

SITE ASSESSMENT REPORT

MATSUSHIMA-PM K 2-1 FACILITY

ECMC SPILL TRACKING #485348
ECMC REMEDIATION #29940

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 W. 119th Ave
Broomfield, CO 80020

TABLES

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - MATSUSHIMA-PMK 2-1 FACILITY

Soil Sample ID	Date	¹ Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ²		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^{2,3}		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
AST01@0.5'	10/06/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS01@2.5'	10/06/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS02@2.5'	10/06/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS03@2.5'	10/06/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS04@2.5'	10/06/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FS01@5'	10/06/23	<0.0020	<0.0050	<0.0050	<0.010	11	<0.0050	0.054	450	120	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0206	<0.00500	<0.00500	0.228	0.269
SEP01-DL@3'	10/06/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH01@2.5'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH01@6'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	30	86	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH01@8'	11/30/23	0.054	<0.0050	0.011	<0.010	0.016	<0.0050	0.029	13	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0226	0.0621	
BH01@13'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH02@2.5'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH02@6'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH02@8'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH02@13'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH03@2.5'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH03@6'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH03@8'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	1.0	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH03@12'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH04@2.5'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH04@6'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH04@8'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH04@12'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH05@2.5'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH05@6'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH05@8'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH05@12'	11/30/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - MATSUSHIMA-PMK 2-1 FACILITY

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4	2
AST01@0.5'	10/06/23	7.88	0.0534	0.127	<2.00
SS01@2.5'	10/06/23	7.85	0.285	0.186	<2.00
SS02@2.5'	10/06/23	7.81	0.417	0.161	<2.00
SS03@2.5'	10/06/23	8.51	0.654	0.217	<2.00
SS04@2.5'	10/06/23	8.54	1.09	0.234	<2.00
FS01@5'	10/06/23	7.98	0.736	0.421	<2.00
SEP01-DL@3'	10/06/23	8.06	0.275	0.202	<2.00
BH01@2.5'	11/30/23	8.39	1.36	0.282	<2.00
BH01@6'	11/30/23	8.37	0.806	0.279	<2.00
BH01@8'	11/30/23	7.54	0.865	0.188	<2.00
BH01@13'	11/30/23	8.49	1.40	0.261	<2.00
BH02@2.5'	11/30/23	8.88	0.517	0.197	<2.00
BH02@6'	11/30/23	7.64	2.12	0.394	<2.00
BH02@8'	11/30/23	7.76	0.686	0.274	<2.00
BH02@13'	11/30/23	8.74	0.499	0.124	<2.00
BH03@2.5'	11/30/23	8.66	0.0927	0.143	<2.00
BH03@6'	11/30/23	7.76	1.03	0.161	<2.00
BH03@8'	11/30/23	7.45	1.05	0.405	<2.00
BH03@12'	11/30/23	8.53	1.02	0.274	<2.00
BH04@2.5'	11/30/23	8.14	2.76	0.563	<2.00
BH04@6'	11/30/23	7.99	0.534	0.173	<2.00
BH04@8'	11/30/23	8.14	0.897	0.220	<2.00
BH04@12'	11/30/23	8.60	1.56	0.182	<2.00
BH05@2.5'	11/30/23	8.10	0.762	0.165	<2.00
BH05@6'	11/30/23	7.96	0.610	0.175	<2.00
BH05@8'	11/30/23	8.19	1.01	0.230	<2.00
BH05@12'	11/30/23	8.01	1.35	0.215	<2.00
BG01@2.5'	11/30/23	7.66	1.64	0.580	<2.00
BG01@6'	11/30/23	7.68	0.484	0.256	<2.00
BG01@8'	11/30/23	7.98	1.19	0.258	<2.00
BG01@13'	11/30/23	8.10	1.19	0.241	<2.00
BG02@2.5'	11/30/23	7.43	7.18	0.926	<2.00
BG02@6'	11/30/23	7.85	0.584	0.277	<2.00
BG02@8'	11/30/23	8.04	0.835	0.285	<2.00
BG02@13'	11/30/23	8.07	1.06	0.222	<2.00
BG03@2.5'	11/30/23	7.52	4.63	2.53	<2.00
BG03@6'	11/30/23	7.84	2.07	0.323	<2.00
BG03@8'	11/30/23	7.85	1.32	0.371	<2.00
BG03@13'	11/30/23	7.91	1.63	0.398	<2.00
BG04@2.5'	11/30/23	7.78	5.76	1.11	<2.00
BG04@6'	11/30/23	7.59	1.08	0.363	<2.00
BG04@8'	11/30/23	7.76	1.44	0.388	<2.00
BG04@13'	11/30/23	7.86	1.10	0.301	<2.00
BG05@2.5'	11/30/23	7.73	1.36	0.285	<2.00
BG05@6'	11/30/23	7.88	1.62	0.292	<2.00
BG05@8'	11/30/23	7.90	1.60	0.235	<2.00
BG05@13'	11/30/23	7.99	0.872	0.112	<2.00

Soil Sample ID	Date	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ²		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^{2,3}		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
AST01@0.5'	10/06/23	1.43	203	0.571	<0.30	5.95	27.2	2.82	0.279	0.271	27.2
SS01@2.5'	10/06/23	1.20	179	0.403	<0.30	3.91	18.9	2.34	0.289	0.187	15.5
SS02@2.5'	10/06/23	3.19	172	0.351	<0.30	7.93	11.0	6.15	<0.260	0.0582	28.6
SS03@2.5'	10/06/23	3.50	125	0.371	<0.30	9.90	16.1	5.28	<0.260	0.147	36.8
SS04@2.5'	10/06/23	3.95	114	0.330	<0.30	8.77	12.2	6.53	0.284	0.0625	27.2
FS01@5'	10/06/23	0.368	52.9	<0.200	<0.30	0.922	3.63	1.00	<0.260	<0.0200	5.40
SEP01-DL@3'	10/06/23	1.34	208	0.414	<0.30	4.80	18.1	2.50	0.330	0.275	18.5
BH01@2.5'	11/30/23	0.510	163	0.201	NA	NA	10.5	NA	0.562	NA	NA
BH01@6'	11/30/23	0.676	141	<0.200	NA	NA	9.07	NA	<0.260	NA	NA
BH01@8'	11/30/23	0.464	163	<0.200	NA	NA	9.22	NA	0.393	NA	NA
BH01@13'	11/30/23	<0.200	3.97	<0.200	NA	NA	0.795	NA	<0.260	NA	NA
BH02@2.5'	11/30/23	0.614	108	<0.200	NA	NA	9.40	NA	<0.260	NA	NA
BH02@6'	11/30/23	0.693	209	<0.200	NA	NA	16.4	NA	0.655	NA	NA
BH02@8'	11/30/23	0.263	93.4	<0.200	NA	NA	8.48	NA	<0.260	NA	NA
BH02@13'	11/30/23	0.445	12.5	<0.200	NA	NA	1.63	NA	<0.260	NA	NA
BH03@2.5'	11/30/23	0.822	193	0.358	NA	NA	17.1	NA	<0.260	NA	NA
BH03@6'	11/30/23	0.628	325	0.289	NA	NA	16.0	NA	0.819	NA	NA
BH03@8'	11/30/23	0.334	34.5	<0.200	NA	NA	2.75	NA	<0.260	NA	NA
BH03@12'	11/30/23	0.539	15.1	<0.200	NA	NA	3.88	NA	<0.260	NA	NA
BH04@2.5'	11/30/23	0.570	204	<0.200	NA	NA	10.5	NA	<0.260	NA	NA
BH04@6'	11/30/23	0.328	67.8	<0.200	NA	NA	4.68	NA	<0.260	NA	NA
BH04@8'	11/30/23	0.336	8.41	<0.200	NA	NA	1.12	NA	<0.260	NA	NA
BH04@12'	11/30/23	<0.200	5.08	<0.200	NA	NA	0.721	NA	<0.260	NA	NA
BH05@2.5'	11/30/23	0.600	99.1	<0.200	NA	NA	7.41	NA	<0.260	NA	NA
BH05@6'	11/30/23	0.333	30.8	<0.200	NA	NA	2.57	NA	0.299	NA	NA
BH05@8'	11/30/23	0.455	11.3	<0.200	NA	NA	1.35	NA	<0.260	NA	NA
BH05@12'	11/30/23	<0.200	5.20	<0.200	NA	NA	1.00	NA	<0.260	NA	NA
BG01@2.5'	11/30/23	0.472	131	<0.200	NA	NA	7.10	NA	<0.260	NA	NA
BG01@6'	11/30/23	1.08	73.4	<0.200	NA	NA	5.75	NA	0.272	NA	NA
BG01@8'	11/30/23	0.239	8.39	<0.200	NA	NA	1.34	NA	<0.260	NA	NA
BG01@13'	11/30/23	0.230	8.77	<0.200	NA	NA	1.46	NA	<0.260	NA	NA
BG02@2.5'	11/30/23	0.909	257	<0.200	NA	NA	12.9	NA	0.460	NA	NA
BG02@6'	11/30/23	0.480	65.7	<0.200	NA	NA	5.15	NA	<0.260	NA	NA
BG02@8'	11/30/23	0.271	7.78	<0.200	NA	NA	1.25	NA	<0.260	NA	NA
BG02@13'	11/30/23	<0.200	5.40	<0.200	NA	NA	1.14	NA	<0.260	NA	NA
BG03@2.5'	11/30/23	0.986	223	0.577	NA	NA	25.4	NA	0.383	NA	NA
BG03@6'	11/30/23	0.446	162	<0.200	NA	NA	9.67	NA	<0.260	NA	NA
BG03@8'	11/30/23	0.373	69.1	<0.200	NA	NA	3.87	NA	<0.260	NA	NA
BG03@13'	11/30/23	0.222	6.66	<0.200	NA	NA	1.37	NA	<0.260	NA	NA
BG04@2.5'	11/30/23	0.868	169	<0.200	NA	NA	10.7	NA	<0.260	NA	NA
BG04@6'	11/30/23	0.494	247	<0.200	NA	NA	11.4	NA	0.323	NA	NA
BG04@8'	11/30/23	0.309	26.2	<0.200	NA	NA	2.14	NA	<0.260	NA	NA
BG04@13'	11/30/23	<0.200	7.99	<0.200	NA	NA	1.08	NA	<0.260	NA	NA
BG05@2.5'	11/30/23	0.207	29.2	<0.200	NA	NA	2.72	NA	<0.260	NA	NA
BG05@6'	11/30/23	0.228	5.78	<0.200	NA	NA	1.63	NA	<0.260	NA	NA
BG05@8'	11/30/23	<0.200	5.75	<0.200	NA	NA	1.02	NA	<0.260	NA	NA
BG05@13'	11/30/23	<0.200	6.82	<0.200	NA	NA	1.02	NA	<0.260	NA	NA
Highest Background		1.08	257	0.577	-	-	25.4	-	0.460	-	-
Highest Background x1.25		1.35	321	0.721	-	-	31.8	-	0.575	-	-

Notes:

- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

ECMC = Energy and Carbon Management Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millimhos per centimeter

mg/L = Milligrams per liter

< = Analytical result is less than the indicated laboratory reporting limit

Highlighted results are equal to or exceed the ECMC Table 915-1 standard

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzo(a)anthracene

Benzo(b) = Benzo(b)fluoranthene

Benzo(k) = Benzo(k)fluoranthene

Benzo(a) = Benzo(a)pyrene

A,H = Dibenzo(a,h)anthracene

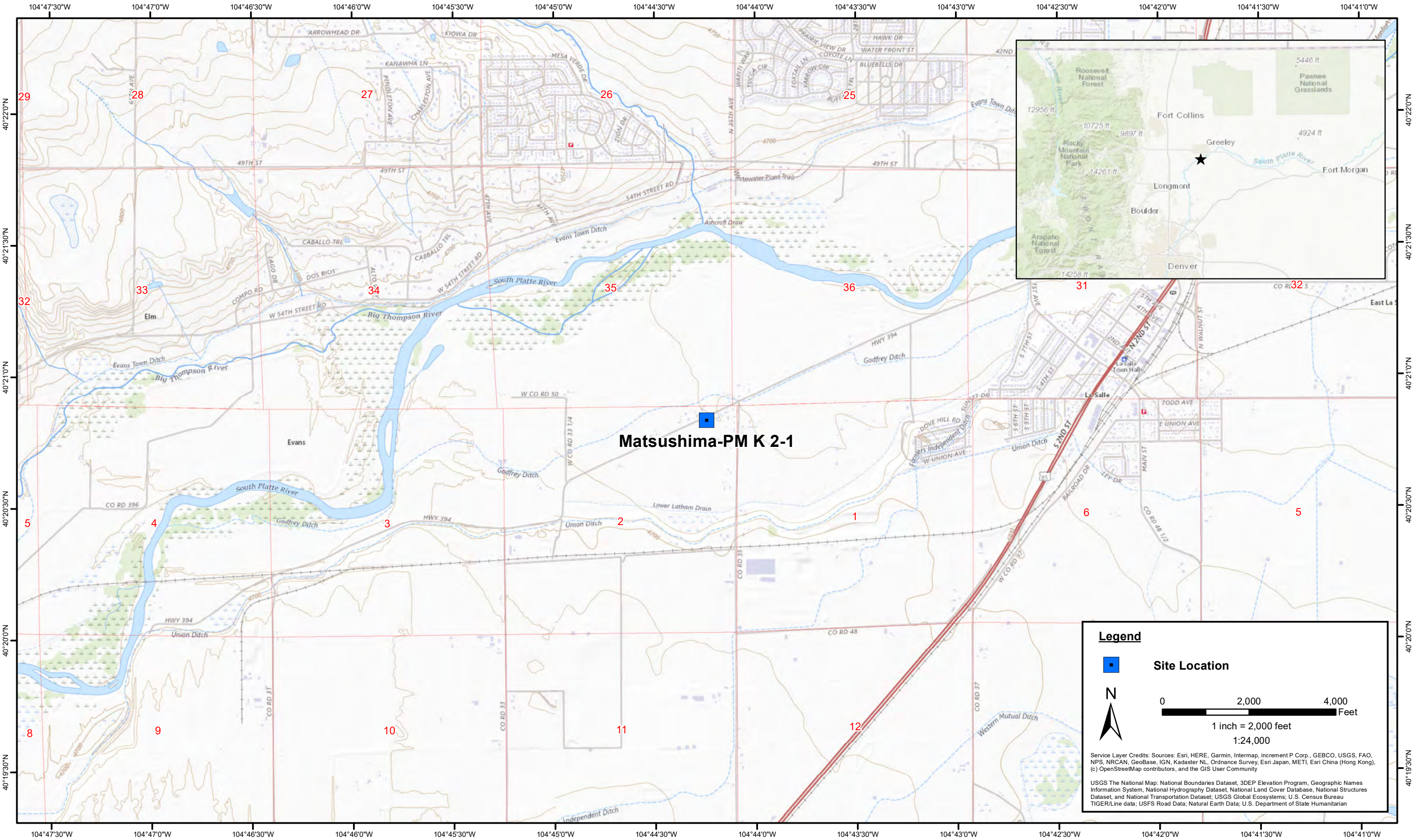
1,2,3-CD = Indeno(1,2,3-cd)pyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene

NA = Not analyzed

FIGURES



DATE:	October 2023
DESIGNED BY:	J. Whritenour
DRAWN BY:	L. Reed

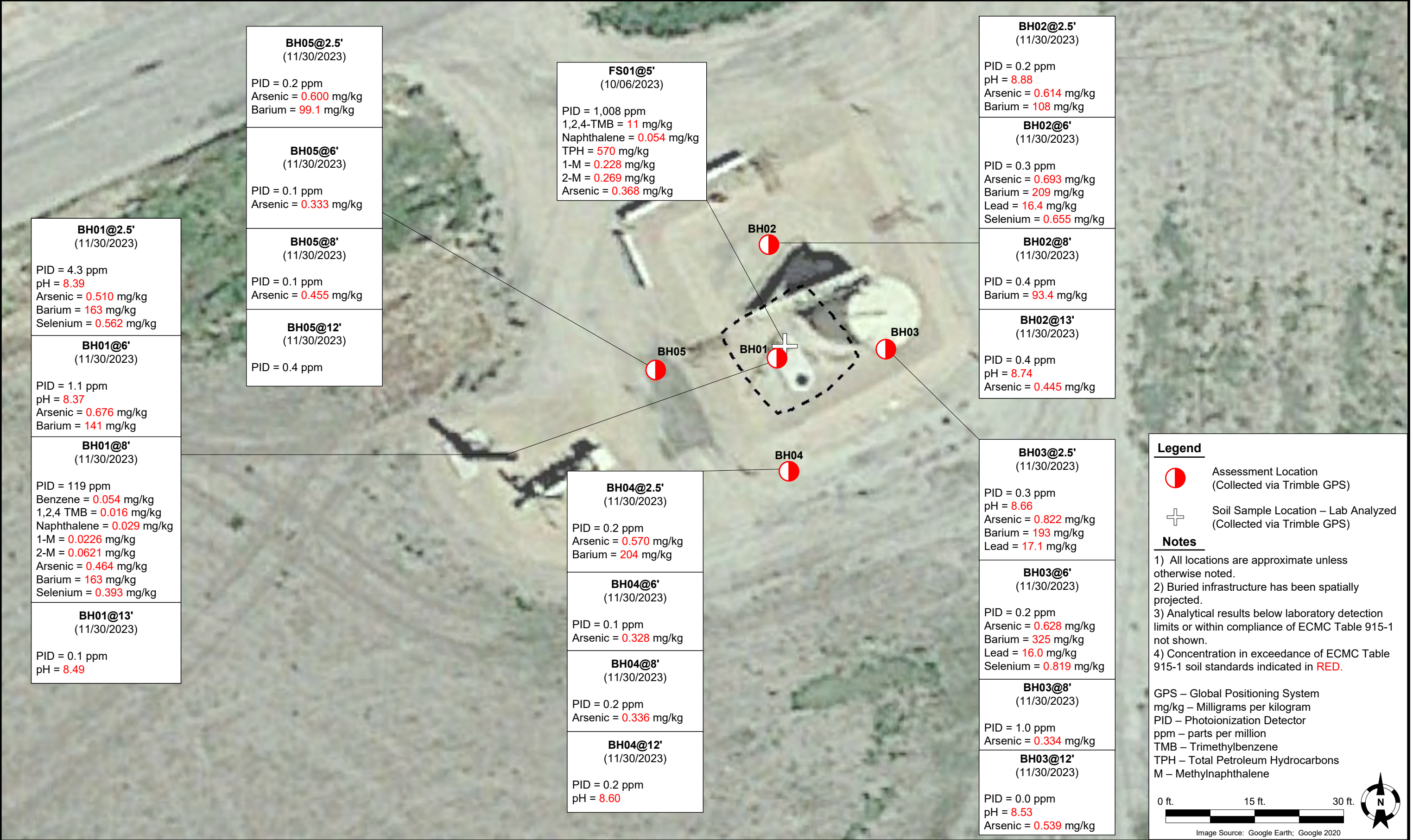


Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

Noble Energy, Inc - DJ Basin
Matsushima-PM K 2-1
NENE, Section 2, Township 4 North, Range 66 West
Weld County, Colorado

Site Location Map

Figure
1







DATE:	June 7, 2024
DESIGNED BY:	JW
DRAWN BY:	JM



Tasman, Inc.
6855 W 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Matsushima-PMK 2-1
NENE, Section 2, Township 4 North, Range 66 West
Weld County, Colorado

Proposed Site
Assessment Map

Figure 4

ATTACHMENT A
METALS STATISTICAL ANALYSIS
EVALUATION SUMMARY



PDC Energy, Inc.
Metals Statistical Evaluation Summary

June 7, 2024
Former Matsushima PMK 2-1
NENE S2 T4N R66W
Remediation # 29940

This statistical evaluation summary has been prepared by Tasman, Inc. for the Matsushima PMK 2-1.

Metals Evaluation Summary

Background and site data for the following metals of concern (MOC) in soils were compared using the non-parametric Mann-Whitney-Wilcoxon rank-sum test to assess if site concentrations were substantially higher than background concentrations. This method of statistical hypotheses testing is robust, insensitive to outliers, and does not rely on assumptions that site and background data are normally distributed. Site data was pooled together and compared to background values that were offset by a substantial difference, S , defined as $0.25 \times M_b$, where M_b is mean background concentration. This offset is equivalent to COGCC policy of setting the background comparison value to $1.25 \times \text{background}^1$ and is consistent with other guidance for analysis of background conditions².

Mean concentrations for the MOCs on site and offset background soils were compared using a one-sided test using the following null and alternative hypotheses (H_0 and H_A):

Hypothesis	Expression	Narrative Description
Null, H_0	$\mu_{\text{site}} - (\mu_{\text{bkg}} + S) > 0$	Site concentrations exceed $1.25 \times$ background concentrations. <i>i.e.</i> The site has substantially higher metal concentration than background. <i>i.e.</i> Site impacted.
Alternative, H_A	$H_A: \mu_{\text{site}} - (\mu_{\text{bkg}} + S) \leq 0$	Site concentrations are not substantially higher than background concentrations. <i>i.e.</i> Site not impacted.

Where: μ_{site} is the mean site concentration and μ_{bkg} is the mean background concentration.

This form of the hypothesis test establishes an initial presumption that the site is impacted and requires statistically significant evidence before it can be refuted (*i.e.* rejection of the null hypothesis). The $\alpha = 5\%$

¹ ECMC. Series 900 Rules – Environmental Impact Prevention (As of January 15, 2021). Table 915-1, Cleanup Concentrations. Footnote 11. <https://cogcc.state.co.us/documents/reg/Rules/LATEST/900%20Series%20-%20Environmental%20Impact%20Prevention.pdf>

² USEPA. September 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA 540-R-01-003, OSWER 9285.7-41. See Appendix A.2.1. <https://www.epa.gov/sites/default/files/2015-11/documents/background.pdf> (accessed March 31, 2023).

confidence level selected for this statistical test is such that, on average, in 95 out of 100 cases, the test would correctly conclude that site concentrations exceed background concentrations by more than S (*i.e.* correctly conclude that an impacted site is impacted). In 5 out of 100 cases, the test would incorrectly conclude that elevated site concentrations do not exceed background by more than S (*i.e.* falsely conclude that an impacted site is clean). Censored data (MOC results less than laboratory reporting limits) were handled by substitution at half of the limit.

Metals Evaluation Results

The results of tests for individual MOCs are summarized in the table below. See Exhibit A for calculations, hypotheses test conditions, and conclusions.

Metal	Sample sizes	Mean/ Median Site Concentrations, mg/kg	Mean/Median Background Concentrations, mg/kg	Substantial Difference ($0.25 * \bar{x}_{bkg}$), mg/kg	Hypothesis Test Result
Selenium	Site, m = 27 Bkg, n = 20	mean = 0.23 median = 0.13	mean = 0.18 median = 0.13	0.044	Site not impacted

Conclusion

Based on the results summarized above selenium concentrations recorded in the site data were not found to be substantially different from concentrations recorded in the background data and consequently, are indicative of native soil conditions.

Exhibit A

Concentrations											
Sample ID (Site)	Se milligrams per kilogram (mg/kg)	Intermediate	Substituted Se (mg/kg)		Sample ID (Background)	Se milligrams per kilogram (mg/kg)	Intermediate	Substituted Se (mg/kg)		Source	Se (mg/kg)
AST01@0.5'	0.279		0.279		BG01@2.5'	<0.260	0.260	0.130		bkg + substantial difference (S)	0.174
SS01@2.5'	0.289		0.289		BG01@6'	0.272		0.272		bkg + S	0.316
SS02@2.5'	<0.260	0.260	0.130		BG01@8'	<0.260	0.260	0.130		bkg + S	0.174
SS03@2.5'	<0.260	0.260	0.130		BG01@13'	<0.260	0.260	0.130		bkg + S	0.174
SS04@2.5'	0.284		0.284		BG02@2.5'	0.460		0.460		bkg + S	0.504
FS01@5'	<0.260	0.260	0.130		BG02@6'	<0.260	0.260	0.130		bkg + S	0.174
SEP01-DL@3'	0.330		0.330		BG02@8'	<0.260	0.260	0.130		bkg + S	0.174
BH01@2.5'	0.562		0.562		BG02@13'	<0.260	0.260	0.130		bkg + S	0.174
BH01@6'	<0.260	0.260	0.130		BG03@2.5'	0.383		0.383		bkg + S	0.427
BH01@8'	0.393		0.393		BG03@6'	<0.260	0.260	0.130		bkg + S	0.174
BH01@13'	<0.260	0.260	0.130		BG03@8'	<0.260	0.260	0.130		bkg + S	0.174
BH02@2.5'	<0.260	0.260	0.130		BG03@13'	<0.260	0.260	0.130		bkg + S	0.174
BH02@6'	0.655		0.655		BG04@2.5'	<0.260	0.260	0.130		bkg + S	0.174
BH02@8'	<0.260	0.260	0.130		BG04@6'	0.323		0.323		bkg + S	0.367
BH02@13'	<0.260	0.260	0.130		BG04@8'	<0.260	0.260	0.130		bkg + S	0.174
BH03@2.5'	<0.260	0.260	0.130		BG04@13'	<0.260	0.260	0.130		bkg + S	0.174
BH03@6'	0.819		0.819		BG05@2.5'	<0.260	0.260	0.130		bkg + S	0.174
BH03@8'	<0.260	0.260	0.130		BG05@6'	<0.260	0.260	0.130		bkg + S	0.174
BH03@12'	<0.260	0.260	0.130		BG05@8'	<0.260	0.260	0.130		bkg + S	0.174
BH04@2.5'	<0.260	0.260	0.130		BG05@13'	<0.260	0.260	0.130		bkg + S	0.174

Site concentrations (m):	27		
bkg concentrations (n):	20		
mean-Site:	0.23	mean-bkg:	0.18
S, based on mean:	0.058	S, based on mean:	0.044
median-Site:	0.13	median-bkg:	0.13
S, based on median:	0.033	S, based on median:	0.033

Computations				
Source	Value	Rank	Site Rank	Bkg Rank
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
Site	0.130	9.5	9.5	
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
bkg + S	0.174	26.5		26.5
Site	0.279	35	35	
Site	0.284	36	36	
Site	0.289	37	37	
Site	0.299	38	38	
bkg + S	0.316	39		39
Site	0.330	40	40	
bkg + S	0.367	41		41
Site	0.393	42	42	

NOTES:
EPA = Environmental Protection Agency
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
yellow highlight = tied values

bkg + S	0.427	43		43
bkg + S	0.504	44		44
Site	0.562	45	45	
Site	0.655	46	46	
Site	0.819	47	47	

Raw Rank Sum (R):	537	591
Minimum possible value for Rank Sum:	378	210
Adjusted Rank Sum (W ₀):	159	381

Sum of all ranks:	1128
n * m:	540

Step 1. Null Hypothesis (H₀)

$H_0: \mu_{\text{site}} - (1.25 * \mu_{\text{bkg}}) > 0$
Site concentrations exceed 1.25 * background concentrations. (one-sided test)

Step 2. Alternative Hypothesis (H_A)

$H_A: \mu_{\text{site}} - (1.25 * \mu_{\text{bkg}}) \leq 0$
There is no difference between site and 1.25*background concentrations.

Step 3. Test Statistic

m and n > 20, so test statistic is:

$$z_0 = \frac{W_{bkg} - mn/2}{\sqrt{var(W_{bkg})}}$$

Where:

$$var(W_0) = \frac{mn(m+n+1)}{12} - \left\{ \frac{mn}{12(m+n)(m+n-1)} \sum_{j=1}^g t_j(t_j^2 - 1) \right\}$$

$var(W_{bkg}) = Term1 - (Term2 \times SumTerm)$

m is the sample size for Site data
n is the sample size for bkg data
g is number of tied groups

W _{bkg} :	381	
m:	27	
n:	20	
most likely W:	270	
var(W ₀)		
tied groups (g):	2	one group has 18 tied values, one group has 16 tied values
var(W ₀) Term 1:	2160	
var(W ₀) Term 2:	0.0208	
var(W ₀) Sum Term:	9894	
var(W ₀)	1954	

Z _{bkg}	
Z _{bkg} numerator:	111
Z _{bkg} denominator:	44.2
Z _{bkg} :	2.51

Step 4a. Critical Value

False rejection error rate (α):	0.05	falsely conclude that Site ≤ background
False acceptance error rate (β):	0.2	falsely conclude that Site > background

Critical value (z _{0.95}):	1.645
--------------------------------------	-------

Step 4b. p-value

p-value:	6.0E-03
----------	---------

Step 5a. Test Stat compared against Critical Value

Test Statistic (z _{bkg}):	2.51	
Critical Value (z _{0.95}):	1.645	
Z _{bkg} > Z _{0.95} :	TRUE	reject null hypothesis at 95% confidence level - Site clean

Step 5b. p-value compared against significance level

p-value:	6.0E-03	
significance level:	0.05	
p-value < significance level:	TRUE	reject null hypothesis at 95% confidence level - Site clean

NOTES:

EPA = Environmental Protection Agency
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
yellow highlight = tied values

ATTACHMENT B

LABORATORY SOIL ANALYTICAL DATA REPORTS

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 23, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

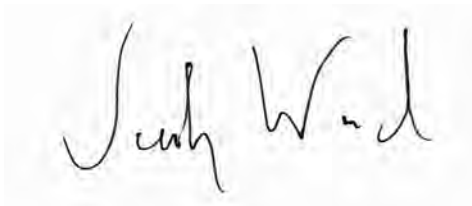
Broomfield, CO 80020

RE: Noble - Matsushima-PM K 2-1

Work Order #2311622

Enclosed are the results of analyses for samples received by Summit Scientific on 11/30/23 17:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood", is displayed on a light gray background.

Jacob Wood For Paul Shrewsbury

President



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@2.5'	2311622-01	Soil	11/30/23 09:35	11/30/23 17:55
BH01@6'	2311622-02	Soil	11/30/23 09:40	11/30/23 17:55
BH01@8'	2311622-03	Soil	11/30/23 09:45	11/30/23 17:55
BH01@13'	2311622-04	Soil	11/30/23 09:50	11/30/23 17:55
BH02@2.5'	2311622-05	Soil	11/30/23 12:00	11/30/23 17:55
BH02@6'	2311622-06	Soil	11/30/23 12:05	11/30/23 17:55
BH02@8'	2311622-07	Soil	11/30/23 12:10	11/30/23 17:55
BH02@13'	2311622-08	Soil	11/30/23 12:15	11/30/23 17:55
BH03@2.5'	2311622-09	Soil	11/30/23 10:00	11/30/23 17:55
BH03@6'	2311622-10	Soil	11/30/23 10:05	11/30/23 17:55
BH03@8'	2311622-11	Soil	11/30/23 10:10	11/30/23 17:55
BH03@12'	2311622-12	Soil	11/30/23 10:15	11/30/23 17:55
BH04@2.5'	2311622-13	Soil	11/30/23 10:30	11/30/23 17:55
BH04@6'	2311622-14	Soil	11/30/23 10:35	11/30/23 17:55
BH04@8'	2311622-15	Soil	11/30/23 10:40	11/30/23 17:55
BH04@12'	2311622-16	Soil	11/30/23 10:45	11/30/23 17:55
BH05@2.5'	2311622-17	Soil	11/30/23 11:00	11/30/23 17:55
BH05@6'	2311622-18	Soil	11/30/23 11:05	11/30/23 17:55
BH05@8'	2311622-19	Soil	11/30/23 11:10	11/30/23 17:55
BH05@12'	2311622-20	Soil	11/30/23 11:15	11/30/23 17:55
BG01@2.5'	2311622-21	Soil	11/30/23 13:00	11/30/23 17:55
BG01@6'	2311622-22	Soil	11/30/23 13:05	11/30/23 17:55
BG01@8'	2311622-23	Soil	11/30/23 13:10	11/30/23 17:55
BG01@13'	2311622-24	Soil	11/30/23 13:15	11/30/23 17:55
BG02@2.5'	2311622-25	Soil	11/30/23 13:25	11/30/23 17:55
BG02@6'	2311622-26	Soil	11/30/23 13:30	11/30/23 17:55
BG02@8'	2311622-27	Soil	11/30/23 13:35	11/30/23 17:55

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BG02@13'	2311622-28	Soil	11/30/23 13:40	11/30/23 17:55
BG03@2.5'	2311622-29	Soil	11/30/23 13:45	11/30/23 17:55
BG03@6'	2311622-30	Soil	11/30/23 13:50	11/30/23 17:55
BG03@8'	2311622-31	Soil	11/30/23 13:55	11/30/23 17:55
BG03@13'	2311622-32	Soil	11/30/23 14:00	11/30/23 17:55
BG04@2.5'	2311622-33	Soil	11/30/23 14:05	11/30/23 17:55
BG04@6'	2311622-34	Soil	11/30/23 14:10	11/30/23 17:55
BG04@8'	2311622-35	Soil	11/30/23 14:15	11/30/23 17:55
BG04@13'	2311622-36	Soil	11/30/23 14:20	11/30/23 17:55
BG05@2.5'	2311622-37	Soil	11/30/23 14:25	11/30/23 17:55
BG05@6'	2311622-38	Soil	11/30/23 14:30	11/30/23 17:55
BG05@8'	2311622-39	Soil	11/30/23 14:35	11/30/23 17:55
BG05@13'	2311622-40	Soil	11/30/23 14:40	11/30/23 17:55

Case Narrative

Allan Engelhardt requested Lead & Selenium be added to all samples on 4/4/2024.

Allan Engelhardt requested Cadmium be added to all samples on 4/22/2024.

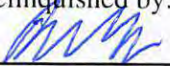

This report includes those results.

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client: Noble/Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W. 119th Ave.		Project Manager: Jake Whritenour		Company: Noble Energy	
City/State/Zip: Broomfield/CO/ 80020		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: Matsushima PMK 2-1	
Phone:		Project Name: Matsushima PMK 2-1		AFE#:	
Sampler Name: R. Yavinsky		Project Number:		PO/Billing Codes:	
				Contact: Dan Peterson	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	Arsenic, Barium	
1	BH01 @ 2.5'	11/30/23	0935	2			X			X				X	X	X	X	X		X	SAR, EC, pH by saturated paste
2	BH01 @ 6'		0940																		
3	BH01 @ 8'		0945																		
4	BH01 @ 13'		0950																		
5	BH02 @ 2.5'		1200																		
6	BH02 @ 6'		1205																		
7	BH02 @ 8'		1210																		
8	BH02 @ 13'		1215																		
9	BH03 @ 2.5'		1000																		
10	BH03 @ 6'		1005																		
11	BH03 @ 8'		1010																		
12	BH03 @ 12'		1015																		
13	BH04 @ 2.5'		1030																		
14	BH04 @ 6'		1035																		
15	BH04 @ 8'		1040																		

Relinquished by: 	Date/Time: 11/30/23 1600	Received by: Tasman Lock Box	Date/Time: 11/30/23 1600	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lock Box	Date/Time: 11/30/23 1755	Received by: 	Date/Time: 11/30/23 1755	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 10 .0	Corrected Temperature: 10	IR gun #: 1	HNO3 lot #:			

Client: Noble/Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W. 119th Ave.		Project Manager: Jake Whritenour		Company: <u>Noble Energy</u>	
City/State/Zip: Broomfield/CO/ 80020		E-Mail: jwhritenour@tasman-geo.com		Project Name/Location: <u>Matsushima pmk 2-1</u>	
Phone:		Project Name: <u>Matsushima PMK 2-1</u>		AFE#:	
Sampler Name: <u>R. Yavinsky</u>		Project Number:		PO/Billing Codes:	
				Contact: <u>Dan Peterson</u>	

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	Argenic, Borium	
1	BH04 @ 12'	11/30/23	1045	2			X			X				X	X	X	X	X			SAR, EC, pH by saturated paste
2	BH05 @ 2.5'		1100																		
3	BH05 @ 6'		1105																		
4	BH05 @ 8'		1110																		
5	BH05 @ 12'		1115																		
6	B601 @ 2.5'		1300	2																	
7	B601 @ 6'		1305																		
8	B601 @ 8'		1310																		
9	B601 @ 13'		1315																		
10	B602 @ 2.5'		1325																		
11	B602 @ 6'		1330																		
12	B602 @ 8'		1335																		
13	B602 @ 13'		1340																		
14	B603 @ 2.5'		1345																		
15	B603 @ 6'		1350																		

Relinquished by: <u>[Signature]</u>	Date/Time: <u>11/30/23 1600</u>	Received by: Tasman Lock Box	Date/Time: <u>11/30/23 1600</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman/lockbox</u>	Date/Time: <u>11/30/23 1755</u>	Received by: <u>[Signature]</u>	Date/Time: <u>11/30/23 1755</u>	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Standard	X Field Turb.	
Temperature Upon Receipt: <u>10.0</u>	Corrected Temperature: <u>0</u>	IR gun #:		HNO3 lot #:		

Client: Noble/Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W. 119th Ave.		Project Manager: Jake Whritenour		Company: <u>Noble Energy</u>	
City/State/Zip: Broomfield/CO/ 80020		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: <u>Matsushima DMK 2-1</u>	
Phone:		Project Name: <u>Matsushima PMK 2-1</u>		AFE#:	
Sampler Name: <u>R. Yavinsky</u>		Project Number:		PO/Billing Codes:	
				Contact: <u>Dan Peterson</u>	

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	Arsenic, Barium	
1	BG03 @ 8'	11/30/27	1355	1			X			X							X	X		X	SAR, EC, pH by saturated paste
2	BG03 @ 13'		1400																		
3	BG04 @ 2.5'		1405																		
4	BG04 @ 6'		1410																		
5	BG04 @ 8'		1415																		
6	BG04 @ 13'		1420																		
7	BG05 @ 2.5'		1425																		
8	BG05 @ 6'		1430																		
9	BG05 @ 8'		1435																		
10	BG05 @ 13'		1440																		
11																					
12																					
13																					
14																					
15																					

Relinquished by: <u>[Signature]</u>	Date/Time: <u>11/30/23 1600</u>	Received by: Tasman Lock Box	Date/Time: <u>11/30/23 1600</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman Lock Box</u>	Date/Time: <u>11/30/23 1755</u>	Received by: <u>[Signature]</u>	Date/Time: <u>11/30/23 1755</u>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: <u>6.0</u>		Corrected Temperature <u>6</u>		IR gun #: <u></u>		HNO3 lot #: <u></u>

S₂

3/3

Sample Receipt Checklist

S2 Work Order# 2311622Client: Noble KasmanClient Project ID: Matsumura Pmk 2-1Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #: _____

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply)

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

Thermometer #

	Yes	No	N/A	Comments (If any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on 7/2/23
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	one jar mislabeled sample
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

AS

Custodian Printed Name

11/30/23

Date/Time



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@2.5'
2311622-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0416	104 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0417	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0420	105 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	6.86	54.9 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@2.5'
2311622-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0225	67.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0249	74.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@2.5'
2311622-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.510	0.200	mg/kg dry	1	BGL0335	12/08/23	12/14/23	EPA 6020B
Barium	163	0.400	"	"	"	"	"	"
Cadmium	0.201	0.200	"	"	"	"	"	"
Lead	10.5	0.200	"	"	"	"	"	"
Selenium	0.562	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	40.2	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	18.2	0.0500	"	"	"	"	"	"	
Sodium	41.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.36	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	77.0		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.282	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@2.5'
2311622-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 09:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.39			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@6'
2311622-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	30	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0384	96.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0394	98.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.126	314 %	50-150		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	86	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.42	59.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@6'
2311622-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0144	43.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0168	50.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@6'
2311622-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.676	0.200	mg/kg dry	1	BGL0335	12/08/23	12/14/23	EPA 6020B
Barium	141	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	9.07	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	32.0	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	9.78	0.0500	"	"	"	"	"	"	
Sodium	20.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.806	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.8		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.279	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@6'
2311622-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 09:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.37			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@8'
2311622-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.054	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.011	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.016	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	0.029	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	13	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0457	114 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0410	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0688	172 %	50-150		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.49	59.9 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@8'
2311622-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.0226	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0621	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0168	50.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0158	47.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@8'
2311622-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.464	0.200	mg/kg dry	1	BGL0335	12/08/23	12/14/23	EPA 6020B
Barium	163	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	9.22	0.200	"	"	"	"	"	"
Selenium	0.393	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 09:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	64.9	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	21.3	0.0500	"	"	"	"	"	"	
Sodium	31.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 09:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.865	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 09:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	76.8		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 09:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.188	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@8'
2311622-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.54			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@13'
2311622-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0429	107 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0422	106 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0419	105 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.67	77.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@13'
2311622-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0284	85.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0254	76.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@13'
2311622-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	ND	0.200	mg/kg dry	1	BGL0335	12/08/23	12/14/23	EPA 6020B
Barium	3.97	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	0.795	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	17.4	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	6.50	0.0500	"	"	"	"	"	"	
Sodium	26.9	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.40	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.0		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.261	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH01@13'
2311622-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 09:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.49			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@2.5'
2311622-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0428	107 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0445	111 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0424	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.31	74.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@2.5'
2311622-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0245	73.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0225	67.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@2.5'
2311622-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.614	0.200	mg/kg dry	1	BGL0335	12/08/23	12/14/23	EPA 6020B
Barium	108	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	9.40	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	39.3	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	12.4	0.0500	"	"	"	"	"	"	
Sodium	14.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.517	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.8		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.197	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@2.5'
2311622-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.88			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@6'
2311622-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0413	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0405	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	103 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.79	78.3 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@6'
2311622-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0222	66.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0173	52.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@6'
2311622-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.693	0.200	mg/kg dry	1	BGL0335	12/08/23	12/14/23	EPA 6020B
Barium	209	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	16.4	0.200	"	"	"	"	"	"
Selenium	0.655	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 12:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	40.7	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	20.7	0.0500	"	"	"	"	"	"	
Sodium	66.7	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 12:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.12	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 12:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	67.1		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 12:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.394	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@6'
2311622-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: 11/30/23 12:05									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.64		pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@8'
2311622-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0412	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0400	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0406	102 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.37	67.0 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@8'
2311622-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0256	76.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0193	57.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@8'
2311622-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.263	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	93.4	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	8.48	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 12:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	69.6	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	30.1	0.0500	"	"	"	"	"	"	
Sodium	27.2	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 12:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.686	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 12:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	77.6		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 12:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.274	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@8'
2311622-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.76			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@13'
2311622-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0397	99.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0397	99.3 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0403	101 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.92	63.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@13'
2311622-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0258	77.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0269	80.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@13'
2311622-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.445	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	12.5	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	1.63	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 12:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	24.8	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	8.95	0.0500	"	"	"	"	"	"	
Sodium	11.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 12:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.499	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 12:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.7		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 12:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.124	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Summit Scientific

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Tasman Geosciences
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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH02@13'
2311622-08 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.74			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@2.5'
2311622-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0419	105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0407	102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0420	105 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	6.56	52.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@2.5'
2311622-09 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0149	44.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0138	41.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@2.5'
2311622-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.822	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	193	0.400	"	"	"	"	"	"
Cadmium	0.358	0.200	"	"	"	"	"	"
Lead	17.1	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	84.5	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	16.2	0.0500	"	"	"	"	"	"	
Sodium	3.55	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0927	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	80.7		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.143	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@2.5'
2311622-09 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.66			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@6'
2311622-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0412	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0398	99.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0404	101 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.6	93.0 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@6'
2311622-10 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0148	44.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0140	42.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@6'
2311622-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.628	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	325	0.400	"	"	"	"	"	"
Cadmium	0.289	0.200	"	"	"	"	"	"
Lead	16.0	0.200	"	"	"	"	"	"
Selenium	0.819	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	35.8	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	16.5	0.0500	"	"	"	"	"	"	
Sodium	29.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.03	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	64.4		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.161	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@6'
2311622-10 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.76			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@8'
2311622-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/30/23 10:10									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.0	0.50	"	"	"	"	"	"	

Date Sampled: 11/30/23 10:10									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0397	99.3 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0438	110 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/30/23 10:10									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: 11/30/23 10:10									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	8.45	67.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@8'
2311622-11 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0288	86.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0265	79.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@8'
2311622-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.334	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	34.5	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	2.75	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	46.7	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	20.9	0.0500	"	"	"	"	"	"	
Sodium	34.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.05	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.3		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.405	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:

04/23/24 09:59

BH03@8'
2311622-11 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.45			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@12'
2311622-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0410	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0413	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0411	103 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.01	64.1 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@12'
2311622-12 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0362	109 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0276	82.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@12'
2311622-12 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.539	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	15.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	3.88	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	34.0	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	13.5	0.0500	"	"	"	"	"	"	
Sodium	27.7	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.02	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.1		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.274	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH03@12'
2311622-12 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.53			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@2.5'
2311622-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0344	85.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0415	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0422	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.40	75.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@2.5'
2311622-13 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0243	72.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0184	55.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@2.5'
2311622-13 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.570	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	204	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	10.5	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	30.6	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	18.7	0.0500	"	"	"	"	"	"	
Sodium	78.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.76	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	76.4		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.563	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@2.5'
2311622-13 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.14			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@6'
2311622-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0410	102 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0407	102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0416	104 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.96	63.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@6'
2311622-14 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0158	47.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0155	46.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@6'
2311622-14 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.328	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	67.8	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	4.68	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	69.7	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	36.4	0.0500	"	"	"	"	"	"	
Sodium	22.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.534	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.2		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.173	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@6'
2311622-14 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.99			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@8'
2311622-15 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0417	104 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0422	106 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0429	107 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.70	69.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@8'
2311622-15 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0276	82.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0180	54.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@8'
2311622-15 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.336	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	8.41	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	1.12	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.9	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	11.5	0.0500	"	"	"	"	"	"	
Sodium	22.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.897	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.4		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.220	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@8'
2311622-15 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.14			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@12'
2311622-16 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0412	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0395	98.7 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0401	100 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.07	64.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@12'
2311622-16 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0312	93.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0232	69.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@12'
2311622-16 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	ND	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	5.08	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	0.721	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	13.0	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	4.91	0.0500	"	"	"	"	"	"	
Sodium	26.0	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.56	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.3		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.182	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH04@12'
2311622-16 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.60			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@2.5'
2311622-17 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0386	96.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0419	105 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0424	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	6.08	48.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@2.5'
2311622-17 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0191	57.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0134	40.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@2.5'
2311622-17 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.600	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	99.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	7.41	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	38.1	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	21.0	0.0500	"	"	"	"	"	"	
Sodium	23.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.762	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.0		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.165	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@2.5'
2311622-17 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.10			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@6'
2311622-18 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0408	102 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0402	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0409	102 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.82	70.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@6'
2311622-18 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0299	89.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0203	60.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@6'
2311622-18 (Soil)

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Total Metals by EPA 6020B

Arsenic	0.333	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	30.8	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	2.57	0.200	"	"	"	"	"	"
Selenium	0.299	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 11:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	74.1	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	37.2	0.0500	"	"	"	"	"	"	
Sodium	25.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 11:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.610	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 11:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.8		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 11:05

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.175	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@6'
2311622-18 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.96			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@8'
2311622-19 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0409	102 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0413	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0421	105 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.02	64.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@8'
2311622-19 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0303	90.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0215	64.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@8'
2311622-19 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.455	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	11.3	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	1.35	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: 11/30/23 11:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	26.3	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	11.7	0.0500	"	"	"	"	"	"	
Sodium	24.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/30/23 11:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.01	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/30/23 11:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.3		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: 11/30/23 11:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.230	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@8'
2311622-19 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 11:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.19			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

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Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@12'
2311622-20 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0151	12/05/23	12/07/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0364	90.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0407	102 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0157	12/05/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.0	88.0 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@12'
2311622-20 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0219	12/06/23	12/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0428	128 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0275	82.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0331	12/08/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@12'
2311622-20 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	ND	0.200	mg/kg dry	1	BGL0335	12/08/23	12/15/23	EPA 6020B
Barium	5.20	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Lead	1.00	0.200	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	13.9	0.0500	mg/L dry	1	BGL0608	12/15/23	12/21/23	EPA 6020B	
Magnesium	5.85	0.0500	"	"	"	"	"	"	
Sodium	23.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.35	0.00100	units	1	BGL0819	12/21/23	12/21/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.2		%	1	BGL0366	12/11/23	12/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.215	0.0100	mmhos/cm	1	BGL0630	12/18/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BH05@12'
2311622-20 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.01			pH Units	1	BGL0629	12/18/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@2.5'
2311622-21 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Arsenic	0.472	0.200		mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	131	0.400		"	"	"	"	"	"	
Cadmium	ND	0.200		"	"	"	"	"	"	
Lead	7.10	0.200		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	131	0.0500		mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	62.3	0.0500		"	"	"	"	"	"	
Sodium	91.0	0.0500		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	1.64	0.00100		units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@2.5'
2311622-21 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	83.3	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.580	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.66		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@6'
2311622-22 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.08	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	73.4	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	5.75	0.200	"	"	"	"	"	"	
Selenium	0.272	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	278	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	110	0.0500	"	"	"	"	"	"	
Sodium	37.7	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.484	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@6'
2311622-22 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	85.6	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.256	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.68		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@8'
2311622-23 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.239	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	8.39	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.34	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	24.3	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	10.2	0.0500	"	"	"	"	"	"	
Sodium	27.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.19	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@8'
2311622-23 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	90.2	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.258	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.98		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@13'
2311622-24 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.230	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	8.77	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.46	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	19.4	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	8.32	0.0500	"	"	"	"	"	"	
Sodium	24.9	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.19	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG01@13'
2311622-24 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.8	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.241	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.10		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@2.5'
2311622-25 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.909	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	257	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	12.9	0.200	"	"	"	"	"	"	
Selenium	0.460	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	25.0	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	15.4	0.0500	"	"	"	"	"	"	
Sodium	185	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	7.18	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@2.5'
2311622-25 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	77.2	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.926	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.43		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@6'
2311622-26 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.480	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	65.7	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	5.15	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	205	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	77.7	0.0500	"	"	"	"	"	"	
Sodium	38.7	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.584	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@6'
2311622-26 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	82.9	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.277	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.85		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@8'
2311622-27 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.271	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	7.78	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.25	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	62.7	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	26.2	0.0500	"	"	"	"	"	"	
Sodium	31.2	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.835	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@8'
2311622-27 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	92.0	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.285	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@13'
2311622-28 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	ND	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	5.40	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.14	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	15.7	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	8.00	0.0500	"	"	"	"	"	"	
Sodium	20.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sodium Adsorption Ratio	1.06	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG02@13'
2311622-28 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	92.1	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.222	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.07		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@2.5'
2311622-29 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.986	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	223	0.400	"	"	"	"	"	"	
Cadmium	0.577	0.200	"	"	"	"	"	"	
Lead	25.4	0.200	"	"	"	"	"	"	
Selenium	0.383	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	187	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	110	0.0500	"	"	"	"	"	"	
Sodium	323	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.63	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@2.5'
2311622-29 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	80.1	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.53	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.52		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@6'
2311622-30 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Arsenic	0.446	0.200		mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	162	0.400		"	"	"	"	"	"	
Cadmium	ND	0.200		"	"	"	"	"	"	
Lead	9.67	0.200		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	17.1	0.0500		mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	9.80	0.0500		"	"	"	"	"	"	
Sodium	43.3	0.0500		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	2.07	0.00100		units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@6'
2311622-30 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	81.3	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.323	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.84		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@8'
2311622-31 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 13:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 13:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.373	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	69.1	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	3.87	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 13:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	28.3	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	14.6	0.0500	"	"	"	"	"	"	
Sodium	34.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 13:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.32	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 13:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@8'
2311622-31 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	80.7	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.371	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.85		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@13'
2311622-32 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.222	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	6.66	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.37	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	24.9	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	11.3	0.0500	"	"	"	"	"	"	
Sodium	39.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.63	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG03@13'
2311622-32 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.0	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.398	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.91		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@2.5'
2311622-33 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.868	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	169	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	10.7	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	39.1	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	26.4	0.0500	"	"	"	"	"	"	
Sodium	190	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.76	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@2.5'
2311622-33 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	76.9	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.11	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.78		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@6'
2311622-34 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.494	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	247	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	11.4	0.200	"	"	"	"	"	"	
Selenium	0.323	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	122	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	49.9	0.0500	"	"	"	"	"	"	
Sodium	56.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.08	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@6'
2311622-34 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	80.1	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.363	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.59		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@8'
2311622-35 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Arsenic	0.309	0.200		mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	26.2	0.400		"	"	"	"	"	"	
Cadmium	ND	0.200		"	"	"	"	"	"	
Lead	2.14	0.200		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	22.0	0.0500		mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	10.5	0.0500		"	"	"	"	"	"	
Sodium	32.7	0.0500		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	1.44	0.00100		units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@8'
2311622-35 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.3	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.388	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.76		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@13'
2311622-36 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	ND	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	7.99	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.08	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	38.7	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	16.0	0.0500	"	"	"	"	"	"	
Sodium	32.2	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sodium Adsorption Ratio	1.10	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG04@13'
2311622-36 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	92.5	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.301	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.86		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@2.5'
2311622-37 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.207	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	29.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	2.72	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	27.8	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	14.3	0.0500	"	"	"	"	"	"	
Sodium	35.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.36	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@2.5'
2311622-37 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	93.7	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.285	0.0100		mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.73			pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@6'
2311622-38 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.228	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	5.78	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.63	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	14.9	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	7.25	0.0500	"	"	"	"	"	"	
Sodium	30.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.62	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@6'
2311622-38 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	92.4	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.292	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.88		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@8'
2311622-39 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	ND	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	5.75	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.02	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	13.2	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	6.10	0.0500	"	"	"	"	"	"	
Sodium	28.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sodium Adsorption Ratio	1.60	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@8'
2311622-39 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	88.8	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.235	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.90		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@13'
2311622-40 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/30/23 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGL0373	12/11/23	12/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/30/23 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	ND	0.200	mg/kg dry	1	BGL0336	12/08/23	12/14/23	EPA 6020B	
Barium	6.82	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Lead	1.02	0.200	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/23 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	11.5	0.0500	mg/L dry	1	BGL0649	12/18/23	12/22/23	EPA 6020B	
Magnesium	5.91	0.0500	"	"	"	"	"	"	
Sodium	14.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/23 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sodium Adsorption Ratio	0.872	0.00100	units	1	BGL0887	12/26/23	12/26/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/23 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

BG05@13'
2311622-40 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.9	%	1	BGL0368	12/11/23	12/11/23	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/23 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.112	0.0100	mmhos/cm	1	BGL0671	12/19/23	12/19/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/23 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.99		pH Units	1	BGL0673	12/19/23	12/19/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0151 - EPA 5030 Soil MS

Blank (BGL0151-BLK1)

Prepared: 12/05/23 Analyzed: 12/06/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0401		"	0.0400		100	50-150			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400		104	50-150			

LCS (BGL0151-BS1)

Prepared: 12/05/23 Analyzed: 12/06/23

Benzene	0.0928	0.0020	mg/kg	0.100		92.8	70-130			
Toluene	0.0956	0.0050	"	0.100		95.6	70-130			
Ethylbenzene	0.0952	0.0050	"	0.100		95.2	70-130			
m,p-Xylene	0.198	0.010	"	0.200		99.2	70-130			
o-Xylene	0.100	0.0050	"	0.100		100	70-130			
1,2,4-Trimethylbenzene	0.126	0.0050	"	0.100		126	70-130			
1,3,5-Trimethylbenzene	0.125	0.0050	"	0.100		125	70-130			
Naphthalene	0.186	0.0038	"	0.100		186	70-130			QLCS-01
Surrogate: 1,2-Dichloroethane-d4	0.0408		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	50-150			

Matrix Spike (BGL0151-MS1)

Source: 2311622-01

Prepared: 12/05/23 Analyzed: 12/06/23

Benzene	0.0826	0.0020	mg/kg	0.100	ND	82.6	70-130			
Toluene	0.0847	0.0050	"	0.100	ND	84.7	70-130			
Ethylbenzene	0.0850	0.0050	"	0.100	ND	85.0	70-130			
m,p-Xylene	0.175	0.010	"	0.200	ND	87.5	70-130			
o-Xylene	0.0891	0.0050	"	0.100	ND	89.1	70-130			
1,2,4-Trimethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130			
1,3,5-Trimethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130			
Naphthalene	0.157	0.0038	"	0.100	ND	157	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0410		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0413		"	0.0400		103	50-150			

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0151 - EPA 5030 Soil MS

Matrix Spike Dup (BGL0151-MSD1)	Source: 2311622-01			Prepared: 12/05/23 Analyzed: 12/06/23						
Benzene	0.0756	0.0020	mg/kg	0.100	ND	75.6	70-130	8.80	30	
Toluene	0.0754	0.0050	"	0.100	ND	75.4	70-130	11.6	30	
Ethylbenzene	0.0775	0.0050	"	0.100	ND	77.5	70-130	9.27	30	
m,p-Xylene	0.159	0.010	"	0.200	ND	79.5	70-130	9.52	30	
o-Xylene	0.0826	0.0050	"	0.100	ND	82.6	70-130	7.58	30	
1,2,4-Trimethylbenzene	0.0987	0.0050	"	0.100	ND	98.7	70-130	9.06	30	
1,3,5-Trimethylbenzene	0.0992	0.0050	"	0.100	ND	99.2	70-130	9.59	30	
Naphthalene	0.148	0.0038	"	0.100	ND	148	70-130	5.77	30	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0409		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0402		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0400		102	50-150			

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Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0157 - EPA 3550A

Blank (BGL0157-BLK1)

Prepared: 12/05/23 Analyzed: 12/08/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.1		"	12.5		105	30-150			

LCS (BGL0157-BS1)

Prepared: 12/05/23 Analyzed: 12/08/23

C10-C28 (DRO)	546	50	mg/kg	500		109	70-130			
Surrogate: o-Terphenyl	12.4		"	12.5		98.9	30-150			

Matrix Spike (BGL0157-MS1)

Source: 2311622-01

Prepared: 12/05/23 Analyzed: 12/08/23

C10-C28 (DRO)	665	50	mg/kg	500	15.3	130	70-130			
Surrogate: o-Terphenyl	8.92		"	12.5		71.4	30-150			

Matrix Spike Dup (BGL0157-MSD1)

Source: 2311622-01

Prepared: 12/05/23 Analyzed: 12/08/23

C10-C28 (DRO)	636	50	mg/kg	500	15.3	124	70-130	4.43	20	
Surrogate: o-Terphenyl	9.29		"	12.5		74.3	30-150			

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Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BGL0219 - EPA 5030 Soil MS

Blank (BGL0219-BLK1)

Prepared: 12/06/23 Analyzed: 12/09/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0322		"	0.0333		96.7	40-150			
Surrogate: Fluoranthene-d10	0.0331		"	0.0333		99.2	40-150			

LCS (BGL0219-BS1)

Prepared: 12/06/23 Analyzed: 12/09/23

Acenaphthene	0.0335	0.00500	mg/kg	0.0333	101	31-137
Anthracene	0.0327	0.00500	"	0.0333	98.1	30-120
Benzo (a) anthracene	0.0325	0.00500	"	0.0333	97.4	30-120
Benzo (a) pyrene	0.0310	0.00500	"	0.0333	93.1	30-120
Benzo (b) fluoranthene	0.0348	0.00500	"	0.0333	104	30-120
Benzo (k) fluoranthene	0.0351	0.00500	"	0.0333	105	30-120
Chrysene	0.0331	0.00500	"	0.0333	99.3	30-120
Dibenz (a,h) anthracene	0.0322	0.00500	"	0.0333	96.6	30-120
Fluoranthene	0.0316	0.00500	"	0.0333	94.9	30-120
Fluorene	0.0341	0.00500	"	0.0333	102	30-120
Indeno (1,2,3-cd) pyrene	0.0265	0.00500	"	0.0333	79.6	30-120
Pyrene	0.0289	0.00500	"	0.0333	86.6	35-142
1-Methylnaphthalene	0.0340	0.00500	"	0.0333	102	35-142
2-Methylnaphthalene	0.0372	0.00500	"	0.0333	111	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0307		"	0.0333	92.2	40-150
Surrogate: Fluoranthene-d10	0.0354		"	0.0333	106	40-150

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike Level	Source		%REC		RPD	
	Result	Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0219 - EPA 5030 Soil MS

Matrix Spike (BGL0219-MS1)

Source: 2311622-01

Prepared: 12/06/23 Analyzed: 12/09/23

Acenaphthene	0.0258	0.00500	mg/kg	0.0333	ND	77.4	31-137			
Anthracene	0.0239	0.00500	"	0.0333	ND	71.8	30-120			
Benzo (a) anthracene	0.0232	0.00500	"	0.0333	ND	69.5	30-120			
Benzo (a) pyrene	0.0227	0.00500	"	0.0333	ND	68.0	30-120			
Benzo (b) fluoranthene	0.0236	0.00500	"	0.0333	ND	70.9	30-120			
Benzo (k) fluoranthene	0.0245	0.00500	"	0.0333	ND	73.6	30-120			
Chrysene	0.0247	0.00500	"	0.0333	ND	74.2	30-120			
Dibenz (a,h) anthracene	0.0248	0.00500	"	0.0333	ND	74.5	30-120			
Fluoranthene	0.0245	0.00500	"	0.0333	ND	73.4	30-120			
Fluorene	0.0275	0.00500	"	0.0333	ND	82.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0196	0.00500	"	0.0333	ND	58.7	30-120			
Pyrene	0.0193	0.00500	"	0.0333	ND	57.8	35-142			
1-Methylnaphthalene	0.0234	0.00500	"	0.0333	ND	70.4	15-130			
2-Methylnaphthalene	0.0306	0.00500	"	0.0333	ND	91.7	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0188		"	0.0333		56.5	40-150			
Surrogate: Fluoranthene-d10	0.0271		"	0.0333		81.4	40-150			

Matrix Spike Dup (BGL0219-MSD1)

Source: 2311622-01

Prepared: 12/06/23 Analyzed: 12/09/23

Acenaphthene	0.0151	0.00500	mg/kg	0.0333	ND	45.2	31-137	52.5	30	QR-02
Anthracene	0.0135	0.00500	"	0.0333	ND	40.4	30-120	55.9	30	QR-02
Benzo (a) anthracene	0.0147	0.00500	"	0.0333	ND	44.0	30-120	45.0	30	QR-02
Benzo (a) pyrene	0.0191	0.00500	"	0.0333	ND	57.2	30-120	17.4	30	
Benzo (b) fluoranthene	0.0146	0.00500	"	0.0333	ND	43.9	30-120	47.0	30	QR-02
Benzo (k) fluoranthene	0.0156	0.00500	"	0.0333	ND	46.7	30-120	44.8	30	QR-02
Chrysene	0.0151	0.00500	"	0.0333	ND	45.2	30-120	48.7	30	QR-02
Dibenz (a,h) anthracene	0.0140	0.00500	"	0.0333	ND	42.1	30-120	55.6	30	QR-02
Fluoranthene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	38.6	30	QR-02
Fluorene	0.0152	0.00500	"	0.0333	ND	45.6	30-120	57.6	30	QR-02
Indeno (1,2,3-cd) pyrene	0.0159	0.00500	"	0.0333	ND	47.6	30-120	20.8	30	
Pyrene	0.0160	0.00500	"	0.0333	ND	47.9	35-142	18.8	30	
1-Methylnaphthalene	0.0168	0.00500	"	0.0333	ND	50.4	15-130	33.0	50	
2-Methylnaphthalene	0.0213	0.00500	"	0.0333	ND	63.9	15-130	35.8	50	
Surrogate: 2-Methylnaphthalene-d10	0.0175		"	0.0333		52.4	40-150			
Surrogate: Fluoranthene-d10	0.0144		"	0.0333		43.3	40-150			

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0331 - EPA 3050B

Blank (BGL0331-BLK1)

Prepared: 12/08/23 Analyzed: 12/14/23

Boron ND 2.00 mg/L

LCS (BGL0331-BS1)

Prepared: 12/08/23 Analyzed: 12/14/23

Boron 5.49 2.00 mg/L 5.00 110 80-120

Duplicate (BGL0331-DUP1)

Source: 2311622-01

Prepared: 12/08/23 Analyzed: 12/14/23

Boron 0.618 2.00 mg/L 0.661 6.68 20

Matrix Spike (BGL0331-MS1)

Source: 2311622-01

Prepared: 12/08/23 Analyzed: 12/14/23

Boron 6.21 2.00 mg/L 5.00 0.661 111 75-125

Matrix Spike Dup (BGL0331-MSD1)

Source: 2311622-01

Prepared: 12/08/23 Analyzed: 12/14/23

Boron 6.38 2.00 mg/L 5.00 0.661 114 75-125 2.78 25

Batch BGL0373 - EPA 3050B

Blank (BGL0373-BLK1)

Prepared: 12/11/23 Analyzed: 12/14/23

Boron ND 2.00 mg/L

LCS (BGL0373-BS1)

Prepared: 12/11/23 Analyzed: 12/14/23

Boron 5.57 2.00 mg/L 5.00 111 80-120

Duplicate (BGL0373-DUP1)

Source: 2311622-21

Prepared: 12/11/23 Analyzed: 12/14/23

Boron 0.499 2.00 mg/L 0.542 8.14 20

Matrix Spike (BGL0373-MS1)

Source: 2311622-21

Prepared: 12/11/23 Analyzed: 12/14/23

Boron 5.62 2.00 mg/L 5.00 0.542 102 75-125

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0373 - EPA 3050B

Matrix Spike Dup (BGL0373-MSD1)				Source: 2311622-21		Prepared: 12/11/23 Analyzed: 12/14/23				
Boron	5.34	2.00	mg/L	5.00	0.542	96.0	75-125	5.08	25	

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0335 - EPA 3050B

Blank (BGL0335-BLK1)

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Lead	ND	0.200	"
Selenium	ND	0.260	"

LCS (BGL0335-BS1)

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	47.6	0.200	mg/kg wet	44.0	108	80-120
Barium	45.5	0.400	"	44.0	103	80-120
Cadmium	2.30	0.200	"	2.20	104	80-120
Lead	22.8	0.200	"	22.0	104	80-120
Selenium	4.59	0.260	"	4.40	104	80-120

Duplicate (BGL0335-DUP1)

Source: 2311622-01

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	0.453	0.200	mg/kg dry	0.510	12.0	20
Barium	181	0.400	"	163	10.7	20
Cadmium	0.200	0.200	"	0.201	0.517	20
Lead	10.4	0.200	"	10.5	1.58	20
Selenium	0.492	0.260	"	0.562	13.4	20

Matrix Spike (BGL0335-MS1)

Source: 2311622-01

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	9.09	0.200	mg/kg dry	57.1	0.510	15.0	75-125	QM-07
Barium	263	0.400	"	57.1	163	175	75-125	QM-07
Cadmium	2.86	0.200	"	2.86	0.201	93.0	75-125	
Lead	32.7	0.200	"	28.6	10.5	77.6	75-125	
Selenium	6.02	0.260	"	5.71	0.562	95.5	75-125	

Matrix Spike Dup (BGL0335-MSD1)

Source: 2311622-01

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	9.09	0.200	mg/kg dry	57.1	0.510	15.0	75-125	0.00571	25	QM-07
Barium	237	0.400	"	57.1	163	129	75-125	10.6	25	QM-07
Cadmium	2.58	0.200	"	2.86	0.201	83.4	75-125	10.0	25	
Lead	29.9	0.200	"	28.6	10.5	67.7	75-125	9.08	25	QM-07
Selenium	5.60	0.260	"	5.71	0.562	88.3	75-125	7.11	25	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0336 - EPA 3050B

Blank (BGL0336-BLK1)

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Lead	ND	0.200	"
Selenium	ND	0.260	"

LCS (BGL0336-BS1)

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	42.7	0.200	mg/kg wet	40.0	107	80-120
Barium	40.6	0.400	"	40.0	101	80-120
Cadmium	2.07	0.200	"	2.00	103	80-120
Lead	20.5	0.200	"	20.0	102	80-120
Selenium	4.38	0.260	"	4.00	109	80-120

Duplicate (BGL0336-DUP1)

Source: 2311622-21

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	0.450	0.200	mg/kg dry	0.472	4.90	20
Barium	131	0.400	"	131	0.270	20
Cadmium	0.105	0.200	"	0.113	7.51	20
Lead	6.95	0.200	"	7.10	2.10	20
Selenium	ND	0.260	"	ND		20

Matrix Spike (BGL0336-MS1)

Source: 2311622-21

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	8.98	0.200	mg/kg dry	48.0	0.472	17.7	75-125	QM-07
Barium	168	0.400	"	48.0	131	76.6	75-125	
Cadmium	2.13	0.200	"	2.40	0.113	83.9	75-125	
Lead	24.4	0.200	"	24.0	7.10	71.9	75-125	QM-07
Selenium	4.05	0.260	"	4.80	ND	84.4	75-125	

Matrix Spike Dup (BGL0336-MSD1)

Source: 2311622-21

Prepared: 12/08/23 Analyzed: 12/14/23

Arsenic	9.28	0.200	mg/kg dry	48.0	0.472	18.3	75-125	3.28	25	QM-07
Barium	186	0.400	"	48.0	131	116	75-125	10.7	25	
Cadmium	2.39	0.200	"	2.40	0.113	94.8	75-125	11.6	25	
Lead	26.8	0.200	"	24.0	7.10	81.8	75-125	9.35	25	
Selenium	3.89	0.260	"	4.80	ND	80.9	75-125	4.16	25	

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Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0608 - General Preparation

Blank (BGL0608-BLK1)

Prepared: 12/15/23 Analyzed: 12/21/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BGL0608-BS1)

Prepared: 12/15/23 Analyzed: 12/21/23

Calcium	5.46	0.0500	mg/L wet	5.00	109	70-130
Magnesium	5.33	0.0500	"	5.00	107	70-130
Sodium	5.57	0.0500	"	5.00	111	70-130

Batch BGL0649 - General Preparation

Blank (BGL0649-BLK1)

Prepared: 12/18/23 Analyzed: 12/22/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BGL0649-BS1)

Prepared: 12/18/23 Analyzed: 12/22/23

Calcium	5.62	0.0500	mg/L wet	5.00	112	70-130
Magnesium	5.93	0.0500	"	5.00	119	70-130
Sodium	5.17	0.0500	"	5.00	103	70-130

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

Analyte	Result	Reporting			Spike	Source	%REC		RPD		
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	

Batch BGL0366 - General Preparation

Duplicate (BGL0366-DUP1)		Source: 2311619-01			Prepared & Analyzed: 12/11/23						
% Solids	89.9		%		89.1			0.850		20	

Batch BGL0368 - General Preparation

Duplicate (BGL0368-DUP1)		Source: 2311622-21			Prepared & Analyzed: 12/11/23						
% Solids	81.0		%		83.3			2.70		20	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0630 - General Preparation

Blank (BGL0630-BLK1)

Prepared: 12/18/23 Analyzed: 12/19/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGL0630-BS1)

Prepared: 12/18/23 Analyzed: 12/19/23

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 99.7 95-105

Duplicate (BGL0630-DUP1)

Source: 2311622-01

Prepared: 12/18/23 Analyzed: 12/19/23

Specific Conductance (EC) 0.280 0.0100 mmhos/cm 0.282 0.712 20

Batch BGL0671 - General Preparation

Blank (BGL0671-BLK1)

Prepared & Analyzed: 12/19/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGL0671-BS1)

Prepared & Analyzed: 12/19/23

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 100 95-105

Duplicate (BGL0671-DUP1)

Source: 2311613-01

Prepared & Analyzed: 12/19/23

Specific Conductance (EC) 5.60 0.0100 mmhos/cm 5.60 0.00 20

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1
Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGL0629 - General Preparation

LCS (BGL0629-BS1)

Prepared: 12/18/23 Analyzed: 12/19/23

pH	9.13		pH Units	9.18		99.5	95-105		
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Duplicate (BGL0629-DUP1)

Source: 2311622-01

Prepared: 12/18/23 Analyzed: 12/19/23

pH	8.41		pH Units		8.39			0.238	20
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Batch BGL0673 - General Preparation

LCS (BGL0673-BS1)

Prepared & Analyzed: 12/19/23

pH	9.13		pH Units	9.18		99.5	95-105		
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Duplicate (BGL0673-DUP1)

Source: 2311613-01

Prepared & Analyzed: 12/19/23

pH	7.84		pH Units		7.84			0.00	20
----	------	--	----------	--	------	--	--	------	----

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN
Project Manager: Jacob Whritenour

Reported:
04/23/24 09:59

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QLCS-01	The spike recovery was outside acceptance limits for this analyte indicating a potential high bias. The corresponding samples did not exhibit concentrations above reporting level for this analyte. Data quality is not affected.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

ATTACHMENT C
STRATER LOGS



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH TO WATER (FT. BGS): 5'

Matsushima PMK 2-01

BORING / WELL ID: BH01

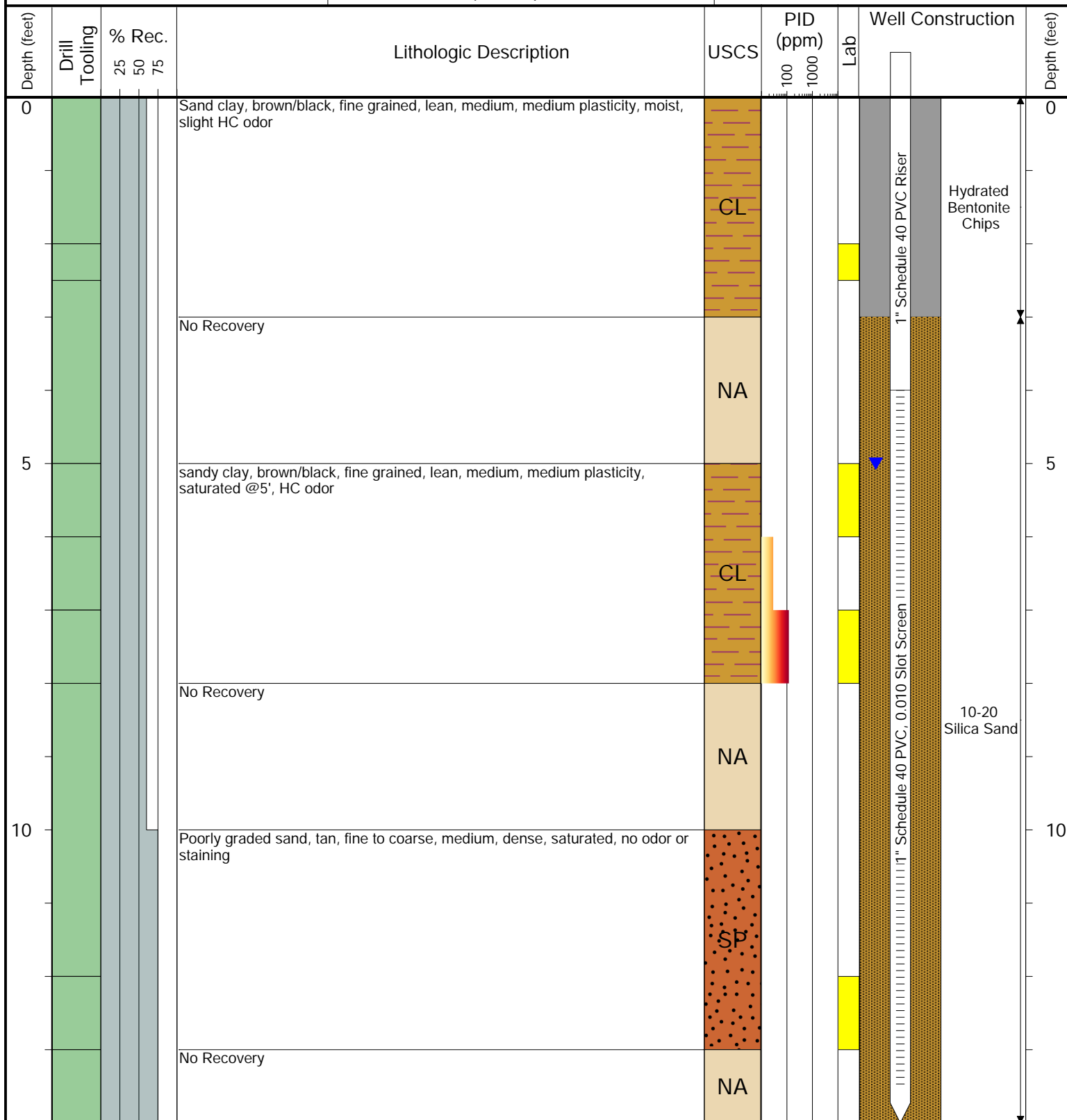
LOCATION: Weld County, Colorado

LATITUDE (NAD 83): 40.347145851187

LONGITUDE (NAD 83): -104.73736624395

CASING ELEVATION (FT. AMSL): 4666.55849

GROUND ELEVATION (FT. AMSL): 4666.81849



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH TO WATER (FT. BGS): 5'

Matsushima PMK 2-01

BORING / WELL ID: BH02

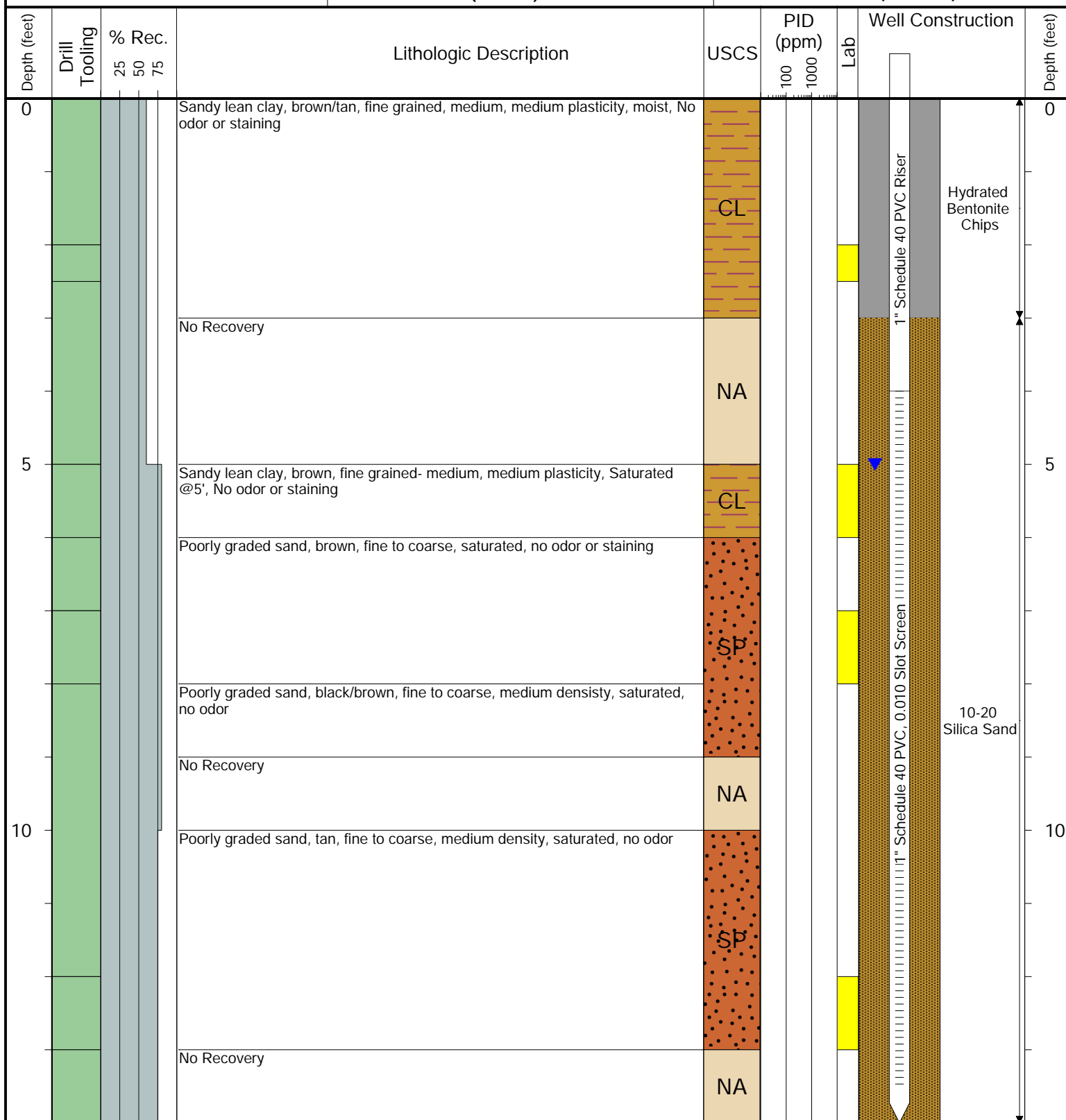
LOCATION: Weld County, Colorado

LATITUDE (NAD 83): 40.347198654346

LONGITUDE (NAD 83): -104.73737051972

CASING ELEVATION (FT. AMSL): 4667.02849

GROUND ELEVATION (FT. AMSL): 4667.24849



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH TO WATER (FT. BGS): 5'

Matsushima PMK 2-01

BORING / WELL ID: BH03

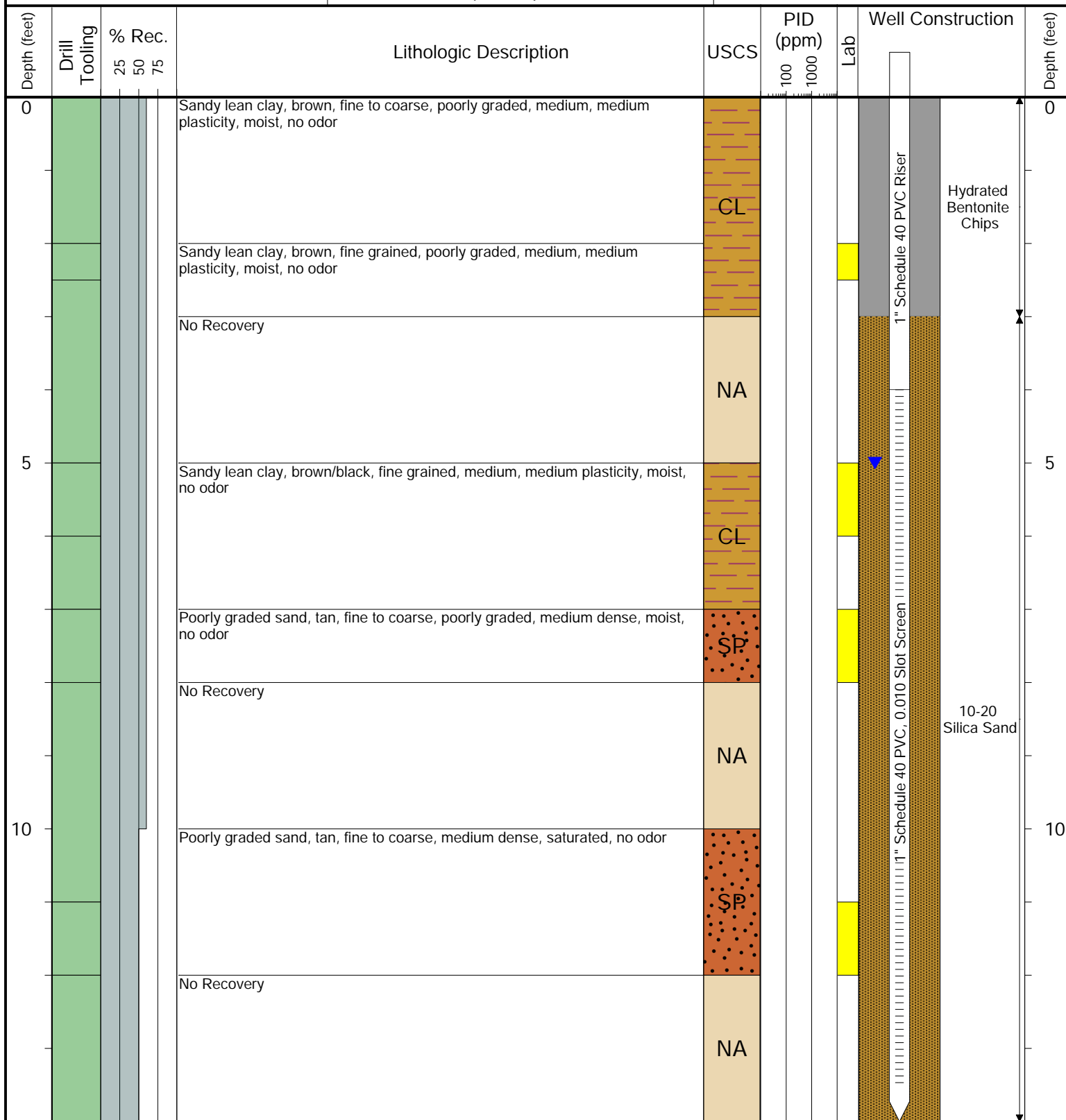
LOCATION: Weld County, Colorado

LATITUDE (NAD 83): 40.347150685022

LONGITUDE (NAD 83): -104.73730033866

CASING ELEVATION (FT. AMSL): 4666.70849

GROUND ELEVATION (FT. AMSL): 4666.94849



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH TO WATER (FT. BGS): 5'

Matsushima PMK 2-01

BORING / WELL ID: BH04

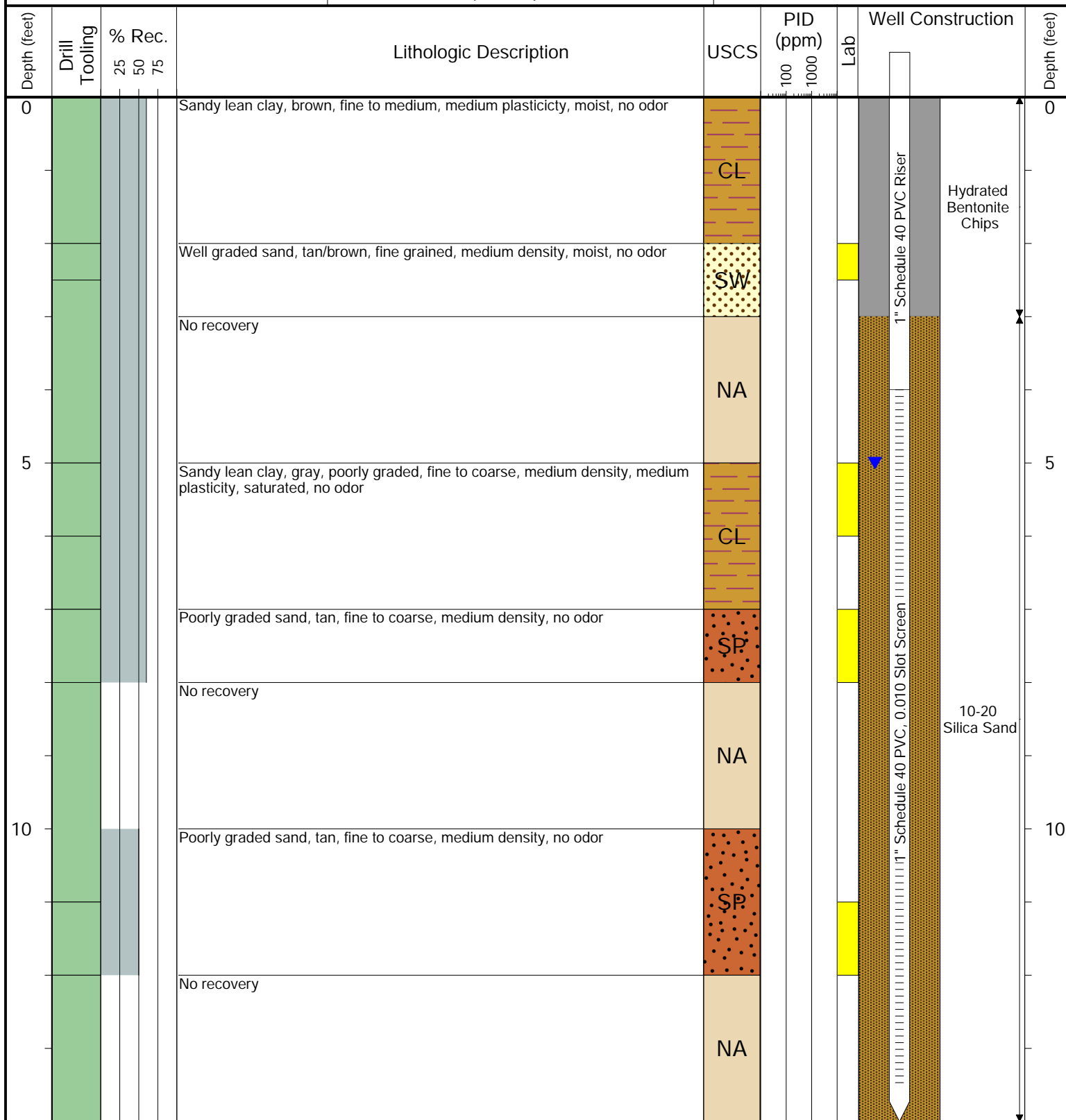
LOCATION: Weld County, Colorado

LATITUDE (NAD 83): 40.347094278928

LONGITUDE (NAD 83): -104.73735872225

CASING ELEVATION (FT. AMSL): 4666.1984

GROUND ELEVATION (FT. AMSL): 4666.41849



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab



Geotechnical & Analytical Chemistry Lab



TASMAN

6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH TO WATER (FT. BGS): 5'

Matsushima PMK 2-01

BORING / WELL ID: BH05

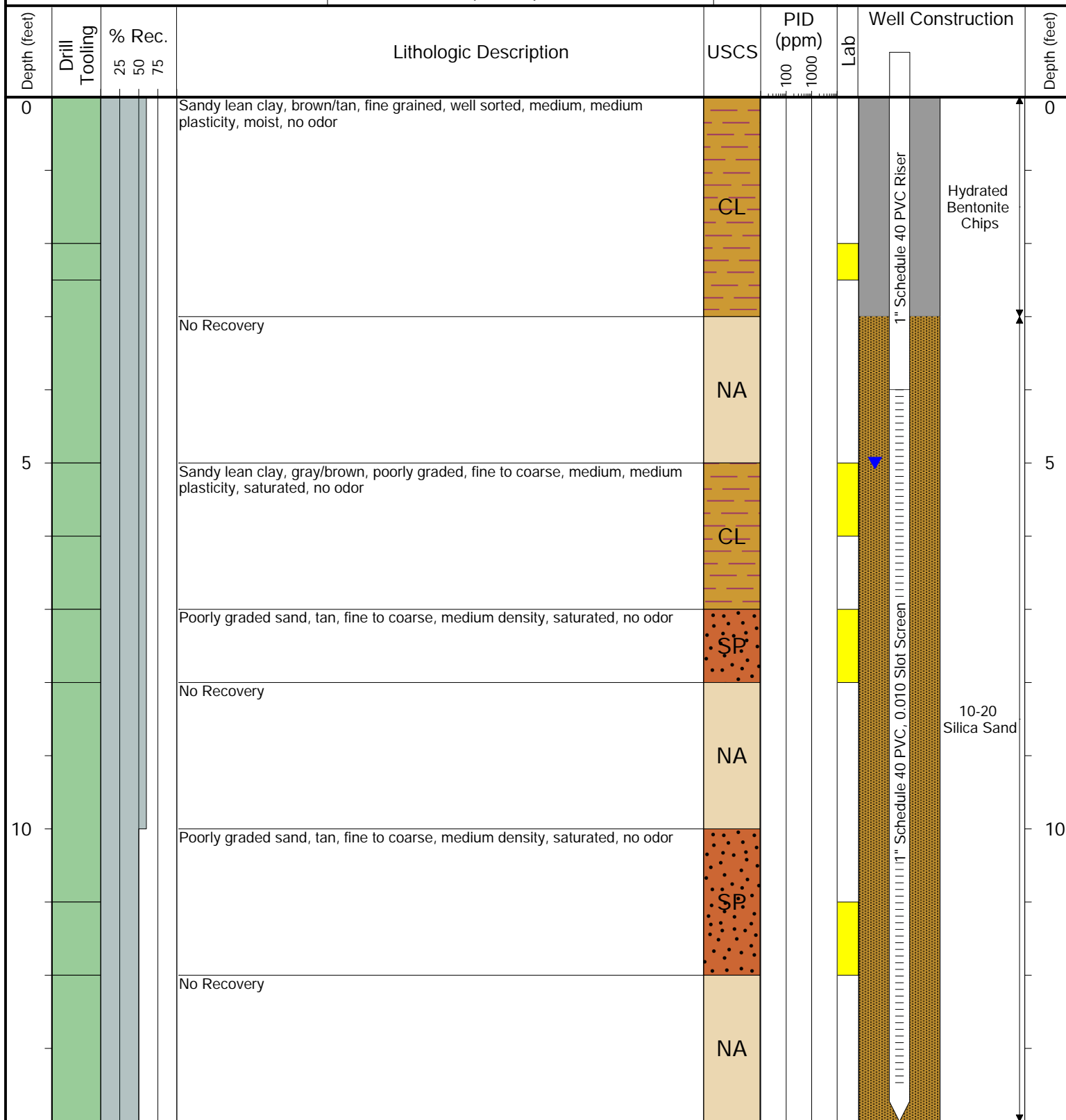
LOCATION: Weld County, Colorado

LATITUDE (NAD 83): 40.34714059031

LONGITUDE (NAD 83): -104.73743937126

CASING ELEVATION (FT. AMSL): 4667.23849

GROUND ELEVATION (FT. AMSL): 4666.49849



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): 4' ▼

Matsushima PMK 2-01

BORING / WELL ID: BG01

LOCATION: Weld County, Colorado

LATITUDE(WGS84): 40.3472712003

LONGITUDE(WGS84): -104.737103541

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite

Depth (feet)	Drill Tooling	% Rec. 25 50 75	Lithologic Description	USCS	PID (ppm)		Lab	Depth (feet)
					100	1000		
0			Sandy lean clay, brown, fine grained, medium, medium plasticity, moist, no odor	CL				0
			No Recovery	NA				
5			Sandy lean clay, brown, fine to coarse, poorly graded, medium, medium plasticity, saturated, no odor	CL				5
			No Recovery	NA				
10			Poorly graded sand, tan, fine to coarse, medium denisty, saturated, no odor	SP				10
			No Recovery	NA				

Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Hand Auger

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab



Geotechnical & Analytical Chemistry Lab



6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): 5' ▼

Matsushima PMK 2-01

BORING / WELL ID: BG02

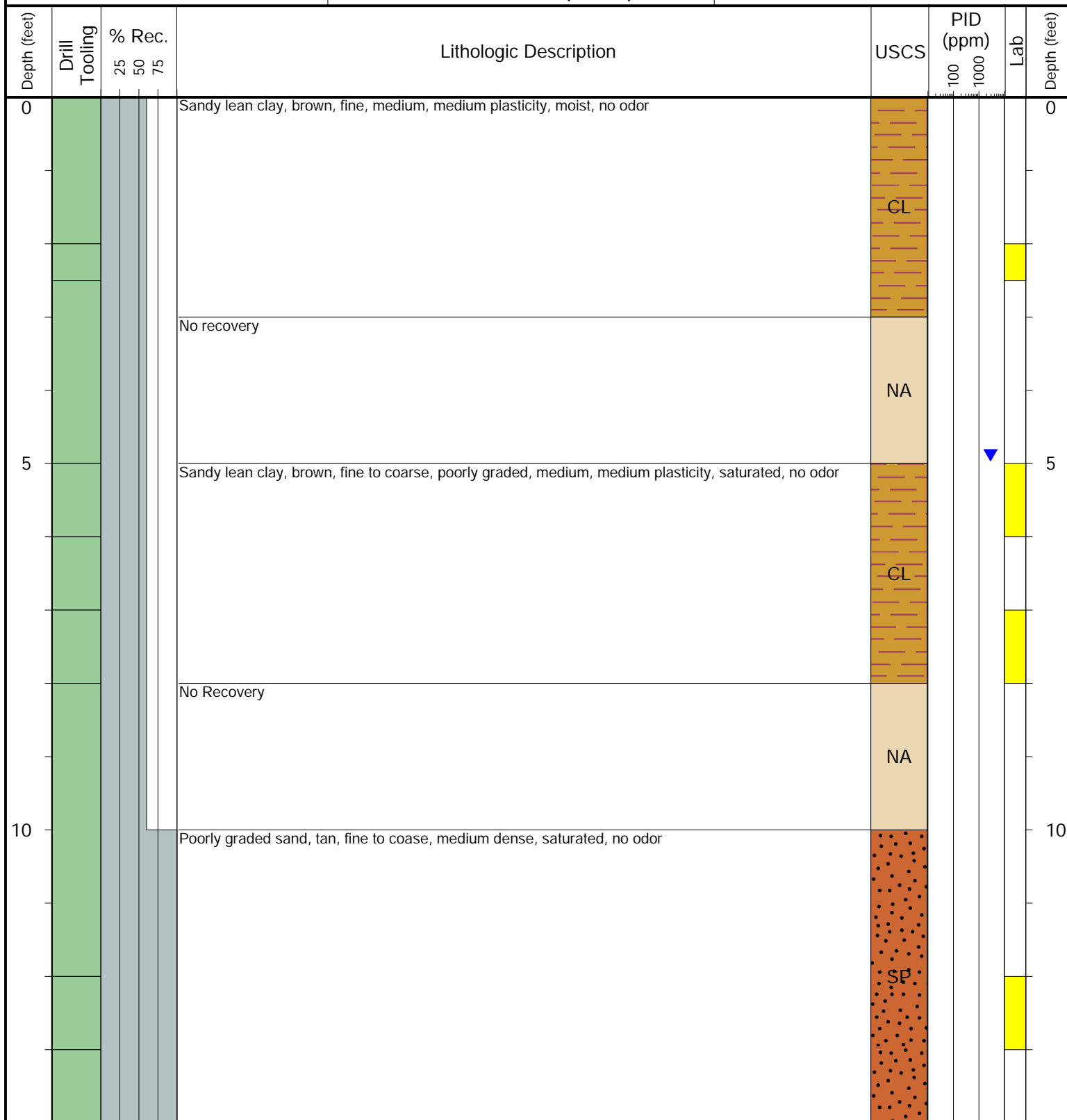
LOCATION: Weld County, Colorado

LATITUDE(WGS84): 40.3471432582

LONGITUDE(WGS84): -104.737100743

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Hand Auger

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab



Geotechnical & Analytical Chemistry Lab



6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): 4' ▼

Matsushima PMK 2-01

BORING / WELL ID: BG03

LOCATION: Weld County, Colorado

LATITUDE(WGS84): 40.3469906331

LONGITUDE(WGS84): -104.737329499

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite

Depth (feet)	Drill Tooling	% Rec. 25 50 75	Lithologic Description	USCS	PID (ppm)		Lab	Depth (feet)
					100	1000		
0			Sandy lean clay, brown, fine grained, medium, medium plasticity, moist, no odor	CL				0
			Sandy lean clay, brown, fine grained, medium, medium plasticity, moist, organic staining, no odor					
			No recovery	NA				
5			Sandy lean clay, brown, fine grained, medium, medium plasticity, organic staining, saturated @4', no odor	CL				5
			Poorly graded sand, tan, fine to coarse, poorly sorted, medium denisity, saturated, No odor	SP				
			No recovery	NA				
10			Poorly graded sand, tan, fine to coarse, medium dense, saturated, no odor	SP				10
			No recovery	NA				

Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Hand Auger

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab



Geotechnical & Analytical Chemistry Lab



6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): 4' ▼

Matsushima PMK 2-01

BORING / WELL ID: BG04

LOCATION: Weld County, Colorado

LATITUDE(WGS84): 40.3469981768

LONGITUDE(WGS84): -104.737598818

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite

Depth (feet)	Drill Tooling	% Rec. 25 50 75	Lithologic Description	USCS	PID (ppm)		Lab	Depth (feet)
					100	1000		
0			Sandy lean clay, brown, fine, medium, medium plasticity, moist, no odor	CL				0
			No Recovery	NA				
5			Sandy lean clay, fine grainined, medium, medium plasticity, saturated, organic odor and staining	CL				5
			No Recovery	NA				
10			Poorly graded sand, tan, fine to coarse, poorly graded, medium dense, saturated, no odor	SP				10
			No Recovery	NA				

Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Hand Auger

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab



Geotechnical & Analytical Chemistry Lab



6855 W. 119th Ave.
Broomfield, CO 80020

CLIENT: Noble

LOGGED BY: Ryan Yavinsky

PROJECT MANAGER: Jake Whritenour

DRILLING CONTRACTOR: Tasman

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 3.25"

DATE STARTED - COMPLETED: 11/30/23-11/30/23

TOTAL WELL DEPTH (FT. BGS): 14

DEPTH WATER ENCOUNTERED (FT. BGS): 5' ▼

Matsushima PMK 2-01

BORING / WELL ID: BG05

LOCATION: Weld County, Colorado

LATITUDE(WGS84): 40.3471212267

LONGITUDE(WGS84): -104.737667531

GROUND ELEVATION (FT. AMSL): NM

ABANDONMENT METHOD: Bentonite

Depth (feet)	Drill Tooling	% Rec. 25 50 75	Lithologic Description	USCS	PID (ppm)		Lab	Depth (feet)
					100	1000		
0			Sandy lean clay, brown, fine grained, medium, medium plasticity, moist, no odor	CL				0
			No Recovery	NA				
5			Poorly graded sand, tan, fine to coarse, medium dense, saturated @5', no odor	SP				5
			No Recovery	NA				
10			Poorly graded sand, tan, fine to coarse, medium dense, saturated, no odor	SP				10
			No Recovery	NA				

Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Hand Auger

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab



Geotechnical & Analytical Chemistry Lab