

Flowline Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: WATKINS 12-2		Date: 03/14/2023, 03/15/2023			Remediation Project #: 24990			
Associated Wells:		Age of Site:			Number of Photos Attached: 9			
Starting point: (GPS coordinates and descriptions) 40.325603, -104.499336								
End point: (GPS coordinates and descriptions) 40.325102, -104.505917								
USCS Soil Type: Well Graded Sand - SW					Estimated Depth to Groundwater: >6'			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Flowlines								
Flowline type	Oil/Water/Gas							
Depth	5'							
Age								
Length	2,030							
Construction Material	Steel							
Were flowlines pulled?	Yes							
Visual Integrity of lines	NA							
Visual impacts if trenched	NA							
PID Readings if trenched	0.0-0.8							
Sample taken? Location/Sample ID#	Yes, see below							
Photo Number(s)	1 - 9							
Other observations regarding on location flowlines: Samples taken at the well head and separator (FL01-A@6', FL01-K@1'); Samples were also taken at points where there was a direction change (FL01-J@4')								
Summary								
Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards								
Total number of samples field screened: 11					Total number of samples collected: 3			
Highest PID Reading: 0.8					Total number of samples submitted to lab for analysis: 3			
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



Equipment ID: FL01-A@6'		Equipment Type: Flowline		Equipment ID: FL01-B@4'		Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water		Material: Steel	Volume:	Contents: Oil/Gas/Water	
Notes/Conditions:				Notes/Conditions:			

Photographic Log



Equipment ID: FL01-C@4'		Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water	
Notes/Conditions:			

Equipment ID: FL01-D@4'		Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water	
Notes/Conditions:			

Photographic Log

					
Equipment ID: FL01-E@4'	Equipment Type: Flowline		Equipment ID: FL01-F@	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water	Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:			Notes/Conditions:		

Photographic Log

					
Equipment ID: FL01-I@4'		Equipment Type: Flowline	Equipment ID: FL01-J@4'		Equipment Type: Flowline
Material: Steel	Volume:	Contents: Oil/Gas/Water	Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:			Notes/Conditions: PIPE LEFT IN PLACE FOR LATER REMOVAL		



Equipment ID: FL01-K@1		Equipment Type: Flowline		Equipment ID:		Equipment Type:	
Material: Steel	Volume:	Contents: Oil/Gas/Water		Material:	Volume:	Contents:	
Notes/Conditions:				Notes/Conditions:			

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - WATKINS 12-02 FL

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@6'	01/24/23	0.1	No Staining	No Odor	Lab	40.32512184	-104.5059371	1.1
FL01-B@4'	01/25/23	0.7	No Staining	No Odor	Grab	40.32509167	-104.5050222	0.9
FL01-C@4'	01/26/23	0.6	No Staining	No Odor	Grab	40.32510483	-104.5039685	0.8
FL01-D@4'	01/27/23	0.8	No Staining	No Odor	Grab	40.32510894	-104.5032246	1.1
FL01-E@4'	01/27/23	0.6	No Staining	No Odor	Grab	40.32510229	-104.5023432	0.9
FL01-F@4'	02/02/23	0.1	No Staining	No Odor	Grab	40.32508491	-104.5014200	1.1
FL01-G@4'	02/03/23	0.0	No Staining	No Odor	Grab	40.32506886	-104.5006118	0.9
FL01-H@4'	02/06/23	0.0	No Staining	No Odor	Grab	40.32506859	-104.5000576	0.9
FL01-I@4'	02/07/23	0.1	No Staining	No Odor	Grab	40.32506028	-104.5000959	0.9
FL01-J@4'	02/07/23	0.2	No Staining	No Odor	Lab	40.32510389	-104.4994493	0.8
FL01-K@1'	02/10/23	0.4	No Staining	No Odor	Lab	40.32562334	-104.4993914	NM
BH01@4'	04/19/23	0.1	No Staining	No Odor	Lab	40.32507693	-104.4994406	2.3
BH01@8'	04/19/23	0.6	No Staining	No Odor	Lab	40.32507693	-104.4994406	2.3
BG01@4'	04/19/23	0.5	No Staining	No Odor	Lab	40.32492829	-104.4995153	2.8
BG01@8'	04/19/23	1.0	No Staining	No Odor	Lab	40.32492829	-104.4995153	2.8
BG02@4'	04/19/23	0.6	No Staining	No Odor	Lab	40.32495731	-104.4994173	2.8
BG02@8'	04/19/23	0.4	No Staining	No Odor	Lab	40.32495731	-104.4994173	2.8
BG03@4'	04/19/23	0.4	No Staining	No Odor	Lab	40.32498457	-104.4992694	2.7
BG03@8'	04/19/23	0.1	No Staining	No Odor	Lab	40.32498457	-104.4992694	2.7
BG04@4'	04/19/23	0.2	No Staining	No Odor	Lab	40.32500116	-104.4994871	2.8
BG04@8'	04/19/23	0.4	No Staining	No Odor	Lab	40.32500116	-104.4994871	2.8
BG05@4'	04/19/23	0.1	No Staining	No Odor	Lab	40.32503181	-104.4993456	2.2
BG05@8'	04/19/23	0.3	No Staining	No Odor	Lab	40.32503181	-104.4993456	2.2

Notes:

PID = Photo-ionization detector NM = Not Measured

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. - WATKINS 12-02 FL

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-A@6'	01/24/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00201	<0.200	<25.0	<100	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00201	<0.00201
FL01-J@4'	02/07/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.0442	<0.200	<25.0	<100	0.0564	0.156	0.125	0.0748	0.0786	0.0356	0.114	0.00803	0.355	0.0675	0.0213	0.272	0.00945	0.0128
FL01-K@1'	02/10/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.00263	<0.200	202	363	0.0199	0.0487	0.0378	0.0232	0.0213	0.0102	0.0354	0.0049	0.108	0.0271	0.00263	0.0735	<0.00201	<0.00201
BH01@4'	04/19/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BH01@8'	04/19/23	<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

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@6'	01/24/23	7.95	3.68	1.57	0.222
FL01-J@4'	02/07/23	8.12	7.26	2.04	0.136
FL01-K@1'	02/10/23	8.13	0.268	0.251	0.229
BH01@8'	04/19/23	NA	4.38	NA	NA
BG01@4'	04/19/23	NA	7.89	NA	NA
BG01@8'	04/19/23	NA	6.30	NA	NA
BG02@4'	04/19/23	NA	5.65	NA	NA
BG02@8'	04/19/23	NA	4.38	NA	NA
BG03@4'	04/19/23	NA	6.37	NA	NA
BG03@8'	04/19/23	NA	4.50	NA	NA
BG04@4'	04/19/23	NA	3.10	NA	NA
BG04@8'	04/19/23	NA	4.83	NA	NA
BG05@4'	04/19/23	NA	4.45	NA	NA
BG05@8'	04/19/23	NA	3.37	NA	NA

Soil Sample ID	Date	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ²		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^{2,3}		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
BH01@4'	04/19/23	1.14	51.4	<0.210	<0.30	2.72	3.45	2.48	<0.260	<0.0210	10.5
BH01@8'	04/19/23	1.44	33.4	<0.210	<0.30	2.82	4.49	3.54	<0.260	0.0222	11.4
BG01@4'	04/19/23	0.899	23.7	<0.210	<0.30	2.77	5.02	2.25	<0.260	<0.0210	9.59
BG01@8'	04/19/23	0.838	29.0	<0.208	<0.30	2.63	2.89	2.15	<0.260	<0.0208	9.45
BG02@4'	04/19/23	0.927	31.2	<0.207	<0.30	2.44	2.81	2.04	<0.260	<0.0207	9.2
BG02@8'	04/19/23	1.12	40.4	<0.211	<0.30	3.25	3.54	2.56	<0.260	<0.0211	11.2
BG03@4'	04/19/23	1.36	37.9	<0.205	<0.30	2.17	3.24	2.84	<0.260	<0.0205	9.46
BG03@8'	04/19/23	1.11	26.7	<0.204	<0.30	2.33	2.47	2.12	<0.260	<0.0204	7.99
BG04@4'	04/19/23	0.887	36.5	<0.210	<0.30	2.33	<0.210	2.12	<0.260	<0.0210	9.37
BG04@8'	04/19/23	1.19	39.4	<0.217	<0.30	3.92	3.56	2.72	<0.260	<0.0217	15.7
BG05@4'	04/19/23	1.33	51.2	<0.206	<0.30	2.20	3.70	2.48	<0.260	<0.0206	9.21
BG05@8'	04/19/23	1.40	32.2	<0.206	<0.30	2.40	2.96	2.55	<0.260	<0.0206	8.77

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:

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

NA = Not Analyzed

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millimhos per centimeter

mg/L = Milligrams per liter

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

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

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

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

Benzo(a) = Benzoanthracene

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

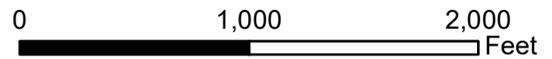
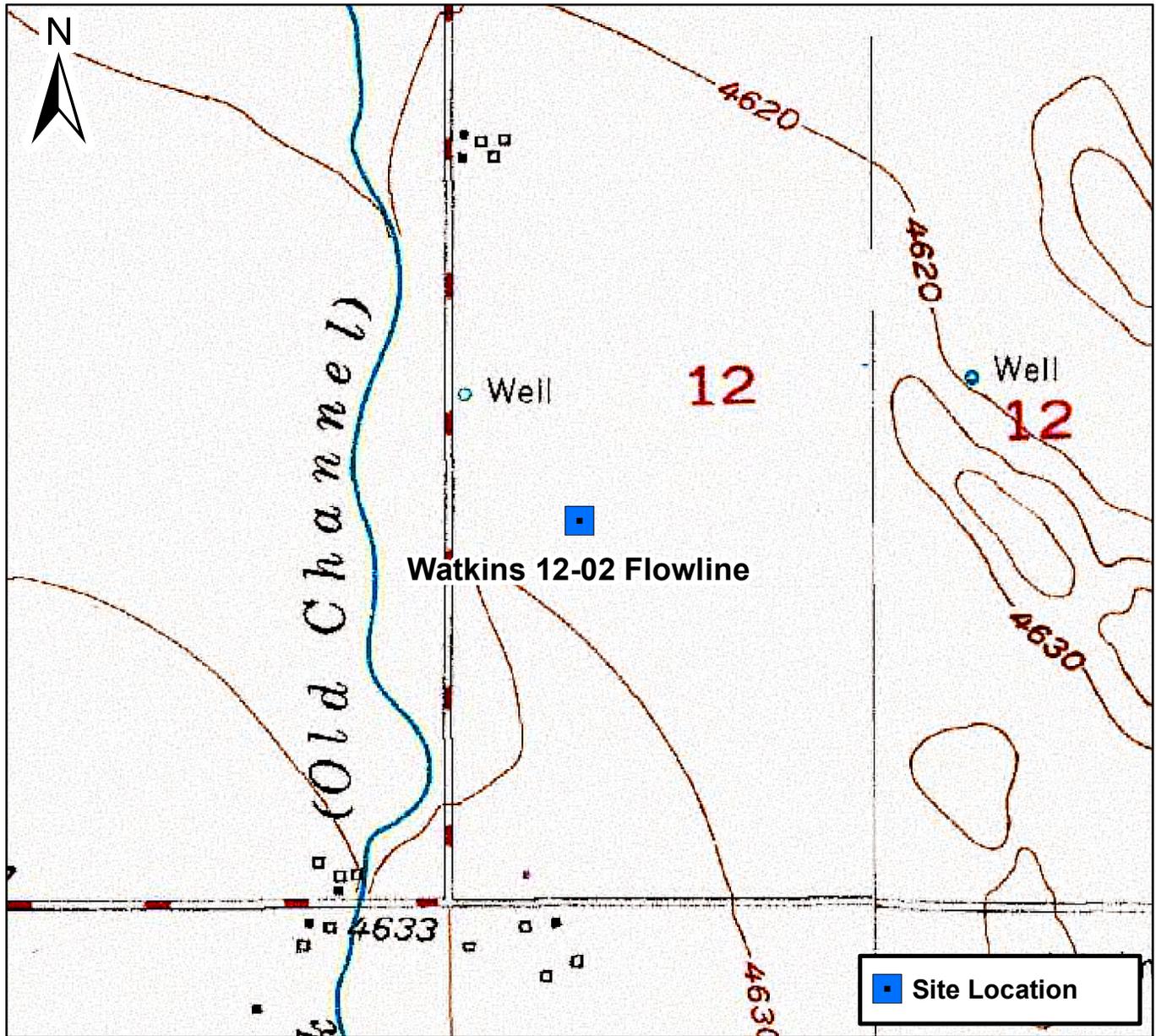


Figure 1

Site Location Map
 Watkins 12-02 Flowline
 NWSW S12 T4N R64W
 Weld County, Colorado



Legend

--- Noble Flowline

+ Soil Sample Location – Field Screen
(Collected via Trimble GPS)

+ Soil Sample Location – Lab Analyzed
(Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of COGCC Table 915-1 not shown.
- 4) Concentration in exceedance of COGCC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System
 mg/kg – Milligrams per kilogram
 PID – Photoionization Detector
 ppm – parts per million
 TPH – Total Petroleum Hydrocarbons
 SAR – Sodium Adsorption Ratio

0 ft. 125 ft. 250 ft.



Image Source: Google Earth; Google 2020



DATE: 8/2/2023

DESIGNED BY: JW

DRAWN BY: AE



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

Noble Energy, Inc. – DJ Basin
Watkins 12-02
 NWSW, Section 12, Township 4 North, Range 64 West
 Weld County, Colorado

Flowline Closure & Soil
 Analytical Results Map
 (01/24/23, 01/27/23, 02/02/23,
 02/07/23, & 02/10/23)

FIGURE
 2

Legend

--- Noble Flowline

+ Soil Sample Location – Lab Analyzed
(Collected via Trimble GPS)

● Hand Auger Soil Sample Location
(Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of COGCC Table 915-1 not shown.
- 4) Concentration in exceedance of COGCC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System
 mg/kg – Milligrams per kilogram
 PID – Photoionization Detector
 ppm – parts per million
 TPH – Total Petroleum Hydrocarbons
 SAR – Sodium Adsorption Ratio

0 ft. 15 ft. 30 ft.

Image Source: Google Earth; Google 2020



FL01-J@4'
(02/07/2023)

PID = 0.2 ppm
 Naphthalene = **0.0442** mg/kg
 Benz(a)anthracene = **0.125** mg/kg
 1-Methylnaphthalene = **0.00945** mg/kg
 SAR = **7.26**

BH01@4'
(04/19/2023)

PID = 0.1 ppm
 Arsenic = **1.14** mg/kg

BH01@8'
(04/19/2023)

PID = 0.6 ppm
 Arsenic = **1.44** mg/kg

BG05@4'
(04/19/2023)

PID = 0.1 ppm
 Arsenic = 1.33 mg/kg

BG05@8'
(04/19/2023)

PID = 0.3 ppm
 Arsenic = 1.40 mg/kg

BG04@4'
(04/19/2023)

PID = 0.2 ppm
 Arsenic = 0.887 mg/kg

BG04@8'
(04/19/2023)

PID = 0.4 ppm
 Arsenic = 1.19 mg/kg

BG01@4'
(04/19/2023)

PID = 0.5 ppm
 Arsenic = 0.899 mg/kg

BG01@8'
(04/19/2023)

PID = 1.0 ppm
 Arsenic = 0.838 mg/kg

BG02@4'
(04/19/2023)

PID = 0.6 ppm
 Arsenic = 0.927 mg/kg

BG02@8'
(04/19/2023)

PID = 0.4 ppm
 Arsenic = 1.12 mg/kg

BG03@4'
(04/19/2023)

PID = 0.4 ppm
 Arsenic = 1.36 mg/kg

BG03@8'
(04/19/2023)

PID = 0.1 ppm
 Arsenic = 1.11 mg/kg

DATE:	8/2/2023
DESIGNED BY:	JW
DRAWN BY:	AE

TASMAN
GEOSCIENCES

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

Noble Energy, Inc. – DJ Basin
Watkins 12-02
 NWSW, Section 12, Township 4 North, Range 64 West
 Weld County, Colorado

Site Assessment Soil
 Analytical Results Map
 (02/07/23 & 04/19/23)

FIGURE
3

January 30, 2023

Tasman Geosciences

Jake Whritenour

6855 West 119th Avenue

Broomfield CO 80020

Project Name - Noble - Watkins 12-02

Project Number - [none]

Attached are your analytical results for Noble - Watkins 12-02 received by Origins Laboratory, Inc. January 24, 2023. This project is associated with Origins project number Y301396-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: [none]
Project: Noble - Watkins 12-02

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@6'	Y301396-01	Soil	January 24, 2023 9:20	01/24/2023 16:30

Origins Laboratory, Inc.



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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4301396 Client: Tasman
 Client Project ID: Watkins 12-02
 Checklist Completed by: EHS Shipped Via: HD
 Date/time completed: 1/24/23 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: N/A
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 13.1 °C / _____ °C / _____ °C (Describe) _____ °C
 Thermometer ID: 7084

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" 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"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) 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 with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) 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 and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCl, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<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 date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Gina Lute Reviewed by (Project Manager) 1/24/23 Date/Time Reviewed

Origins Laboratory, Inc.


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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-A@6'
1/24/2023 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y301396-01 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.222	0.0988	mg/L	1	B3A2503	KAP	01/25/2023	01/26/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3A2401	ADM	01/24/2023	01/24/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ADM	"	"	U

Surrogate: o-Terphenyl	83.2 %	50-150			"	"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3A2419	ZZZ	01/24/2023	01/24/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	99.0 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	"	

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.


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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-A@6'

1/24/2023 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y301396-01 (Soil)
Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	5.88	0.499	meq/L	10	[CALC]	KAP	01/25/2023	01/26/2023
Magnesium	2.32	0.823	"	"	"	KAP	"	"
Sodium	7.46	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	7.95		pH Units	1	B3A2504	HJD	01/25/2023	01/26/2023
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SAR by 20B Saturated Paste

SAR	3.68		SAR	1	B3A2502	KAP	01/25/2023	01/26/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.57	0.00500	mmhos/cm	1	B3A2504	HJD	01/25/2023	01/26/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L660823		01/27/2023	01/27/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	ND	0.00067	"	"	"		"	"
Anthracene	ND	0.00067	"	"	"		"	"

Origins Laboratory, Inc.


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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-A@6'
1/24/2023 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y301396-01 (Soil)
Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)anthracene	ND	0.00067	mg/Kg	1	L660823		01/27/2023	01/27/2023	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	ND	0.00067	"	"	"		"	"	
Dibenz(a,h)anthracene	ND	0.00067	"	"	"		"	"	
Fluoranthene	ND	0.00067	"	"	"		"	"	
Fluorene	ND	0.00067	"	"	"		"	"	
Indeno(1,2,3-cd)pyrene	ND	0.00067	"	"	"		"	"	
Naphthalene	ND	0.00201	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl	52 %	33-115			"		"	"	
Surrogate: 4-Terphenyl-d14	63.2 %	33-122			"		"	"	
Surrogate: Nitrobenzene-d5	52.9 %	29-110			"		"	"	

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3A2401 - EPA 3580										
Blank (B3A2401-BLK1)										
					Prepared: 01/24/2023 Analyzed: 01/24/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	23		"	24.9		90.9	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3A2401 - EPA 3580

LCS (B3A2401-BS1)

Prepared: 01/24/2023 Analyzed: 01/24/2023

Diesel (C10-C28)	885	50.0	mg/kg	1000		88.5	70-130			
Residual Range Organics (C28-C40)	851	200	"	1000		85.1	70-130			
Surrogate: o-Terphenyl	41		"	49.8		81.8	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3A2401 - EPA 3580

Matrix Spike (B3A2401-MS1)	Source: Y301363-01			Prepared: 01/24/2023 Analyzed: 01/24/2023						
Diesel (C10-C28)	902	50.0	mg/kg	1000	ND	90.2	70-130			
Residual Range Organics (C28-C40)	873	200	"	1000	ND	87.3	70-130			
Surrogate: o-Terphenyl	40		"	49.8		80.1	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3A2401 - EPA 3580										
Matrix Spike Dup (B3A2401-MSD1)					Source: Y301363-01					Prepared: 01/24/2023 Analyzed: 01/24/2023
Diesel (C10-C28)	891	50.0	mg/kg	1000	ND	89.1	70-130	1.24	35	
Residual Range Organics (C28-C40)	859	200	"	1000	ND	85.9	70-130	1.62	35	
Surrogate: o-Terphenyl	39		"	49.8		79.3	50-150			

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Tasman Geosciences
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 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3A2419 - EPA 5030 (soil)

Blank (B3A2419-BLK1)

Prepared: 01/24/2023 Analyzed: 01/24/2023

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125	95.2		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	98.4		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	99.6		70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3A2419 - EPA 5030 (soil)

LCS (B3A2419-BS1)

Prepared: 01/24/2023 Analyzed: 01/24/2023

1,2,4-Trimethylbenzene	0.0974	0.00200	mg/kg	0.100		97.4	70-130			
1,3,5-Trimethylbenzene	0.0968	0.00200	"	0.100		96.8	70-130			
Benzene	0.0926	0.00200	"	0.100		92.6	70-130			
Ethylbenzene	0.0955	0.00200	"	0.100		95.5	70-130			
Naphthalene	0.0981	0.00380	"	0.100		98.1	70-130			
Toluene	0.0969	0.00200	"	0.100		96.9	70-130			
o-Xylene	0.0956	0.00200	"	0.100		95.6	70-130			
m,p-Xylene	0.225	0.00400	"	0.200		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.8	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.3	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3A2419 - EPA 5030 (soil)

Matrix Spike (B3A2419-MS1)	Source: Y301384-01			Prepared: 01/24/2023 Analyzed: 01/24/2023						
1,2,4-Trimethylbenzene	0.0896	0.00200	mg/kg	0.100	0.000800	88.8	70-130			
1,3,5-Trimethylbenzene	0.0883	0.00200	"	0.100	0.000720	87.5	70-130			
Benzene	0.0906	0.00200	"	0.100	ND	90.6	70-130			
Ethylbenzene	0.0880	0.00200	"	0.100	0.000500	87.5	70-130			
Naphthalene	0.0970	0.00380	"	0.100	0.00106	95.9	70-130			
Toluene	0.0879	0.00200	"	0.100	ND	87.9	70-130			
o-Xylene	0.0892	0.00200	"	0.100	0.000540	88.7	70-130			
m,p-Xylene	0.205	0.00400	"	0.200	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.0	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3A2419 - EPA 5030 (soil)

Matrix Spike Dup (B3A2419-MSD1)	Source: Y301384-01			Prepared: 01/24/2023 Analyzed: 01/24/2023						
1,2,4-Trimethylbenzene	0.0879	0.00200	mg/kg	0.100	0.000800	87.1	70-130	1.89	20	
1,3,5-Trimethylbenzene	0.0861	0.00200	"	0.100	0.000720	85.3	70-130	2.52	20	
Benzene	0.0925	0.00200	"	0.100	ND	92.5	70-130	2.14	20	
Ethylbenzene	0.0849	0.00200	"	0.100	0.000500	84.4	70-130	3.54	20	
Naphthalene	0.112	0.00380	"	0.100	0.00106	111	70-130	14.4	20	
Toluene	0.0863	0.00200	"	0.100	ND	86.3	70-130	1.75	20	
o-Xylene	0.0887	0.00200	"	0.100	0.000540	88.2	70-130	0.562	20	
m,p-Xylene	0.198	0.00400	"	0.200	ND	99.1	70-130	3.24	20	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		113	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3A2502 - Saturated Paste Metals

Blank (B3A2502-BLK1)

Prepared: 01/25/2023 Analyzed: 01/26/2023

SAR	0.00		SAR							
Calcium PPM	ND	10.0	mg/L							
Magnesium PPM	ND	10.0	"							
Sodium PPM	ND	10.0	"							

Duplicate (B3A2502-DUP1)

Source: Y301362-12

Prepared: 01/25/2023 Analyzed: 01/26/2023

Calcium PPM	150	10.0	mg/L		156		4.16	50		
SAR	0.00		SAR		10.6		200	200		
Magnesium PPM	90.5	10.0	mg/L		93.8		3.65	50		
Sodium PPM	669	10.0	"		678		1.34	50		

Batch B3A2503 - DTPA Sorbitol Preparation

Blank (B3A2503-BLK1)

Prepared: 01/25/2023 Analyzed: 01/26/2023

Boron	ND	0.100	mg/L							
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Duplicate (B3A2503-DUP1)

Source: Y301382-01

Prepared: 01/25/2023 Analyzed: 01/26/2023

Boron	0.0340	0.100	mg/L		0.0352		3.57	50		
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Origins Laboratory, Inc.



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 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3A2504 - Saturated Paste pH/EC										
Blank (B3A2504-BLK1)					Prepared: 01/25/2023 Analyzed: 01/26/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B3A2504-DUP1)		Source: Y301362-12			Prepared: 01/25/2023 Analyzed: 01/26/2023					
pH	7.90		pH Units		8.01			1.38	25	
Specific Conductance (EC)	3.85	0.00500	mmhos/cm		3.96			2.85	25	

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L660823 - 3550B

MSD (L 98799-MSD-L660823)		Source: Y301396-01			Prepared: 01/27/2023 Analyzed: 01/27/2023					
2-Methylnaphthalene	0.0935	0.00201	mg/Kg	0.165	<0.00194	56.6	30-130	17	30	
Fluorene	0.0946	0.00067	"	0.165	0.000362	57.1	30-130	15.4	30	
Pyrene	0.1	0.00067	"	0.165	<0.000643	60.6	30-130	9.7	30	
Indeno(1,2,3-cd)pyrene	0.0804	0.00067	"	0.165	<0.000627	48.7	30-130	0.2	30	
Fluoranthene	0.107	0.00067	"	0.165	0.000492	64.5	30-130	9.2	30	
Dibenz(a,h)anthracene	0.0921	0.00067	"	0.165	<0.000614	55.8	30-130	0.6	30	
Chrysene	0.0928	0.00067	"	0.165	<0.000624	56.2	30-130	4	30	
Naphthalene	0.0865	0.00201	"	0.165	<0.00145	52.4	30-130	13.3	30	
1-Methylnaphthalene	0.0901	0.00201	"	0.165	<0.00109	54.6	30-130	13.8	30	
Benzo(k)fluoranthene	0.0932	0.00067	"	0.165	<0.000437	56.4	30-130	8.5	30	
Acenaphthene	0.0908	0.00067	"	0.165	<0.000304	55	30-130	15.4	30	
Anthracene	0.0917	0.00067	"	0.165	<0.000334	55.5	30-130	12.1	30	
Benzo(a)anthracene	0.107	0.00067	"	0.165	<0.000493	64.8	30-130	18	30	
Benzo(a)pyrene	0.11	0.00067	"	0.165	<0.000468	66.6	30-130	13.5	30	
Benzo(b)fluoranthene	0.0828	0.00067	"	0.165	<0.000585	50.1	30-130	0.3	30	
Surrogate: 2-Fluorobiphenyl	52.1		"	0.33	171	52.1	33-115			
Surrogate: Nitrobenzene-d5	52.1		"	0.33	174	52.1	29-110			
Surrogate: 4-Terphenyl-d14	60.3		"	0.33	208	60.3	33-122			

MS (L 98799-MS-L660823)		Source: Y301396-01			Prepared: 01/27/2023 Analyzed: 01/27/2023					
Benzo(k)fluoranthene	0.0856	0.00067	mg/Kg	0.166	<0.000437	51.5	30-130			
Acenaphthene	0.0778	0.00067	"	0.166	<0.000304	46.8	30-130			
Naphthalene	0.0757	0.00201	"	0.166	<0.00145	45.6	30-130			
Indeno(1,2,3-cd)pyrene	0.0806	0.00067	"	0.166	<0.000627	48.5	30-130			
Fluorene	0.081	0.00067	"	0.166	0.000362	48.5	30-130			
Fluoranthene	0.0975	0.00067	"	0.166	0.000492	58.4	30-130			
Dibenz(a,h)anthracene	0.0915	0.00067	"	0.166	<0.000614	55.1	30-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L660823 - 3550B

MS (L 98799-MS-L660823)		Source: Y301396-01			Prepared: 01/27/2023 Analyzed: 01/27/2023					
Chrysene	0.0891	0.00067	mg/Kg	0.166	<0.000624	53.6	30-130			
1-Methylnaphthalene	0.0784	0.00201	"	0.166	<0.00109	47.2	30-130			
Benzo(a)pyrene	0.096	0.00067	"	0.166	<0.000468	57.8	30-130			
Anthracene	0.0812	0.00067	"	0.166	<0.000334	48.9	30-130			
Pyrene	0.0907	0.00067	"	0.166	<0.000643	54.6	30-130			
2-Methylnaphthalene	0.0788	0.00201	"	0.166	<0.00194	47.4	30-130			
Benzo(b)fluoranthene	0.0825	0.00067	"	0.166	<0.000585	49.6	30-130			
Benzo(a)anthracene	0.0893	0.00067	"	0.166	<0.000493	53.7	30-130			
Surrogate: Nitrobenzene-d5	45.6		"	0.331	174	45.6	29-110			
Surrogate: 4-Terphenyl-d14	55.2		"	0.331	208	55.2	33-122			
Surrogate: 2-Fluorobiphenyl	45		"	0.331	171	45	33-115			

LCS (LCS-L660823)		Prepared: 01/27/2023 Analyzed: 01/27/2023								
Chrysene	0.0944	0.00067	mg/Kg	0.167		56.5	30-130			
Dibenz(a,h)anthracene	0.107	0.00067	"	0.167		64	30-130			
Fluoranthene	0.106	0.00067	"	0.167		63.4	30-130			
Fluorene	0.0864	0.00067	"	0.167		51.7	30-130			
Indeno(1,2,3-cd)pyrene	0.097	0.00067	"	0.167		58	30-130			
Naphthalene	0.0833	0.00201	"	0.167		49.8	30-130			
Benzo(k)fluoranthene	0.103	0.00067	"	0.167		61.6	30-130			
Pyrene	0.0997	0.00067	"	0.167		59.7	30-130			
Benzo(a)pyrene	0.106	0.00067	"	0.167		63.4	30-130			
Benzo(a)anthracene	0.104	0.00067	"	0.167		62.2	30-130			
Anthracene	0.089	0.00067	"	0.167		53.2	30-130			
Acenaphthene	0.086	0.00067	"	0.167		51.4	30-130			
2-Methylnaphthalene	0.0855	0.00201	"	0.167		51.1	30-130			
1-Methylnaphthalene	0.0853	0.00201	"	0.167		51	30-130			

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 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L660823 - 3550B

LCS (LCS-L660823)

Prepared: 01/27/2023 Analyzed: 01/27/2023

Benzo(b)fluoranthene	0.0941	0.00067	mg/Kg	0.167		56.3	30-130			
Surrogate: Nitrobenzene-d5	51		"	0.333		51	29-110			
Surrogate: 4-Terphenyl-d14	62.4		"	0.333		62.4	33-122			
Surrogate: 2-Fluorobiphenyl	48		"	0.333		48	33-115			

LRB (LRB-L660823)

Prepared: 01/27/2023 Analyzed: 01/27/2023

Chrysene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	56.1		"	0.333		56.1	29-110			
Surrogate: 4-Terphenyl-d14	68.7		"	0.333		68.7	33-122			
Surrogate: 2-Fluorobiphenyl	54.3		"	0.333		54.3	33-115			

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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: [none]
Project: Noble - Watkins 12-02

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

February 14, 2023

Tasman Geosciences

Jake Whritenour

6855 West 119th Avenue

Broomfield CO 80020

Project Name - Noble - Watkins 12-02

Project Number - [none]

Attached are your analytical results for Noble - Watkins 12-02 received by Origins Laboratory, Inc. February 07, 2023. This project is associated with Origins project number Y302138-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: [none]
Project: Noble - Watkins 12-02

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-J@4'	Y302138-01	Soil	February 7, 2023 14:05	02/07/2023 16:29

Origins Laboratory, Inc.



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.

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 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

www.originslaboratory.com

ORIGINS
 LABORATORY, INC

4302138

page 1 of 1

Client: Noble Tasman
 Address: _____
 Telephone Number: _____
 Email Address: whritenour@tasman-geo.com
 Project Manager: Jake Whritenour
 Project Name: NatVig 12-02
 Project Number: _____
 Samples Collected By: M Riandj

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ #			Other
<u>FLO1-J04</u>	<u>2/7/23</u>	<u>14:05</u>	<u>2</u>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>			<u>Vol 915</u> <u>TPH 915</u> <u>PAH 915</u> <u>SARPEL 915</u> <u>PAH-HWS</u>	<u>1</u>
													<u>2</u>
													<u>3</u>
													<u>4</u>
													<u>5</u>
													<u>6</u>
													<u>7</u>
													<u>8</u>
													<u>9</u>
													<u>10</u>

Relinquished By: [Signature]
 Date: 2/7/2023
 Time: 16:29
 Relinquished By: _____
 Date: _____
 Time: _____

Received By: [Signature]
 Date: 02/07/2023
 Time: 16:29
 Received By: _____
 Date: _____
 Time: _____

Turnaround Time:
 Same Day 24 Hr
 48 Hr 72 Hr
 Standard

Temp Received: 2.3
 Date Results Needed: _____

Origins Laboratory, Inc.
[Signature]

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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: Y302138

Client: Tasman

Client Project ID: Watkins 12-02

Checklist Completed by: DE TSM

Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 02/01/2013

Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____ (Describe)

Cooler Number/Temperature: 1 / 23 °C _____ / _____ °C _____ / _____ °C _____ / _____ °C

Thermometer ID: T004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 2/18/23

Origins Laboratory, Inc.

[Signature]

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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-J@4'

2/7/2023 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y302138-01 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.136	0.0997	mg/L	1	B3B0803	KAP	02/08/2023	02/09/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3B0801	ZZZ	02/08/2023	02/08/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: *o*-Terphenyl 92.2 % 50-150 " " "

GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3B0814	ZZZ	02/08/2023	02/08/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4 114 % 70-130 " " "
 Surrogate: Toluene-d8 91.0 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 99.5 % 70-130 " " "

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-J@4'

2/7/2023 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y302138-01 (Soil)
Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	4.56	0.499	meq/L	10	[CALC]	KAP	02/08/2023	02/09/2023
Magnesium	2.95	0.823	"	"	"	KAP	"	"
Sodium	14.1	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	8.12		pH Units	1	B3B0809	HJD	02/08/2023	02/09/2023
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SAR by 20B Saturated Paste

SAR	7.26		SAR	1	B3B0805	KAP	02/08/2023	02/09/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.04	0.00500	mmhos/cm	1	B3B0809	HJD	02/08/2023	02/09/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	0.00945	0.00201	mg/Kg	1	L663152		02/13/2023	02/13/2023
2-Methylnaphthalene	0.0128	0.00201	"	"	"		"	"
Acenaphthene	0.0564	0.00067	"	"	"		"	"
Anthracene	0.156	0.00067	"	"	"		"	"
Benzo(a)anthracene	0.125	0.00067	"	"	"		"	"

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-J@4'

2/7/2023 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y302138-01 (Soil)

Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)pyrene	0.0748	0.00067	mg/Kg	1	L663152		02/13/2023	02/13/2023	
Benzo(b)fluoranthene	0.0786	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	0.0356	0.00067	"	"	"		"	"	
Chrysene	0.114	0.00067	"	"	"		"	"	
Dibenz(a,h)anthracene	0.00803	0.00067	"	"	"		"	"	
Fluoranthene	0.355	0.00067	"	"	"		"	"	
Fluorene	0.0675	0.00067	"	"	"		"	"	
Indeno(1,2,3-cd)pyrene	0.0213	0.00067	"	"	"		"	"	
Naphthalene	0.0442	0.00201	"	"	"		"	"	
Pyrene	0.272	0.00067	"	"	"		"	"	
Surrogate: 2-Fluorobiphenyl	59.5 %		33-115		"		"	"	
Surrogate: 4-Terphenyl-d14	68.8 %		33-122		"		"	"	
Surrogate: Nitrobenzene-d5	62.2 %		29-110		"		"	"	

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 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3B0801 - EPA 3580										
Blank (B3B0801-BLK1)										
					Prepared: 02/08/2023 Analyzed: 02/08/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	26		"	24.9		104	50-150			

Origins Laboratory, Inc.



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Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control
 Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0801 - EPA 3580

LCS (B3B0801-BS1)

Prepared: 02/08/2023 Analyzed: 02/08/2023

Diesel (C10-C28)	994	50.0	mg/kg	1000		99.4	70-130			
Residual Range Organics (C28-C40)	1140	200	"	1000		114	70-130			
Surrogate: o-Terphenyl	49		"	49.8		98.4	50-150			

Origins Laboratory, Inc.



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 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0801 - EPA 3580

Matrix Spike (B3B0801-MS1)	Source: Y302121-01			Prepared: 02/08/2023 Analyzed: 02/08/2023						
Diesel (C10-C28)	1120	50.0	mg/kg	1000	ND	112	70-130			
Residual Range Organics (C28-C40)	1300	200	"	1000	ND	130	70-130			
Surrogate: o-Terphenyl	59		"	49.8		119	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0801 - EPA 3580

Matrix Spike Dup (B3B0801-MSD1)	Source: Y302121-01			Prepared: 02/08/2023 Analyzed: 02/08/2023						
Diesel (C10-C28)	1050	50.0	mg/kg	1000	ND	105	70-130	6.67	35	
Residual Range Organics (C28-C40)	1180	200	"	1000	ND	118	70-130	9.83	35	
Surrogate: o-Terphenyl	55		"	49.8		111	50-150			

Origins Laboratory, Inc.



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 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0814 - EPA 5030 (soil)

Blank (B3B0814-BLK1)

Prepared: 02/08/2023 Analyzed: 02/08/2023

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	102		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	103		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	100		70-130			

Origins Laboratory, Inc.



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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0814 - EPA 5030 (soil)

LCS (B3B0814-BS1)

Prepared: 02/08/2023 Analyzed: 02/08/2023

1,2,4-Trimethylbenzene	0.0905	0.00200	mg/kg	0.100		90.5	70-130			
1,3,5-Trimethylbenzene	0.0935	0.00200	"	0.100		93.5	70-130			
Benzene	0.0934	0.00200	"	0.100		93.4	70-130			
Ethylbenzene	0.0927	0.00200	"	0.100		92.7	70-130			
Naphthalene	0.0911	0.00380	"	0.100		91.1	70-130			
Toluene	0.0971	0.00200	"	0.100		97.1	70-130			
o-Xylene	0.0868	0.00200	"	0.100		86.8	70-130			
m,p-Xylene	0.180	0.00400	"	0.200		90.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.6	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		90.4	70-130			

Origins Laboratory, Inc.



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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0814 - EPA 5030 (soil)

Matrix Spike (B3B0814-MS1)	Source: Y302121-01			Prepared: 02/08/2023 Analyzed: 02/08/2023						
1,2,4-Trimethylbenzene	0.0541	0.00200	mg/kg	0.0500	ND	108	70-130			
1,3,5-Trimethylbenzene	0.0542	0.00200	"	0.0500	ND	108	70-130			
Benzene	0.0636	0.00200	"	0.0500	ND	127	70-130			
Ethylbenzene	0.0560	0.00200	"	0.0500	ND	112	70-130			
Naphthalene	0.0598	0.00380	"	0.0500	ND	120	70-130			
Toluene	0.0581	0.00200	"	0.0500	ND	116	70-130			
o-Xylene	0.0494	0.00200	"	0.0500	ND	98.8	70-130			
m,p-Xylene	0.105	0.00400	"	0.100	ND	105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		111	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.5	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0814 - EPA 5030 (soil)

Matrix Spike Dup (B3B0814-MSD1)	Source: Y302121-01			Prepared: 02/08/2023 Analyzed: 02/08/2023						
1,2,4-Trimethylbenzene	0.0656	0.00200	mg/kg	0.0500	ND	131	70-130	19.3	20	QM-07
1,3,5-Trimethylbenzene	0.0649	0.00200	"	0.0500	ND	130	70-130	17.9	20	
Benzene	0.0761	0.00200	"	0.0500	ND	152	70-130	18.0	20	QM-07
Ethylbenzene	0.0677	0.00200	"	0.0500	ND	135	70-130	19.0	20	QM-07
Naphthalene	0.0760	0.00380	"	0.0500	ND	152	70-130	24.0	20	QM-07
Toluene	0.0689	0.00200	"	0.0500	ND	138	70-130	17.0	20	QM-07
o-Xylene	0.0599	0.00200	"	0.0500	ND	120	70-130	19.3	20	
m,p-Xylene	0.128	0.00400	"	0.100	ND	128	70-130	19.6	20	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		110	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		90.0	70-130			

Origins Laboratory, Inc.



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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B0803 - DTPA Sorbitol Preparation

Blank (B3B0803-BLK1)

Prepared: 02/08/2023 Analyzed: 02/09/2023

Boron ND 0.100 mg/L

Duplicate (B3B0803-DUP1)

Source: Y302112-01

Prepared: 02/08/2023 Analyzed: 02/09/2023

Boron ND 0.994 mg/L ND 50

Batch B3B0805 - Saturated Paste Metals

Blank (B3B0805-BLK1)

Prepared: 02/08/2023 Analyzed: 02/09/2023

Calcium PPM ND 10.0 mg/L

SAR 0.00 SAR

Magnesium PPM ND 10.0 mg/L

Sodium PPM ND 10.0 "

Duplicate (B3B0805-DUP1)

Source: Y302121-01

Prepared: 02/08/2023 Analyzed: 02/09/2023

SAR 0.00 SAR 2.92 200 200

Calcium PPM 47.3 10.0 mg/L 46.1 2.54 50

Magnesium PPM 10.1 10.0 " 9.65 4.66 50

Sodium PPM 85.5 10.0 " 83.5 2.31 50

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3B0809 - Saturated Paste pH/EC										
Blank (B3B0809-BLK1)					Prepared: 02/08/2023 Analyzed: 02/09/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B3B0809-DUP1)		Source: Y302121-01			Prepared: 02/08/2023 Analyzed: 02/09/2023					
Specific Conductance (EC)	0.813	0.00500	mmhos/cm		0.770			5.45	25	
pH	8.03		pH Units		7.95			1.00	25	

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L663152 - 3550B

MSD (L 84006-MSD-L663152)		Source: 84006			Prepared: 02/13/2023 Analyzed: 02/13/2023					
2-Methylnaphthalene	0.0965	0.00201	mg/Kg	0.163	<0.00194	59.2	30-130	6	30	
Fluorene	0.109	0.00067	"	0.163	0.000324	66.6	30-130	5.6	30	
Pyrene	0.108	0.00067	"	0.163	<0.000643	66.2	30-130	0.9	30	
Indeno(1,2,3-cd)pyrene	0.0723	0.00067	"	0.163	<0.000627	44.3	30-130	1.6	30	
Fluoranthene	0.117	0.00067	"	0.163	<0.000394	71.7	30-130	2.5	30	
Dibenz(a,h)anthracene	0.0953	0.00067	"	0.163	<0.000614	58.4	30-130	3.5	30	
Chrysene	0.115	0.00067	"	0.163	<0.000624	70.5	30-130	1.7	30	
Naphthalene	0.0933	0.00201	"	0.163	<0.00145	57.2	30-130	4.8	30	
1-Methylnaphthalene	0.0965	0.00201	"	0.163	<0.00109	59.2	30-130	5.7	30	
Benzo(k)fluoranthene	0.0652	0.00067	"	0.163	0.000453	39.7	30-130	1.2	30	
Acenaphthene	0.102	0.00067	"	0.163	<0.000304	62.5	30-130	4.3	30	
Anthracene	0.109	0.00067	"	0.163	<0.000334	66.8	30-130	0	30	
Benzo(a)anthracene	0.115	0.00067	"	0.163	<0.000493	70.5	30-130	0.8	30	
Benzo(a)pyrene	0.112	0.00067	"	0.163	<0.000468	68.7	30-130	1.8	30	
Benzo(b)fluoranthene	0.0874	0.00067	"	0.163	0.000712	53.1	30-130	3.4	30	
Surrogate: 2-Fluorobiphenyl	56.1		"	0.326	174	56.1	33-115			
Surrogate: Nitrobenzene-d5	59.5		"	0.326	171	59.5	29-110			
Surrogate: 4-Terphenyl-d14	63.4		"	0.326	203	63.4	33-122			

MS (L 84006-MS-L663152)		Source: 84006			Prepared: 02/13/2023 Analyzed: 02/13/2023					
Benzo(k)fluoranthene	0.066	0.00067	mg/Kg	0.167	0.000453	39.2	30-130			
Acenaphthene	0.0977	0.00067	"	0.167	<0.000304	58.5	30-130			
Naphthalene	0.0889	0.00201	"	0.167	<0.00145	53.2	30-130			
Indeno(1,2,3-cd)pyrene	0.0711	0.00067	"	0.167	<0.000627	42.5	30-130			
Fluorene	0.103	0.00067	"	0.167	0.000324	61.4	30-130			
Fluoranthene	0.114	0.00067	"	0.167	<0.000394	68.2	30-130			
Dibenz(a,h)anthracene	0.092	0.00067	"	0.167	<0.000614	55	30-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L663152 - 3550B

MS (L 84006-MS-L663152)		Source: 84006			Prepared: 02/13/2023 Analyzed: 02/13/2023					
Chrysene	0.113	0.00067	mg/Kg	0.167	<0.000624	67.6	30-130			
1-Methylnaphthalene	0.0911	0.00201	"	0.167	<0.00109	54.5	30-130			
Benzo(a)pyrene	0.11	0.00067	"	0.167	<0.000468	65.8	30-130			
Anthracene	0.109	0.00067	"	0.167	<0.000334	65.2	30-130			
Pyrene	0.109	0.00067	"	0.167	<0.000643	65.2	30-130			
2-Methylnaphthalene	0.0908	0.00201	"	0.167	<0.00194	54.3	30-130			
Benzo(b)fluoranthene	0.0905	0.00067	"	0.167	0.000712	53.7	30-130			
Benzo(a)anthracene	0.114	0.00067	"	0.167	<0.000493	68.2	30-130			
Surrogate: Nitrobenzene-d5	53.4		"	0.333	171	53.4	29-110			
Surrogate: 4-Terphenyl-d14	59.4		"	0.333	203	59.4	33-122			
Surrogate: 2-Fluorobiphenyl	51.3		"	0.333	174	51.3	33-115			

LCS (LCS-L663152)		Prepared: 02/13/2023 Analyzed: 02/13/2023								
Chrysene	0.122	0.00067	mg/Kg	0.167		73	30-130			
Dibenz(a,h)anthracene	0.103	0.00067	"	0.167		61.6	30-130			
Fluoranthene	0.123	0.00067	"	0.167		73.6	30-130			
Fluorene	0.111	0.00067	"	0.167		66.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0739	0.00067	"	0.167		44.2	30-130			
Naphthalene	0.0952	0.00201	"	0.167		57	30-130			
Benzo(k)fluoranthene	0.0826	0.00067	"	0.167		49.4	30-130			
Pyrene	0.119	0.00067	"	0.167		71.2	30-130			
Benzo(a)pyrene	0.116	0.00067	"	0.167		69.4	30-130			
Benzo(a)anthracene	0.122	0.00067	"	0.167		73	30-130			
Anthracene	0.122	0.00067	"	0.167		73	30-130			
Acenaphthene	0.103	0.00067	"	0.167		61.6	30-130			
2-Methylnaphthalene	0.0973	0.00201	"	0.167		58.2	30-130			
1-Methylnaphthalene	0.0986	0.00201	"	0.167		59	30-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L663152 - 3550B

LCS (LCS-L663152)

Prepared: 02/13/2023 Analyzed: 02/13/2023

Benzo(b)fluoranthene	0.0841	0.00067	mg/Kg	0.167		50.3	30-130			
Surrogate: Nitrobenzene-d5	60.3		"	0.333		60.3	29-110			
Surrogate: 4-Terphenyl-d14	68.7		"	0.333		68.7	33-122			
Surrogate: 2-Fluorobiphenyl	57.6		"	0.333		57.6	33-115			

LRB (LRB-L663152)

Prepared: 02/13/2023 Analyzed: 02/13/2023

Chrysene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	56.4		"	0.333		56.4	29-110			
Surrogate: 4-Terphenyl-d14	69		"	0.333		69	33-122			
Surrogate: 2-Fluorobiphenyl	56.1		"	0.333		56.1	33-115			

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: [none]
Project: Noble - Watkins 12-02

Notes and Definitions

U Sample is Non-Detect.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

February 20, 2023

Tasman Geosciences

Jake Whritenour

6855 West 119th Avenue

Broomfield CO 80020

Project Name - Noble - Watkins 12-02

Project Number - [none]

Attached are your analytical results for Noble - Watkins 12-02 received by Origins Laboratory, Inc. February 10, 2023. This project is associated with Origins project number Y302216-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: [none]
Project: Noble - Watkins 12-02

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-K@1'	Y302216-01	Soil	February 10, 2023 12:20	02/10/2023 15:55

Origins Laboratory, Inc.



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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4302216 Client: Tasman
 Client Project ID: Watkins 12-02
 Checklist Completed by: EHS/DE Shipped Via: HD
 Date/time completed: 2/10/23 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: NA
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____ (Describe)
 Cooler Number/Temperature: 1 13.4°C / _____ °C / _____ °C / _____ °C
 Thermometer ID: TOO 4

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 2/13/23

Origins Laboratory, Inc.

[Signature]

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 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-K@1'
2/10/2023 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y302216-01 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.229	0.101	mg/L	1	B3B1308	KAP	02/13/2023	02/14/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	202	25.0	mg/kg	1	B3B1301	ZZZ	02/13/2023	02/13/2023	
Residual Range Organics (C28-C40)	363	100	"	"	"	ZZZ	"	"	

Surrogate: o-Terphenyl	95.2 %	50-150			"	"		"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3B1025	ZZZ	02/10/2023	02/14/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	02/11/2023	U

Surrogate: 1,2-Dichloroethane-d4	125 %	70-130			"	"		02/14/2023	
Surrogate: Toluene-d8	96.7 %	70-130			"	"		"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"		"	

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-K@1'

2/10/2023 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y302216-01 (Soil)
Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	2.53	0.499	meq/L	10	[CALC]	KAP	02/14/2023	02/15/2023
Magnesium	ND	0.823	"	"	"	KAP	"	"
Sodium	ND	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	8.13		pH Units	1	B3B1414	HJD	02/14/2023	02/15/2023
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SAR by 20B Saturated Paste

SAR	0.268		SAR	1	B3B1411	KAP	02/14/2023	02/15/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.251	0.00500	mmhos/cm	1	B3B1414	HJD	02/14/2023	02/15/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L663902		02/14/2023	02/14/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	0.0199	0.00067	"	"	"		"	"
Anthracene	0.0487	0.00067	"	"	"		"	"
Benzo(a)anthracene	0.0378	0.00067	"	"	"		"	"

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Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

FL01-K@1'
2/10/2023 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y302216-01 (Soil)
Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)pyrene	0.0232	0.00067	mg/Kg	1	L663902		02/14/2023	02/14/2023	
Benzo(b)fluoranthene	0.0213	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	0.0102	0.00067	"	"	"		"	"	
Chrysene	0.0354	0.00067	"	"	"		"	"	
Dibenz(a,h)anthracene	0.0049	0.00067	"	"	"		"	"	
Fluoranthene	0.108	0.00067	"	"	"		"	"	
Fluorene	0.0271	0.00067	"	"	"		"	"	
Indeno(1,2,3-cd)pyrene	0.0191	0.00067	"	"	"		"	"	
Naphthalene	0.00263	0.00201	"	"	"		"	"	
Pyrene	0.0735	0.00067	"	"	"		"	"	
Surrogate: 2-Fluorobiphenyl	51.7 %		33-115		"		"	"	
Surrogate: 4-Terphenyl-d14	45.9 %		33-122		"		"	"	
Surrogate: Nitrobenzene-d5	50.8 %		29-110		"		"	"	

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 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3B1025 - EPA 5030 (soil)										
Blank (B3B1025-BLK1)										
					Prepared: 02/10/2023 Analyzed: 02/11/2023					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125	92.1		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	96.0		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	97.8		70-130			

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Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B1025 - EPA 5030 (soil)

LCS (B3B1025-BS1)

Prepared: 02/10/2023 Analyzed: 02/11/2023

1,2,4-Trimethylbenzene	0.0959	0.00200	mg/kg	0.100		95.9	70-130			
1,3,5-Trimethylbenzene	0.0945	0.00200	"	0.100		94.5	70-130			
Benzene	0.0910	0.00200	"	0.100		91.0	70-130			
Ethylbenzene	0.0930	0.00200	"	0.100		93.0	70-130			
Naphthalene	0.105	0.00380	"	0.100		105	70-130			
Toluene	0.0864	0.00200	"	0.100		86.4	70-130			
o-Xylene	0.0979	0.00200	"	0.100		97.9	70-130			
m,p-Xylene	0.197	0.00400	"	0.200		98.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.4	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.3	70-130			

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 Project Number: [none]
 Project: Noble - Watkins 12-02

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B1025 - EPA 5030 (soil)

Matrix Spike (B3B1025-MS1)	Source: Y302222-01			Prepared: 02/10/2023 Analyzed: 02/11/2023						
1,2,4-Trimethylbenzene	0.105	0.00200	mg/kg	0.100	ND	105	70-130			
1,3,5-Trimethylbenzene	0.105	0.00200	"	0.100	ND	105	70-130			
Benzene	0.0969	0.00200	"	0.100	ND	96.9	70-130			
Ethylbenzene	0.108	0.00200	"	0.100	ND	108	70-130			
Naphthalene	0.0866	0.00380	"	0.100	0.00148	85.1	70-130			
Toluene	0.0940	0.00200	"	0.100	0.000520	93.5	70-130			
o-Xylene	0.111	0.00200	"	0.100	0.00184	110	70-130			
m,p-Xylene	0.228	0.00400	"	0.200	0.000720	114	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		90.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.6	70-130			

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Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B1025 - EPA 5030 (soil)

Matrix Spike Dup (B3B1025-MSD1)	Source: Y302222-01			Prepared: 02/10/2023 Analyzed: 02/11/2023						
1,2,4-Trimethylbenzene	0.0892	0.00200	mg/kg	0.100	ND	89.2	70-130	15.9	20	
1,3,5-Trimethylbenzene	0.0874	0.00200	"	0.100	ND	87.4	70-130	18.3	20	
Benzene	0.0911	0.00200	"	0.100	ND	91.1	70-130	6.15	20	
Ethylbenzene	0.0905	0.00200	"	0.100	ND	90.5	70-130	17.4	20	
Naphthalene	0.0868	0.00380	"	0.100	0.00148	85.3	70-130	0.254	20	
Toluene	0.0846	0.00200	"	0.100	0.000520	84.1	70-130	10.5	20	
o-Xylene	0.0947	0.00200	"	0.100	0.00184	92.9	70-130	16.3	20	
m,p-Xylene	0.191	0.00400	"	0.200	0.000720	94.9	70-130	18.0	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		100	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		90.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.2	70-130			

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 Project Number: [none]
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Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3B1301 - EPA 3580										
Blank (B3B1301-BLK1)										
					Prepared: 02/13/2023 Analyzed: 02/13/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	27		"	24.9		109	50-150			

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 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3B1301 - EPA 3580										
LCS (B3B1301-BS1)										
					Prepared: 02/13/2023 Analyzed: 02/13/2023					
Diesel (C10-C28)	776	50.0	mg/kg	1000		77.6	70-130			
Residual Range Organics (C28-C40)	776	200	"	1000		77.6	70-130			
Surrogate: o-Terphenyl	49		"	49.8		98.8	50-150			

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 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B1301 - EPA 3580

Matrix Spike (B3B1301-MS1)	Source: Y302214-01			Prepared: 02/13/2023 Analyzed: 02/13/2023						
Diesel (C10-C28)	820	50.0	mg/kg	1000	ND	82.0	70-130			
Residual Range Organics (C28-C40)	802	200	"	1000	ND	80.2	70-130			
Surrogate: o-Terphenyl	51		"	49.8		102	50-150			

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 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B1301 - EPA 3580

Matrix Spike Dup (B3B1301-MSD1)	Source: Y302214-01		Prepared: 02/13/2023 Analyzed: 02/13/2023							
Diesel (C10-C28)	759	50.0	mg/kg	1000	ND	75.9	70-130	7.73	35	
Residual Range Organics (C28-C40)	762	200	"	1000	ND	76.2	70-130	5.12	35	
Surrogate: o-Terphenyl	63		"	49.8		126	50-150			

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 Project: Noble - Watkins 12-02

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3B1308 - DTPA Sorbitol Preparation

Blank (B3B1308-BLK1)

Prepared: 02/13/2023 Analyzed: 02/14/2023

Boron ND 0.100 mg/L

Duplicate (B3B1308-DUP1)

Source: Y302177-01

Prepared: 02/13/2023 Analyzed: 02/14/2023

Boron 0.105 0.0996 mg/L 0.118 12.0 50

Batch B3B1411 - Saturated Paste Metals

Blank (B3B1411-BLK1)

Prepared: 02/14/2023 Analyzed: 02/15/2023

Calcium PPM ND 10.0 mg/L

SAR 0.00 SAR

Magnesium PPM ND 10.0 mg/L

Sodium PPM ND 10.0 "

Duplicate (B3B1411-DUP1)

Source: Y302216-01

Prepared: 02/14/2023 Analyzed: 02/15/2023

SAR 0.00 SAR 0.268 200 200

Calcium PPM 43.6 10.0 mg/L 50.7 15.1 50

Magnesium PPM 8.67 10.0 " 9.91 13.4 50

Sodium PPM 7.29 10.0 " 7.96 8.80 50

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Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3B1414 - Saturated Paste pH/EC										
Blank (B3B1414-BLK1)					Prepared: 02/14/2023 Analyzed: 02/15/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B3B1414-DUP1)		Source: Y302216-01			Prepared: 02/14/2023 Analyzed: 02/15/2023					
pH	8.23		pH Units		8.13			1.22	25	
Specific Conductance (EC)	0.221	0.00500	mmhos/cm		0.251			12.7	25	

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 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L663902 - 3550B

MSD (L 86030-MSD-L663902)		Source: 86030			Prepared: 02/14/2023 Analyzed: 02/14/2023					
2-Methylnaphthalene	0.102	0.00201	mg/Kg	0.166	<0.00194	61.4	30-130	0	30	
Fluorene	0.119	0.00067	"	0.166	<0.000286	71.6	30-130	0.8	30	
Pyrene	0.122	0.00067	"	0.166	<0.000643	73.4	30-130	5.9	30	
Indeno(1,2,3-cd)pyrene	0.0649	0.00067	"	0.166	<0.000627	39	30-130	11.9	30	
Fluoranthene	0.128	0.00067	"	0.166	<0.000394	77.1	30-130	6.4	30	
Dibenz(a,h)anthracene	0.101	0.00067	"	0.166	<0.000614	60.8	30-130	11.9	30	
Chrysene	0.126	0.00067	"	0.166	<0.000624	75.9	30-130	4.8	30	
Naphthalene	0.102	0.00201	"	0.166	<0.00145	61.4	30-130	0.9	30	
1-Methylnaphthalene	0.105	0.00201	"	0.166	<0.00109	63.2	30-130	3.8	30	
Benzo(k)fluoranthene	0.0882	0.00067	"	0.166	<0.000437	53.1	30-130	10.2	30	
Acenaphthene	0.114	0.00067	"	0.166	<0.000304	68.6	30-130	0.8	30	
Anthracene	0.128	0.00067	"	0.166	<0.000334	77.1	30-130	5.6	30	
Benzo(a)anthracene	0.13	0.00067	"	0.166	<0.000493	78.3	30-130	4.7	30	
Benzo(a)pyrene	0.124	0.00067	"	0.166	<0.000468	74.6	30-130	1.6	30	
Benzo(b)fluoranthene	0.0985	0.00067	"	0.166	<0.000585	59.3	30-130	9.3	30	
Surrogate: 2-Fluorobiphenyl	59.8		"	0.331	165	59.8	33-115			
Surrogate: Nitrobenzene-d5	63.4		"	0.331	179	63.4	29-110			
Surrogate: 4-Terphenyl-d14	68.5		"	0.331	193	68.5	33-122			

MS (L 86030-MS-L663902)		Source: 86030			Prepared: 02/14/2023 Analyzed: 02/14/2023					
Benzo(k)fluoranthene	0.0796	0.00067	mg/Kg	0.167	<0.000437	47.6	30-130			
Acenaphthene	0.113	0.00067	"	0.167	<0.000304	67.6	30-130			
Naphthalene	0.101	0.00201	"	0.167	<0.00145	60.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0576	0.00067	"	0.167	<0.000627	34.4	30-130			
Fluorene	0.12	0.00067	"	0.167	<0.000286	71.8	30-130			
Fluoranthene	0.12	0.00067	"	0.167	<0.000394	71.8	30-130			
Dibenz(a,h)anthracene	0.0896	0.00067	"	0.167	<0.000614	53.6	30-130			

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 Broomfield CO 80020

Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L663902 - 3550B

MS (L 86030-MS-L663902)	Source: 86030			Prepared: 02/14/2023 Analyzed: 02/14/2023						
Chrysene	0.12	0.00067	mg/Kg	0.167	<0.000624	71.8	30-130			
1-Methylnaphthalene	0.101	0.00201	"	0.167	<0.00109	60.4	30-130			
Benzo(a)pyrene	0.122	0.00067	"	0.167	<0.000468	73	30-130			
Anthracene	0.121	0.00067	"	0.167	<0.000334	72.4	30-130			
Pyrene	0.115	0.00067	"	0.167	<0.000643	68.8	30-130			
2-Methylnaphthalene	0.102	0.00201	"	0.167	<0.00194	61	30-130			
Benzo(b)fluoranthene	0.0897	0.00067	"	0.167	<0.000585	53.7	30-130			
Benzo(a)anthracene	0.124	0.00067	"	0.167	<0.000493	74.2	30-130			
Surrogate: Nitrobenzene-d5	60		"	0.333	179	60	29-110			
Surrogate: 4-Terphenyl-d14	62.7		"	0.333	193	62.7	33-122			
Surrogate: 2-Fluorobiphenyl	55.2		"	0.333	165	55.2	33-115			

LCS (LCS-L663902)	Prepared: 02/14/2023 Analyzed: 02/14/2023									
Chrysene	0.127	0.00067	mg/Kg	0.167		76	30-130			
Dibenz(a,h)anthracene	0.103	0.00067	"	0.167		61.6	30-130			
Fluoranthene	0.126	0.00067	"	0.167		75.4	30-130			
Fluorene	0.121	0.00067	"	0.167		72.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0699	0.00067	"	0.167		41.8	30-130			
Naphthalene	0.107	0.00201	"	0.167		64	30-130			
Benzo(k)fluoranthene	0.0888	0.00067	"	0.167		53.1	30-130			
Pyrene	0.118	0.00067	"	0.167		70.6	30-130			
Benzo(a)pyrene	0.127	0.00067	"	0.167		76	30-130			
Benzo(a)anthracene	0.129	0.00067	"	0.167		77.2	30-130			
Anthracene	0.125	0.00067	"	0.167		74.8	30-130			
Acenaphthene	0.115	0.00067	"	0.167		68.8	30-130			
2-Methylnaphthalene	0.106	0.00201	"	0.167		63.4	30-130			
1-Methylnaphthalene	0.111	0.00201	"	0.167		66.4	30-130			

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 6855 West 119th Avenue
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Jake Whritenour
 Project Number: [none]
 Project: Noble - Watkins 12-02

PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L663902 - 3550B

LCS (LCS-L663902)

Prepared: 02/14/2023 Analyzed: 02/14/2023

Benzo(b)fluoranthene	0.101	0.00067	mg/Kg	0.167		60.4	30-130			
Surrogate: Nitrobenzene-d5	66.3		"	0.333		66.3	29-110			
Surrogate: 4-Terphenyl-d14	70.2		"	0.333		70.2	33-122			
Surrogate: 2-Fluorobiphenyl	62.7		"	0.333		62.7	33-115			

LRB (LRB-L663902)

Prepared: 02/14/2023 Analyzed: 02/14/2023

Chrysene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	60.6		"	0.333		60.6	29-110			
Surrogate: 4-Terphenyl-d14	70.2		"	0.333		70.2	33-122			
Surrogate: 2-Fluorobiphenyl	61.2		"	0.333		61.2	33-115			

Origins Laboratory, Inc.



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 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: [none]
Project: Noble - Watkins 12-02

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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, Colorado 80401

303.277.9310

May 02, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfeld, CO 80020

RE: Noble - Watkins 12-02

Work Order # 2304419

Enclosed are the results of analyses for samples received by Summit Scientific on 04/19/23 18:01. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott Sheely For Paul Shrewsbury

President



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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@4'	2304419-01	Soil	04/19/23 14:10	04/19/23 18:01
BH01@8'	2304419-02	Soil	04/19/23 14:10	04/19/23 18:01
BG01@4'	2304419-03	Soil	04/19/23 13:45	04/19/23 18:01
BG01@8'	2304419-04	Soil	04/19/23 13:45	04/19/23 18:01
BG02@4'	2304419-05	Soil	04/19/23 13:50	04/19/23 18:01
BG02@8'	2304419-06	Soil	04/19/23 13:50	04/19/23 18:01
BG03@4'	2304419-07	Soil	04/19/23 13:55	04/19/23 18:01
BG03@8'	2304419-08	Soil	04/19/23 13:55	04/19/23 18:01
BG04@4'	2304419-09	Soil	04/19/23 14:00	04/19/23 18:01
BG04@8'	2304419-10	Soil	04/19/23 14:00	04/19/23 18:01
BG05@4'	2304419-11	Soil	04/19/23 14:05	04/19/23 18:01
BG05@8'	2304419-12	Soil	04/19/23 14:05	04/19/23 18:01

Summit Scientific

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

Lab ID 2304419 Page 1 of 1

Client: Noble/Tasman		Project Manager: Jake Whritenour		Send Invoice To:	
Address: 6855 W 119th Avenue		E-Mail: jwhritenour@tasman-geo.com		Company: Noble	
City/State/Zip: Broomfield, CO 80020				Project Name/Location:	
Phone: <u>719-337-1362</u>		Project Name: <u>Watkins 12-02</u>		AFE#:	
Sampler Name: <u>Dale Brinkman</u>		Project Number: <u>5167</u>		PO/Billing Codes:	
				Contact:	

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	Metals - 915	pH, EC, SAR	Boron - HWS		
1	BH01@4'	4/19/23	1410	2			X			X			X	X	X	X			X	DB
2	BH01 DB		1410 DB										DB	X	X					
3	BH01@8'	DB	1345 1410											X	X	X	X			X
4	BG01@4'		1345																	
5	BG01@8'	DB	1345 1345																	
6	BG02@4'		1350																	
7	BG02@8'	DB	1350 1350																	
8	BG03@4'		1355																	
9	BG03@8'		1355																	
10	BG04@4'		1400																	
11	BG04@8'		1400																	
12	BG05@4'		1405																	
13	BG05@8'		1405																	
14																				
15																				

Relinquished by: <u>Dale Brinkman</u>	Date/Time: <u>4/19/23 1730</u>	Received by:	Date/Time:	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman</u>	Date/Time: <u>4/19/23 1801</u>	Received by: <u>[Signature]</u>	Date/Time: <u>4/19/23 1801</u>	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: <u>19.7</u>	Corrected Temperature: <u>0</u>	IR gun #: <u>1</u>	HNO3 lot #:			

S₂

S2 Work Order# 2304419

Sample Receipt Checklist

Client: NobleFasman Client Project ID: Watkins 12-02

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

Matrix (Check all that apply) Air Soil/Solid Water Other

Temp (°C) 19.7 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"/>	<u>on ICE</u>
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 checked="" type="checkbox"/>	<u>No Answer</u>
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 type="checkbox"/>	<input checked="" 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 ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

[Signature]
Custodian/Printed Name

4-19-23 1801
Date/Time



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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BH01@4'
2304419-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGD0691	04/21/23	04/22/23	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: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		109 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		118 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.4 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGD0694	04/21/23	04/23/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		100 %		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 - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BH01@4'
2304419-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGD0634	04/20/23	04/21/23	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: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		59.8 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		88.3 %		40-150		"	"	"	"	

Total Metals by EPA 6020B

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.14	0.210		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	51.4	0.420		"	"	"	"	"	"	
Cadmium	ND	0.210		"	"	"	"	"	"	
Copper	2.72	0.420		"	"	"	"	"	"	
Lead	3.45	0.210		"	"	"	"	"	"	
Nickel	2.48	0.420		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BH01@4'
2304419-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Silver	ND	0.0210	mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B
Zinc	10.5	0.420	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.3			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BH01@8'
2304419-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGD0691	04/21/23	04/22/23	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: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		95.8 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		82.1 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGD0694	04/21/23	04/23/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		101 %		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 - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BH01@8'
2304419-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGD0634	04/20/23	04/21/23	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: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		59.0 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		84.4 %		40-150		"	"	"	"	

Total Metals by EPA 6020B

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.44	0.210		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	33.4	0.420		"	"	"	"	"	"	
Cadmium	ND	0.210		"	"	"	"	"	"	
Copper	2.82	0.420		"	"	"	"	"	"	
Lead	4.49	0.210		"	"	"	"	"	"	
Nickel	3.54	0.420		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	

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 - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BH01@8'
2304419-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Silver	0.0222	0.0210	mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Zinc	11.4	0.420	"	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	21.2	0.0524		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	7.08	0.0524		"	"	"	"	"	"	
Sodium	91.3	0.0524		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.38	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 14:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.3			%	1	BGD0722	04/21/23	04/24/23	Calculation	

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 - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG01@4'
2304419-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	0.899	0.210		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	23.7	0.419		"	"	"	"	"	"	
Cadmium	ND	0.210		"	"	"	"	"	"	
Copper	2.77	0.419		"	"	"	"	"	"	
Lead	5.02	0.210		"	"	"	"	"	"	
Nickel	2.25	0.419		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0210		"	"	"	"	"	"	
Zinc	9.59	0.419		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	33.6	0.0524		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	11.0	0.0524		"	"	"	"	"	"	
Sodium	206	0.0524		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	7.89	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG01@4'
2304419-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	95.5			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG01@8'
2304419-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	0.838	0.208		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	29.0	0.415		"	"	"	"	"	"	
Cadmium	ND	0.208		"	"	"	"	"	"	
Copper	2.63	0.415		"	"	"	"	"	"	
Lead	2.89	0.208		"	"	"	"	"	"	
Nickel	2.15	0.415		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0208		"	"	"	"	"	"	
Zinc	9.45	0.415		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	26.2	0.0519		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	8.49	0.0519		"	"	"	"	"	"	
Sodium	145	0.0519		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	6.30	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG01@8'
2304419-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 13:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	96.4			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG02@4'
2304419-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	0.927	0.207		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	31.2	0.414		"	"	"	"	"	"	
Cadmium	ND	0.207		"	"	"	"	"	"	
Copper	2.44	0.414		"	"	"	"	"	"	
Lead	2.81	0.207		"	"	"	"	"	"	
Nickel	2.04	0.414		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0207		"	"	"	"	"	"	
Zinc	9.20	0.414		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	27.2	0.0517		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	11.3	0.0517		"	"	"	"	"	"	
Sodium	139	0.0517		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	5.65	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG02@4'
2304419-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	96.7			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG02@8'
2304419-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.12	0.211		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	40.4	0.422		"	"	"	"	"	"	
Cadmium	ND	0.211		"	"	"	"	"	"	
Copper	3.25	0.422		"	"	"	"	"	"	
Lead	3.54	0.211		"	"	"	"	"	"	
Nickel	2.56	0.422		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0211		"	"	"	"	"	"	
Zinc	11.2	0.422		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	91.4	0.0528		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	39.3	0.0528		"	"	"	"	"	"	
Sodium	199	0.0528		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	4.38	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG02@8'
2304419-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	94.8			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG03@4'
2304419-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.36	0.205		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	37.9	0.409		"	"	"	"	"	"	
Cadmium	ND	0.205		"	"	"	"	"	"	
Copper	2.17	0.409		"	"	"	"	"	"	
Lead	3.24	0.205		"	"	"	"	"	"	
Nickel	2.84	0.409		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0205		"	"	"	"	"	"	
Zinc	9.46	0.409		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	14.6	0.0511		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	4.60	0.0511		"	"	"	"	"	"	
Sodium	109	0.0511		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	6.37	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG03@4'
2304419-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	97.8			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG03@8'
2304419-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.11	0.204		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	26.7	0.409		"	"	"	"	"	"	
Cadmium	ND	0.204		"	"	"	"	"	"	
Copper	2.33	0.409		"	"	"	"	"	"	
Lead	2.47	0.204		"	"	"	"	"	"	
Nickel	2.12	0.409		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0204		"	"	"	"	"	"	
Zinc	7.99	0.409		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	11.7	0.0511		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	2.85	0.0511		"	"	"	"	"	"	
Sodium	66.2	0.0511		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	4.50	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG03@8'
2304419-08 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	97.9			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG04@4'
2304419-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	0.887	0.210		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	36.5	0.419		"	"	"	"	"	"	
Cadmium	ND	0.210		"	"	"	"	"	"	
Copper	2.33	0.419		"	"	"	"	"	"	
Lead	ND	0.210		"	"	"	"	"	"	
Nickel	2.12	0.419		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0210		"	"	"	"	"	"	
Zinc	9.37	0.419		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	72.8	0.0524		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	27.0	0.0524		"	"	"	"	"	"	
Sodium	122	0.0524		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	3.10	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG04@4'
2304419-09 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	95.5			%	1	BGD0722	04/21/23	04/24/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG04@8'
2304419-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.19	0.217		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	39.4	0.434		"	"	"	"	"	"	
Cadmium	ND	0.217		"	"	"	"	"	"	
Copper	3.92	0.434		"	"	"	"	"	"	
Lead	3.56	0.217		"	"	"	"	"	"	
Nickel	2.72	0.434		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0217		"	"	"	"	"	"	
Zinc	15.7	0.434		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	82.3	0.0543		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	31.2	0.0543		"	"	"	"	"	"	
Sodium	203	0.0543		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	4.83	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG04@8'
2304419-10 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	92.1			%	1	BGD0722	04/21/23	04/24/23	Calculation	

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG05@4'
2304419-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.33	0.206		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	51.2	0.413		"	"	"	"	"	"	
Cadmium	ND	0.206		"	"	"	"	"	"	
Copper	2.20	0.413		"	"	"	"	"	"	
Lead	3.70	0.206		"	"	"	"	"	"	
Nickel	2.48	0.413		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0206		"	"	"	"	"	"	
Zinc	9.21	0.413		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	73.2	0.0516		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	27.6	0.0516		"	"	"	"	"	"	
Sodium	176	0.0516		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	4.45	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG05@4'
2304419-11 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	96.9			%	1	BGD0722	04/21/23	04/24/23	Calculation	

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

BG05@8'
2304419-12 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	1.40	0.206		mg/kg dry	1	BGD0799	04/24/23	05/01/23	EPA 6020B	
Barium	32.2	0.412		"	"	"	"	"	"	
Cadmium	ND	0.206		"	"	"	"	"	"	
Copper	2.40	0.412		"	"	"	"	"	"	
Lead	2.96	0.206		"	"	"	"	"	"	
Nickel	2.55	0.412		"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	
Silver	ND	0.0206		"	"	"	"	"	"	
Zinc	8.77	0.412		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGD0652	04/20/23	04/21/23	EPA 7196A	

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

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	27.1	0.0515		mg/L dry	1	BGD0838	04/25/23	04/30/23	EPA 6020B	
Magnesium	9.14	0.0515		"	"	"	"	"	"	
Sodium	79.5	0.0515		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	3.37	0.00100		units	1	BGD1023	04/30/23	04/30/23	Calculation	

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

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

BG05@8'
2304419-12 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/19/23 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	97.1			%	1	BGD0722	04/21/23	04/24/23	Calculation	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

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 BGD0691 - EPA 5030 Soil MS

Blank (BGD0691-BLK1)

Prepared & Analyzed: 04/21/23

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>	0.0432		"	0.0400		108	50-150			
<i>Surrogate: Toluene-d8</i>	0.0378		"	0.0400		94.6	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0379		"	0.0400		94.8	50-150			

LCS (BGD0691-BS1)

Prepared & Analyzed: 04/21/23

Benzene	0.0974	0.0020	mg/kg	0.100		97.4	70-130			
Toluene	0.0995	0.0050	"	0.100		99.5	70-130			
Ethylbenzene	0.108	0.0050	"	0.100		108	70-130			
m,p-Xylene	0.216	0.010	"	0.200		108	70-130			
o-Xylene	0.0834	0.0050	"	0.100		83.4	70-130			
1,2,4-Trimethylbenzene	0.0888	0.0050	"	0.100		88.8	70-130			
1,3,5-Trimethylbenzene	0.0923	0.0050	"	0.100		92.3	70-130			
Naphthalene	0.0964	0.0038	"	0.100		96.4	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0402		"	0.0400		100	50-150			
<i>Surrogate: Toluene-d8</i>	0.0410		"	0.0400		102	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0309		"	0.0400		77.2	50-150			

Matrix Spike (BGD0691-MS1)

Source: 2304399-01

Prepared & Analyzed: 04/21/23

Benzene	0.0921	0.0020	mg/kg	0.100	ND	92.1	70-130			
Toluene	0.109	0.0050	"	0.100	ND	109	70-130			
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
m,p-Xylene	0.213	0.010	"	0.200	ND	106	70-130			
o-Xylene	0.100	0.0050	"	0.100	ND	100	70-130			
1,2,4-Trimethylbenzene	0.128	0.0050	"	0.100	ND	128	70-130			
1,3,5-Trimethylbenzene	0.126	0.0050	"	0.100	ND	126	70-130			
Naphthalene	0.0705	0.0038	"	0.100	ND	70.5	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0391		"	0.0400		97.7	50-150			
<i>Surrogate: Toluene-d8</i>	0.0469		"	0.0400		117	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0458		"	0.0400		115	50-150			

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

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 BGD0691 - EPA 5030 Soil MS

Matrix Spike Dup (BGD0691-MSD1)	Source: 2304399-01			Prepared & Analyzed: 04/21/23						
Benzene	0.100	0.0020	mg/kg	0.100	ND	100	70-130	8.63	30	
Toluene	0.0919	0.0050	"	0.100	ND	91.9	70-130	17.4	30	
Ethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130	3.75	30	
m,p-Xylene	0.209	0.010	"	0.200	ND	105	70-130	1.54	30	
o-Xylene	0.0970	0.0050	"	0.100	ND	97.0	70-130	3.05	30	
1,2,4-Trimethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	8.63	30	
1,3,5-Trimethylbenzene	0.119	0.0050	"	0.100	ND	119	70-130	5.19	30	
Naphthalene	0.0882	0.0038	"	0.100	ND	88.2	70-130	22.3	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0377</i>		<i>"</i>	<i>0.0400</i>		<i>94.2</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0333</i>		<i>"</i>	<i>0.0400</i>		<i>83.2</i>	<i>50-150</i>			

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

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 BGD0694 - EPA 3550A

Blank (BGD0694-BLK1)

Prepared: 04/21/23 Analyzed: 04/22/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	12.7		"	12.5	102	30-150					

LCS (BGD0694-BS1)

Prepared: 04/21/23 Analyzed: 04/22/23

C10-C28 (DRO)	553	50	mg/kg	500	111	70-130					
Surrogate: <i>o</i> -Terphenyl	13.8		"	12.5	111	30-150					

Matrix Spike (BGD0694-MS1)

Source: 2304399-01

Prepared: 04/21/23 Analyzed: 04/22/23

C10-C28 (DRO)	527	50	mg/kg	500	21.0	101	70-130				
Surrogate: <i>o</i> -Terphenyl	13.1		"	12.5	105	30-150					

Matrix Spike Dup (BGD0694-MSD1)

Source: 2304399-01

Prepared: 04/21/23 Analyzed: 04/22/23

C10-C28 (DRO)	548	50	mg/kg	500	21.0	105	70-130	3.85	20		
Surrogate: <i>o</i> -Terphenyl	12.0		"	12.5	96.2	30-150					

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

PAH by EPA Method 8270D SIM - Quality Control
Summit Scientific

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

Batch BGD0634 - EPA 5030 Soil MS

Blank (BGD0634-BLK1)

Prepared: 04/20/23 Analyzed: 04/21/23

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>0.0355</i>		<i>"</i>	<i>0.0333</i>		<i>106</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0338</i>		<i>"</i>	<i>0.0333</i>		<i>101</i>		<i>40-150</i>		

LCS (BGD0634-BS1)

Prepared: 04/20/23 Analyzed: 04/21/23

Acenaphthene	0.0312	0.00500	mg/kg	0.0333	93.6	31-137
Anthracene	0.0308	0.00500	"	0.0333	92.4	30-120
Benzo (a) anthracene	0.0223	0.00500	"	0.0333	67.0	30-120
Benzo (a) pyrene	0.0276	0.00500	"	0.0333	82.9	30-120
Benzo (b) fluoranthene	0.0245	0.00500	"	0.0333	73.5	30-120
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333	81.3	30-120
Chrysene	0.0320	0.00500	"	0.0333	96.1	30-120
Dibenz (a,h) anthracene	0.0246	0.00500	"	0.0333	73.8	30-120
Fluoranthene	0.0291	0.00500	"	0.0333	87.4	30-120
Fluorene	0.0296	0.00500	"	0.0333	88.8	30-120
Indeno (1,2,3-cd) pyrene	0.0315	0.00500	"	0.0333	94.6	30-120
Pyrene	0.0325	0.00500	"	0.0333	97.4	35-142
1-Methylnaphthalene	0.0311	0.00500	"	0.0333	93.4	35-142
2-Methylnaphthalene	0.0347	0.00500	"	0.0333	104	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0287</i>		<i>"</i>	<i>0.0333</i>	<i>86.0</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0290</i>		<i>"</i>	<i>0.0333</i>	<i>87.1</i>	<i>40-150</i>

Summit Scientific

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Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

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 BGD0634 - EPA 5030 Soil MS

Matrix Spike (BGD0634-MS1)

Source: 2304382-01

Prepared: 04/20/23 Analyzed: 04/21/23

Acenaphthene	0.0216	0.00500	mg/kg	0.0333	ND	64.7	31-137			
Anthracene	0.0198	0.00500	"	0.0333	ND	59.4	30-120			
Benzo (a) anthracene	0.0211	0.00500	"	0.0333	ND	63.2	30-120			
Benzo (a) pyrene	0.0188	0.00500	"	0.0333	ND	56.3	30-120			
Benzo (b) fluoranthene	0.0164	0.00500	"	0.0333	ND	49.3	30-120			
Benzo (k) fluoranthene	0.0187	0.00500	"	0.0333	ND	56.1	30-120			
Chrysene	0.0203	0.00500	"	0.0333	ND	60.8	30-120			
Dibenz (a,h) anthracene	0.0163	0.00500	"	0.0333	ND	48.9	30-120			
Fluoranthene	0.0206	0.00500	"	0.0333	ND	61.8	30-120			
Fluorene	0.0205	0.00500	"	0.0333	ND	61.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0179	0.00500	"	0.0333	ND	53.7	30-120			
Pyrene	0.0200	0.00500	"	0.0333	ND	59.9	35-142			
1-Methylnaphthalene	0.0233	0.00500	"	0.0333	ND	70.0	15-130			
2-Methylnaphthalene	0.0210	0.00500	"	0.0333	ND	62.9	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0252		"	0.0333		75.7	40-150			
Surrogate: Fluoranthene-d10	0.0237		"	0.0333		71.1	40-150			

Matrix Spike Dup (BGD0634-MSD1)

Source: 2304382-01

Prepared: 04/20/23 Analyzed: 04/21/23

Acenaphthene	0.0214	0.00500	mg/kg	0.0333	ND	64.2	31-137	0.820	30
Anthracene	0.0164	0.00500	"	0.0333	ND	49.1	30-120	18.9	30
Benzo (a) anthracene	0.0189	0.00500	"	0.0333	ND	56.6	30-120	11.0	30
Benzo (a) pyrene	0.0190	0.00500	"	0.0333	ND	57.0	30-120	1.29	30
Benzo (b) fluoranthene	0.0143	0.00500	"	0.0333	ND	43.0	30-120	13.5	30
Benzo (k) fluoranthene	0.0161	0.00500	"	0.0333	ND	48.3	30-120	15.0	30
Chrysene	0.0177	0.00500	"	0.0333	ND	53.2	30-120	13.4	30
Dibenz (a,h) anthracene	0.0155	0.00500	"	0.0333	ND	46.6	30-120	4.73	30
Fluoranthene	0.0170	0.00500	"	0.0333	ND	51.1	30-120	19.0	30
Fluorene	0.0202	0.00500	"	0.0333	ND	60.7	30-120	1.36	30
Indeno (1,2,3-cd) pyrene	0.0152	0.00500	"	0.0333	ND	45.7	30-120	16.3	30
Pyrene	0.0174	0.00500	"	0.0333	ND	52.3	35-142	13.6	30
1-Methylnaphthalene	0.0201	0.00500	"	0.0333	ND	60.2	15-130	15.1	50
2-Methylnaphthalene	0.0156	0.00500	"	0.0333	ND	46.7	15-130	29.6	50
Surrogate: 2-Methylnaphthalene-d10	0.0203		"	0.0333		60.8	40-150		
Surrogate: Fluoranthene-d10	0.0200		"	0.0333		60.0	40-150		

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

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 BGD0799 - EPA 3050B

Blank (BGD0799-BLK1)

Prepared: 04/24/23 Analyzed: 05/01/23

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	"						
Selenium	ND	0.260	"						
Silver	ND	0.0200	"						
Zinc	ND	0.400	"						

LCS (BGD0799-BS1)

Prepared: 04/24/23 Analyzed: 05/01/23

Arsenic	40.3	0.200	mg/kg wet	40.0	101	80-120
Barium	40.1	0.400	"	40.0	100	80-120
Cadmium	1.94	0.200	"	2.00	97.1	80-120
Copper	40.3	0.400	"	40.0	101	80-120
Lead	19.8	0.200	"	20.0	99.0	80-120
Nickel	39.9	0.400	"	40.0	99.7	80-120
Selenium	4.80	0.260	"	4.00	120	80-120
Silver	1.93	0.0200	"	2.00	96.7	80-120
Zinc	39.6	0.400	"	40.0	98.9	80-120

Duplicate (BGD0799-DUP1)

Source: 2304419-01

Prepared: 04/24/23 Analyzed: 05/01/23

Arsenic	1.17	0.210	mg/kg dry	1.14	2.68	20
Barium	52.1	0.420	"	51.4	1.41	20
Cadmium	0.0878	0.210	"	0.0869	0.962	20
Copper	2.69	0.420	"	2.72	0.792	20
Lead	3.47	0.210	"	3.45	0.618	20
Nickel	2.47	0.420	"	2.48	0.322	20
Selenium	ND	0.260	"	ND		20
Silver	0.0130	0.0210	"	0.0143	9.23	20
Zinc	10.4	0.420	"	10.5	0.714	20

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

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 BGD0799 - EPA 3050B

Matrix Spike (BGD0799-MS1)

Source: 2304419-01

Prepared: 04/24/23 Analyzed: 05/01/23

Arsenic	44.5	0.210	mg/kg dry	42.0	1.14	103	75-125			
Barium	91.9	0.420	"	42.0	51.4	96.6	75-125			
Cadmium	2.10	0.210	"	2.10	0.0869	96.1	75-125			
Copper	37.0	0.420	"	42.0	2.72	81.7	75-125			
Lead	23.6	0.210	"	21.0	3.45	95.9	75-125			
Nickel	36.8	0.420	"	42.0	2.48	81.8	75-125			
Selenium	5.04	0.260	"	4.20	ND	120	75-125			
Silver	2.03	0.0210	"	2.10	0.0143	96.1	75-125			
Zinc	46.1	0.420	"	42.0	10.5	84.8	75-125			

Matrix Spike Dup (BGD0799-MSD1)

Source: 2304419-01

Prepared: 04/24/23 Analyzed: 05/01/23

Arsenic	44.6	0.210	mg/kg dry	42.0	1.14	103	75-125	0.0924	25	
Barium	92.0	0.420	"	42.0	51.4	96.7	75-125	0.0767	25	
Cadmium	2.15	0.210	"	2.10	0.0869	98.3	75-125	2.11	25	
Copper	37.1	0.420	"	42.0	2.72	81.8	75-125	0.0850	25	
Lead	24.3	0.210	"	21.0	3.45	99.1	75-125	2.79	25	
Nickel	36.8	0.420	"	42.0	2.48	81.8	75-125	0.00343	25	
Selenium	5.31	0.260	"	4.20	ND	126	75-125	5.07	25	QM-07
Silver	2.09	0.0210	"	2.10	0.0143	98.7	75-125	2.63	25	
Zinc	46.0	0.420	"	42.0	10.5	84.4	75-125	0.378	25	

Summit Scientific

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Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

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

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

Batch BGD0838 - General Preparation

Blank (BGD0838-BLK1)

Prepared: 04/25/23 Analyzed: 04/30/23

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

LCS (BGD0838-BS1)

Prepared: 04/25/23 Analyzed: 04/30/23

Calcium	4.85	0.0500	mg/L wet	5.00	97.0	70-130				
Magnesium	4.73	0.0500	"	5.00	94.5	70-130				
Sodium	4.78	0.0500	"	5.00	95.6	70-130				

Summit Scientific

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 6855 W. 119th Ave.
 Broomfield CO, 80020

Project: Noble - Watkins 12-02

Project Number: 5167
 Project Manager: Jacob Whritenour

Reported:
 05/02/23 12:18

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

Summit Scientific

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

Batch BGD0722 - General Preparation

Duplicate (BGD0722-DUP1)		Source: 2304021-01		Prepared: 04/21/23 Analyzed: 04/24/23	
% Solids	96.2		%	95.9	0.321 20

Summit Scientific

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

Project: Noble - Watkins 12-02

Project Number: 5167
Project Manager: Jacob Whritenour

Reported:
05/02/23 12:18

Notes and Definitions

- 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