



Third Party Operator									
Removal Date									
Sample taken? Location/Container									
PID Readings									
Photo Number(s)									

### Other Facility Equipment

Equipment type	Meter House	Flare		
Equipment Condition				
Age				
Soil impacts observed	None observed	None observed		
PID Readings	0.6	0.5		
Sample taken? Location/Container	Yes, see below	Yes, see below		
Photo Number(s)	7	8		

Other observations regarding other facility or third party equipment:

Samples were taken at the meter house on site (MH01@0.5') and at the flare stack (FLARE01@0.5').

### Summary

Was impacted soil identified?	
No	Yes - less than 10 cubic yards      Yes - more than 10 cubic yards
Total number of samples field screened: <b>9</b>	Total number of samples collected: <b>9</b>
Highest PID Reading: <b>1,008</b>	Total number of samples submitted to lab for analysis: <b>7</b>
If more than 10 cubic yards of impacted soil were observed:	
Vertical extent:	Estimated spill volume:
Lateral extent:	Volume of soil removed:
Is additional investigation required?	
Was groundwater encountered during the investigation?	
No	Yes - not impacted or in contact with impacted soils      Yes - groundwater impacted and/or in contact with impacted soils
Measured depth to groundwater:	Was remedial groundwater removal conducted?      Yes      No
Date Groundwater was encountered:	Commencement date of removal:
Sheen on groundwater?      Yes      No	Volume of groundwater removed prior to sampling:
Free product observed?      Yes      No	Volume of groundwater removed post sampling:
Total number of samples collected:	Total Volume of groundwater removed:
Total number of samples submitted to lab for analysis:	

**Photographic Log**


<b>Equipment ID:</b> AST01 @0.5'	<b>Equipment Type:</b> Above Ground Storage Tank
<b>Material:</b> Steel	<b>Volume:</b>
<b>Contents:</b> Crude Oil	

<b>Equipment ID:</b> SS01 @2.5'	<b>Equipment Type:</b> Partially Buried Vault
<b>Material:</b> Concrete	<b>Volume:</b>
<b>Contents:</b> Produced Water	

**Notes/Conditions:** Facing East

**Notes/Conditions:** Facing North

**Photographic Log**


<b>Equipment ID:</b> SS02@2.5'		<b>Equipment Type:</b> Partially Buried Vault			<b>Equipment ID:</b> SS03@2.5'		<b>Equipment Type:</b> Partially Buried Vault		
<b>Material:</b> Concrete		<b>Volume:</b>	<b>Contents:</b> Produced Water		<b>Material:</b> Concrete		<b>Volume:</b>	<b>Contents:</b> Produced Water	
<b>Notes/Conditions:</b> Facing East					<b>Notes/Conditions:</b> Facing South				

**Photographic Log**



<b>Equipment ID:</b> SS04@2.5'		<b>Equipment Type:</b> Partially Buried Vault		<b>Equipment ID:</b> FS01@5'		<b>Equipment Type:</b> Partially Buried Vault	
<b>Material:</b> Concrete	<b>Volume:</b>	<b>Contents:</b> Produced Water		<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Produced Water	
<b>Notes/Conditions:</b> Facing West				<b>Notes/Conditions:</b> Facing North			

**Photographic Log**



<b>Equipment ID:</b> MH01 @0.5'	<b>Equipment Type:</b> Meter House	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b> Facing Southwest		

<b>Equipment ID:</b> Flare01 @0.5'	<b>Equipment Type:</b> Flare	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water
<b>Notes/Conditions:</b> Facing North		

**Photographic Log**

											
<b>Equipment ID:</b> SEP01-DL@3'		<b>Equipment Type:</b> Dump Line		<b>Equipment ID:</b>		<b>Equipment Type:</b>					
<b>Material:</b> Steel		<b>Volume:</b>		<b>Contents:</b> Production Fluids		<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b> Facing North						<b>Notes/Conditions:</b>					

**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - MATSUSHIMA-PM K 2-1**

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude <sup>1</sup>	Longitude	PDOP
AST01@0.5'	10/06/23	0.6	No Staining	No Odor	Lab	40.34716267	-104.7372930	1.0
FLARE01@0.5'	10/06/23	0.5	No Staining	No Odor	Grab	40.34711713	-104.7375705	0.8
FS01@5'	10/06/23	1,008	No Staining	Strong HC Odor	Lab	40.34715169	-104.7373634	1.0
MH01@0.5'	10/06/23	0.6	No Staining	No Odor	Grab	40.34708907	-104.7374830	1.1
SEP01-DL@3'	10/06/23	1.0	No Staining	No Odor	Lab	40.34710578	-104.7374826	0.9
SS01@2.5'	10/06/23	5.6	No Staining	Slight HC Odor	Lab	40.34716778	-104.7373662	1.2
SS02@2.5'	10/06/23	3.3	No Staining	No Odor	Lab	40.34715423	-104.7373333	1.1
SS03@2.5'	10/06/23	3.4	No Staining	No Odor	Lab	40.34712999	-104.7373440	1.0
SS04@2.5'	10/06/23	1.0	No Staining	No Odor	Lab	40.34714045	-104.7373752	1.1

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

1.) Latitude and longitude coordinates will be provided in decimal degrees with an accuracy and precision of 5 decimals of a degree using the North American Datum ("NAD") of 1983

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

Soil Sample ID	Date	<sup>1</sup> 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 <sup>2</sup>		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 <sup>2,3</sup>		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	
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	<0.00500	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	<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	<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	<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	<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	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL <sup>2</sup>		6 - 8.3	<6	<4mmhos/cm	2
AST01@0.5'	10/06/23	7.88	0.0534	0.127	<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
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

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 <sup>2</sup>		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL <sup>2,3</sup>		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
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
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

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.

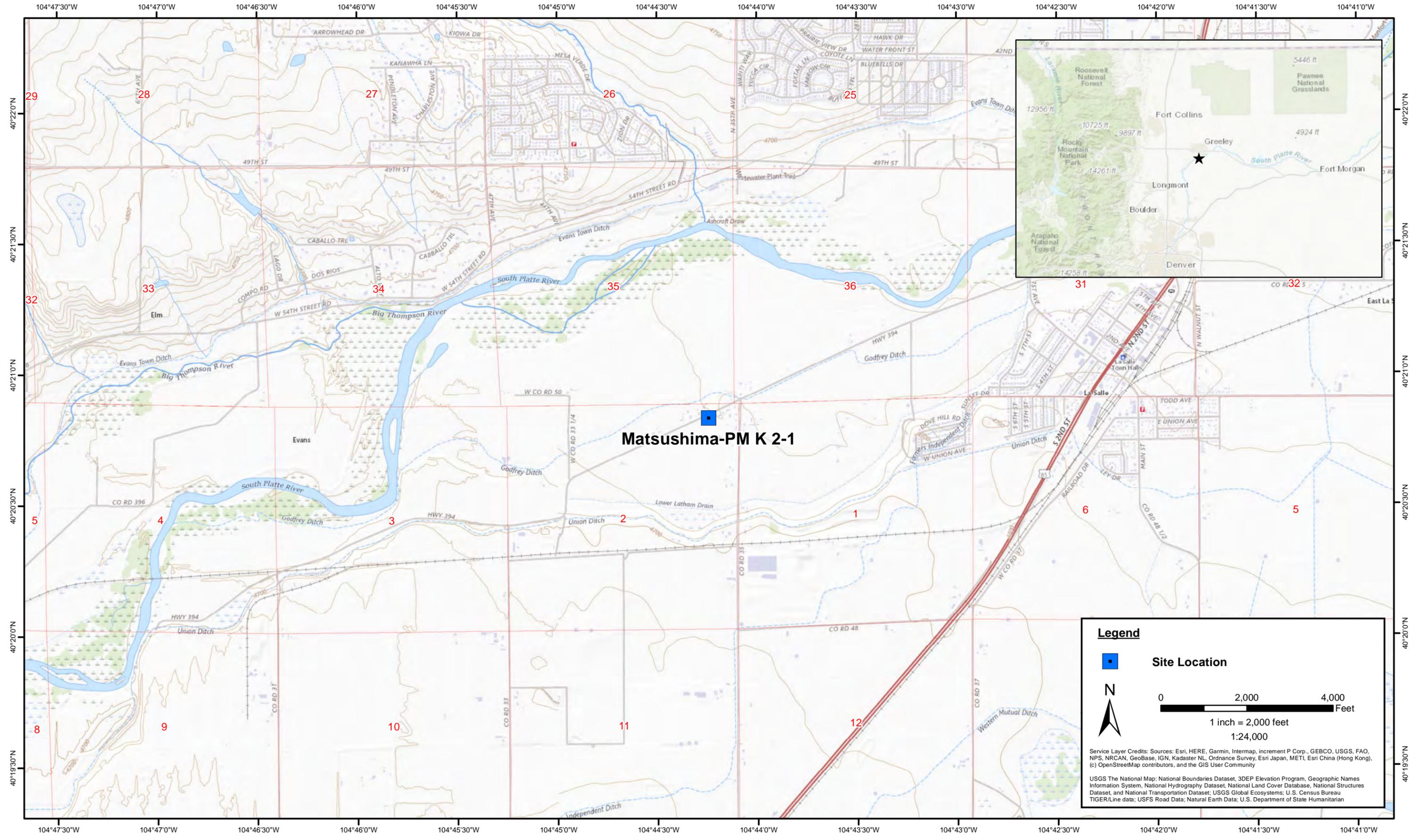
Definitions:

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

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

RP = Results Pending

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



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: 10/23/2023

DESIGNED BY: JW

DRAWN BY: HM

**TASMAN**  
GEOSCIENCES

Tasman Geosciences, Inc.  
6855 W 119<sup>th</sup> 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

Tank Battery Closure & Soil  
 Analytical Results Map  
 (10/06/2023)

**FIGURE**  
2

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 08, 2023

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

RE: Noble - Matsushima-PM K 2-1

Work Order #2310140

Enclosed are the results of analyses for samples received by Summit Scientific on 10/06/23 17:48. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and a distinct "W".

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:**  
11/08/23 14:57

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0.5'	2310140-01	Soil	10/06/23 10:02	10/06/23 17:48
SS01@2.5'	2310140-02	Soil	10/06/23 10:06	10/06/23 17:48
SS02@2.5'	2310140-03	Soil	10/06/23 10:10	10/06/23 17:48
SS03@2.5'	2310140-04	Soil	10/06/23 10:12	10/06/23 17:48
SS04@2.5'	2310140-05	Soil	10/06/23 10:16	10/06/23 17:48
FS01@5'	2310140-06	Soil	10/06/23 10:21	10/06/23 17:48
SEP01-DL@3'	2310140-07	Soil	10/06/23 10:27	10/06/23 17:48

### Case Narrative

Hunter Merlo requested full Table 915 be run for SS02@2.5', SS03@2.5', & SS04@2.5' on 10/23/2023.  
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.*

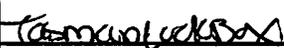
# SUMMIT SCIENTIFIC

4653 Table Mountain Drive  
Golden, CO 80403  
303-277-9310

Lab ID	Page   of
2310140	

Send Data To:		Send Invoice To:	
Client: Noble / Tasman	Project Manager: Jake Whritenour	Company: Chevron	
Address: 6855 W. 119th Ave	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Matsushima PMK 2-01	
City/State/Zip: Broomfield, CO 80020		AFE#: UWRWE-1966-ABN	
Phone: 303-903-5168	Project Name: Matsushima PMK 2-01	PO/Billing Codes:	
Sampler Name: Dalton Hagen	Project Number:	Contact: Miguel Barron	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	pH, EC, SAR	Boron - HWS	Metals - 915		HOLD	
1	AST01e0.5'	10/6/23	1002	3			X			X			X	X	X	X	X	X	X		pH, EC, SAR by saturated paste
2	SS01e2.5'	I	1006	I									X	X	X	X	X	X			
3	SS02e2.5'	I	1010	I																	
4	SS03e2.5'	I	1012	I																	
5	SS04e2.5'	I	1016	I																	
6	FS01e5'	I	1021	I									X	X	X	X	X	X			
7	SEP01-0Le3'	I	1027	I									X	X	X	X	X	X			
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: 	Date/Time: 10/6/23 1500	Received by: Tasman Lockbox	Date/Time: 10/6/23 1500	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: 	Date/Time: 10/6/23 1748	Received by: 	Date/Time: 10/6/23 1748	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	<input checked="" type="checkbox"/> Field Turb.	
Temperature Upon Receipt: 14.9	Corrected Temperature: 	IR gun #:	HNO3 lot #:			

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2310140

Client: Nobel Casman Client Project ID: Matsushima Pmk 2-01

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other  Airbill #: \_\_\_\_\_

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"/>	NOTE
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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 <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , 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

10/6/23  
Date/Time

23 23



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:**  
11/08/23 14:57

**AST01@0.5'**  
**2310140-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGJ0441	10/11/23	10/12/23	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: **10/06/23 10:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0334	83.6 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0486	122 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0408	102 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGJ0461	10/11/23	10/11/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.13	73.0 %		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:**  
11/08/23 14:57

**AST01@0.5'**  
**2310140-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0525	10/12/23	10/13/23	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: **10/06/23 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0273	81.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0143	42.9 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0503	10/12/23	10/12/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:02**

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:**  
11/08/23 14:57

**AST01@0.5'**  
**2310140-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.43	0.200	mg/kg dry	1	BGJ0473	10/11/23	10/13/23	EPA 6020B	
Barium	203	0.400	"	"	"	"	"	"	
Cadmium	0.571	0.200	"	"	"	"	"	"	
Copper	5.95	0.400	"	"	"	"	"	"	
Nickel	2.82	0.400	"	"	"	"	"	"	
Silver	0.271	0.0200	"	"	"	"	"	"	
Zinc	27.2	0.400	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/06/23 10:02

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0470	10/11/23	10/12/23	EPA 7196A	

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

Date Sampled: 10/06/23 10:02

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	71.7	0.0500	mg/L dry	1	BGJ0574	10/13/23	10/18/23	EPA 6020B	
Magnesium	14.1	0.0500	"	"	"	"	"	"	
Sodium	1.89	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/06/23 10:02

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0534	0.00100	units	1	BGJ0719	10/18/23	10/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 10/06/23 10:02

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.8		%	1	BGJ0549	10/13/23	10/13/23	Calculation	

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:**  
 11/08/23 14:57

**AST01@0.5'**  
**2310140-01 (Soil)**

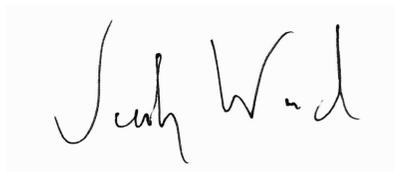
**Summit Scientific**

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	<b>0.127</b>	0.0100	mmhos/cm	1	BGJ0593	10/16/23	10/17/23	EPA 120.1	

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:**  
11/08/23 14:57

**AST01@0.5'**  
**2310140-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Lead</b>	<b>27.2</b>	0.200	mg/kg dry	1	BGJ1129	10/11/23	10/30/23	EPA 6020B	
<b>Selenium</b>	<b>0.279</b>	0.260	"	"	"	"	"	"	

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

Date Sampled: **10/06/23 10:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.88</b>		pH Units	1	BGJ0911	10/16/23	10/23/23	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:**  
11/08/23 14:57

**SS01@2.5'**  
**2310140-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGJ0441	10/11/23	10/12/23	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: **10/06/23 10:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0337	84.3 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0488	122 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0424	106 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGJ0461	10/11/23	10/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.16	73.3 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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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:**  
11/08/23 14:57

**SS01@2.5'**  
**2310140-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0525	10/12/23	10/13/23	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: **10/06/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0440	132 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0189	56.6 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0503	10/12/23	10/12/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:06**

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:**  
11/08/23 14:57

**SS01@2.5'**  
**2310140-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	1.20	0.200	mg/kg dry	1	BGJ0473	10/11/23	10/13/23	EPA 6020B
Barium	179	0.400	"	"	"	"	"	"
Cadmium	0.403	0.200	"	"	"	"	"	"
Copper	3.91	0.400	"	"	"	"	"	"
Lead	18.9	0.200	"	"	"	"	"	"
Nickel	2.34	0.400	"	"	"	"	"	"
Silver	0.187	0.0200	"	"	"	"	"	"
Zinc	15.5	0.400	"	"	"	"	"	"
Selenium	0.289	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0470	10/11/23	10/12/23	EPA 7196A	

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

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	47.8	0.0500	mg/L dry	1	BGJ0574	10/13/23	10/18/23	EPA 6020B	
Magnesium	8.37	0.0500	"	"	"	"	"	"	
Sodium	8.11	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.285	0.00100	units	1	BGJ0719	10/18/23	10/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/06/23 10:06**

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:**  
11/08/23 14:57

**SS01@2.5'**  
**2310140-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

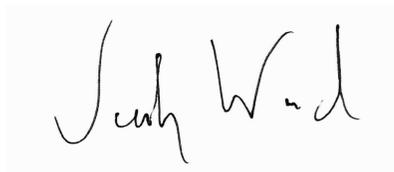
% Solids	86.0	%	1	BGJ0549	10/13/23	10/13/23	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.186	0.0100	mmhos/cm	1	BGJ0593	10/16/23	10/17/23	EPA 120.1	

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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:**  
 11/08/23 14:57

**SS01@2.5'**  
**2310140-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/06/23 10:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.85</b>		pH Units	1	BGJ0911	10/16/23	10/23/23	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:**  
11/08/23 14:57

**SS02@2.5'**  
**2310140-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

**I-04**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGJ0941	10/24/23	10/26/23	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: **10/06/23 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0289	72.2 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0332	83.0 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0342	85.5 %	50-150	"	"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

**I-04**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0942	10/24/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	12.7	101 %	30-150	"	"	"	"	"	

**PAH by EPA Method 8270D SIM**

**I-04**

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:**  
11/08/23 14:57

**SS02@2.5'**  
**2310140-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

**I-04**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0916	10/24/23	10/26/23	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: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0143	42.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0177	53.2 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1237	10/31/23	11/03/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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:**  
11/08/23 14:57

**SS02@2.5'**  
**2310140-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.19	0.200	mg/kg dry	1	BGJ1173	10/30/23	10/31/23	EPA 6020B	
Barium	172	0.400	"	"	"	"	"	"	
Cadmium	0.351	0.200	"	"	"	"	"	"	
Copper	7.93	0.400	"	"	"	"	"	"	
Lead	11.0	0.200	"	"	"	"	"	"	
Nickel	6.15	0.400	"	"	"	"	"	"	
Silver	0.0582	0.0200	"	"	"	"	"	"	
Zinc	28.6	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1089	10/26/23	10/26/23	EPA 7196A	

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

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	45.0	0.0500	mg/L dry	1	BGJ1086	10/26/23	10/31/23	EPA 6020B	
Magnesium	20.1	0.0500	"	"	"	"	"	"	
Sodium	13.4	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.417	0.00100	units	1	BGK0018	11/01/23	11/01/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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:**  
11/08/23 14:57

**SS02@2.5'**  
**2310140-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	78.4	%	1	BGJ1242	10/31/23	10/31/23	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.161	0.0100	mmhos/cm	1	BGJ1105	10/27/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/06/23 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.81		pH Units	1	BGJ0911	10/16/23	10/23/23	EPA 9045D	

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**SS03@2.5'**  
**2310140-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

**I-04**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGJ0941	10/24/23	10/26/23	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: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0291	72.8 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0347	86.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0344	86.1 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

**I-04**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0942	10/24/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	14.4	115 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

**I-04**

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

**Reported:**  
11/08/23 14:57

**SS03@2.5'**  
**2310140-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

**I-04**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0916	10/24/23	10/26/23	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: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0172	51.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0243	72.8 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1237	10/31/23	11/03/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Number: UWRWE-A1966-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
11/08/23 14:57

**SS03@2.5'**  
**2310140-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.50	0.200	mg/kg dry	1	BGJ1173	10/30/23	10/31/23	EPA 6020B
Barium	125	0.400	"	"	"	"	"	"
Cadmium	0.371	0.200	"	"	"	"	"	"
Copper	9.90	0.400	"	"	"	"	"	"
Lead	16.1	0.200	"	"	"	"	"	"
Nickel	5.28	0.400	"	"	"	"	"	"
Silver	0.147	0.0200	"	"	"	"	"	"
Zinc	36.8	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1089	10/26/23	10/26/23	EPA 7196A	

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

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	45.3	0.0500	mg/L dry	1	BGJ1086	10/26/23	10/31/23	EPA 6020B	
Magnesium	10.1	0.0500	"	"	"	"	"	"	
Sodium	18.7	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.654	0.00100	units	1	BGK0018	11/01/23	11/01/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/06/23 10:12**

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:**  
11/08/23 14:57

**SS03@2.5'**  
**2310140-04 (Soil)**

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**Physical Parameters by APHA/ASTM/EPA Methods**

<b>% Solids</b>	<b>84.9</b>	%	1	BGJ1242	10/31/23	10/31/23	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.217</b>	0.0100	mmhos/cm	1	BGJ1105	10/27/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/06/23 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>8.51</b>		pH Units	1	BGJ1103	10/27/23	10/30/23	EPA 9045D	

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**SS04@2.5'**  
**2310140-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

**I-04**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGJ0941	10/24/23	10/26/23	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: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0304	76.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0338	84.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0342	85.4 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

**I-04**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0942	10/24/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.5	108 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

**I-04**

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**SS04@2.5'**  
**2310140-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

**I-04**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0916	10/24/23	10/26/23	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: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0155	46.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0144	43.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1237	10/31/23	11/03/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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:**  
11/08/23 14:57

**SS04@2.5'**  
**2310140-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.95	0.200	mg/kg dry	1	BGJ1173	10/30/23	10/31/23	EPA 6020B
Barium	114	0.400	"	"	"	"	"	"
Cadmium	0.330	0.200	"	"	"	"	"	"
Copper	8.77	0.400	"	"	"	"	"	"
Lead	12.2	0.200	"	"	"	"	"	"
Nickel	6.53	0.400	"	"	"	"	"	"
Silver	0.0625	0.0200	"	"	"	"	"	"
Zinc	27.2	0.400	"	"	"	"	"	"
Selenium	0.284	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1089	10/26/23	10/26/23	EPA 7196A	

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

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	46.1	0.0500	mg/L dry	1	BGJ1086	10/26/23	10/31/23	EPA 6020B	
Magnesium	17.9	0.0500	"	"	"	"	"	"	
Sodium	34.3	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.09	0.00100	units	1	BGK0018	11/01/23	11/01/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/06/23 10:16**

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:**  
11/08/23 14:57

**SS04@2.5'**  
**2310140-05 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	80.0	%	1	BGJ1242	10/31/23	10/31/23	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.234	0.0100	mmhos/cm	1	BGJ1105	10/27/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/06/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.54		pH Units	1	BGJ1103	10/27/23	10/30/23	EPA 9045D	

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**FS01@5'**  
**2310140-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGJ0441	10/11/23	10/12/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>11</b>	0.50	"	100	"	"	10/12/23	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	1	"	"	10/12/23	"	
<b>Naphthalene</b>	<b>0.054</b>	0.0038	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>450</b>	50	"	100	"	"	10/12/23	"	

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0305	76.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0398	99.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0574	143 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>120</b>	50	mg/kg	1	BGJ0461	10/11/23	10/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.83	78.6 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Broomfield CO, 80020

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

**Reported:**  
11/08/23 14:57

**FS01@5'**  
**2310140-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0525	10/12/23	10/13/23	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	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.0206</b>	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.228</b>	0.00500	"	"	"	"	"	"	E
<b>2-Methylnaphthalene</b>	<b>0.269</b>	0.00500	"	"	"	"	"	"	E

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0283	84.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0239	71.8 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0503	10/12/23	10/12/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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:**  
11/08/23 14:57

**FS01@5'**  
**2310140-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.368	0.200	mg/kg dry	1	BGJ0473	10/11/23	10/13/23	EPA 6020B	
Barium	52.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	0.922	0.400	"	"	"	"	"	"	
Lead	3.63	0.200	"	"	"	"	"	"	
Nickel	1.00	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.40	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0470	10/11/23	10/12/23	EPA 7196A	

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

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	268	0.0500	mg/L dry	1	BGJ0574	10/13/23	10/18/23	EPA 6020B	
Magnesium	58.2	0.0500	"	"	"	"	"	"	
Sodium	51.0	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.736	0.00100	units	1	BGJ0719	10/18/23	10/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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**Reported:**  
11/08/23 14:57

**FS01@5'**  
**2310140-06 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	87.3			%	1	BGJ0549	10/13/23	10/13/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.421	0.0100		mmhos/cm	1	BGJ0593	10/16/23	10/17/23	EPA 120.1	

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

Date Sampled: **10/06/23 10:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.98			pH Units	1	BGJ0592	10/16/23	10/17/23	EPA 9045D	

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

**Reported:**  
11/08/23 14:57

**SEP01-DL@3'**  
**2310140-07 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGJ0441	10/11/23	10/12/23	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: **10/06/23 10:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0342	85.4 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0505	126 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0441	110 %	50-150	"	"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0461	10/11/23	10/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	9.03	72.2 %	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:**  
11/08/23 14:57

**SEP01-DL@3'**  
**2310140-07 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0525	10/12/23	10/13/23	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: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0197	59.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0145	43.5 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0503	10/12/23	10/12/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Number: UWRWE-A1966-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
11/08/23 14:57

**SEP01-DL@3'**  
**2310140-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.34	0.200	mg/kg dry	1	BGJ0473	10/11/23	10/13/23	EPA 6020B	
Barium	208	0.400	"	"	"	"	"	"	
Copper	4.80	0.400	"	"	"	"	"	"	
Nickel	2.50	0.400	"	"	"	"	"	"	
Silver	0.275	0.0200	"	"	"	"	"	"	
Zinc	18.5	0.400	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0470	10/11/23	10/12/23	EPA 7196A	

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

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	46.7	0.0500	mg/L dry	1	BGJ0574	10/13/23	10/18/23	EPA 6020B	
Magnesium	15.5	0.0500	"	"	"	"	"	"	
Sodium	8.48	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.275	0.00100	units	1	BGJ0719	10/18/23	10/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.4		%	1	BGJ0549	10/13/23	10/13/23	Calculation	

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**Reported:**  
 11/08/23 14:57

**SEP01-DL@3'**  
**2310140-07 (Soil)**

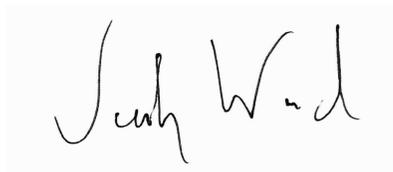
**Summit Scientific**

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	<b>0.202</b>	0.0100	mmhos/cm	1	BGJ0593	10/16/23	10/17/23	EPA 120.1	

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**Reported:**  
11/08/23 14:57

**SEP01-DL@3'**  
**2310140-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Cadmium</b>	<b>0.414</b>	0.200	mg/kg dry	1	BGJ1129	10/11/23	10/30/23	EPA 6020B	
<b>Lead</b>	<b>18.1</b>	0.200	"	"	"	"	"	"	
<b>Selenium</b>	<b>0.330</b>	0.260	"	"	"	"	"	"	

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

Date Sampled: **10/06/23 10:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.06</b>		pH Units	1	BGK0227	10/16/23	11/07/23	EPA 9045D	

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

**Reported:**  
11/08/23 14:57

### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

#### Batch BGJ0441 - EPA 5030 Soil MS

##### Blank (BGJ0441-BLK1)

Prepared: 10/11/23 Analyzed: 10/12/23

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0315</i>		<i>"</i>	<i>0.0400</i>		<i>78.7</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0502</i>		<i>"</i>	<i>0.0400</i>		<i>125</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0434</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>	<i>50-150</i>			

##### LCS (BGJ0441-BS1)

Prepared: 10/11/23 Analyzed: 10/12/23

Benzene	0.0953	0.0020	mg/kg	0.100		95.3	70-130			
Toluene	0.127	0.0050	"	0.100		127	70-130			
Ethylbenzene	0.111	0.0050	"	0.100		111	70-130			
m,p-Xylene	0.227	0.010	"	0.200		113	70-130			
o-Xylene	0.102	0.0050	"	0.100		102	70-130			
1,2,4-Trimethylbenzene	0.0998	0.0050	"	0.100		99.8	70-130			
1,3,5-Trimethylbenzene	0.105	0.0050	"	0.100		105	70-130			
Naphthalene	0.0914	0.0038	"	0.100		91.4	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0334</i>		<i>"</i>	<i>0.0400</i>		<i>83.4</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0495</i>		<i>"</i>	<i>0.0400</i>		<i>124</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>50-150</i>			

##### Matrix Spike (BGJ0441-MS1)

Source: 2310140-01

Prepared: 10/11/23 Analyzed: 10/12/23

Benzene	0.0827	0.0020	mg/kg	0.100	ND	82.7	70-130			
Toluene	0.101	0.0050	"	0.100	ND	101	70-130			
Ethylbenzene	0.0864	0.0050	"	0.100	ND	86.4	70-130			
m,p-Xylene	0.173	0.010	"	0.200	ND	86.3	70-130			
o-Xylene	0.0766	0.0050	"	0.100	ND	76.6	70-130			
1,2,4-Trimethylbenzene	0.0978	0.0050	"	0.100	ND	97.8	70-130			
1,3,5-Trimethylbenzene	0.0731	0.0050	"	0.100	ND	73.1	70-130			
Naphthalene	0.103	0.0038	"	0.100	ND	103	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0337</i>		<i>"</i>	<i>0.0400</i>		<i>84.2</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0476</i>		<i>"</i>	<i>0.0400</i>		<i>119</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>50-150</i>			

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD		

**Batch BGJ0441 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGJ0441-MSD1)</b>	<b>Source: 2310140-01</b>			Prepared: 10/11/23 Analyzed: 10/12/23						
Benzene	0.0765	0.0020	mg/kg	0.100	ND	76.5	70-130	7.80	30	
Toluene	0.0854	0.0050	"	0.100	ND	85.4	70-130	16.8	30	
Ethylbenzene	0.0761	0.0050	"	0.100	ND	76.1	70-130	12.6	30	
m,p-Xylene	0.155	0.010	"	0.200	ND	77.6	70-130	10.7	30	
o-Xylene	0.0993	0.0050	"	0.100	ND	99.3	70-130	25.7	30	
1,2,4-Trimethylbenzene	0.0933	0.0050	"	0.100	ND	93.3	70-130	4.68	30	
1,3,5-Trimethylbenzene	0.0972	0.0050	"	0.100	ND	97.2	70-130	28.3	30	
Naphthalene	0.100	0.0038	"	0.100	ND	100	70-130	2.43	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0308</i>		<i>"</i>	<i>0.0400</i>		<i>77.0</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0440</i>		<i>"</i>	<i>0.0400</i>		<i>110</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.2</i>	<i>50-150</i>			

**Batch BGJ0941 - EPA 5030 Soil MS**

<b>Blank (BGJ0941-BLK1)</b>	Prepared: 10/24/23 Analyzed: 10/25/23										
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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0286</i>		<i>"</i>	<i>0.0400</i>		<i>71.6</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0343</i>		<i>"</i>	<i>0.0400</i>		<i>85.7</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0348</i>		<i>"</i>	<i>0.0400</i>		<i>86.9</i>	<i>50-150</i>				

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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:**  
11/08/23 14:57

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BGJ0941 - EPA 5030 Soil MS**

**LCS (BGJ0941-BS1)**

Prepared: 10/24/23 Analyzed: 10/25/23

Benzene	0.101	0.0020	mg/kg	0.100		101	70-130			
Toluene	0.0821	0.0050	"	0.100		82.1	70-130			
Ethylbenzene	0.0894	0.0050	"	0.100		89.4	70-130			
m,p-Xylene	0.187	0.010	"	0.200		93.3	70-130			
o-Xylene	0.0910	0.0050	"	0.100		91.0	70-130			
1,2,4-Trimethylbenzene	0.0894	0.0050	"	0.100		89.4	70-130			
1,3,5-Trimethylbenzene	0.0907	0.0050	"	0.100		90.7	70-130			
Naphthalene	0.0770	0.0038	"	0.100		77.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0292		"	0.0400		73.0	50-150			
Surrogate: Toluene-d8	0.0332		"	0.0400		83.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0343		"	0.0400		85.6	50-150			

**Matrix Spike (BGJ0941-MS1)**

Source: 2310419-01

Prepared: 10/24/23 Analyzed: 10/25/23

Benzene	0.0955	0.0020	mg/kg	0.100	ND	95.5	70-130			
Toluene	0.0776	0.0050	"	0.100	ND	77.6	70-130			
Ethylbenzene	0.0853	0.0050	"	0.100	ND	85.3	70-130			
m,p-Xylene	0.176	0.010	"	0.200	ND	88.1	70-130			
o-Xylene	0.0833	0.0050	"	0.100	ND	83.3	70-130			
1,2,4-Trimethylbenzene	0.0807	0.0050	"	0.100	ND	80.7	70-130			
1,3,5-Trimethylbenzene	0.0824	0.0050	"	0.100	ND	82.4	70-130			
Naphthalene	0.0777	0.0038	"	0.100	ND	77.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0302		"	0.0400		75.4	50-150			
Surrogate: Toluene-d8	0.0335		"	0.0400		83.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0352		"	0.0400		87.9	50-150			

**Matrix Spike Dup (BGJ0941-MSD1)**

Source: 2310419-01

Prepared: 10/24/23 Analyzed: 10/25/23

Benzene	0.0970	0.0020	mg/kg	0.100	ND	97.0	70-130	1.56	30	
Toluene	0.0819	0.0050	"	0.100	ND	81.9	70-130	5.42	30	
Ethylbenzene	0.0859	0.0050	"	0.100	ND	85.9	70-130	0.701	30	
m,p-Xylene	0.179	0.010	"	0.200	ND	89.6	70-130	1.72	30	
o-Xylene	0.0862	0.0050	"	0.100	ND	86.2	70-130	3.40	30	
1,2,4-Trimethylbenzene	0.0838	0.0050	"	0.100	ND	83.8	70-130	3.72	30	
1,3,5-Trimethylbenzene	0.0857	0.0050	"	0.100	ND	85.7	70-130	4.00	30	
Naphthalene	0.0792	0.0038	"	0.100	ND	79.2	70-130	1.91	30	
Surrogate: 1,2-Dichloroethane-d4	0.0296		"	0.0400		74.0	50-150			
Surrogate: Toluene-d8	0.0346		"	0.0400		86.5	50-150			
Surrogate: 4-Bromofluorobenzene	0.0346		"	0.0400		86.6	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:**  
11/08/23 14:57

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BGJ0461 - EPA 3550A**

**Blank (BGJ0461-BLK1)**

Prepared & Analyzed: 10/11/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	15.0		"	12.5		120		30-150			

**LCS (BGJ0461-BS1)**

Prepared & Analyzed: 10/11/23

C10-C28 (DRO)	528	50	mg/kg	500		106		70-130			
Surrogate: <i>o</i> -Terphenyl	13.3		"	12.5		106		30-150			

**Matrix Spike (BGJ0461-MS1)**

Source: 2310140-01

Prepared & Analyzed: 10/11/23

C10-C28 (DRO)	522	50	mg/kg	500	ND	104		70-130			
Surrogate: <i>o</i> -Terphenyl	10.2		"	12.5		81.8		30-150			

**Matrix Spike Dup (BGJ0461-MSD1)**

Source: 2310140-01

Prepared & Analyzed: 10/11/23

C10-C28 (DRO)	516	50	mg/kg	500	ND	103		70-130	1.05	20	
Surrogate: <i>o</i> -Terphenyl	9.40		"	12.5		75.2		30-150			

**Batch BGJ0942 - EPA 3550A**

**Blank (BGJ0942-BLK1)**

Prepared & Analyzed: 10/24/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	17.1		"	12.5		137		30-150			

**LCS (BGJ0942-BS1)**

Prepared & Analyzed: 10/24/23

C10-C28 (DRO)	452	50	mg/kg	500		90.4		70-130			
Surrogate: <i>o</i> -Terphenyl	15.4		"	12.5		123		30-150			

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BGJ0942 - EPA 3550A**

<b>Matrix Spike (BGJ0942-MS1)</b>		<b>Source: 2310419-01</b>			<b>Prepared &amp; Analyzed: 10/24/23</b>					
C10-C28 (DRO)	416	50	mg/kg	500	29.6	77.3	70-130			
Surrogate: <i>o</i> -Terphenyl	10.6		"	12.5		84.8	30-150			
<b>Matrix Spike Dup (BGJ0942-MSD1)</b>		<b>Source: 2310419-01</b>			<b>Prepared &amp; Analyzed: 10/24/23</b>					
C10-C28 (DRO)	468	50	mg/kg	500	29.6	87.6	70-130	11.7	20	
Surrogate: <i>o</i> -Terphenyl	9.40		"	12.5		75.2	30-150			

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

**Reported:**  
11/08/23 14:57

**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 BGJ0525 - EPA 5030 Soil MS**

**Blank (BGJ0525-BLK1)**

Prepared: 10/12/23 Analyzed: 10/13/23

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0275</i>		"	<i>0.0333</i>		<i>82.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0311</i>		"	<i>0.0333</i>		<i>93.2</i>	<i>40-150</i>			

**LCS (BGJ0525-BS1)**

Prepared: 10/12/23 Analyzed: 10/13/23

Acenaphthene	0.0316	0.00500	mg/kg	0.0333	94.7	31-137
Anthracene	0.0302	0.00500	"	0.0333	90.6	30-120
Benzo (a) anthracene	0.0195	0.00500	"	0.0333	58.4	30-120
Benzo (a) pyrene	0.0289	0.00500	"	0.0333	86.7	30-120
Benzo (b) fluoranthene	0.0275	0.00500	"	0.0333	82.5	30-120
Benzo (k) fluoranthene	0.0317	0.00500	"	0.0333	95.2	30-120
Chrysene	0.0319	0.00500	"	0.0333	95.6	30-120
Dibenz (a,h) anthracene	0.0276	0.00500	"	0.0333	82.7	30-120
Fluoranthene	0.0329	0.00500	"	0.0333	98.7	30-120
Fluorene	0.0333	0.00500	"	0.0333	100	30-120
Indeno (1,2,3-cd) pyrene	0.0295	0.00500	"	0.0333	88.4	30-120
Pyrene	0.0343	0.00500	"	0.0333	103	35-142
1-Methylnaphthalene	0.0256	0.00500	"	0.0333	76.7	35-142
2-Methylnaphthalene	0.0295	0.00500	"	0.0333	88.6	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0311</i>		"	<i>0.0333</i>	<i>93.3</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0332</i>		"	<i>0.0333</i>	<i>99.5</i>	<i>40-150</i>

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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:**  
11/08/23 14:57

**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 BGJ0525 - EPA 5030 Soil MS**

<b>Matrix Spike (BGJ0525-MS1)</b>	<b>Source: 2310140-01</b>			Prepared: 10/12/23 Analyzed: 10/13/23					
Acenaphthene	0.0222	0.00500	mg/kg	0.0333	ND	66.7	31-137		
Anthracene	0.0213	0.00500	"	0.0333	ND	63.8	30-120		
Benzo (a) anthracene	0.0173	0.00500	"	0.0333	ND	51.8	30-120		
Benzo (a) pyrene	0.0245	0.00500	"	0.0333	ND	73.5	30-120		
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	69.8	30-120		
Benzo (k) fluoranthene	0.0243	0.00500	"	0.0333	ND	73.0	30-120		
Chrysene	0.0245	0.00500	"	0.0333	ND	73.5	30-120		
Dibenz (a,h) anthracene	0.0267	0.00500	"	0.0333	ND	80.0	30-120		
Fluoranthene	0.0265	0.00500	"	0.0333	ND	79.4	30-120		
Fluorene	0.0232	0.00500	"	0.0333	ND	69.7	30-120		
Indeno (1,2,3-cd) pyrene	0.0263	0.00500	"	0.0333	ND	79.0	30-120		
Pyrene	0.0284	0.00500	"	0.0333	ND	85.2	35-142		
1-Methylnaphthalene	0.0216	0.00500	"	0.0333	ND	64.8	15-130		
2-Methylnaphthalene	0.0212	0.00500	"	0.0333	ND	63.5	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0247</i>		<i>"</i>	<i>0.0333</i>		<i>74.1</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0227</i>		<i>"</i>	<i>0.0333</i>		<i>68.2</i>	<i>40-150</i>		

<b>Matrix Spike Dup (BGJ0525-MSD1)</b>	<b>Source: 2310140-01</b>			Prepared: 10/12/23 Analyzed: 10/13/23					
Acenaphthene	0.0167	0.00500	mg/kg	0.0333	ND	50.0	31-137	28.7	30
Anthracene	0.0165	0.00500	"	0.0333	ND	49.5	30-120	25.3	30
Benzo (a) anthracene	0.0145	0.00500	"	0.0333	ND	43.6	30-120	17.4	30
Benzo (a) pyrene	0.0238	0.00500	"	0.0333	ND	71.3	30-120	3.07	30
Benzo (b) fluoranthene	0.0204	0.00500	"	0.0333	ND	61.2	30-120	13.1	30
Benzo (k) fluoranthene	0.0203	0.00500	"	0.0333	ND	60.9	30-120	18.1	30
Chrysene	0.0224	0.00500	"	0.0333	ND	67.2	30-120	8.93	30
Dibenz (a,h) anthracene	0.0234	0.00500	"	0.0333	ND	70.1	30-120	13.1	30
Fluoranthene	0.0218	0.00500	"	0.0333	ND	65.5	30-120	19.1	30
Fluorene	0.0173	0.00500	"	0.0333	ND	51.9	30-120	29.3	30
Indeno (1,2,3-cd) pyrene	0.0231	0.00500	"	0.0333	ND	69.4	30-120	12.9	30
Pyrene	0.0258	0.00500	"	0.0333	ND	77.5	35-142	9.43	30
1-Methylnaphthalene	0.0189	0.00500	"	0.0333	ND	56.6	15-130	13.6	50
2-Methylnaphthalene	0.0153	0.00500	"	0.0333	ND	45.8	15-130	32.5	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0197</i>		<i>"</i>	<i>0.0333</i>		<i>59.2</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0174</i>		<i>"</i>	<i>0.0333</i>		<i>52.2</i>	<i>40-150</i>		

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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:**  
11/08/23 14:57

**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 BGJ0916 - EPA 5030 Soil MS**

**Blank (BGJ0916-BLK1)**

Prepared: 10/24/23 Analyzed: 10/26/23

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0271</i>		"	<i>0.0333</i>		<i>81.2</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0346</i>		"	<i>0.0333</i>		<i>104</i>	<i>40-150</i>			

**LCS (BGJ0916-BS1)**

Prepared: 10/24/23 Analyzed: 10/26/23

Acenaphthene	0.0319	0.00500	mg/kg	0.0333		95.6	31-137			
Anthracene	0.0321	0.00500	"	0.0333		96.4	30-120			
Benzo (a) anthracene	0.0240	0.00500	"	0.0333		72.0	30-120			
Benzo (a) pyrene	0.0286	0.00500	"	0.0333		85.7	30-120			
Benzo (b) fluoranthene	0.0287	0.00500	"	0.0333		86.1	30-120			
Benzo (k) fluoranthene	0.0375	0.00500	"	0.0333		112	30-120			
Chrysene	0.0312	0.00500	"	0.0333		93.6	30-120			
Dibenz (a,h) anthracene	0.0279	0.00500	"	0.0333		83.7	30-120			
Fluoranthene	0.0359	0.00500	"	0.0333		108	30-120			
Fluorene	0.0364	0.00500	"	0.0333		109	30-120			
Indeno (1,2,3-cd) pyrene	0.0278	0.00500	"	0.0333		83.4	30-120			
Pyrene	0.0368	0.00500	"	0.0333		110	35-142			
1-Methylnaphthalene	0.0303	0.00500	"	0.0333		90.9	35-142			
2-Methylnaphthalene	0.0305	0.00500	"	0.0333		91.4	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0316</i>		"	<i>0.0333</i>		<i>94.7</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0377</i>		"	<i>0.0333</i>		<i>113</i>	<i>40-150</i>			

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**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 BGJ0916 - EPA 5030 Soil MS**

<b>Matrix Spike (BGJ0916-MS1)</b>	<b>Source: 2310140-03</b>			Prepared: 10/24/23 Analyzed: 10/26/23					
Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.3	31-137		
Anthracene	0.0183	0.00500	"	0.0333	ND	54.9	30-120		
Benzo (a) anthracene	0.0115	0.00500	"	0.0333	ND	34.4	30-120		
Benzo (a) pyrene	0.0138	0.00500	"	0.0333	ND	41.4	30-120		
Benzo (b) fluoranthene	0.0162	0.00500	"	0.0333	ND	48.5	30-120		
Benzo (k) fluoranthene	0.0204	0.00500	"	0.0333	ND	61.3	30-120		
Chrysene	0.0189	0.00500	"	0.0333	ND	56.8	30-120		
Dibenz (a,h) anthracene	0.0153	0.00500	"	0.0333	ND	46.0	30-120		
Fluoranthene	0.0208	0.00500	"	0.0333	ND	62.3	30-120		
Fluorene	0.0210	0.00500	"	0.0333	ND	63.0	30-120		
Indeno (1,2,3-cd) pyrene	0.0145	0.00500	"	0.0333	ND	43.4	30-120		
Pyrene	0.0213	0.00500	"	0.0333	ND	63.8	35-142		
1-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.2	15-130		
2-Methylnaphthalene	0.0175	0.00500	"	0.0333	ND	52.4	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0215</i>		<i>"</i>	<i>0.0333</i>		<i>64.6</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0211</i>		<i>"</i>	<i>0.0333</i>		<i>63.4</i>	<i>40-150</i>		

<b>Matrix Spike Dup (BGJ0916-MSD1)</b>	<b>Source: 2310140-03</b>			Prepared: 10/24/23 Analyzed: 10/26/23					
Acenaphthene	0.0163	0.00500	mg/kg	0.0333	ND	49.0	31-137	8.23	30
Anthracene	0.0169	0.00500	"	0.0333	ND	50.6	30-120	8.24	30
Benzo (a) anthracene	0.0117	0.00500	"	0.0333	ND	35.0	30-120	1.74	30
Benzo (a) pyrene	0.0142	0.00500	"	0.0333	ND	42.5	30-120	2.58	30
Benzo (b) fluoranthene	0.0145	0.00500	"	0.0333	ND	43.6	30-120	10.7	30
Benzo (k) fluoranthene	0.0188	0.00500	"	0.0333	ND	56.3	30-120	8.51	30
Chrysene	0.0169	0.00500	"	0.0333	ND	50.8	30-120	11.1	30
Dibenz (a,h) anthracene	0.0137	0.00500	"	0.0333	ND	41.2	30-120	11.1	30
Fluoranthene	0.0191	0.00500	"	0.0333	ND	57.3	30-120	8.37	30
Fluorene	0.0193	0.00500	"	0.0333	ND	58.0	30-120	8.28	30
Indeno (1,2,3-cd) pyrene	0.0128	0.00500	"	0.0333	ND	38.4	30-120	12.3	30
Pyrene	0.0201	0.00500	"	0.0333	ND	60.2	35-142	5.79	30
1-Methylnaphthalene	0.0187	0.00500	"	0.0333	ND	56.1	15-130	3.62	50
2-Methylnaphthalene	0.0155	0.00500	"	0.0333	ND	46.4	15-130	12.1	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0196</i>		<i>"</i>	<i>0.0333</i>		<i>58.7</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0194</i>		<i>"</i>	<i>0.0333</i>		<i>58.1</i>	<i>40-150</i>		

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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:**  
11/08/23 14:57

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BGJ0503 - EPA 3050B**

**Blank (BGJ0503-BLK1)**

Prepared & Analyzed: 10/12/23

Boron ND 2.00 mg/L

**LCS (BGJ0503-BS1)**

Prepared & Analyzed: 10/12/23

Boron 4.62 2.00 mg/L 5.00 92.4 80-120

**Duplicate (BGJ0503-DUP1)**

Source: 2310074-02RE1

Prepared & Analyzed: 10/12/23

Boron 2.32 2.00 mg/L 2.30 0.861 20

**Matrix Spike (BGJ0503-MS1)**

Source: 2310074-02RE1

Prepared & Analyzed: 10/12/23

Boron 7.12 2.00 mg/L 5.00 2.30 96.4 75-125

**Matrix Spike Dup (BGJ0503-MSD1)**

Source: 2310074-02RE1

Prepared & Analyzed: 10/12/23

Boron 6.85 2.00 mg/L 5.00 2.30 91.1 75-125 3.78 25

**Batch BGJ1237 - EPA 3050B**

**Blank (BGJ1237-BLK1)**

Prepared: 10/31/23 Analyzed: 11/03/23

Boron ND 2.00 mg/L

**LCS (BGJ1237-BS1)**

Prepared: 10/31/23 Analyzed: 11/03/23

Boron 4.51 2.00 mg/L 5.00 90.3 80-120

**Duplicate (BGJ1237-DUP1)**

Source: 2310140-03

Prepared: 10/31/23 Analyzed: 11/03/23

Boron 0.237 2.00 mg/L 0.257 8.39 20

**Matrix Spike (BGJ1237-MS1)**

Source: 2310140-03

Prepared: 10/31/23 Analyzed: 11/03/23

Boron 4.40 2.00 mg/L 5.00 0.257 82.9 75-125

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike	Source		%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch BGJ1237 - EPA 3050B**

**Matrix Spike Dup (BGJ1237-MSD1)**

**Source: 2310140-03**

Prepared: 10/31/23 Analyzed: 11/03/23

Boron	4.71	2.00	mg/L	5.00	0.257	89.0	75-125	6.61	25	
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**Reported:**  
11/08/23 14:57

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD		

**Batch BGJ0473 - EPA 3050B**

**Blank (BGJ0473-BLK1)**

Prepared: 10/11/23 Analyzed: 10/13/23

Arsenic	ND	0.200	mg/kg wet						
Barium	ND	0.400	"						
Cadmium	ND	0.200	"						
Copper	ND	0.400	"						
Lead	ND	0.200	"						
Nickel	ND	0.400	"						
Silver	ND	0.0200	"						
Zinc	ND	0.400	"						
Selenium	ND	0.260	"						

**LCS (BGJ0473-BS1)**

Prepared: 10/11/23 Analyzed: 10/13/23

Arsenic	40.8	0.200	mg/kg wet	40.0	102	80-120
Barium	42.4	0.400	"	40.0	106	80-120
Cadmium	2.28	0.200	"	2.00	114	80-120
Copper	43.6	0.400	"	40.0	109	80-120
Lead	22.1	0.200	"	20.0	110	80-120
Nickel	44.6	0.400	"	40.0	112	80-120
Silver	1.68	0.0200	"	2.00	84.0	80-120
Zinc	43.8	0.400	"	40.0	110	80-120
Selenium	4.59	0.260	"	4.00	115	80-120

**Duplicate (BGJ0473-DUP1)**

Source: 2310118-01

Prepared: 10/11/23 Analyzed: 10/13/23

Arsenic	0.477	0.200	mg/kg dry	0.509	6.38	20
Barium	69.7	0.400	"	62.3	11.2	20
Cadmium	0.177	0.200	"	0.145	20.1	20
Copper	9.93	0.400	"	8.72	13.0	20
Lead	3.79	0.200	"	3.48	8.45	20
Nickel	1.16	0.400	"	1.08	6.98	20
Silver	0.0104	0.0200	"	0.0112	8.00	20
Zinc	51.4	0.400	"	44.0	15.6	20
Selenium	0.454	0.260	"	0.427	6.27	20

QR-01

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**Reported:**  
11/08/23 14:57

**Total Metals by EPA 6020B - Quality Control**  
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Analyte	Reporting			Spike	Source		%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch BGJ0473 - EPA 3050B**

<b>Matrix Spike (BGJ0473-MS1)</b>		<b>Source: 2310118-01</b>			Prepared: 10/11/23		Analyzed: 10/13/23				
Arsenic	27.0	0.200	mg/kg dry	43.1	0.509	61.5	75-125				QM-07
Barium	108	0.400	"	43.1	62.3	105	75-125				
Cadmium	2.54	0.200	"	2.16	0.145	111	75-125				
Copper	33.3	0.400	"	43.1	8.72	56.9	75-125				QM-07
Lead	25.8	0.200	"	21.6	3.48	103	75-125				
Nickel	25.7	0.400	"	43.1	1.08	57.1	75-125				QM-07
Silver	1.73	0.0200	"	2.16	0.0112	79.8	75-125				
Zinc	71.2	0.400	"	43.1	44.0	63.1	75-125				QM-07
Selenium	7.45	0.260	"	4.31	0.427	163	75-125				QM-07

<b>Matrix Spike Dup (BGJ0473-MSD1)</b>		<b>Source: 2310118-01</b>			Prepared: 10/11/23		Analyzed: 10/13/23				
Arsenic	28.1	0.200	mg/kg dry	43.1	0.509	64.0	75-125	3.97	25		QM-07
Barium	109	0.400	"	43.1	62.3	107	75-125	0.905	25		
Cadmium	2.60	0.200	"	2.16	0.145	114	75-125	2.58	25		
Copper	34.5	0.400	"	43.1	8.72	59.7	75-125	3.58	25		QM-07
Lead	25.9	0.200	"	21.6	3.48	104	75-125	0.362	25		
Nickel	26.7	0.400	"	43.1	1.08	59.3	75-125	3.65	25		QM-07
Silver	1.72	0.0200	"	2.16	0.0112	79.4	75-125	0.499	25		
Zinc	73.7	0.400	"	43.1	44.0	68.8	75-125	3.38	25		QM-07
Selenium	7.44	0.260	"	4.31	0.427	162	75-125	0.145	25		QM-07

**Batch BGJ1173 - EPA 3050B**

<b>Blank (BGJ1173-BLK1)</b>					Prepared: 10/30/23		Analyzed: 10/31/23				
Arsenic	ND	0.200	mg/kg wet								
Barium	ND	0.400	"								
Cadmium	ND	0.200	"								
Copper	ND	0.400	"								
Lead	ND	0.200	"								
Nickel	ND	0.400	"								
Silver	ND	0.0200	"								
Zinc	ND	0.400	"								
Selenium	ND	0.260	"								

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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN  
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**Reported:**  
11/08/23 14:57

**Total Metals by EPA 6020B - Quality Control**  
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Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BGJ1173 - EPA 3050B**

**LCS (BGJ1173-BS1)**

Prepared: 10/30/23 Analyzed: 10/31/23

Arsenic	33.8	0.200	mg/kg wet	40.0		84.6	80-120			
Barium	35.6	0.400	"	40.0		89.1	80-120			
Cadmium	1.75	0.200	"	2.00		87.5	80-120			
Copper	35.9	0.400	"	40.0		89.7	80-120			
Lead	17.4	0.200	"	20.0		87.2	80-120			
Nickel	35.9	0.400	"	40.0		89.8	80-120			
Silver	1.74	0.0200	"	2.00		87.2	80-120			
Zinc	35.4	0.400	"	40.0		88.5	80-120			
Selenium	3.89	0.260	"	4.00		97.3	80-120			

**Duplicate (BGJ1173-DUP1)**

Source: 2310112-01

Prepared: 10/30/23 Analyzed: 10/31/23

Arsenic	5.06	0.200	mg/kg dry		5.02		0.686	20		
Barium	321	0.400	"		154		70.5	20		QR-04
Cadmium	0.232	0.200	"		0.233		0.610	20		
Copper	7.44	0.400	"		6.50		13.5	20		
Lead	19.7	0.200	"		11.8		50.6	20		QR-04
Nickel	8.37	0.400	"		7.74		7.89	20		
Silver	0.0516	0.0200	"		0.0426		19.1	20		
Zinc	30.6	0.400	"		25.7		17.1	20		
Selenium	0.214	0.260	"		0.203		5.45	20		

**Matrix Spike (BGJ1173-MS1)**

Source: 2310112-01

Prepared: 10/30/23 Analyzed: 10/31/23

Arsenic	42.5	0.200	mg/kg dry	47.3	5.02	79.2	75-125			
Barium	272	0.400	"	47.3	154	250	75-125			QM-07
Cadmium	2.59	0.200	"	2.37	0.233	99.6	75-125			
Copper	32.4	0.400	"	47.3	6.50	54.8	75-125			QM-07
Lead	38.7	0.200	"	23.7	11.8	114	75-125			
Nickel	32.9	0.400	"	47.3	7.74	53.1	75-125			QM-07
Silver	2.02	0.0200	"	2.37	0.0426	83.7	75-125			
Zinc	58.8	0.400	"	47.3	25.7	69.9	75-125			QM-07
Selenium	3.40	0.260	"	4.73	0.203	67.4	75-125			QM-07

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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:**  
11/08/23 14:57

**Total Metals by EPA 6020B - Quality Control**

**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BGJ1173 - EPA 3050B**

<b>Matrix Spike Dup (BGJ1173-MSD1)</b>	<b>Source: 2310112-01</b>			Prepared: 10/30/23		Analyzed: 10/31/23				
Arsenic	41.6	0.200	mg/kg dry	47.3	5.02	77.4	75-125	2.02	25	
Barium	272	0.400	"	47.3	154	250	75-125	0.0976	25	QM-07
Cadmium	2.58	0.200	"	2.37	0.233	99.3	75-125	0.201	25	
Copper	32.5	0.400	"	47.3	6.50	55.0	75-125	0.386	25	QM-07
Lead	38.8	0.200	"	23.7	11.8	114	75-125	0.169	25	
Nickel	33.0	0.400	"	47.3	7.74	53.3	75-125	0.279	25	QM-07
Silver	2.01	0.0200	"	2.37	0.0426	83.2	75-125	0.657	25	
Zinc	58.9	0.400	"	47.3	25.7	70.0	75-125	0.0853	25	QM-07
Selenium	3.49	0.260	"	4.73	0.203	69.5	75-125	2.78	25	QM-07

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BGJ0470 - 3060A Mod**

<b>Blank (BGJ0470-BLK1)</b>		Prepared: 10/11/23 Analyzed: 10/12/23									
Chromium, Hexavalent	ND	0.30	mg/kg wet								
<b>LCS (BGJ0470-BS1)</b>		Prepared: 10/11/23 Analyzed: 10/12/23									
Chromium, Hexavalent	24.4	0.30	mg/kg wet	25.0	97.6	80-120					
<b>Duplicate (BGJ0470-DUP1)</b>		<b>Source: 2310131-01</b>		Prepared: 10/11/23 Analyzed: 10/12/23							
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND					20	
<b>Matrix Spike (BGJ0470-MS1)</b>		<b>Source: 2310131-01</b>		Prepared: 10/11/23 Analyzed: 10/12/23							
Chromium, Hexavalent	24.8	0.30	mg/kg dry	26.9	ND	92.4	75-125				
<b>Matrix Spike Dup (BGJ0470-MSD1)</b>		<b>Source: 2310131-01</b>		Prepared: 10/11/23 Analyzed: 10/12/23							
Chromium, Hexavalent	25.0	0.30	mg/kg dry	26.9	ND	92.8	75-125	0.432		20	

**Batch BGJ1089 - 3060A Mod**

<b>Blank (BGJ1089-BLK1)</b>		Prepared & Analyzed: 10/26/23									
Chromium, Hexavalent	ND	0.30	mg/kg wet								
<b>LCS (BGJ1089-BS1)</b>		Prepared & Analyzed: 10/26/23									
Chromium, Hexavalent	26.6	0.30	mg/kg wet	25.0	107	80-120					
<b>Duplicate (BGJ1089-DUP1)</b>		<b>Source: 2310112-01</b>		Prepared & Analyzed: 10/26/23							
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND					20	
<b>Matrix Spike (BGJ1089-MS1)</b>		<b>Source: 2310112-01</b>		Prepared & Analyzed: 10/26/23							
Chromium, Hexavalent	26.3	0.30	mg/kg dry	29.6	ND	89.0	75-125				

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**Hexavalent Chromium by EPA Method 7196 - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BGJ1089 - 3060A Mod**

**Matrix Spike Dup (BGJ1089-MSD1)**

Source: 2310112-01

Prepared & Analyzed: 10/26/23

Chromium, Hexavalent	26.3	0.30	mg/kg dry	29.6	ND	88.8	75-125	0.225	20	
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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:**  
11/08/23 14:57

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

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BGJ0574 - General Preparation**

**Blank (BGJ0574-BLK1)**

Prepared: 10/13/23 Analyzed: 10/17/23

Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

**LCS (BGJ0574-BS1)**

Prepared: 10/13/23 Analyzed: 10/17/23

Calcium	6.29	0.0500	mg/L wet	5.00	126	70-130
Magnesium	5.69	0.0500	"	5.00	114	70-130
Sodium	5.66	0.0500	"	5.00	113	70-130

**Batch BGJ1086 - General Preparation**

**Blank (BGJ1086-BLK1)**

Prepared: 10/26/23 Analyzed: 10/31/23

Calcium	ND	0.0500	mg/L wet			
Magnesium	ND	0.0500	"			
Sodium	ND	0.0500	"			

**LCS (BGJ1086-BS1)**

Prepared: 10/26/23 Analyzed: 10/31/23

Calcium	5.71	0.0500	mg/L wet	5.00	114	70-130
Magnesium	5.50	0.0500	"	5.00	110	70-130
Sodium	5.50	0.0500	"	5.00	110	70-130

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Project: Noble - Matsushima-PM K 2-1

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

**Reported:**  
11/08/23 14:57

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

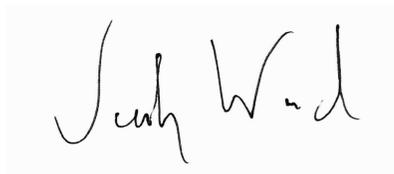
**Batch BGJ0549 - General Preparation**

<b>Duplicate (BGJ0549-DUP1)</b>		<b>Source: 2309486-01</b>			<b>Prepared &amp; Analyzed: 10/13/23</b>			
% Solids	84.7		%		84.6		0.136	20

**Batch BGJ1242 - General Preparation**

<b>Duplicate (BGJ1242-DUP1)</b>		<b>Source: 2310140-03</b>			<b>Prepared &amp; Analyzed: 10/31/23</b>			
% Solids	79.3		%		78.4		1.14	20

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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:**  
11/08/23 14:57

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BGJ0593 - General Preparation**

**Blank (BGJ0593-BLK1)**

Prepared: 10/16/23 Analyzed: 10/17/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGJ0593-BS1)**

Prepared: 10/16/23 Analyzed: 10/17/23

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BGJ0593-DUP1)**

**Source: 2310131-01**

Prepared: 10/16/23 Analyzed: 10/17/23

Specific Conductance (EC) 1.50 0.0100 mmhos/cm 1.54 2.70 20

**Batch BGJ1105 - General Preparation**

**Blank (BGJ1105-BLK1)**

Prepared: 10/27/23 Analyzed: 10/30/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGJ1105-BS1)**

Prepared: 10/27/23 Analyzed: 10/30/23

Specific Conductance (EC) 0.151 0.0100 mmhos/cm 0.150 100 95-105

**Duplicate (BGJ1105-DUP1)**

**Source: 2310140-03**

Prepared: 10/27/23 Analyzed: 10/30/23

Specific Conductance (EC) 0.161 0.0100 mmhos/cm 0.161 0.00 20

Summit Scientific

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**Reported:**  
11/08/23 14:57

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike	Source		%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch BGJ0592 - General Preparation**

**LCS (BGJ0592-BS1)**

Prepared: 10/16/23 Analyzed: 10/17/23

pH	9.12		pH Units	9.18		99.3	95-105			
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**Duplicate (BGJ0592-DUP1)**

Source: 2309486-01

Prepared: 10/16/23 Analyzed: 10/17/23

pH	8.20		pH Units		8.20			0.00	20	
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**Batch BGJ0911 - General Preparation**

**LCS (BGJ0911-BS1)**

Prepared & Analyzed: 10/23/23

pH	9.04		pH Units	9.18		98.5	95-105			
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**Duplicate (BGJ0911-DUP1)**

Source: 2309140-01

Prepared & Analyzed: 10/23/23

pH	8.63		pH Units		8.62			0.116	20	
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**Batch BGJ1103 - General Preparation**

**LCS (BGJ1103-BS1)**

Prepared: 10/27/23 Analyzed: 10/30/23

pH	9.05		pH Units	9.18		98.6	95-105			
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**Duplicate (BGJ1103-DUP1)**

Source: 2310140-04

Prepared: 10/27/23 Analyzed: 10/30/23

pH	8.51		pH Units		8.51			0.00	20	
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**Batch BGK0227 - General Preparation**

**LCS (BGK0227-BS1)**

Prepared & Analyzed: 11/07/23

pH	9.14		pH Units	9.18		99.6	95-105			
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Summit Scientific

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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN  
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**Reported:**  
 11/08/23 14:57

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BGK0227 - General Preparation**

**Duplicate (BGK0227-DUP1)**

**Source: 2310140-07RE1** Prepared & Analyzed: 11/07/23

pH	8.10		pH Units		8.06			0.495	20	
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Summit Scientific



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**Reported:**  
11/08/23 14:57

### Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- 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.
- I-04 Sample was analyzed out of recommended holding time per clients request.
- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- 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