Quality Analysis ... *Innovative Technologies*

Report No.: **A22-18826**
Report Date: **10-Feb-23**
Date Submitted: **15-Dec-22**
Your Reference: **SHEEP CREEK**

U.S. CRITICAL MATERIALS
4190 SOUTH HIGHLANDS DRIVE, SUITE 230, S
SALT LAKE CITY UTAH
United States

CERTIFICATE OF ANALYSIS

41 Stream Sediment samples were submitted for analysis.

The following analytical package(s) were requested:		Testing Date:
8-REE Assay Package	QOP WRA/ QOP WRA 4B2 (Major/Trace Elements Fusion ICPOES/ICPMS)	2023-01-17 08:39:03

REPORT **A22-18826**

Notes:

Total includes all elements in % oxide to the left of total.

SCC Accredited LAB Accrédité CCN TM

LabID: 266

CERTIFIED BY:

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Quality Control Coordinator

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Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.005	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	GRAV	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
471202	48.67	14.10	12.13	0.188	9.33	8.34	1.86	0.42	2.342	0.11	3.35	100.8	35	< 1	303	400	49	150	70	160	14	1	< 5
471203	46.11	11.63	15.76	0.234	9.93	8.18	1.62	0.29	5.109	0.09	1.13	100.1	41	< 1	497	520	54	130	40	140	14	2	< 5
471204	50.65	13.54	12.84	0.191	6.21	7.31	2.45	0.57	2.741	0.12	2.84	99.47	39	2	323	200	37	70	30	140	17	2	< 5
471205	27.45	11.03	49.47	0.128	1.81	1.82	0.22	0.13	3.073	1.08	1.33	97.54	57	4	392	570	13	70	60	330	52	3	35
471206	50.68	13.82	13.18	0.175	5.84	6.89	2.69	0.67	2.465	0.16	3.55	100.1	39	2	324	160	34	60	40	560	19	2	< 5
471208	44.23	13.60	10.01	0.151	6.42	7.64	2.08	0.63	1.811	0.19	12.22	98.98	29	1	230	140	36	90	50	200	14	1	< 5
471210	50.59	13.37	12.73	0.223	6.08	6.96	2.35	0.78	2.684	0.11	3.67	99.55	37	2	344	220	39	70	30	390	17	2	< 5
471211	49.41	12.38	16.21	0.238	6.40	7.21	2.22	0.61	4.276	0.13	1.53	100.6	41	1	475	250	40	80	50	350	17	2	< 5
471212	50.27	13.79	12.67	0.191	5.99	7.17	2.33	0.59	2.532	0.12	3.17	98.84	37	2	301	190	39	70	50	190	18	1	< 5
471214	50.73	12.91	12.28	0.182	4.54	5.98	2.24	0.96	2.390	0.13	6.83	99.17	34	2	281	150	32	60	30	140	17	2	< 5
471216	50.68	14.55	9.70	0.159	6.59	7.57	2.36	0.58	1.207	0.10	5.50	99.00	35	2	221	210	35	80	30	150	16	1	< 5
471218	50.41	13.95	11.97	0.178	6.26	7.33	2.40	0.55	2.180	0.15	3.24	98.62	38	2	276	210	37	80	30	170	18	2	< 5
471220	48.67	13.29	14.33	0.214	5.96	6.93	2.24	0.64	2.956	0.16	3.98	99.38	36	2	349	190	39	70	40	180	17	1	< 5
471221	68.70	11.94	7.36	0.096	2.12	3.79	2.67	1.91	0.630	0.17	0.99	100.4	12	1	122	180	13	30	30	130	15	1	< 5
471222	51.92	13.69	12.54	0.182	5.70	7.05	2.08	0.66	2.286	0.12	2.94	99.15	39	2	302	170	38	70	30	150	17	2	< 5
471224	49.96	13.02	13.01	0.212	5.48	6.52	2.00	0.66	3.156	0.13	4.31	98.46	37	2	324	170	37	70	30	170	17	2	< 5
471225	49.38	12.05	16.19	0.254	5.93	6.90	1.91	0.54	4.758	0.10	2.41	100.4	41	1	413	190	40	70	30	120	17	2	< 5
471226	52.57	13.25	12.81	0.177	5.43	6.53	2.56	0.70	2.106	0.12	3.27	99.52	38	2	298	150	36	60	40	150	17	1	< 5
471228	49.64	15.11	9.47	0.189	5.19	6.23	2.43	0.85	1.179	0.09	8.66	99.04	30	2	213	140	34	80	50	200	17	1	< 5
471230	50.87	13.42	12.09	0.171	6.18	6.78	2.54	0.64	2.097	0.15	4.55	99.48	39	2	283	210	35	80	50	160	18	2	< 5
471232	52.54	13.55	11.04	0.163	5.47	6.66	2.78	0.75	1.558	0.12	4.13	98.76	38	2	248	150	34	70	30	160	17	2	< 5
471234	52.40	13.60	11.36	0.173	5.78	6.80	2.61	0.69	2.080	0.10	3.47	99.07	35	2	248	220	32	70	20	140	17	2	< 5
471235	49.82	12.28	27.81	0.051	1.26	1.00	0.18	1.50	1.954	0.43	3.09	99.37	30	3	259	380	10	60	40	190	32	2	48
471236	52.12	13.96	10.16	0.157	5.68	6.84	2.60	0.67	1.559	0.09	4.50	98.33	36	2	232	180	33	90	30	80	17	1	< 5
471237	52.88	13.97	10.95	0.162	5.77	6.94	2.67	0.65	1.812	0.09	3.80	99.69	37	2	246	190	35	90	30	80	18	2	< 5
471238	50.28	13.18	12.15	0.191	5.62	7.33	2.28	0.70	2.271	0.07	6.11	100.2	39	2	307	160	36	80	40	80	17	1	< 5
471240	49.30	15.14	9.37	0.159	5.08	6.18	2.26	0.76	1.411	0.08	10.07	99.80	30	2	209	170	31	100	70	70	18	1	< 5
471242	49.53	14.18	13.07	0.196	7.31	8.31	2.40	0.57	2.326	0.12	2.97	101.0	41	1	337	210	41	90	40	80	16	1	< 5
471244	49.04	14.34	9.60	0.160	6.19	7.41	2.23	0.68	1.229	0.09	8.95	99.91	33	1	218	190	37	100	60	90	16	1	< 5
471246	68.39	11.73	6.49	0.089	2.09	3.81	2.73	1.94	0.638	0.15	1.19	99.25	12	1	124	170	13	40	20	60	15	1	< 5
471248	50.68	13.83	11.08	0.163	6.40	7.49	2.45	0.57	1.983	0.09	5.83	100.6	37	2	251	220	34	100	40	80	17	2	< 5
471250	52.29	13.63	11.32	0.171	6.23	7.39	2.59	0.59	2.266	0.12	4.09	100.7	38	2	263	200	34	80	20	80	18	2	< 5
471252	52.71	13.45	11.88	0.175	5.64	7.20	2.66	0.59	2.147	0.10	3.73	100.3	39	2	272	180	34	80	30	80	18	1	< 5
471254	44.46	12.62	8.57	0.158	3.66	5.29	2.15	1.01	1.267	0.19	20.06	99.45	28	2	180	110	26	70	80	60	16	1	< 5
471256	65.44	13.18	7.29	0.090	1.89	3.07	3.08	1.99	0.792	0.10	3.09	100.0	16	3	98	70	13	30	30	50	18	2	< 5
471258	52.30	13.28	11.70	0.183	5.97	7.35	2.63	0.58	2.745	0.12	3.89	100.7	39	2	284	190	34	80	20	80	17	2	< 5
471260	53.75	12.68	13.05	0.174	4.13	5.79	2.88	0.95	2.202	0.13	2.80	98.53	33	2	276	130	29	60	30	80	19	2	< 5
471262	47.69	13.15	8.19	0.134	5.89	6.27	1.96	1.08	0.835	0.06	13.10	98.35	25	1	161	170	35	110	60	70	15	1	< 5
471264	30.97	11.27	46.05	0.092	1.76	1.79	0.22	0.27	2.956	0.89	1.66	97.92	43	2	388	560	12	80	50	150	45	2	35
471266	48.84	12.75	15.53	0.222	6.41	7.35	2.49	0.56	4.140	0.14	1.70	100.1	41	2	423	230	39	100	40	90	18	2	< 5
471268	54.06	13.40	10.97	0.166	5.17	6.46	2.65	0.80	2.556	0.13	3.82	100.2	34	2	266	160	31	60	20	70	17	2	< 5

Analyte Symbol	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
471202	2.9	0.42	2.8	0.48	13.8	0.8	2	< 0.1	< 5	9.5	1.5
471203	3.5	0.53	3.8	0.64	34.4	1.7	4	< 0.1	< 5	14.2	2.3
471204	4.6	0.69	4.6	0.77	28.4	1.5	2	< 0.1	< 5	16.1	2.9
471205	12.6	1.15	5.4	0.72	10.8	21.7	2	< 0.1	107	249	6.0
471206	3.7	0.53	3.6	0.60	21.8	1.4	2	0.1	5	13.7	2.5
471208	2.9	0.42	2.9	0.50	11.4	1.0	2	0.1	< 5	7.1	5.2
471210	4.0	0.58	4.1	0.67	19.5	1.3	2	0.1	5	11.2	1.6
471211	4.7	0.70	4.8	0.81	31.6	1.8	3	< 0.1	6	17.7	2.2
471212	4.3	0.62	4.2	0.69	22.1	1.4	2	0.1	5	12.0	2.1
471214	5.4	0.81	5.5	0.91	21.8	1.3	1	0.2	6	14.2	4.1
471216	3.2	0.46	3.2	0.54	9.0	0.7	< 1	0.1	< 5	7.6	2.0
471218	4.2	0.60	4.1	0.68	20.5	1.4	1	0.1	< 5	11.3	2.1
471220	4.3	0.63	4.3	0.68	23.0	1.6	11	0.1	6	9.9	2.2
471221	1.9	0.27	1.8	0.31	7.2	0.5	< 1	0.3	15	19.1	2.2
471222	4.1	0.62	4.2	0.73	24.2	1.2	1	0.1	< 5	8.1	2.0
471224	4.3	0.66	4.5	0.77	33.8	1.5	1	0.1	7	13.7	3.0
471225	5.0	0.77	5.4	0.94	55.5	2.2	2	< 0.1	7	17.8	3.4
471226	4.0	0.60	4.0	0.65	20.9	1.2	< 1	0.1	7	10.7	1.8
471228	3.2	0.45	3.0	0.50	6.8	0.7	< 1	0.2	7	7.2	2.5
471230	3.9	0.57	3.8	0.63	18.6	1.2	< 1	< 0.1	< 5	10.5	2.2
471232	4.5	0.66	4.5	0.75	16.4	0.9	< 1	0.1	< 5	13.5	3.1
471234	4.4	0.65	4.4	0.74	22.4	1.4	3	0.1	6	15.1	2.9
471235	6.1	0.66	3.7	0.55	11.1	13.5	4	0.4	63	120	4.2
471236	4.0	0.61	4.0	0.66	12.9	1.0	11	0.2	6	10.4	2.7
471237	4.6	0.69	4.7	0.78	22.4	1.2	3	0.1	6	12.4	2.9
471238	4.2	0.62	4.2	0.72	19.3	1.3	2	0.1	7	12.5	2.3
471240	3.7	0.55	3.7	0.71	9.1	0.9	1	0.2	9	7.2	6.8
471242	3.4	0.50	3.3	0.57	12.1	0.9	4	0.1	7	18.1	1.4
471244	3.0	0.44	2.9	0.46	5.8	0.6	< 1	0.2	6	6.1	2.4
471246	2.0	0.30	2.0	0.31	7.6	0.5	2	0.3	17	21.3	2.3
471248	3.8	0.59	4.0	0.68	17.5	1.3	2	0.1	5	7.9	1.9
471250	4.6	0.67	4.6	0.78	28.0	1.6	3	< 0.1	6	17.8	2.9
471252	4.1	0.61	4.2	0.72	22.4	1.3	2	< 0.1	5	9.7	1.8
471254	4.8	0.71	5.0	0.90	12.8	0.9	17	0.2	< 5	10.7	7.4
471256	7.5	1.11	7.7	1.24	13.6	1.3	3	0.4	14	18.1	7.0
471258	4.4	0.65	4.6	0.76	26.1	1.7	4	< 0.1	6	12.9	2.7
471260	7.7	1.17	8.1	1.34	51.0	1.4	3	< 0.1	10	32.9	4.2
471262	2.1	0.31	2.1	0.35	3.5	0.4	2	0.2	< 5	5.0	3.3
471264	9.1	0.86	4.2	0.60	12.0	20.7	3	< 0.1	108	213	4.7
471266	4.7	0.70	4.8	0.83	38.9	2.1	3	< 0.1	6	22.1	2.6
471268	5.9	0.95	6.3	1.07	29.1	1.6	2	0.2	6	16.9	6.6