

FOURTH QUARTER 2023
SITE MONITORING DATA
MATSUSHIMA-PM K 2-1 FACILITY
ECMC SPILL TRACKING #485348
ECMC REMEDIATION #29940

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 W. 119th Ave
Broomfield, CO 80020

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
BH02	12/21/23	4667.03	13.38	6.70	ND	ND	4660.55
BH03	12/21/23	4666.71	13.35	6.40	ND	ND	4660.55
BH04	12/21/23	4666.20	13.36	5.79	ND	ND	4660.63
BH05	12/21/23	4667.24	13.66	4.89	ND	ND	4661.61

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

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

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



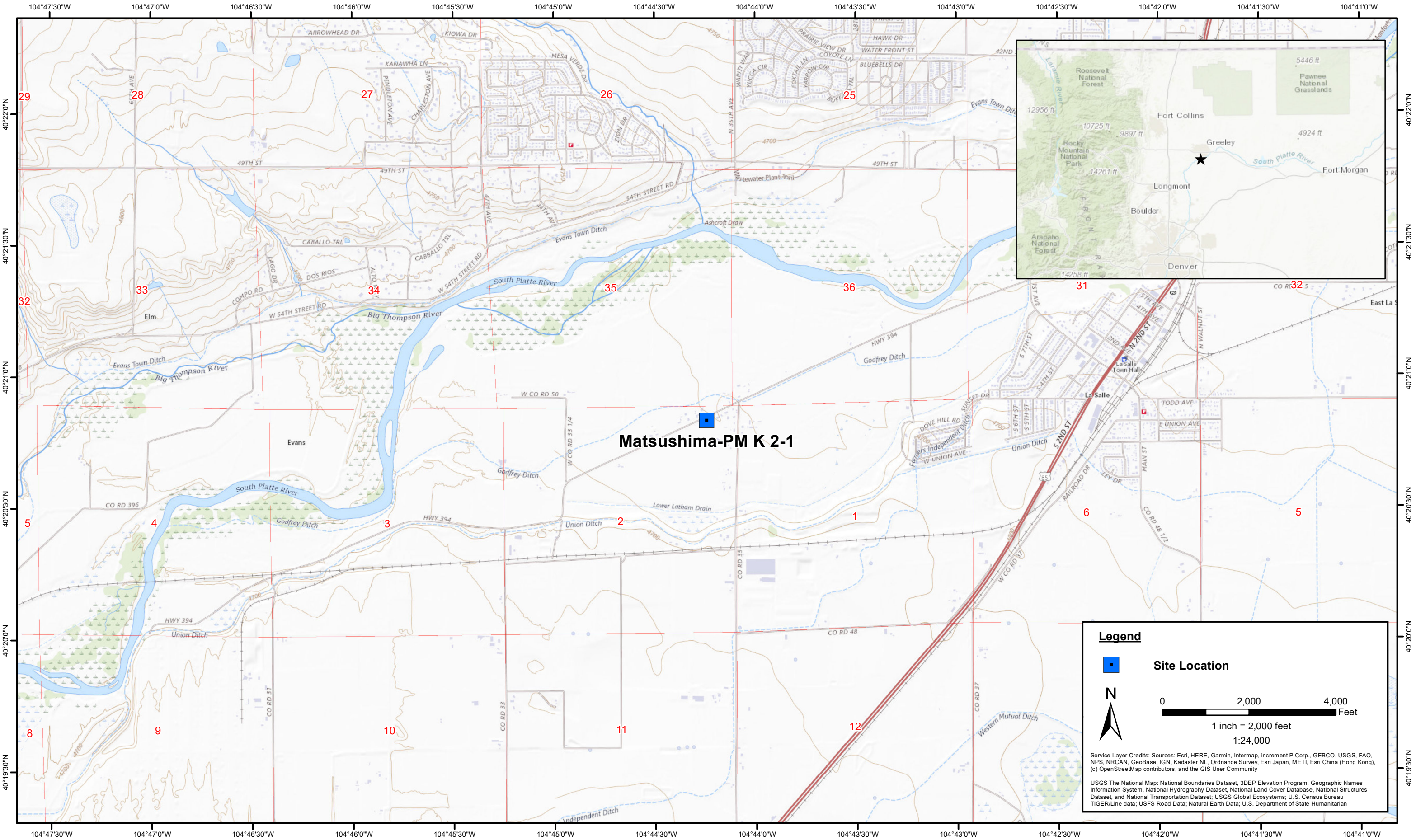
Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4 - TMB (µg/L)	1,3,5 - TMB (µg/L)	1-M (µg/L)	2-M (µg/L)	Total Dissolved Solids	Chlorides (mg/L)	Sulfates (mg/L)
ECMC Standard ⁽¹⁾		5	560	700	1,400	140	67	67	1.1 ⁽²⁾	3.6 ⁽²⁾	1.25 X Background	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
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
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
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
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

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

**TASMAN**


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

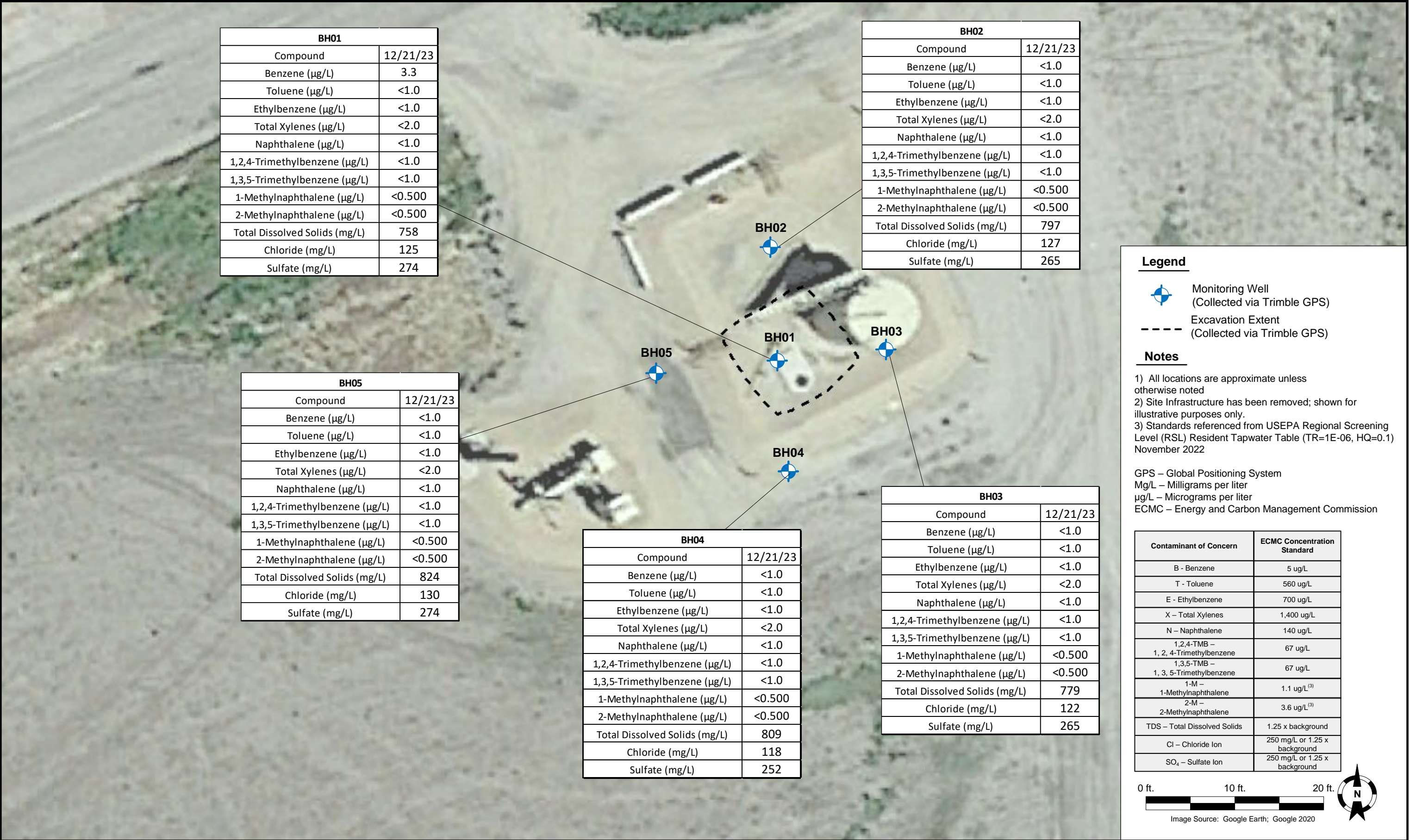
Noble Energy, Inc. – DJ Basin
Matsushima-PMK 2-1
NENE, Section 2, Township 4 North, Range 66 West
Weld County, Colorado

Site Overview Map

FIGURE
2



DATE: January 2024	 <div>Tasman, Inc. 6855 W 119th Ave. Broomfield, CO 80020</div>	Noble Energy, Inc. – DJ Basin Matsushima-PMK 2-1 NENE, Section 2, Township 4 North, Range 66 West Weld County, Colorado	Groundwater Potentiometric Surface Contour Map (12/21/2023)	FIGURE 3
DESIGNED BY: JW				
DRAWN BY: JC				



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 05, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Matsushima-PM K 2-1

Work Order #2312445

Enclosed are the results of analyses for samples received by Summit Scientific on 12/21/23 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

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:
01/05/24 12:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2312445-01	Water	12/21/23 11:05	12/21/23 17:40
BH02	2312445-02	Water	12/21/23 10:14	12/21/23 17:40
BH03	2312445-03	Water	12/21/23 10:19	12/21/23 17:40
BH04	2312445-04	Water	12/21/23 10:39	12/21/23 17:40
BH05	2312445-05	Water	12/21/23 10:39	12/21/23 17:40

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.


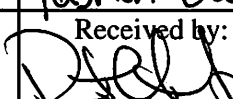
SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2312445	

Send Data To:		Send Invoice To:
Client: Noble / Tasman, Inc.	Project Manager: Jake Whritenour	Company: Noble Energy, Inc.
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: <u>Matsushima PM K 2-1</u>
City/State/Zip: Broomfield / CO/ 80020		AFE#:
Phone: 970-402-0946	Project Name: <u>Matsushima PM K 2-1</u>	PO/Billing Codes:
Sampler Name: Patrick Kline	Project Number: N/A	Contact: Dan Peterson

				Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	1,2,4-TMB	1,3,5-TMB	TDS	Chloride	Sulfate	PAH: 1-M, 2-M
1	BH01	12/21/23	1105	6	3		3		X				X	X	X	X	X	X	X	X
2	BH02	I	1014	I	I		I		I				I	I	I	I	I	I	I	I
3	BH03	I	1019	I	I		I		I				I	I	I	I	I	I	I	I
4	BH04	I	1039	I	I		I		I				I	I	I	I	I	I	I	I
5	BH05	I	1039	I	I		I		I				I	I	I	I	I	I	I	I
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: 	Date/Time: 12/21/23 1430	Received by: Tasman Lockbox	Date/Time: 12/21/23 1430	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 12/21/23 1740	Received by: 	Date/Time: 12/21/23 1740	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 8.0	Corrected Temperature: 8	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2312445Client: Nobel CosmanClient Project ID: Matsushima PM K2-1Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #: _____

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

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☒

Other

☐

Temp (°C)

8.0

Thermometer #

1

	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"/>	ATJCE
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

12/21/23
Date/Time

23 11 45



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:
01/05/24 12:24

BH01
2312445-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	3.3	1.0		ug/l	1	BGL0864	12/26/23	12/26/23	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: **12/21/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	16.9	126 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.0	97.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	14.6	110 %		21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
1-Methylnaphthalene	ND	0.500		ug/l	1	BGL0980	12/28/23	12/30/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **12/21/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	1.59	79.3 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.71	85.6 %		40-150		"	"	"	"	

Anions by EPA Method 300.0

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:
01/05/24 12:24

BH01
2312445-01 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/21/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	125	12.0		mg/L	200	BGL1076	12/29/23	12/30/23	EPA 300.0	
Sulfate	274	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/21/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	758	10.0		mg/L	1	BGL0936	12/27/23	12/27/23	SM2540C	

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:
01/05/24 12:24

BH02
2312445-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/23 10:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGL0864	12/26/23	12/26/23	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: **12/21/23 10:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	15.3	115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.0	97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.7	103 %	21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/23 10:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BGL0980	12/28/23	12/30/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **12/21/23 10:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	1.56	78.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.66	83.1 %	40-150		"	"	"	"	

Anions by EPA Method 300.0

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:
01/05/24 12:24

BH02
2312445-02 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/21/23 10:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	127	12.0		mg/L	200	BGL1076	12/29/23	12/30/23	EPA 300.0	
Sulfate	265	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/21/23 10:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	797	10.0		mg/L	1	BGL0936	12/27/23	12/27/23	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:
01/05/24 12:24

BH03
2312445-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/23 10:19**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGL0864	12/26/23	12/26/23	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: **12/21/23 10:19**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	14.8	111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.8	96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	14.3	107 %	21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/23 10:19**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BGL0980	12/28/23	12/30/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **12/21/23 10:19**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	1.62	81.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.74	87.2 %	40-150		"	"	"	"	

Anions by EPA Method 300.0

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:
01/05/24 12:24

BH03
2312445-03 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/21/23 10:19**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	122	12.0		mg/L	200	BGL1076	12/29/23	12/30/23	EPA 300.0	
Sulfate	265	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/21/23 10:19**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	779	10.0		mg/L	1	BGL0936	12/27/23	12/27/23	SM2540C	

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:
01/05/24 12:24

BH04
2312445-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGL0864	12/26/23	12/26/23	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: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	14.8	111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.8	96.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.6	102 %	21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BGL0980	12/28/23	12/30/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	1.50	75.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.76	88.1 %	40-150		"	"	"	"	

Anions by EPA Method 300.0

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:
01/05/24 12:24

BH04
2312445-04 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	118	12.0		mg/L	200	BGL1076	12/29/23	12/30/23	EPA 300.0	
Sulfate	252	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	809	10.0		mg/L	1	BGL0936	12/27/23	12/27/23	SM2540C	

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

Reported:
01/05/24 12:24

BH05
2312445-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGL0864	12/26/23	12/26/23	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: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	14.8	111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.9	97.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	14.2	106 %	21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BGL0980	12/28/23	12/30/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	1.49	74.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.63	81.4 %	40-150		"	"	"	"	

Anions by EPA Method 300.0

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Project Manager: Jacob Whritenour

Reported:
01/05/24 12:24

BH05
2312445-05 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	130	12.0		mg/L	200	BGL1076	12/29/23	12/30/23	EPA 300.0	
Sulfate	274	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/21/23 10:39**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	824	10.0		mg/L	1	BGL0936	12/27/23	12/27/23	SM2540C	

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

Reported:
01/05/24 12:24

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BGL0864 - EPA 5030 Water MS

Blank (BGL0864-BLK1)

Prepared & Analyzed: 12/26/23

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	14.8		"	13.3		111	23-173			
Surrogate: Toluene-d8	12.8		"	13.3		96.4	20-170			
Surrogate: 4-Bromofluorobenzene	15.4		"	13.3		115	21-167			

LCS (BGL0864-BS1)

Prepared & Analyzed: 12/26/23

Benzene	23.5	1.0	ug/l	33.3		70.4	51-132			
Toluene	19.5	1.0	"	33.3		58.6	51-138			
Ethylbenzene	21.0	1.0	"	33.3		63.2	58-146			
m,p-Xylene	42.4	2.0	"	66.7		63.6	57-144			
o-Xylene	18.8	1.0	"	33.3		56.4	53-146			
Naphthalene	31.8	1.0	"	33.3		95.3	70-130			
1,2,4-Trimethylbenzene	29.1	1.0	"	33.3		87.3	70-130			
1,3,5-Trimethylbenzene	29.4	1.0	"	33.3		88.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.3		116	23-173			
Surrogate: Toluene-d8	13.9		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	21-167			

Matrix Spike (BGL0864-MS1)

Source: 2312352-02

Prepared & Analyzed: 12/26/23

Benzene	18.4	1.0	ug/l	33.3	ND	55.3	34-141			
Toluene	15.7	1.0	"	33.3	ND	47.1	27-151			
Ethylbenzene	17.6	1.0	"	33.3	ND	52.7	29-160			
m,p-Xylene	35.0	2.0	"	66.7	ND	52.5	20-166			
o-Xylene	15.7	1.0	"	33.3	ND	47.2	33-159			
Naphthalene	10.8	1.0	"	33.3	ND	32.3	70-130			QM-07
1,2,4-Trimethylbenzene	15.1	1.0	"	33.3	ND	45.3	70-130			QM-07
1,3,5-Trimethylbenzene	15.5	1.0	"	33.3	ND	46.4	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.3		106	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.7	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		98.8	21-167			

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

Reported:
01/05/24 12:24

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

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

Batch BGL0864 - EPA 5030 Water MS

Matrix Spike Dup (BGL0864-MSD1)	Source: 2312352-02			Prepared & Analyzed: 12/26/23						
Benzene	18.1	1.0	ug/l	33.3	ND	54.3	34-141	1.75	30	
Toluene	15.1	1.0	"	33.3	ND	45.3	27-151	3.83	30	
Ethylbenzene	17.1	1.0	"	33.3	ND	51.2	29-160	2.83	30	
m,p-Xylene	34.4	2.0	"	66.7	ND	51.5	20-166	1.87	30	
o-Xylene	15.5	1.0	"	33.3	ND	46.5	33-159	1.47	30	
Naphthalene	11.2	1.0	"	33.3	ND	33.5	70-130	3.65	30	QM-07
1,2,4-Trimethylbenzene	15.2	1.0	"	33.3	ND	45.7	70-130	0.791	30	QM-07
1,3,5-Trimethylbenzene	15.4	1.0	"	33.3	ND	46.3	70-130	0.194	30	QM-07
Surrogate: 1,2-Dichloroethane-d4	15.0		"	13.3		113	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.0	21-167			

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Project Number: UWRWE-A1966-ABN
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Reported:
01/05/24 12:24

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGL0980 - EPA 5030 Water MS

Blank (BGL0980-BLK1)

Prepared: 12/28/23 Analyzed: 12/29/23

1-Methylnaphthalene	ND	0.500	ug/l							
2-Methylnaphthalene	ND	0.500	"							
Surrogate: 2-Methylnaphthalene-d10	1.75		"	2.00		87.5	40-150			
Surrogate: Fluoranthene-d10	1.85		"	2.00		92.3	40-150			

LCS (BGL0980-BS1)

Prepared: 12/28/23 Analyzed: 12/30/23

1-Methylnaphthalene	1.69	0.500	ug/l	2.00		84.3	30-120			
2-Methylnaphthalene	1.43	0.500	"	2.00		71.7	0-200			
Surrogate: 2-Methylnaphthalene-d10	1.72		"	2.00		86.2	40-150			
Surrogate: Fluoranthene-d10	1.67		"	2.00		83.5	40-150			

LCS Dup (BGL0980-BSD1)

Prepared: 12/28/23 Analyzed: 12/30/23

1-Methylnaphthalene	1.80	0.500	ug/l	2.00		89.9	30-120	6.50	30	
2-Methylnaphthalene	1.48	0.500	"	2.00		74.2	0-200	3.49	200	
Surrogate: 2-Methylnaphthalene-d10	1.74		"	2.00		86.9	40-150			
Surrogate: Fluoranthene-d10	1.68		"	2.00		84.1	40-150			

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
01/05/24 12:24

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch BGL1076 - General Preparation

Blank (BGL1076-BLK1)

Prepared & Analyzed: 12/29/23

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

LCS (BGL1076-BS1)

Prepared & Analyzed: 12/29/23

Chloride	3.16	0.0600	mg/L	3.00	105	90-110
Sulfate	15.2	0.300	"	15.0	101	90-110

Duplicate (BGL1076-DUP1)

Source: 2312383-41

Prepared & Analyzed: 12/29/23

Chloride	225	12.0	mg/L	227	0.797	20	
Sulfate	17.2	60.0	"	22.8	28.0	20	QR-01

Matrix Spike (BGL1076-MS1)

Source: 2312383-41

Prepared & Analyzed: 12/29/23

Chloride	844	12.0	mg/L	600	227	103	80-120
Sulfate	3060	60.0	"	3000	22.8	101	80-120

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Project: Noble - Matsushima-PM K 2-1

Project Number: UWRWE-A1966-ABN

Project Manager: Jacob Whritenour

Reported:
01/05/24 12:24

Total Dissolved Solids by SM2540C - Quality Control

Summit Scientific

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

Batch BGL0936 - General Preparation

Blank (BGL0936-BLK1)

Prepared & Analyzed: 12/27/23

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BGL0936-DUP1)

Source: 2312445-01

Prepared & Analyzed: 12/27/23

Total Dissolved Solids 766 10.0 mg/L 758 1.02 20

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Project: Noble - Matsushima-PM K 2-1

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

Reported:
01/05/24 12:24

Notes and Definitions

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.
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