solids, Total Dissolved	GN58686			mg/l	400	238	95.2	90-110%
Solids, Total Dissolved	GN58686	10	0.0	mg/l	400	238	95.2	90-110%
Solids, Total Dissolved	GN58686	10	0.0	mg/l				
Solids, Total Suspended	GN58718	5.0	0.0	mg/l	500	499	99.8	90-110%
Sulfate	GP33209/GN58684	0.50	0.52*(a)	mg/l	5	5.03	100.6	90-110%

Associated Samples:
Batch GN58686: DA51640-1
Batch GN58718: DA51640-1
Batch GN58738: DA51640-1F
Batch GP33209: DA51640-1
(*) Outside of QC limits
(a) This MB has a hit for SO4 that is more the half the RL, the associated samples are either non-detect or have hits for SO4 that are more than 10 times the hits in the MB.

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.0	0.0	0-20%
Solids, Total Dissolved	GN58686	DA51666-2	mg/l	298	295	1.0	0-5.44%
Solids, Total Dissolved	GN58686	DA51666-2	mg/l	298	295	1.0	0-5.44%
Solids, Total Suspended	GN58718	DA51640-1	mg/l	362	358	1.1	0-5.44%

Associated Samples:
Batch GN58686: DA51640-1
Batch GN58718: DA51640-1
Batch GN58738: DA51640-1F
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.50	100.0	80-120%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.4	102.0	80-120%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.098	98.0	85-115%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	99.0	80-120%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.29	100.0	80-120%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.051	102.0	80-120%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.54	108.0	80-120%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.2	102.0	80-120%

Associated Samples:
Batch GN58738: DA51640-1F
Batch GP33209: DA51640-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA51640
Account: MAMMCOW - Martin Marietta Materials
Project: Parkdale Groundwater Water Monitoring

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP33209/GN58684	DA51603-1	mg/l	0.025 U	0.5	0.51	2.0	20%
Chloride	GP33209/GN58684	DA51603-1	mg/l	1.3	5	6.3	1.6	20%
Chromium, Hexavalent	GN58738	DA51525-1A	mg/l	0.0	0.1	0.10	2.0	20%
Fluoride	GP33209/GN58684	DA51603-1	mg/l	0.11	1	1.1	0.0	20%
Nitrogen, Nitrate	GP33209/GN58684	DA51603-1	mg/l	0.19	0.1	0.28	3.5	20%
Nitrogen, Nitrite	GP33209/GN58684	DA51603-1	mg/l	0.0030 U	0.05	0.052	1.9	20%
Phosphate, Ortho	GP33209/GN58684	DA51603-1	mg/l	0.035 U	0.5	0.50	7.7	20%
Sulfate	GP33209/GN58684	DA51603-1	mg/l	8.1	5	13.1	0.8	20%

Associated Samples:
Batch GN58738: DA51640-1F
Batch GP33209: DA51640-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits