

TABLE 1
FORMER J NELSON 33-23 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	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 ⁽⁴⁾ (mg/kg)
Residential SSL^(1,2)			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
WH01 @ 6'	7/13/2023	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 4'	7/13/2023	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-01 @ 5'	7/13/2023	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-02 @ 5'	7/13/2023	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR02 @ 5'	7/13/2023	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	72

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.
4. Value calculated by adding TPH-GRO, TPH-DRO, and TPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER J NELSON 33-23 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
WH01 @ 6'	7/13/2023	6 ft. bgs	8.04	0.434	3.37	0.0385
FLR01 @ 4'	7/13/2023	4 ft. bgs	7.90	0.328	7.29	0.247
FLR02 @ 5'	7/13/2023	5 ft. bgs	8.16	0.487	0.445	0.149
BKG01 @ 4'	7/13/2023	4 ft. bgs	8.06	NA	1.73	NA
BKG01 @ 6'	7/13/2023	6 ft. bgs	8.38	NA	0.391	NA

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

NA = Not Analyzed

**TABLE 3
FORMER J NELSON 33-23 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs**

Sample ID	Date Sampled	Depth	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 ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH01 @ 6'	7/13/2023	6 ft. bgs	<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
FLR01 @ 4'	7/13/2023	4 ft. bgs	<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
FL01-01 @ 5'	7/13/2023	5 ft. bgs	<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
FL01-02 @ 5'	7/13/2023	5 ft. bgs	<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
FLR02 @ 5'	7/13/2023	5 ft. bgs	<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

Notes:

- Compounds referenced from the COGCC 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.

COGCC = Colorado Oil and Gas Conservation Commission

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

PAHs = Polycyclic aromatic hydrocarbons

Benzo(a) = Benzoanthracene

Benzo(a) = Benzopyrene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylnaphthalene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

TABLE 4
FORMER J NELSON 33-23 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
METALS

Sample ID	Date Sampled	Depth	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 ^(1,2)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^(1,2,3)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FLR02 @ 5'	7/13/2023	5 ft. bgs	3.48	79.9	<0.232	<0.30 ⁽⁴⁾	5.89	6.67	5.95	<0.203 ⁽⁵⁾	0.0292	22.6
BKG01 @ 4'	7/13/2023	4 ft. bgs	3.34	130	<0.224	<0.30 ⁽⁴⁾	5.18	6.24	5.74	<0.196 ⁽⁵⁾	0.0260	22.3
BKG01 @ 6'	7/13/2023	6 ft. bgs	3.21	31.8	<0.223	<0.30 ⁽⁴⁾	4.13	6.16	5.24	<0.195 ⁽⁵⁾	<0.0223	19.4
Mean Background Concentration ⁽⁶⁾			3.28	80.9	0.224	0.30	4.66	6.20	5.49	0.196	0.0242	20.9
1.25x Mean Background Concentration			4.09	101.1	0.279	0.38	5.82	7.75	6.86	0.244	0.0302	26.1

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.
4. Compound falls within COGCC Table 915-1 Footnote 9.
5. Non-detect value reflects the method detection limit (MDL) provided in the laboratory report.
6. Non-detect background results accounted for in the mean background concentration by using the reporting limit or method detection limit, where applicable.

COGCC = Colorado Oil and Gas Conservation Commission

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

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

BOLD = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

TABLE 5
FORMER J NELSON 33-23 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude	Longitude		
WH01 @ 6'	7/13/2023	6 ft. bgs	40.359240	-104.893344	1.0	0.7
FLR01 @ 4'	7/13/2023	4 ft. bgs	40.359221	-104.893331	1.0	0.5
WHS01-N @ 0-6"	7/13/2023	0-6 in. bgs	40.359268	-104.893308	1.0	0.0
WHS01-W @ 0-6"	7/13/2023	0-6 in. bgs	40.359260	-104.893377	1.0	0.0
WHS01-S @ 0-6"	7/13/2023	0-6 in. bgs	40.359174	-104.893407	1.1	0.1
WHS01-E @ 0-6"	7/13/2023	0-6 in. bgs	40.359179	-104.893309	1.1	0.1
FL01-01 @ 5'	7/13/2023	5 ft. bgs	40.359635	-104.892784	1.2	0.9
FL01-02 @ 5'	7/13/2023	5 ft. bgs	40.359600	-104.892746	1.2	0.1
FLR02 @ 5'	7/13/2023	5 ft. bgs	40.359490	-104.892841	1.1	1.4
BKG01 @ 4' ⁽³⁾	7/13/2023	4 ft. bgs	40.539140	-104.893449	NC	0.4
BKG01 @ 6' ⁽³⁾	7/13/2023	6 ft. bgs	40.539140	-104.893449	NC	0.6

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD83) UTM Zone 13 North.
2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).
3. PDOP unable to be retrieved due to connectivity issues.

PDOP = Position Dilution of Precision

ppm = Parts per million

in. = Inches

ft. = Feet

bgs = Below ground surface

NC = Data not collected

ATTACHMENT A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

August 01, 2023

Mark Longhurst

Tasman Geosciences

6855 W. 119th Ave.

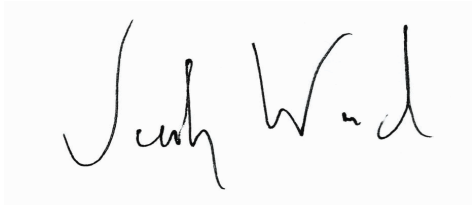
Broomfield, CO 80020

RE: PDC - J Nelson 33-23 Wellhead

Work Order # 2307241

Enclosed are the results of analyses for samples received by Summit Scientific on 07/13/23 18:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial 'J' and a long, sweeping underline.

Jacob Wood For Paul Shrewsbury

President



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

Project: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/01/23 11:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLR02@5'	2307241-01	Soil	07/13/23 09:02	07/13/23 18:35
FL01-01@5'	2307241-02	Soil	07/13/23 09:25	07/13/23 18:35
FL01-02@5'	2307241-03	Soil	07/13/23 09:18	07/13/23 18:35
WH01@6'	2307241-04	Soil	07/13/23 10:53	07/13/23 18:35
FLR01@4'	2307241-05	Soil	07/13/23 10:57	07/13/23 18:35
BKG01@4'	2307241-06	Soil	07/13/23 11:07	07/13/23 18:35
BKG01@6'	2307241-07	Soil	07/13/23 11:11	07/13/23 18:35


Case Narrative

Bryce Goldade requested pH, EC, SAR, Boron, & 915 Metals be added to FLR02@5' on 7/21/2023.

Bryce Goldade requested pH, SAR, & 915 Metals be added to BKG01@4' & BKG01@6' on 7/21/2023.

This report includes those results.

Summit Scientific



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

SUMMIT SCIENTIFIC

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

Lab ID	Page \ of 1
2307241	

Client: PDC / Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W 119th Ave		Project Manager: Mark Longhurst		Company: PDC Energy	
City/State/Zip: Broomfield / CO / 80020		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
Phone: 303-487-1228		Project Name: J. Nelson 33-23 wellhead		AFE#:	
Sampler Name: Ryan Yavinsky		Project Number:		PO/Billing Codes:	
				Contact: Mark Longhurst	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions			
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAHs		DN HOLD		
1	FL02 @ 5'	7/13/23	0902	2			X						X	X	X			X				
2	FL01-01 @ 5'		0925	2									X	X	X			X				
3	FL01-02 @ 5'		0918	2									X	X	X			X				
4	WH01 @ 6'		1053	2									X	X	X	X	X	X				
5	FL01 @ 4'		1057	2									X	X	X	X	X	X				
6	BK601 @ 4'		1107	1															X			
7	BK601 @ 6'		1111	1															X			
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: <i>[Signature]</i>	Date/Time: 7/13/23 19:30	Received by: Tasman Lockbox	Date/Time: 7/13/23 18:30	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 7/13/23 1835	Received by: <i>[Signature]</i>	Date/Time: 7/13/23 1835	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 27.3	Corrected Temperature: 6	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2307241

Client: POC/Tasman Client Project ID: J. Nelson 33-23 wellhead

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

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

Temp (°C) 27.3 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>auz ce</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 type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input 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):
included bags

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

AS
Custodian Printed Name

7/13/23
Date/Time



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

Project: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FLR02@5'
2307241-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGG0444	07/14/23	07/15/23	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: **07/13/23 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		82.1 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		114 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	72	50		mg/kg	1	BGG0448	07/14/23	07/15/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		69.7 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FLR02@5'
2307241-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGG0408	07/14/23	07/15/23	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: **07/13/23 09:02**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		49.1 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		42.2 %		40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.149	0.0100		mg/L	1	BGG0905	07/27/23	07/29/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-----	-------	----------	-------	----------	----------	--------	-------

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FLR02@5'
2307241-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.48	0.232		mg/kg dry	1	BGG0771	07/25/23	07/27/23	EPA 6020B	
Barium	79.9	0.464		"	"	"	"	"	"	
Cadmium	ND	0.232		"	"	"	"	"	"	
Copper	5.89	0.464		"	"	"	"	"	"	
Lead	6.67	0.232		"	"	"	"	"	"	
Nickel	5.95	0.464		"	"	"	"	"	"	
Selenium	ND	0.302	0.203	"	"	"	"	"	"	
Silver	0.0292	0.0232		"	"	"	"	"	"	
Zinc	22.6	0.464		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGG0893	07/27/23	07/27/23	EPA 7196A	

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

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1690	0.0580		mg/L dry	1	BGG0790	07/25/23	07/26/23	EPA 6020B	
Magnesium	169	0.0580		"	"	"	"	"	"	
Sodium	71.7	0.0580		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.445	0.00100		units	1	BGG0936	07/27/23	07/27/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FLR02@5'
2307241-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	86.2			%	1	BGG0793	07/25/23	07/25/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.487	0.0100		mmhos/cm	1	BGG0841	07/26/23	07/27/23	EPA 120.1	

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

Date Sampled: **07/13/23 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.16			pH Units	1	BGG0839	07/26/23	07/26/23	EPA 9045D	

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FL01-01@5'
2307241-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/23 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGG0444	07/14/23	07/15/23	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: **07/13/23 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		77.8 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		113 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/13/23 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGG0448	07/14/23	07/15/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **07/13/23 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		70.1 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FL01-01@5'
2307241-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/13/23 09:25**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGG0408	07/14/23	07/15/23	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: **07/13/23 09:25**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		50.5 %		40-150		"	"	"	"	"
Surrogate: Fluoranthene-d10		47.3 %		40-150		"	"	"	"	"

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FL01-02@5'
2307241-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/23 09:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGG0444	07/14/23	07/15/23	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: **07/13/23 09:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		87.3 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		113 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/13/23 09:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGG0448	07/14/23	07/15/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **07/13/23 09:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		118 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FL01-02@5'
2307241-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/13/23 09:18**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGG0408	07/14/23	07/15/23	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: **07/13/23 09:18**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		51.5 %		40-150		"	"	"	"	"
Surrogate: Fluoranthene-d10		53.6 %		40-150		"	"	"	"	"

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

WH01@6'
2307241-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGG0444	07/14/23	07/15/23	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: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		79.8 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		110 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGG0448	07/14/23	07/15/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		70.1 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

WH01@6'
2307241-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGG0408	07/14/23	07/15/23	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: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		49.3 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		44.0 %		40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Boron	0.0385	0.0100		mg/L	1	BGG0417	07/14/23	07/17/23	EPA 6020B	

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

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

WH01@6'
2307241-04 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	33.0	0.0590		mg/L dry	1	BGG0431	07/14/23	07/19/23	EPA 6020B	
Magnesium	14.6	0.0590		"	"	"	"	"	"	
Sodium	11.3	0.0590		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.37	0.00100		units	1	BGG0566	07/19/23	07/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.7			%	1	BGG0476	07/17/23	07/17/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.434	0.0100		mmhos/cm	1	BGG0505	07/17/23	07/17/23	EPA 120.1	

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

Date Sampled: **07/13/23 10:53**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04			pH Units	1	BGG0504	07/17/23	07/17/23	EPA 9045D	

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FLR01@4'
2307241-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGG0444	07/14/23	07/15/23	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: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		71.0 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		114 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGG0448	07/14/23	07/15/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		78.0 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FLR01@4'
2307241-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BGG0408	07/14/23	07/15/23	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: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		52.1 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		58.6 %		40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Boron	0.247	0.0100		mg/L	1	BGG0417	07/14/23	07/17/23	EPA 6020B	

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

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

FLR01@4'
2307241-05 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	70.6	0.0609		mg/L dry	1	BGG0431	07/14/23	07/19/23	EPA 6020B	
Magnesium	9.10	0.0609		"	"	"	"	"	"	
Sodium	12.7	0.0609		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.29	0.00100		units	1	BGG0566	07/19/23	07/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	82.1			%	1	BGG0476	07/17/23	07/17/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.328	0.0100		mmhos/cm	1	BGG0505	07/17/23	07/17/23	EPA 120.1	

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

Date Sampled: **07/13/23 10:57**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.90			pH Units	1	BGG0504	07/17/23	07/17/23	EPA 9045D	

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

BKG01@4'
2307241-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **07/13/23 11:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	3.34	0.224		mg/kg dry	1	BGG0771	07/25/23	07/27/23	EPA 6020B	
Barium	130	0.448		"	"	"	"	"	"	
Cadmium	ND	0.224		"	"	"	"	"	"	
Copper	5.18	0.448		"	"	"	"	"	"	
Lead	6.24	0.224		"	"	"	"	"	"	
Nickel	5.74	0.448		"	"	"	"	"	"	
Selenium	ND	0.291	0.196	"	"	"	"	"	"	
Silver	0.0260	0.0224		"	"	"	"	"	"	
Zinc	22.3	0.448		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/13/23 11:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGG0893	07/27/23	07/27/23	EPA 7196A	

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

Date Sampled: **07/13/23 11:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	23.5	0.0560		mg/L dry	1	BGG0790	07/25/23	07/26/23	EPA 6020B	
Magnesium	14.4	0.0560		"	"	"	"	"	"	
Sodium	43.1	0.0560		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/13/23 11:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	1.73	0.00100		units	1	BGG0936	07/27/23	07/27/23	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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

BKG01@4'
2307241-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/13/23 11:07**


Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	89.2			%	1	BGG0793	07/25/23	07/25/23	Calculation	

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

Date Sampled: **07/13/23 11:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.06			pH Units	1	BGG0839	07/26/23	07/26/23	EPA 9045D	

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

BKG01@6'
2307241-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **07/13/23 11:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	3.21	0.223		mg/kg dry	1	BGG0771	07/25/23	07/27/23	EPA 6020B	
Barium	31.8	0.446		"	"	"	"	"	"	
Cadmium	ND	0.223		"	"	"	"	"	"	
Copper	4.13	0.446		"	"	"	"	"	"	
Lead	6.16	0.223		"	"	"	"	"	"	
Nickel	5.24	0.446		"	"	"	"	"	"	
Selenium	ND	0.290	0.195	"	"	"	"	"	"	
Silver	ND	0.0223		"	"	"	"	"	"	
Zinc	19.4	0.446		"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/13/23 11:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGG0893	07/27/23	07/27/23	EPA 7196A	

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

Date Sampled: **07/13/23 11:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	690	0.0558		mg/L dry	1	BGG0790	07/25/23	07/26/23	EPA 6020B	
Magnesium	80.6	0.0558		"	"	"	"	"	"	
Sodium	40.7	0.0558		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/13/23 11:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	0.391	0.00100		units	1	BGG0936	07/27/23	07/27/23	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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/01/23 11:13

BKG01@6'
2307241-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/13/23 11:11**


Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	89.6			%	1	BGG0793	07/25/23	07/25/23	Calculation	

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

Date Sampled: **07/13/23 11:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.38			pH Units	1	BGG0839	07/26/23	07/26/23	EPA 9045D	

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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 BGG0444 - EPA 5030 Soil MS

Blank (BGG0444-BLK1)

Prepared & Analyzed: 07/14/23

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>	0.0364		"	0.0400		90.9	50-150			
<i>Surrogate: Toluene-d8</i>	0.0436		"	0.0400		109	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0425		"	0.0400		106	50-150			

LCS (BGG0444-BS1)

Prepared & Analyzed: 07/14/23

Benzene	0.0717	0.0020	mg/kg	0.100		71.7	70-130			
Toluene	0.109	0.0050	"	0.100		109	70-130			
Ethylbenzene	0.0870	0.0050	"	0.100		87.0	70-130			
m,p-Xylene	0.185	0.010	"	0.200		92.6	70-130			
o-Xylene	0.0845	0.0050	"	0.100		84.5	70-130			
1,2,4-Trimethylbenzene	0.0906	0.0050	"	0.100		90.6	70-130			
1,3,5-Trimethylbenzene	0.0981	0.0050	"	0.100		98.1	70-130			
Naphthalene	0.0864	0.0038	"	0.100		86.4	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0329		"	0.0400		82.3	50-150			
<i>Surrogate: Toluene-d8</i>	0.0488		"	0.0400		122	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0390		"	0.0400		97.4	50-150			

Matrix Spike (BGG0444-MS1)

Source: 2307240-01

Prepared & Analyzed: 07/14/23

Benzene	0.0717	0.0020	mg/kg	0.100	ND	71.7	70-130			
Toluene	0.110	0.0050	"	0.100	ND	110	70-130			
Ethylbenzene	0.0916	0.0050	"	0.100	ND	91.6	70-130			
m,p-Xylene	0.197	0.010	"	0.200	ND	98.7	70-130			
o-Xylene	0.0905	0.0050	"	0.100	ND	90.5	70-130			
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130			
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130			
Naphthalene	0.0658	0.0038	"	0.100	ND	65.8	70-130			QM-07
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0357		"	0.0400		89.2	50-150			
<i>Surrogate: Toluene-d8</i>	0.0484		"	0.0400		121	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0385		"	0.0400		96.2	50-150			

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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 BGG0444 - EPA 5030 Soil MS

Matrix Spike Dup (BGG0444-MSD1)	Source: 2307240-01			Prepared & Analyzed: 07/14/23						
Benzene	0.0761	0.0020	mg/kg	0.100	ND	76.1	70-130	5.97	30	
Toluene	0.117	0.0050	"	0.100	ND	117	70-130	5.52	30	
Ethylbenzene	0.0967	0.0050	"	0.100	ND	96.7	70-130	5.38	30	
m,p-Xylene	0.209	0.010	"	0.200	ND	105	70-130	5.89	30	
o-Xylene	0.0938	0.0050	"	0.100	ND	93.8	70-130	3.58	30	
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130	4.46	30	
1,3,5-Trimethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130	4.06	30	
Naphthalene	0.0666	0.0038	"	0.100	ND	66.6	70-130	1.13	30	QM-07
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0346</i>		<i>"</i>	<i>0.0400</i>		<i>86.6</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0488</i>		<i>"</i>	<i>0.0400</i>		<i>122</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0380</i>		<i>"</i>	<i>0.0400</i>		<i>94.9</i>	<i>50-150</i>			

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BGG0448 - EPA 3550A

Blank (BGG0448-BLK1)

Prepared & Analyzed: 07/14/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	10.9		"	12.5		87.4	30-150				

LCS (BGG0448-BS1)

Prepared & Analyzed: 07/14/23

C10-C28 (DRO)	565	50	mg/kg	500		113	70-130				
Surrogate: <i>o</i> -Terphenyl	15.6		"	12.5		125	30-150				

Matrix Spike (BGG0448-MS1)

Source: 2307240-01

Prepared & Analyzed: 07/14/23

C10-C28 (DRO)	486	50	mg/kg	500	121	73.2	70-130				
Surrogate: <i>o</i> -Terphenyl	11.2		"	12.5		89.3	30-150				

Matrix Spike Dup (BGG0448-MSD1)

Source: 2307240-01

Prepared & Analyzed: 07/14/23

C10-C28 (DRO)	488	50	mg/kg	500	121	73.6	70-130	0.403	20		
Surrogate: <i>o</i> -Terphenyl	12.3		"	12.5		98.0	30-150				

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGG0408 - EPA 5030 Soil MS

Blank (BGG0408-BLK1)

Prepared: 07/14/23 Analyzed: 07/15/23

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>0.0232</i>		"	<i>0.0333</i>		<i>69.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0263</i>		"	<i>0.0333</i>		<i>78.9</i>	<i>40-150</i>			

LCS (BGG0408-BS1)

Prepared: 07/14/23 Analyzed: 07/15/23

Acenaphthene	0.0263	0.00500	mg/kg	0.0333		78.8	31-137			
Anthracene	0.0267	0.00500	"	0.0333		80.0	30-120			
Benzo (a) anthracene	0.0246	0.00500	"	0.0333		73.8	30-120			
Benzo (a) pyrene	0.0239	0.00500	"	0.0333		71.7	30-120			
Benzo (b) fluoranthene	0.0223	0.00500	"	0.0333		67.0	30-120			
Benzo (k) fluoranthene	0.0205	0.00500	"	0.0333		61.5	30-120			
Chrysene	0.0263	0.00500	"	0.0333		79.0	30-120			
Dibenz (a,h) anthracene	0.0221	0.00500	"	0.0333		66.4	30-120			
Fluoranthene	0.0256	0.00500	"	0.0333		76.8	30-120			
Fluorene	0.0253	0.00500	"	0.0333		76.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0202	0.00500	"	0.0333		60.6	30-120			
Pyrene	0.0264	0.00500	"	0.0333		79.1	35-142			
1-Methylnaphthalene	0.0230	0.00500	"	0.0333		69.0	35-142			
2-Methylnaphthalene	0.0252	0.00500	"	0.0333		75.6	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0250</i>		"	<i>0.0333</i>		<i>75.1</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0292</i>		"	<i>0.0333</i>		<i>87.5</i>	<i>40-150</i>			

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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 BGG0408 - EPA 5030 Soil MS

Matrix Spike (BGG0408-MS1)

Source: 2307224-21

Prepared: 07/14/23 Analyzed: 07/15/23

Acenaphthene	0.0145	0.00500	mg/kg	0.0333	ND	43.4	31-137			
Anthracene	0.0138	0.00500	"	0.0333	ND	41.5	30-120			
Benzo (a) anthracene	0.0149	0.00500	"	0.0333	ND	44.8	30-120			
Benzo (a) pyrene	0.0207	0.00500	"	0.0333	ND	62.1	30-120			
Benzo (b) fluoranthene	0.0151	0.00500	"	0.0333	ND	45.4	30-120			
Benzo (k) fluoranthene	0.0168	0.00500	"	0.0333	ND	50.4	30-120			
Chrysene	0.0153	0.00500	"	0.0333	ND	45.8	30-120			
Dibenz (a,h) anthracene	0.0165	0.00500	"	0.0333	ND	49.4	30-120			
Fluoranthene	0.0147	0.00500	"	0.0333	ND	44.0	30-120			
Fluorene	0.0151	0.00500	"	0.0333	ND	45.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0170	0.00500	"	0.0333	ND	51.0	30-120			
Pyrene	0.0149	0.00500	"	0.0333	ND	44.8	35-142			
1-Methylnaphthalene	0.0158	0.00500	"	0.0333	ND	47.3	15-130			
2-Methylnaphthalene	0.0167	0.00500	"	0.0333	ND	50.1	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0158		"	0.0333		47.5	40-150			
Surrogate: Fluoranthene-d10	0.0168		"	0.0333		50.5	40-150			

Matrix Spike Dup (BGG0408-MSD1)

Source: 2307224-21

Prepared: 07/14/23 Analyzed: 07/15/23

Acenaphthene	0.0169	0.00500	mg/kg	0.0333	ND	50.6	31-137	15.2	30	
Anthracene	0.0177	0.00500	"	0.0333	ND	53.1	30-120	24.5	30	
Benzo (a) anthracene	0.0208	0.00500	"	0.0333	ND	62.4	30-120	32.7	30	QR-02
Benzo (a) pyrene	0.0194	0.00500	"	0.0333	ND	58.2	30-120	6.61	30	
Benzo (b) fluoranthene	0.0189	0.00500	"	0.0333	ND	56.8	30-120	22.2	30	
Benzo (k) fluoranthene	0.0208	0.00500	"	0.0333	ND	62.3	30-120	21.1	30	
Chrysene	0.0183	0.00500	"	0.0333	ND	54.8	30-120	18.0	30	
Dibenz (a,h) anthracene	0.0194	0.00500	"	0.0333	ND	58.1	30-120	16.1	30	
Fluoranthene	0.0179	0.00500	"	0.0333	ND	53.7	30-120	20.0	30	
Fluorene	0.0176	0.00500	"	0.0333	ND	52.7	30-120	15.1	30	
Indeno (1,2,3-cd) pyrene	0.0209	0.00500	"	0.0333	ND	62.6	30-120	20.5	30	
Pyrene	0.0176	0.00500	"	0.0333	ND	52.8	35-142	16.4	30	
1-Methylnaphthalene	0.0150	0.00500	"	0.0333	ND	45.1	15-130	4.74	50	
2-Methylnaphthalene	0.0159	0.00500	"	0.0333	ND	47.8	15-130	4.61	50	
Surrogate: 2-Methylnaphthalene-d10	0.0144		"	0.0333		43.1	40-150			
Surrogate: Fluoranthene-d10	0.0209		"	0.0333		62.7	40-150			

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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

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

Batch BGG0417 - EPA 3050B

Blank (BGG0417-BLK1)				Prepared: 07/14/23 Analyzed: 07/17/23						
Boron	ND	0.0100	mg/L							
LCS (BGG0417-BS1)				Prepared: 07/14/23 Analyzed: 07/17/23						
Boron	5.12	0.0100	mg/L	5.00	102	80-120				
Duplicate (BGG0417-DUP1)				Source: 2307213-01 Prepared: 07/14/23 Analyzed: 07/17/23						
Boron	0.176	0.0100	mg/L	0.123	34.9	20				QR-04
Matrix Spike (BGG0417-MS1)				Source: 2307213-01 Prepared: 07/14/23 Analyzed: 07/17/23						
Boron	6.81	0.0100	mg/L	5.00	0.123	134	75-125			QM-07
Matrix Spike Dup (BGG0417-MSD1)				Source: 2307213-01 Prepared: 07/14/23 Analyzed: 07/17/23						
Boron	6.93	0.0100	mg/L	5.00	0.123	136	75-125	1.66	25	QM-07

Batch BGG0905 - EPA 3050B

Blank (BGG0905-BLK1)				Prepared: 07/27/23 Analyzed: 07/29/23						
Boron	ND	0.0100	mg/L							
LCS (BGG0905-BS1)				Prepared: 07/27/23 Analyzed: 07/29/23						
Boron	4.22	0.0100	mg/L	5.00	84.4	80-120				
Duplicate (BGG0905-DUP1)				Source: 2306271-03 Prepared: 07/27/23 Analyzed: 07/29/23						
Boron	0.561	0.0100	mg/L	0.493	12.8	20				
Matrix Spike (BGG0905-MS1)				Source: 2306271-03 Prepared: 07/27/23 Analyzed: 07/29/23						
Boron	5.63	0.0100	mg/L	5.00	0.493	103	75-125			

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/01/23 11:13

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

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

Batch BGG0905 - EPA 3050B


Matrix Spike Dup (BGG0905-MSD1)

Source: 2306271-03

Prepared: 07/27/23 Analyzed: 07/29/23

Boron	5.53	0.0100	mg/L	5.00	0.493	101	75-125	1.74	25	
-------	------	--------	------	------	-------	-----	--------	------	----	--

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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 BGG0771 - EPA 3050B

Blank (BGG0771-BLK1)

Prepared: 07/25/23 Analyzed: 07/27/23

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 (BGG0771-BS1)

Prepared: 07/25/23 Analyzed: 07/27/23

Arsenic	39.8	0.200	mg/kg wet	40.0	99.5	80-120
Barium	39.4	0.400	"	40.0	98.5	80-120
Cadmium	1.62	0.200	"	2.00	81.1	80-120
Copper	36.6	0.400	"	40.0	91.4	80-120
Lead	22.0	0.200	"	20.0	110	80-120
Nickel	39.8	0.400	"	40.0	99.5	80-120
Selenium	3.96	0.260	"	4.00	99.0	80-120
Silver	1.60	0.0200	"	2.00	80.2	80-120
Zinc	36.8	0.400	"	40.0	92.1	80-120

Duplicate (BGG0771-DUP1)

Source: 2307241-01

Prepared: 07/25/23 Analyzed: 07/27/23

Arsenic	3.71	0.232	mg/kg dry	3.48	6.19	20
Barium	99.0	0.464	"	79.9	21.3	20
Cadmium	0.211	0.232	"	0.200	5.43	20
Copper	6.45	0.464	"	5.89	9.13	20
Lead	7.09	0.232	"	6.67	6.17	20
Nickel	6.45	0.464	"	5.95	8.03	20
Selenium	ND	0.302	"	ND		20
Silver	0.0302	0.0232	"	0.0292	3.12	20
Zinc	24.4	0.464	"	22.6	7.78	20

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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 BGG0771 - EPA 3050B

Matrix Spike (BGG0771-MS1)	Source: 2307241-01			Prepared: 07/25/23 Analyzed: 07/27/23								
Arsenic	33.5	0.232	mg/kg dry	46.4	3.48	64.7	75-125					QM-07
Barium	117	0.464	"	46.4	79.9	80.2	75-125					
Cadmium	1.91	0.232	"	2.32	0.200	73.6	75-125					QM-07
Copper	29.0	0.464	"	46.4	5.89	49.8	75-125					QM-07
Lead	22.7	0.232	"	23.2	6.67	69.1	75-125					QM-07
Nickel	29.2	0.464	"	46.4	5.95	50.1	75-125					QM-07
Selenium	3.91	0.302	"	4.64	ND	84.2	75-125					
Silver	1.69	0.0232	"	2.32	0.0292	71.4	75-125					QM-07
Zinc	46.7	0.464	"	46.4	22.6	52.0	75-125					QM-07

Matrix Spike Dup (BGG0771-MSD1)	Source: 2307241-01			Prepared: 07/25/23 Analyzed: 07/27/23								
Arsenic	33.4	0.232	mg/kg dry	46.4	3.48	64.4	75-125	0.369	25			QM-07
Barium	117	0.464	"	46.4	79.9	80.7	75-125	0.197	25			
Cadmium	1.91	0.232	"	2.32	0.200	73.8	75-125	0.243	25			QM-07
Copper	29.3	0.464	"	46.4	5.89	50.4	75-125	0.903	25			QM-07
Lead	23.0	0.232	"	23.2	6.67	70.6	75-125	1.46	25			QM-07
Nickel	29.3	0.464	"	46.4	5.95	50.2	75-125	0.210	25			QM-07
Selenium	3.87	0.302	"	4.64	ND	83.4	75-125	1.00	25			
Silver	1.70	0.0232	"	2.32	0.0292	72.1	75-125	1.01	25			QM-07
Zinc	46.9	0.464	"	46.4	22.6	52.4	75-125	0.432	25			QM-07

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BGG0893 - 3060A Mod

Blank (BGG0893-BLK1)

Prepared & Analyzed: 07/27/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGG0893-BS1)

Prepared & Analyzed: 07/27/23

Chromium, Hexavalent 23.8 0.30 mg/kg wet 25.0 95.2 80-120

Duplicate (BGG0893-DUP1)

Source: 2306638-04

Prepared & Analyzed: 07/27/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGG0893-MS1)

Source: 2306638-04

Prepared & Analyzed: 07/27/23

Chromium, Hexavalent 26.9 0.30 mg/kg dry 28.9 ND 93.0 75-125

Matrix Spike Dup (BGG0893-MSD1)

Source: 2306638-04

Prepared & Analyzed: 07/27/23

Chromium, Hexavalent 26.9 0.30 mg/kg dry 28.9 ND 93.0 75-125 0.00 20

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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 BGG0431 - General Preparation

Blank (BGG0431-BLK1)

Prepared: 07/14/23 Analyzed: 07/19/23

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

LCS (BGG0431-BS1)

Prepared: 07/14/23 Analyzed: 07/19/23

Calcium	6.01	0.0500	mg/L wet	5.00	120	70-130
Magnesium	5.76	0.0500	"	5.00	115	70-130
Sodium	5.43	0.0500	"	5.00	109	70-130

Batch BGG0790 - General Preparation

Blank (BGG0790-BLK1)

Prepared: 07/25/23 Analyzed: 07/26/23

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

LCS (BGG0790-BS1)

Prepared: 07/25/23 Analyzed: 07/26/23

Calcium	4.20	0.0500	mg/L wet	5.00	84.0	70-130
Magnesium	5.14	0.0500	"	5.00	103	70-130
Sodium	4.91	0.0500	"	5.00	98.2	70-130

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/01/23 11:13

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

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

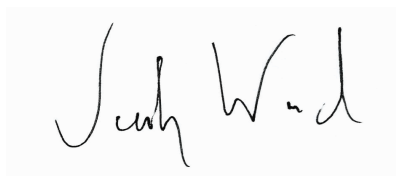
Batch BGG0476 - General Preparation

Duplicate (BGG0476-DUP1)		Source: 2307236-01			Prepared & Analyzed: 07/17/23						
% Solids	90.0		%		89.8				0.275	20	

Batch BGG0793 - General Preparation

Duplicate (BGG0793-DUP1)		Source: 2306271-03			Prepared & Analyzed: 07/25/23						
% Solids	84.5		%		83.9				0.750	20	

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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

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

Batch BGG0505 - General Preparation

Blank (BGG0505-BLK1)

Prepared & Analyzed: 07/17/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGG0505-BS1)

Prepared & Analyzed: 07/17/23

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

Duplicate (BGG0505-DUP1)

Source: 2307157-01

Prepared & Analyzed: 07/17/23

Specific Conductance (EC) 0.335 0.0100 mmhos/cm 0.338 0.773 20

Batch BGG0841 - General Preparation

Blank (BGG0841-BLK1)

Prepared: 07/26/23 Analyzed: 07/27/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGG0841-BS1)

Prepared: 07/26/23 Analyzed: 07/27/23

Specific Conductance (EC) 0.153 0.0100 mmhos/cm 0.150 102 95-105

Duplicate (BGG0841-DUP1)

Source: 2307241-01

Prepared: 07/26/23 Analyzed: 07/27/23

Specific Conductance (EC) 0.487 0.0100 mmhos/cm 0.487 0.144 20

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

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

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

Batch BGG0504 - General Preparation

LCS (BGG0504-BS1)

Prepared & Analyzed: 07/17/23

pH	9.12		pH Units	9.18		99.3	95-105		
----	------	--	----------	------	--	------	--------	--	--

Duplicate (BGG0504-DUP1)

Source: 2307186-01

Prepared & Analyzed: 07/17/23

pH	8.30		pH Units			8.39		1.08	20
----	------	--	----------	--	--	------	--	------	----

Batch BGG0839 - General Preparation

LCS (BGG0839-BS1)

Prepared & Analyzed: 07/26/23

pH	9.03		pH Units	9.18		98.4	95-105		
----	------	--	----------	------	--	------	--------	--	--

Duplicate (BGG0839-DUP1)

Source: 2307186-03

Prepared & Analyzed: 07/26/23

pH	7.84		pH Units			7.78		0.768	20
----	------	--	----------	--	--	------	--	-------	----

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: PDC - J Nelson 33-23 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/23 11:13

Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- 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