

SECOND QUARTER 2024
SITE MONITORING DATA
MATSUSHIMA-PM K 2-1 FACILITY
ECMC SPILL TRACKING #327037
ECMC REMEDIATION #29940

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 W. 119th Ave
Broomfield, CO 80020

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - MATSUSHIMA-PM K 2-1



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.) ⁽¹⁾	Depth to LNAPL (ft.) ⁽¹⁾	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	12/21/23	4666.56	13.16	6.23	ND	ND	4660.59
BH01	03/06/24	4666.56	13.25	6.69	ND	ND	4660.13
BH01	06/03/24	4666.56	13.20	3.61	ND	ND	4663.21
BH02	12/21/23	4667.03	13.38	6.70	ND	ND	4660.55
BH02	03/06/24	4667.03	13.31	7.14	ND	ND	4660.11
BH02	06/03/24	4667.03	13.56	4.07	ND	ND	4663.18
BH03	12/21/23	4666.71	13.35	6.40	ND	ND	4660.55
BH03	03/06/24	4666.71	13.37	6.86	ND	ND	4660.09
BH03	06/03/24	4666.71	13.35	3.79	ND	ND	4663.16
BH04	12/21/23	4666.20	13.36	5.79	ND	ND	4660.63
BH04	03/06/24	4666.20	13.39	6.27	ND	ND	4660.15
BH04	06/03/24	4666.20	13.32	3.19	ND	ND	4663.23
BH05	12/21/23	4667.24	13.66	4.89	ND	ND	4661.61
BH05	03/06/24	4667.24	13.59	5.30	ND	ND	4661.20
BH05	06/03/24	4667.24	13.65	2.26	ND	ND	4664.24

Notes:

* Groundwater elevation was corrected for product thickness (when present) using the following calculation:

Groundwater elevation = (TOC Elevation - Measured Depth to Water)+(LNAPL Thickness in Well x LNAPL Relative Density)

LNAPL relative density was estimated to be approximately 0.75

1. Depth to water measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

Definitions:

ft. = Feet

BTOC = Below top of casing

ND = No LNAPL detected

AMSL = Above mean sea level

LNAPL = Light non-aqueous phase liquid

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - MATSUSHIMA-PM K 2-1



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4 - TMB (µg/L)	1,3,5 - TMB (µg/L)	1-M (µg/L)	2-M (µg/L)	Total Dissolved Solids (mg/L)	Chlorides (mg/L)	Sulfates (mg/L)
ECMC Standard ⁽¹⁾		5	560	700	1,400	140	67	67	1.1 ⁽²⁾	3.6 ⁽²⁾	1.25 X Background	250	250
BH01	12/21/23	3.3	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	758	125	274
BH01	03/06/24	2.7	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	823	116	320
BH01	06/03/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	816	141	277
BH02	12/21/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	797	127	265
BH02	03/06/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	834	118	261
BH02	06/03/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	808	148	307
BH03	12/21/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	779	122	265
BH03	03/06/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	859	120	258
BH03	06/03/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	802	138	303
BH04 ⁽³⁾	12/21/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	809	118	252
BH04 ⁽³⁾	03/06/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	820	116	252
BH04 ⁽³⁾	06/03/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	793	137	278
BH05 ⁽³⁾	12/21/23	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	824	130	274
BH05 ⁽³⁾	03/06/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	815	117	270
BH05 ⁽³⁾	06/03/24	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	801	135	280

Notes:

⁽¹⁾ Groundwater standards referenced from 2 CCR 404-1, Table 915-1 (January 15, 2021).

⁽²⁾ Groundwater standards reference from USEPA Regional Screening Level (RSL) Resident Tapwater Table (TR=1E-06, HQ=0.1) November 2022

⁽³⁾ Monitoring well used for background inorganic concentrations

Definitions:

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

ECMC = Colorado Energy and Carbon Management Commission

USEPA = United States Environmental Protection Agency

µg/L = Micrograms per liter

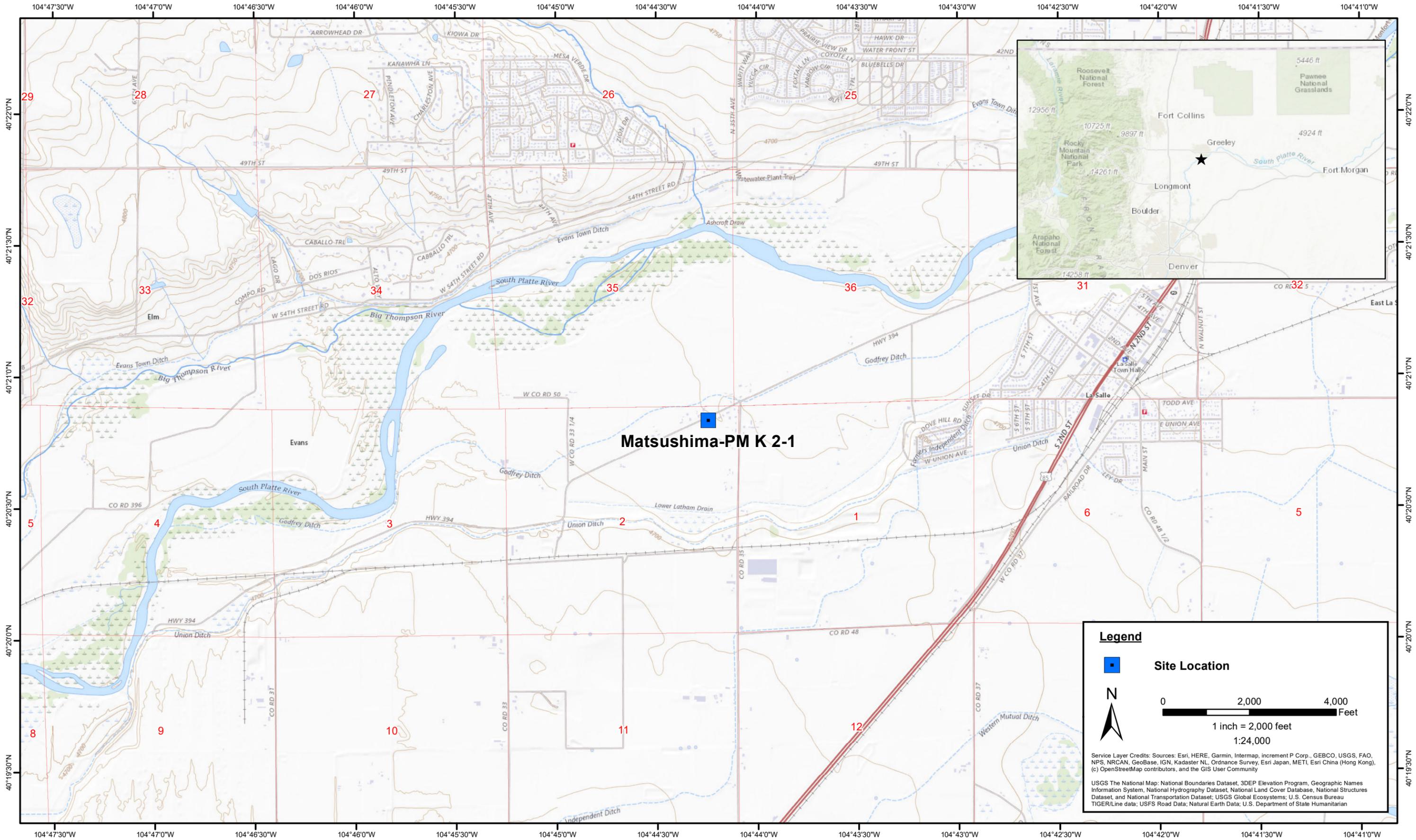
mg/L = Milligrams per liter

1,2,4 - TMB = 1,2,4 - trimethylbenzene

1,3,5 - TMB = 1,3,5 - trimethylbenzene

M = Methylnaphthalene

TDS = Total Dissolved Solids



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

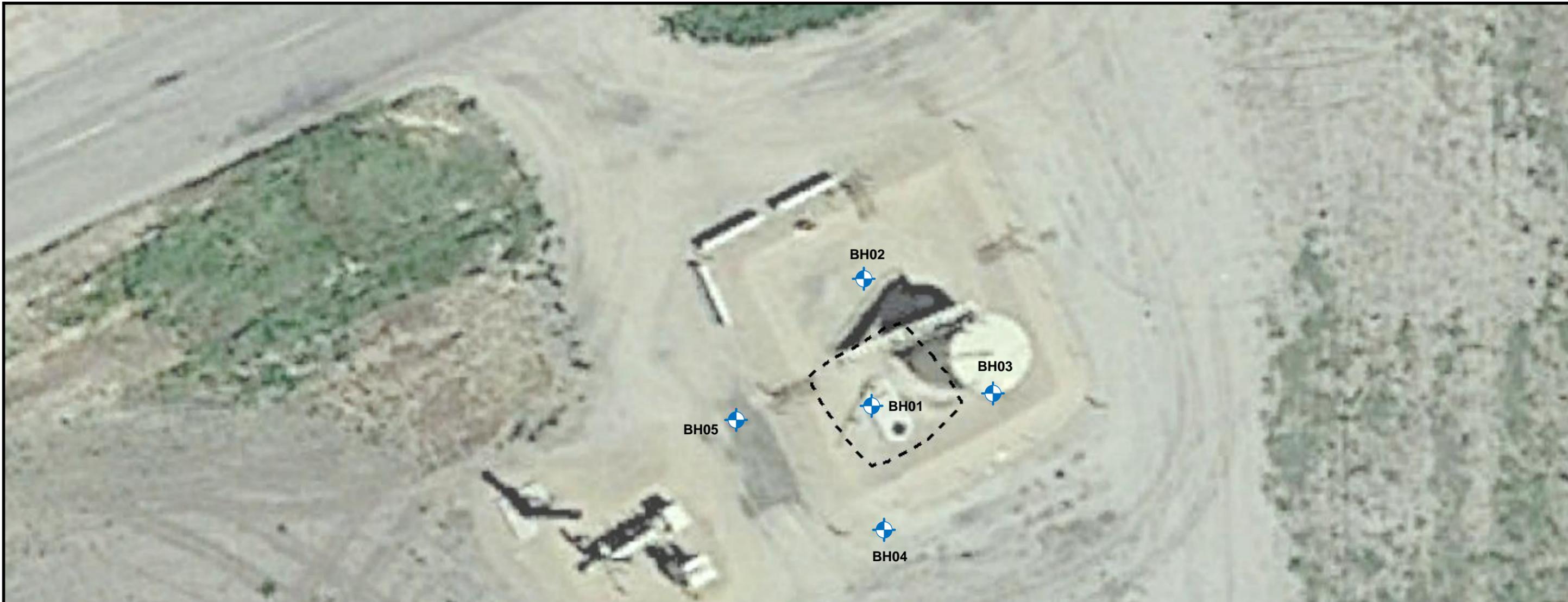


Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

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



Legend

-  Monitoring Well
(Collected via Trimble GPS)
-  Excavation Extent
(Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted
- 2) Site Infrastructure has been removed; shown for illustrative purposes only.

GPS – Global Positioning System

0 ft. 10 ft. 20 ft.

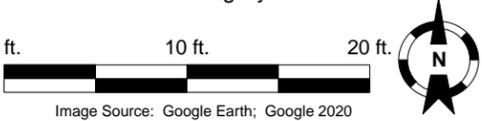


Image Source: Google Earth; Google 2020

DATE:	January 2024
DESIGNED BY:	JW
DRAWN BY:	MR



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

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

Site Overview Map

FIGURE
2



Legend

-  Monitoring Well
(Collected via Trimble GPS)
-  Excavation Extent
(Collected via Trimble GPS)
-  Groundwater Elevation Contour
(Dashed Where Inferred)
- 4763.81** Measured Groundwater Elevation—ft. amsl
-  Approximate Groundwater Flow Direction

Notes

- 1) All locations are approximate unless otherwise noted
- 2) Site Infrastructure has been removed; shown for illustrative purposes only.

GPS – Global Positioning System
ft. amsl – Feet above mean sea level

0 ft. 15 ft. 30 ft. 

Image Source: Google Earth; Google 2020

DATE:	June 2024
DESIGNED BY:	JW
DRAWN BY:	J. Woffinden



TASMAN 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

Groundwater Potentiometric
 Surface Contour Map
 (06/03/2024)

FIGURE
3

BH01	
Compound	06/03/24
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
1-Methylnaphthalene (µg/L)	<0.500
2-Methylnaphthalene (µg/L)	<0.500
Total Dissolved Solids (mg/L)	816
Chloride (mg/L)	141
Sulfate (mg/L)	277

BH02	
Compound	06/03/24
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
1-Methylnaphthalene (µg/L)	<0.500
2-Methylnaphthalene (µg/L)	<0.500
Total Dissolved Solids (mg/L)	808
Chloride (mg/L)	148
Sulfate (mg/L)	307

BH05	
Compound	06/03/24
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
1-Methylnaphthalene (µg/L)	<0.500
2-Methylnaphthalene (µg/L)	<0.500
Total Dissolved Solids (mg/L)	801
Chloride (mg/L)	135
Sulfate (mg/L)	280

BH04	
Compound	06/03/24
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
1-Methylnaphthalene (µg/L)	<0.500
2-Methylnaphthalene (µg/L)	<0.500
Total Dissolved Solids (mg/L)	793
Chloride (mg/L)	137
Sulfate (mg/L)	278

BH03	
Compound	06/03/24
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
1-Methylnaphthalene (µg/L)	<0.500
2-Methylnaphthalene (µg/L)	<0.500
Total Dissolved Solids (mg/L)	802
Chloride (mg/L)	138
Sulfate (mg/L)	303

Legend

-  Monitoring Well (Collected via Trimble GPS)
-  Excavation Extent (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted
- 2) Site Infrastructure has been removed; shown for illustrative purposes only.
- 3) Standards referenced from USEPA Regional Screening Level (RSL) Resident Tapwater Table (TR=1E-06, HQ=0.1) November 2022

GPS – Global Positioning System
Mg/L – Milligrams per liter
µg/L – Micrograms per liter
ECMC – Energy and Carbon Management Commission
USEPA – United States Environmental Protection Agency

Contaminant of Concern	ECMC Concentration Standard
B - Benzene	5 ug/L
T - Toluene	560 ug/L
E - Ethylbenzene	700 ug/L
X – Total Xylenes	1,400 ug/L
N – Naphthalene	140 ug/L
1,2,4-TMB – 1,2,4-Trimethylbenzene	67 ug/L
1,3,5-TMB – 1,3,5-Trimethylbenzene	67 ug/L
1-M – 1-Methylnaphthalene	1.1 ug/L ⁽³⁾
2-M – 2-Methylnaphthalene	3.6 ug/L ⁽³⁾
TDS – Total Dissolved Solids	1.25 x background
Cl – Chloride Ion	250 mg/L or 1.25 x background
SO ₄ – Sulfate Ion	250 mg/L or 1.25 x background

0 ft. 10 ft. 20 ft.



Image Source: Google Earth; Google 2020



DATE: 06/03/2024

DESIGNED BY: JW

DRAWN BY: MR



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

Groundwater Analytical
Results Map
(06/03/2024)

FIGURE
4



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



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

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

Proposed Site
 Assessment Map

Figure
 5

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 02, 2024

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

RE: Noble - Matsushima-PM K 2-1

Work Order #2406012

Enclosed are the results of analyses for samples received by Summit Scientific on 06/03/24 17:47. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie Tessier". The signature is written in a cursive, flowing style.

Natalie Tessier 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:
07/02/24 08:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2406012-01	Water	06/03/24 11:45	06/03/24 17:47
BH02	2406012-02	Water	06/03/24 11:30	06/03/24 17:47
BH03	2406012-03	Water	06/03/24 11:31	06/03/24 17:47
BH04	2406012-04	Water	06/03/24 11:43	06/03/24 17:47
BH05	2406012-05	Water	06/03/24 11:27	06/03/24 17:47



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

Lab ID	Page 1 of 1
2406012	

Client: Noble Noble / Tasman		Send Data To: Project Manager: Jake Whritenour		Send Invoice To: Company:	
Address: 6855 W 119th Ave		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80220				AFE#:	
Phone:		Project Name: <i>Matsushima PMK 2-1</i>		PO/Billing Codes:	
Sampler Name: Jordan Hestmark		Project Number:		Contact: Dan Peterson	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions			
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs - 915		Metals - 915	TDS, SO4, CI	
1	BH01	6/3/24	1145	6	3					X				X	X					X	X	
2	BH02		1130																			
3	BH03		1131																			
4	BH04		1143																			
5	BH05		1127																			
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: <i>Jordan Hestmark</i>	Date/Time: <i>6/3/24 1616</i>	Received by: <i>Tasman Lockbox</i>	Date/Time: <i>6/3/24 1616</i>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <i>Tasman Lockbox</i>	Date/Time: <i>6/3/24 1747</i>	Received by: <i>[Signature]</i>	Date/Time: <i>6/3/24 1747</i>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb. <input checked="" type="checkbox"/>	
Temperature Upon Receipt: <i>10.8</i>	Corrected Temperature: <i>9</i>	IR gun #: <i>1</i>	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2406012

Client: NCDOT/Carman Client Project ID: Matsushima Pmk 2-1

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"/>	Cooler
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
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

6/3/24
Date/Time



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

Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

BH01
2406012-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/03/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BHF0082	06/04/24	06/05/24	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	13.9	104 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.3	99.8 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.0	97.6 %		21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **06/03/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
1-Methylnaphthalene	ND	0.500		ug/l	1	BHF0057	06/04/24	06/05/24	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	2.23	111 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	2.47	123 %		40-150		"	"	"	"	

Anions by EPA Method 300.0

Summit Scientific

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



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

Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

BH01
2406012-01 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **06/03/24 11:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	141	12.0	mg/L	200	BHF0754	06/24/24	06/26/24	EPA 300.0	
Sulfate	277	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **06/03/24 11:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	816	10.0	mg/L	1	BHF0055	06/04/24	06/04/24	SM2540C	

Summit Scientific

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



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

Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

BH02
2406012-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/03/24 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BHF0082	06/04/24	06/05/24	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	14.4	108 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.2	99.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.0	97.9 %		21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **06/03/24 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
1-Methylnaphthalene	ND	0.500		ug/l	1	BHF0057	06/04/24	06/05/24	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	2.20	110 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	2.19	110 %		40-150		"	"	"	"	

Anions by EPA Method 300.0

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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:
07/02/24 08:17

BH02
2406012-02 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **06/03/24 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	148	12.0	mg/L	200	BHF0754	06/24/24	06/26/24	EPA 300.0	
Sulfate	307	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **06/03/24 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	808	10.0	mg/L	1	BHF0055	06/04/24	06/04/24	SM2540C	

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

BH03
2406012-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/03/24 11:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BHF0082	06/04/24	06/05/24	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	13.9	104 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.1	98.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.9	96.5 %		21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **06/03/24 11:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
1-Methylnaphthalene	ND	0.500		ug/l	1	BHF0057	06/04/24	06/05/24	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	2.07	103 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	2.42	121 %		40-150		"	"	"	"	

Anions by EPA Method 300.0

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Reported:
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BH03
2406012-03 (Water)

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Anions by EPA Method 300.0

Date Sampled: **06/03/24 11:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	138	12.0	mg/L	200	BHF0754	06/24/24	06/26/24	EPA 300.0	
Sulfate	303	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **06/03/24 11:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	802	10.0	mg/L	1	BHF0055	06/04/24	06/04/24	SM2540C	

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

BH04
2406012-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/03/24 11:43**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BHF0082	06/04/24	06/05/24	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:43**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	14.2	107 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.4	100 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.0	97.2 %		21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **06/03/24 11:43**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
1-Methylnaphthalene	ND	0.500		ug/l	1	BHF0057	06/04/24	06/05/24	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:43**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	2.03	102 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	2.28	114 %		40-150		"	"	"	"	

Anions by EPA Method 300.0

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Reported:
07/02/24 08:17

BH04
2406012-04 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **06/03/24 11:43**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	137	12.0	mg/L	200	BHF0754	06/24/24	06/26/24	EPA 300.0	
Sulfate	278	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **06/03/24 11:43**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	793	10.0	mg/L	1	BHF0055	06/04/24	06/04/24	SM2540C	

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

BH05
2406012-05 (Water)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/03/24 11:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BHF0082	06/04/24	06/05/24	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	14.0	105 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.1	98.0 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.9	97.0 %		21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **06/03/24 11:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
1-Methylnaphthalene	ND	0.500		ug/l	1	BHF0057	06/04/24	06/05/24	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **06/03/24 11:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	1.97	98.4 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	2.24	112 %		40-150		"	"	"	"	

Anions by EPA Method 300.0

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
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BH05
2406012-05 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **06/03/24 11:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	135	12.0	mg/L	200	BHF0754	06/24/24	06/26/24	EPA 300.0	
Sulfate	280	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **06/03/24 11:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	801	10.0	mg/L	1	BHF0055	06/04/24	06/04/24	SM2540C	

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

Reported:
07/02/24 08:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHF0082 - EPA 5030 Water MS

Blank (BHF0082-BLK1)

Prepared & Analyzed: 06/04/24

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.3		104		23-173		
Surrogate: Toluene-d8	13.2		"	13.3		98.8		20-170		
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.4		21-167		

LCS (BHF0082-BS1)

Prepared: 06/04/24 Analyzed: 06/05/24

Benzene	36.0	1.0	ug/l	33.3		108		51-132		
Toluene	35.9	1.0	"	33.3		108		51-138		
Ethylbenzene	36.9	1.0	"	33.3		111		58-146		
m,p-Xylene	68.8	2.0	"	66.7		103		57-144		
o-Xylene	33.6	1.0	"	33.3		101		53-146		
Naphthalene	36.1	1.0	"	33.3		108		70-130		
1,2,4-Trimethylbenzene	35.1	1.0	"	33.3		105		70-130		
1,3,5-Trimethylbenzene	35.4	1.0	"	33.3		106		70-130		
Surrogate: 1,2-Dichloroethane-d4	14.6		"	13.3		109		23-173		
Surrogate: Toluene-d8	13.6		"	13.3		102		20-170		
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		101		21-167		

LCS Dup (BHF0082-BSD1)

Prepared & Analyzed: 06/04/24

Benzene	39.1	1.0	ug/l	33.3		117		51-132	8.31	20
Toluene	38.4	1.0	"	33.3		115		51-138	6.76	20
Ethylbenzene	38.6	1.0	"	33.3		116		58-146	4.43	20
m,p-Xylene	71.5	2.0	"	66.7		107		57-144	3.94	20
o-Xylene	35.0	1.0	"	33.3		105		53-146	3.99	20
Naphthalene	34.9	1.0	"	33.3		105		70-130	3.33	20
1,2,4-Trimethylbenzene	36.2	1.0	"	33.3		109		70-130	3.17	20
1,3,5-Trimethylbenzene	36.7	1.0	"	33.3		110		70-130	3.66	20
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.3		105		23-173		
Surrogate: Toluene-d8	13.6		"	13.3		102		20-170		
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100		21-167		

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHF0057 - EPA 5030 Water MS

Blank (BHF0057-BLK1)

Prepared & Analyzed: 06/04/24

1-Methylnaphthalene	ND	0.500	ug/l								
2-Methylnaphthalene	ND	0.500	"								
Surrogate: 2-Methylnaphthalene-d10	2.19		"	2.00	110	40-150					
Surrogate: Fluoranthene-d10	2.48		"	2.00	124	40-150					

LCS (BHF0057-BS1)

Prepared & Analyzed: 06/04/24

1-Methylnaphthalene	2.28	0.500	ug/l	2.00	114	30-120					
2-Methylnaphthalene	1.41	0.500	"	2.00	70.7	0-200					
Surrogate: 2-Methylnaphthalene-d10	1.89		"	2.00	94.4	40-150					
Surrogate: Fluoranthene-d10	1.95		"	2.00	97.6	40-150					

LCS Dup (BHF0057-BSD1)

Prepared & Analyzed: 06/04/24

1-Methylnaphthalene	2.27	0.500	ug/l	2.00	113	30-120	0.621	30			
2-Methylnaphthalene	1.17	0.500	"	2.00	58.4	0-200	19.1	200			
Surrogate: 2-Methylnaphthalene-d10	1.94		"	2.00	97.2	40-150					
Surrogate: Fluoranthene-d10	2.15		"	2.00	107	40-150					

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch BHF0754 - General Preparation

Blank (BHF0754-BLK1)

Prepared: 06/24/24 Analyzed: 06/26/24

Chloride	ND	0.0600	mg/L						
Sulfate	ND	0.300	"						

LCS (BHF0754-BS1)

Prepared: 06/24/24 Analyzed: 06/26/24

Chloride	3.15	0.0600	mg/L	3.00	105	90-110		
Sulfate	15.2	0.300	"	15.0	102	90-110		

Duplicate (BHF0754-DUP1)

Source: 2406011-01

Prepared: 06/24/24 Analyzed: 06/26/24

Chloride	119	12.0	mg/L		111		6.83	20
Sulfate	300	60.0	"		280		6.84	20

Matrix Spike (BHF0754-MS1)

Source: 2406011-01

Prepared: 06/24/24 Analyzed: 06/26/24

Chloride	611	12.0	mg/L	600	111	83.3	80-120	
Sulfate	2680	60.0	"	3000	280	80.0	80-120	

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
07/02/24 08:17

Total Dissolved Solids by SM2540C - Quality Control
Summit Scientific

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

Batch BHF0055 - General Preparation

Blank (BHF0055-BLK1)

Prepared & Analyzed: 06/04/24

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BHF0055-DUP1)

Source: 2406011-01

Prepared & Analyzed: 06/04/24

Total Dissolved Solids 742 10.0 mg/L 757 1.95 20

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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:
07/02/24 08:17

Notes and Definitions

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