

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - WERNING 7-2

Sample 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)
COGCC Standard		5	560	700	1,400	140	67	67
GW01	02/23/21	<1.0	<1.0	2.1	8.2	<1.0	150	51

Notes:

COGCC = Colorado Oil and Gas Conservation 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

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

Groundwater standards referenced from COGCC Table 915-1

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

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - WERNING 7-2

Soil Sample ID	Date	¹ Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ²		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^{2,3}		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01@4.5'	02/23/21	0.0062	<0.0050	<0.0050	<0.010	0.52	0.0085	0.016	16	<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	0.0220	0.0429

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01@4.5'	02/23/21	8.59	1.64	1.11	0.36

Notes:

1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation 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 = Millmhos per centimeter

mg/L = Milligrams per liter

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

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

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

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

Benz(a) = Benzanthracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

Benzo(a) = Benzopyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene

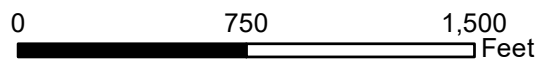
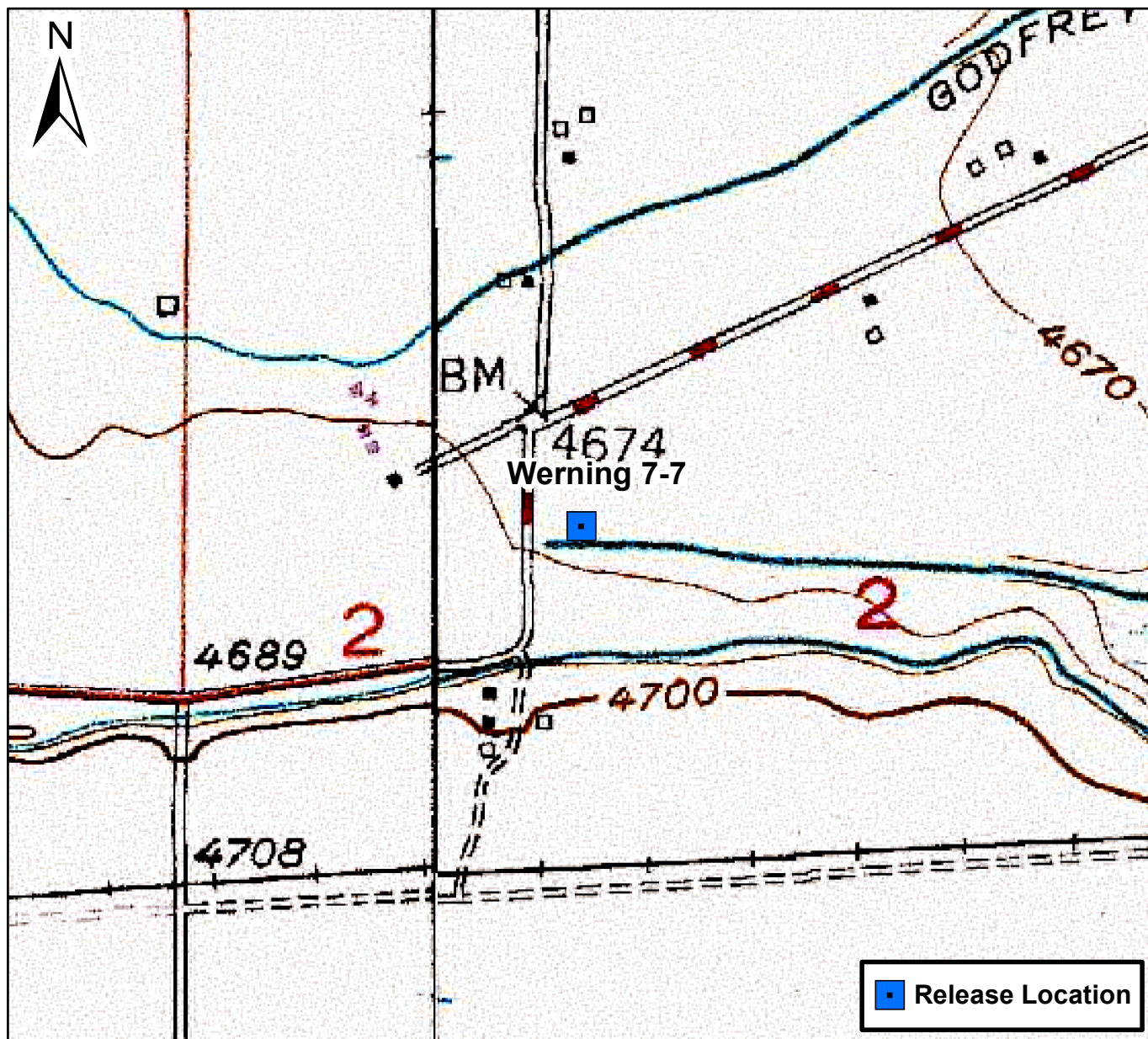



Figure 1


Site Location Map
Werning 7-7
SENW S2 T4N R66W
Weld County, Colorado





DATE: 2/23/2021	 TASMAN GEOSCIENCES	Tasman Geosciences, Inc. 6855 W 119 th Avenue Broomfield, CO 80020	Noble Energy, Inc. – DJ Basin Werning 7-2 SENW, Section 2, Township 4 North, Range 66 West Weld County, Colorado	Wellhead Closure & Soil Analytical Results Map (02/23/2021)	FIGURE 1
DESIGNED BY: JW					
DRAWN BY: JW					



DATE: 2/23/2021	 TASMAN GEOSCIENCES	Tasman Geosciences, Inc. 6855 W 119 th Avenue Broomfield, CO 80020	Noble Energy, Inc. – DJ Basin Werning 7-2 SENW, Section 2, Township 4 North, Range 66 West Weld County, Colorado	Flowline Closure Soil Analytical Results Map (02/23/2021)	FIGURE 2
DESIGNED BY: JW					
DRAWN BY: JW					

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 08, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.


Broomfield, CO 80020

RE: Noble - Werning 7-2

Work Order #2102328

Enclosed are the results of analyses for samples received by Summit Scientific on 02/23/21 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premier", is displayed on a light purple rectangular background.

Muri Premier For Paul Shrewsbury
President



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

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01@4.5'	2102328-01	Soil	02/23/21 12:54	02/23/21 17:30
GW01	2102328-02	Water	02/23/21 14:50	02/23/21 17:30

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.

2102328

Page 1 of 1

Project Manager: Brandon Bruns, Invoice! Wade Firestein

E-Mail: Tasman/Noble Team (On File)

Project Name: Werning 7-2

Project Number:

Project Number:

www.s2scientific.com

2102328

Sample Receipt Checklist

S2 Work Order _____

Client: TASMAN / NOBLEClient Project ID: WERNING 7-2Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: _____
☐ ☒ ☐ ☐ ☐
Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☒ Water ☐ Other: _____
(Describe)

Temp (°C)	2.9
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Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<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"/>	
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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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, H2SO4, NaOH, HNO3, ect	<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.				

RZ

Custodian Printed Name or Initials



Signature of Custodian

2/23/21

Date/Time



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

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Brun

Reported:
03/08/21 11:28

FL01@4.5'
2102328-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	0.0062	0.0020		mg/kg	1	BEB0416	02/26/21	02/27/21	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.52	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.0085	0.0050		"	"	"	"	"	"	
Naphthalene	0.016	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	16	0.50		"	"	"	"	"	"	

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		105 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		76.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		131 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEB0420	02/26/21	02/28/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		97.8 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/08/21 11:28

FL01@4.5'
2102328-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0040	03/02/21	03/04/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.0220	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0429	0.00500	"	"	"	"	"	"	

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		62.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		62.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.360	0.0100	mg/L	1	BEB0383	02/25/21	02/26/21	EPA 6020B	

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

Date Sampled: **02/23/21 12:54**

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 - Werning 7-2

Project Number: [none]
Project Manager: Brandon Brun

Reported:
03/08/21 11:28

FL01@4.5'
2102328-01 (Soil)

Summit Scientific

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

Calcium	166	0.0668	mg/L dry	1	BEC0003	03/01/21	03/02/21	EPA 6020B
Magnesium	57.2	0.0668	"	"	"	"	"	"
Sodium	95.8	0.0668	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.64	0.100	units	1	BEC0080	03/03/21	03/03/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	74.8		%	1	BEB0399	02/26/21	02/26/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.11	0.0100	mmhos/cm	1	BEC0053	03/02/21	03/02/21	EPA 120.1	

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

Date Sampled: **02/23/21 12:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.59		pH Units	1	BEC0054	03/02/21	03/02/21	EPA 9045D	

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

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

GW01
2102328-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/23/21 14:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEB0411	02/26/21	02/28/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	2.1	1.0		"	"	"	"	"	"	
Xylenes (total)	8.2	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	150	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	51	1.0		"	"	"	"	"	"	

Date Sampled: **02/23/21 14:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		121 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		134 %		21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/08/21 11:28

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 BEB0411 - EPA 5030 Water MS

Blank (BEB0411-BLK1)

Prepared: 02/26/21 Analyzed: 02/27/21

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	16.0		"	13.3		120	23-173			
Surrogate: Toluene-d8	12.5		"	13.3		93.7	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	21-167			

LCS (BEB0411-BS1)

Prepared: 02/26/21 Analyzed: 02/27/21

Benzene	41.7	1.0	ug/l	41.7		100	51-132			
Toluene	38.0	1.0	"	41.7		91.1	51-138			
Ethylbenzene	42.1	1.0	"	41.7		101	58-146			
m,p-Xylene	77.6	2.0	"	83.3		93.2	57-144			
o-Xylene	41.1	1.0	"	41.7		98.7	53-146			
Naphthalene	45.3	1.0	"	41.7		109	70-130			
1,2,4-Trimethylbenzene	53.7	1.0	"	41.7		129	70-130			
1,3,5-Trimethylbenzene	41.8	1.0	"	41.7		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	15.4		"	13.3		116	23-173			
Surrogate: Toluene-d8	12.7		"	13.3		95.5	20-170			
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		105	21-167			

Matrix Spike (BEB0411-MS1)

Source: 2102289-01

Prepared: 02/26/21 Analyzed: 02/28/21

Benzene	42.2	1.0	ug/l	41.7	ND	101	34-141			
Toluene	39.2	1.0	"	41.7	ND	94.1	27-151			
Ethylbenzene	42.7	1.0	"	41.7	ND	102	29-160			
m,p-Xylene	79.1	2.0	"	83.3	ND	95.0	20-166			
o-Xylene	41.6	1.0	"	41.7	ND	99.8	33-159			
Naphthalene	51.4	1.0	"	41.7	2.42	118	70-130			
1,2,4-Trimethylbenzene	45.0	1.0	"	41.7	ND	108	70-130			
1,3,5-Trimethylbenzene	42.4	1.0	"	41.7	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	15.2		"	13.3		114	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.5	20-170			
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3		102	21-167			

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

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/08/21 11:28

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

Batch BEB0411 - EPA 5030 Water MS

Matrix Spike Dup (BEB0411-MSD1)				Source: 2102289-01		Prepared: 02/26/21 Analyzed: 02/28/21					
Benzene	43.1	1.0	ug/l	41.7	ND	103	34-141	2.21	30		
Toluene	42.9	1.0	"	41.7	ND	103	27-151	8.95	30		
Ethylbenzene	42.9	1.0	"	41.7	ND	103	29-160	0.607	30		
m,p-Xylene	79.8	2.0	"	83.3	ND	95.8	20-166	0.893	30		
o-Xylene	41.5	1.0	"	41.7	ND	99.6	33-159	0.169	30		
Naphthalene	52.8	1.0	"	41.7	2.42	121	70-130	2.71	30		
1,2,4-Trimethylbenzene	45.6	1.0	"	41.7	ND	110	70-130	1.35	30		
1,3,5-Trimethylbenzene	42.5	1.0	"	41.7	ND	102	70-130	0.0942	30		
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.3		116	23-173				
Surrogate: Toluene-d8	14.3		"	13.3		107	20-170				
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3		102	21-167				

Batch BEB0416 - EPA 5030 Soil MS

Blank (BEB0416-BLK1)				Prepared & Analyzed: 02/26/21							
Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
1,2,4-Trimethylbenzene	ND	0.0050	"								
1,3,5-Trimethylbenzene	ND	0.0050	"								
Naphthalene	ND	0.0038	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0471		"	0.0400		118	23-173				
Surrogate: Toluene-d8	0.0399		"	0.0400		99.7	20-170				
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.1	21-167				

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

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/08/21 11:28

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 BEB0416 - EPA 5030 Soil MS

LCS (BEB0416-BS1)

Prepared & Analyzed: 02/26/21

Benzene	0.0831	0.0020	mg/kg	0.100		83.1	70-130		
Toluene	0.0722	0.0050	"	0.100		72.2	70-130		
Ethylbenzene	0.0946	0.0050	"	0.100		94.6	70-130		
m,p-Xylene	0.175	0.010	"	0.200		87.6	70-130		
o-Xylene	0.0858	0.0050	"	0.100		85.8	70-130		
Surrogate: 1,2-Dichloroethane-d4	0.0343		"	0.0400		85.7	23-173		
Surrogate: Toluene-d8	0.0340		"	0.0400		85.0	20-170		
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0400		91.6	21-167		

Matrix Spike (BEB0416-MS1)

Source: 2102302-01

Prepared & Analyzed: 02/26/21

Benzene	0.0725	0.0020	mg/kg	0.100	ND	72.5	70-130		
Toluene	0.0726	0.0050	"	0.100	ND	72.6	70-130		
Ethylbenzene	0.0849	0.0050	"	0.100	ND	84.9	70-130		
m,p-Xylene	0.161	0.010	"	0.200	ND	80.4	70-130		
o-Xylene	0.0820	0.0050	"	0.100	ND	82.0	70-130		
Surrogate: 1,2-Dichloroethane-d4	0.0365		"	0.0400		91.3	23-173		
Surrogate: Toluene-d8	0.0374		"	0.0400		93.6	20-170		
Surrogate: 4-Bromofluorobenzene	0.0373		"	0.0400		93.2	21-167		

Matrix Spike Dup (BEB0416-MSD1)

Source: 2102302-01

Prepared & Analyzed: 02/26/21

Benzene	0.0824	0.0020	mg/kg	0.100	ND	82.4	70-130	12.7	30
Toluene	0.0776	0.0050	"	0.100	ND	77.6	70-130	6.55	30
Ethylbenzene	0.0962	0.0050	"	0.100	ND	96.2	70-130	12.5	30
m,p-Xylene	0.181	0.010	"	0.200	ND	90.5	70-130	11.9	30
o-Xylene	0.0900	0.0050	"	0.100	ND	90.0	70-130	9.24	30
Surrogate: 1,2-Dichloroethane-d4	0.0382		"	0.0400		95.6	23-173		
Surrogate: Toluene-d8	0.0351		"	0.0400		87.8	20-170		
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0400		95.2	21-167		

Summit Scientific

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Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEB0420 - EPA 3550A

Blank (BEB0420-BLK1)

Prepared: 02/26/21 Analyzed: 02/27/21

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

LCS (BEB0420-BS1)

Prepared: 02/26/21 Analyzed: 02/27/21

C10-C28 (DRO)	446	50	mg/kg	500	89.3	70-130
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Matrix Spike (BEB0420-MS1)

Source: 2102302-01

Prepared: 02/26/21 Analyzed: 02/27/21

C10-C28 (DRO)	451	50	mg/kg	500	19.9	86.3	70-130
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Matrix Spike Dup (BEB0420-MSD1)

Source: 2102302-01

Prepared: 02/26/21 Analyzed: 02/27/21

C10-C28 (DRO)	440	50	mg/kg	500	19.9	84.1	70-130	2.48	20
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Reported:
03/08/21 11:28

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEC0040 - EPA 5030 Soil MS

Blank (BEC0040-BLK1)

Prepared: 03/02/21 Analyzed: 03/04/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0163		"	0.0333		48.8	40-150			
Surrogate: Fluoranthene-d10	0.0184		"	0.0333		55.1	40-150			

LCS (BEC0040-BS1)

Prepared: 03/02/21 Analyzed: 03/04/21

Acenaphthene	0.0252	0.00500	mg/kg	0.0333		75.6	31-137			
Anthracene	0.0267	0.00500	"	0.0333		80.1	30-120			
Benzo (a) anthracene	0.0261	0.00500	"	0.0333		78.3	30-120			
Benzo (a) pyrene	0.0270	0.00500	"	0.0333		81.0	30-120			
Benzo (b) fluoranthene	0.0269	0.00500	"	0.0333		80.7	30-120			
Benzo (k) fluoranthene	0.0249	0.00500	"	0.0333		74.8	30-120			
Chrysene	0.0240	0.00500	"	0.0333		72.1	30-120			
Dibenz (a,h) anthracene	0.0249	0.00500	"	0.0333		74.8	30-120			
Fluoranthene	0.0243	0.00500	"	0.0333		73.0	30-120			
Fluorene	0.0255	0.00500	"	0.0333		76.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0238	0.00500	"	0.0333		71.4	30-120			
Pyrene	0.0237	0.00500	"	0.0333		71.0	35-142			
1-Methylnaphthalene	0.0256	0.00500	"	0.0333		76.7	35-142			
2-Methylnaphthalene	0.0274	0.00500	"	0.0333		82.1	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0320		"	0.0333		95.9	40-150			
Surrogate: Fluoranthene-d10	0.0385		"	0.0333		115	40-150			

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Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

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 BEC0040 - EPA 5030 Soil MS

Matrix Spike (BEC0040-MS1)

Source: 2102299-01

Prepared: 03/02/21 Analyzed: 03/04/21

Acenaphthene	0.0274	0.00500	mg/kg	0.0333	ND	82.1	31-137				
Anthracene	0.0280	0.00500	"	0.0333	ND	84.0	30-120				
Benzo (a) anthracene	0.0274	0.00500	"	0.0333	ND	82.3	30-120				
Benzo (a) pyrene	0.0280	0.00500	"	0.0333	ND	83.9	30-120				
Benzo (b) fluoranthene	0.0285	0.00500	"	0.0333	ND	85.6	30-120				
Benzo (k) fluoranthene	0.0273	0.00500	"	0.0333	ND	82.0	30-120				
Chrysene	0.0260	0.00500	"	0.0333	ND	78.0	30-120				
Dibenz (a,h) anthracene	0.0246	0.00500	"	0.0333	ND	73.8	30-120				
Fluoranthene	0.0254	0.00500	"	0.0333	ND	76.1	30-120				
Fluorene	0.0272	0.00500	"	0.0333	ND	81.6	30-120				
Indeno (1,2,3-cd) pyrene	0.0240	0.00500	"	0.0333	ND	71.9	30-120				
Pyrene	0.0248	0.00500	"	0.0333	ND	74.3	35-142				
1-Methylnaphthalene	0.0263	0.00500	"	0.0333	ND	79.0	15-130				
2-Methylnaphthalene	0.0283	0.00500	"	0.0333	ND	84.9	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0330		"	0.0333		99.0	40-150				
Surrogate: Fluoranthene-d10	0.0409		"	0.0333		123	40-150				

Matrix Spike Dup (BEC0040-MSD1)

Source: 2102299-01

Prepared: 03/02/21 Analyzed: 03/04/21

Acenaphthene	0.0245	0.00500	mg/kg	0.0333	ND	73.5	31-137	11.1	30		
Anthracene	0.0251	0.00500	"	0.0333	ND	75.2	30-120	11.0	30		
Benzo (a) anthracene	0.0249	0.00500	"	0.0333	ND	74.6	30-120	9.80	30		
Benzo (a) pyrene	0.0252	0.00500	"	0.0333	ND	75.7	30-120	10.3	30		
Benzo (b) fluoranthene	0.0259	0.00500	"	0.0333	ND	77.8	30-120	9.49	30		
Benzo (k) fluoranthene	0.0245	0.00500	"	0.0333	ND	73.4	30-120	11.1	30		
Chrysene	0.0229	0.00500	"	0.0333	ND	68.7	30-120	12.7	30		
Dibenz (a,h) anthracene	0.0221	0.00500	"	0.0333	ND	66.3	30-120	10.8	30		
Fluoranthene	0.0218	0.00500	"	0.0333	ND	65.5	30-120	14.9	30		
Fluorene	0.0252	0.00500	"	0.0333	ND	75.5	30-120	7.75	30		
Indeno (1,2,3-cd) pyrene	0.0211	0.00500	"	0.0333	ND	63.4	30-120	12.6	30		
Pyrene	0.0222	0.00500	"	0.0333	ND	66.7	35-142	10.7	30		
1-Methylnaphthalene	0.0224	0.00500	"	0.0333	ND	67.3	15-130	16.0	50		
2-Methylnaphthalene	0.0250	0.00500	"	0.0333	ND	75.1	15-130	12.3	50		
Surrogate: 2-Methylnaphthalene-d10	0.0308		"	0.0333		92.3	40-150				
Surrogate: Fluoranthene-d10	0.0368		"	0.0333		110	40-150				

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Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

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

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

Batch BEB0383 - EPA 3050B

Blank (BEB0383-BLK1)

Prepared & Analyzed: 02/25/21

Boron ND 0.0100 mg/L

LCS (BEB0383-BS1)

Prepared & Analyzed: 02/25/21

Boron 4.88 0.0100 mg/L 5.00 97.6 80-120

Duplicate (BEB0383-DUP1)

Source: 2102176-03

Prepared: 02/25/21 Analyzed: 02/26/21

Boron 1.51 0.0100 mg/L 1.66 9.20 20

Matrix Spike (BEB0383-MS1)

Source: 2102176-03

Prepared: 02/25/21 Analyzed: 02/26/21

Boron 6.26 0.0100 mg/L 5.00 1.66 92.2 75-125

Matrix Spike Dup (BEB0383-MSD1)

Source: 2102176-03

Prepared: 02/25/21 Analyzed: 02/26/21

Boron 6.26 0.0100 mg/L 5.00 1.66 92.1 75-125 0.0211 25

Summit Scientific

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Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

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

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

Batch BEC0003 - General Preparation

Blank (BEC0003-BLK1)

Prepared: 03/01/21 Analyzed: 03/02/21

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

LCS (BEC0003-BS1)

Prepared: 03/01/21 Analyzed: 03/02/21

Calcium	5.66	0.0500	mg/L wet	5.00	113	70-130
Magnesium	5.43	0.0500	"	5.00	109	70-130
Sodium	5.19	0.0500	"	5.00	104	70-130

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

Summit Scientific

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

Batch BEB0399 - General Preparation

Duplicate (BEB0399-DUP1)

Source: 2102122-06

Prepared & Analyzed: 02/26/21

% Solids	87.1	%		86.9		0.228	20
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Summit Scientific

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Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

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

Summit Scientific

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

Batch BEC0053 - General Preparation

Blank (BEC0053-BLK1)

Prepared & Analyzed: 03/02/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEC0053-BS1)

Prepared & Analyzed: 03/02/21

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.5 90-110

Duplicate (BEC0053-DUP1)

Source: 2102328-01

Prepared & Analyzed: 03/02/21

Specific Conductance (EC) 1.14 0.0100 mmhos/cm 1.11 2.94 20

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Brun

Reported:
03/08/21 11:28

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

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

Batch BEC0054 - General Preparation

LCS (BEC0054-BS1)

Prepared & Analyzed: 03/02/21

pH	9.27	pH Units	9.21	101	95-105
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Duplicate (BEC0054-DUP1)

Source: 2102328-01

Prepared & Analyzed: 03/02/21

pH	8.59	pH Units	8.59	0.00	20
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Project: Noble - Werning 7-2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/08/21 11:28

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