

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 23, 2024

Karen Olson

Tasman Geosciences

6855 W. 119th Ave.

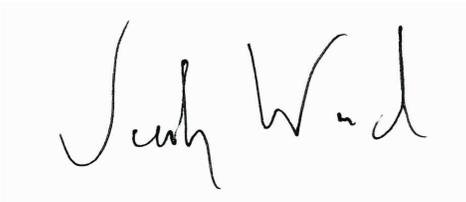
Broomfield, CO 80020

RE: PDC - Hoffman B33-19 Tank Battery

Work Order #2408212

Enclosed are the results of analyses for samples received by Summit Scientific on 08/20/24 17:40. 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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**ANALYTICAL REPORT FOR SAMPLES**

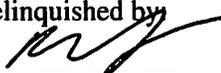
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N-PWV01-N@2.5'	2408212-01	Soil	08/20/24 15:15	08/20/24 17:40
N-PWV01-B@6'	2408212-02	Soil	08/20/24 15:10	08/20/24 17:40

Summit Scientific

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

		<b>Send Data To:</b>		<b>Send Invoice To:</b>	
Client: PDC / Tasman	Project Manager: Karen Olson	Company: PDC Energy		Project Name/Location: Hoffman B3319 Tank Battery	
Address: 6855 W 119th Ave	E-Mail: karen.olson@chevron.com	AFE#: PX-900268		PO/Billing Codes:	
City/State/Zip: Broomfield / CO / 80020	Project Name: Hoffman B33-19 Tank Battery	Contact: <del>Karen Olson</del> Delbert Pace			
Phone: 303-487-1228	Project Number:				
Sampler Name: Ryan Yavinsky / Loren Bohannon					

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	1,2,4 & 1,3,5-TMB	TDS, Cl, SO4		Full 915 suite
1	N-PWV01-NEZ5'	8/20/24	1515	3			S				X						
2	N-PWV01-B@6'	1	1510	1			1				1						
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	

Relinquished by: 	Date/Time: 8/20/24 1730	Received by: Tasman Lockbox	Date/Time: 8/20/24 1730	TAT Business Days	Field DO	Notes: *VOLs and TPH on same day, PAMs, metals PH, EC, SAR and BOD on standard.
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 8/20/24 1740	Received by: 	Date/Time: 8/20/24 1740	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 11.1	Corrected Temperature: 8	IR gun #: J	HNO3 lot #:	Standard	Field Turb.	

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2408212

Client: Rockman Client Project ID: Hoffman B33-19 Tank Baffles

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

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

Temp (°C)  Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sameday
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<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)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> 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):				

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

AS  
Custodian Printed Name

8/20/24  
Date/Time



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

Project: PDC - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-N@2.5'**  
**2408212-01 (Soil)**

Summit Scientific

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHH0559	08/20/24	08/21/24	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: **08/20/24 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0455	114 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0406	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0410	103 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHH0558	08/20/24	08/21/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.90	79.2 %		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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-N@2.5'**  
**2408212-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0562	08/21/24	08/22/24	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: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0214	64.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0213	64.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0626	08/22/24	08/23/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-N@2.5'**  
**2408212-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.86	0.200	mg/kg dry	1	BHH0590	08/21/24	08/22/24	EPA 6020B
Barium	85.6	0.400	"	"	"	"	"	"
Cadmium	0.288	0.200	"	"	"	"	"	"
Copper	7.76	0.400	"	"	"	"	"	"
Lead	11.1	0.200	"	"	"	"	"	"
Nickel	6.17	0.400	"	"	"	"	"	"
Silver	0.0318	0.0200	"	"	"	"	"	"
Zinc	28.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0571	08/21/24	08/21/24	EPA 7196A	

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

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	39.2	0.0500	mg/L dry	1	BHH0544	08/20/24	08/23/24	EPA 6020B	
Magnesium	9.15	0.0500	"	"	"	"	08/23/24	"	
Sodium	83.3	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.11	0.00100	units	1	BHH0706	08/23/24	08/23/24	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-N@2.5'**  
**2408212-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

<b>% Solids</b>	<b>87.0</b>	%	1	BHH0612	08/21/24	08/22/24	Calculation
-----------------	-------------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.972</b>	0.0100	mmhos/cm	1	BHH0545	08/20/24	08/21/24	EPA 120.1	I-03

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

Date Sampled: **08/20/24 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>8.57</b>		pH Units	1	BHH0546	08/20/24	08/21/24	EPA 9045D	I-03

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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-B@6'**  
**2408212-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0559	08/20/24	08/21/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.051</b>	0.010	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.086</b>	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>17</b>	0.50	"	"	"	"	"	"	

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0450	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0433	108 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0629	157 %	50-150		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>970</b>	50	mg/kg	1	BHH0558	08/20/24	08/21/24	EPA 8015M	
<b>C28-C36 (ORO)</b>	<b>130</b>	50	"	"	"	"	"	"	

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	6.38	51.0 %	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-B@6'**  
**2408212-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0562	08/21/24	08/22/24	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	"	"	"	"	"	"	
<b>Chrysene</b>	<b>0.00722</b>	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.0436</b>	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
<b>Pyrene</b>	<b>0.00707</b>	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.0725</b>	0.00500	"	"	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>0.120</b>	0.00500	"	"	"	"	"	"	

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0261	78.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0194	58.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0626	08/22/24	08/23/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-B@6'**  
**2408212-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.73	0.200	mg/kg dry	1	BHH0590	08/21/24	08/22/24	EPA 6020B	
Barium	65.3	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.34	0.400	"	"	"	"	"	"	
Lead	4.96	0.200	"	"	"	"	"	"	
Nickel	3.79	0.400	"	"	"	"	"	"	
Silver	0.0228	0.0200	"	"	"	"	"	"	
Zinc	15.6	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0571	08/21/24	08/21/24	EPA 7196A	

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

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	17.0	0.0500	mg/L dry	1	BHH0544	08/20/24	08/23/24	EPA 6020B	
Magnesium	6.76	0.0500	"	"	"	"	"	"	
Sodium	70.9	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.68	0.00100	units	1	BHH0706	08/23/24	08/23/24	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**N-PWV01-B@6'**  
**2408212-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.5		%	1	BHH0612	08/21/24	08/22/24	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.845	0.0100	mmhos/cm	1	BHH0545	08/20/24	08/21/24	EPA 120.1	I-03

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

Date Sampled: **08/20/24 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.70		pH Units	1	BHH0546	08/20/24	08/21/24	EPA 9045D	I-03

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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

### 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 BHH0559 - EPA 5030 Soil MS

##### Blank (BHH0559-BLK1)

Prepared: 08/20/24 Analyzed: 08/21/24

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>	0.0413		"	0.0400		103	50-150			
<i>Surrogate: Toluene-d8</i>	0.0392		"	0.0400		97.9	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0389		"	0.0400		97.2	50-150			

##### LCS (BHH0559-BS1)

Prepared: 08/20/24 Analyzed: 08/21/24

Benzene	0.0943	0.0020	mg/kg	0.100		94.3	70-130			
Toluene	0.0935	0.0050	"	0.100		93.5	70-130			
Ethylbenzene	0.0938	0.0050	"	0.100		93.8	70-130			
m,p-Xylene	0.182	0.010	"	0.200		90.8	70-130			
o-Xylene	0.0907	0.0050	"	0.100		90.7	70-130			
1,2,4-Trimethylbenzene	0.0865	0.0050	"	0.100		86.5	70-130			
1,3,5-Trimethylbenzene	0.0866	0.0050	"	0.100		86.6	70-130			
Naphthalene	0.0822	0.0038	"	0.100		82.2	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0444		"	0.0400		111	50-150			
<i>Surrogate: Toluene-d8</i>	0.0405		"	0.0400		101	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0394		"	0.0400		98.6	50-150			

##### Matrix Spike (BHH0559-MS1)

Source: 2408204-01

Prepared: 08/20/24 Analyzed: 08/21/24

Benzene	0.0873	0.0020	mg/kg	0.100	ND	87.3	70-130			
Toluene	0.0862	0.0050	"	0.100	ND	86.2	70-130			
Ethylbenzene	0.0910	0.0050	"	0.100	ND	91.0	70-130			
m,p-Xylene	0.174	0.010	"	0.200	ND	86.9	70-130			
o-Xylene	0.0853	0.0050	"	0.100	ND	85.3	70-130			
1,2,4-Trimethylbenzene	0.0817	0.0050	"	0.100	ND	81.7	70-130			
1,3,5-Trimethylbenzene	0.0835	0.0050	"	0.100	ND	83.5	70-130			
Naphthalene	0.0782	0.0038	"	0.100	ND	78.2	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0439		"	0.0400		110	50-150			
<i>Surrogate: Toluene-d8</i>	0.0396		"	0.0400		98.9	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0396		"	0.0400		99.0	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**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 BHH0559 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BHH0559-MSD1)</b>	<b>Source: 2408204-01</b>			<b>Prepared: 08/20/24 Analyzed: 08/21/24</b>						
Benzene	0.0816	0.0020	mg/kg	0.100	ND	81.6	70-130	6.75	30	
Toluene	0.0807	0.0050	"	0.100	ND	80.7	70-130	6.58	30	
Ethylbenzene	0.0857	0.0050	"	0.100	ND	85.7	70-130	6.01	30	
m,p-Xylene	0.169	0.010	"	0.200	ND	84.3	70-130	3.10	30	
o-Xylene	0.0802	0.0050	"	0.100	ND	80.2	70-130	6.09	30	
1,2,4-Trimethylbenzene	0.0776	0.0050	"	0.100	ND	77.6	70-130	5.16	30	
1,3,5-Trimethylbenzene	0.0798	0.0050	"	0.100	ND	79.8	70-130	4.52	30	
Naphthalene	0.0758	0.0038	"	0.100	ND	75.8	70-130	3.12	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.7</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>95.9</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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**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 BHH0558 - EPA 3550A**

**Blank (BHH0558-BLK1)**

Prepared: 08/20/24 Analyzed: 08/21/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	15.3		"	12.5		123		30-150			

**LCS (BHH0558-BS1)**

Prepared: 08/20/24 Analyzed: 08/21/24

C10-C28 (DRO)	422	50	mg/kg	500		84.3		70-130			
Surrogate: <i>o</i> -Terphenyl	14.7		"	12.5		117		30-150			

**Matrix Spike (BHH0558-MS1)**

Source: 2408204-01

Prepared: 08/20/24 Analyzed: 08/21/24

C10-C28 (DRO)	405	50	mg/kg	500	26.3	75.8		70-130			
Surrogate: <i>o</i> -Terphenyl	11.8		"	12.5		94.1		30-150			

**Matrix Spike Dup (BHH0558-MSD1)**

Source: 2408204-01

Prepared: 08/20/24 Analyzed: 08/21/24

C10-C28 (DRO)	401	50	mg/kg	500	26.3	75.0		70-130	1.03	20	
Surrogate: <i>o</i> -Terphenyl	12.5		"	12.5		100		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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**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 BHH0562 - EPA 5030 Soil MS**

**Blank (BHH0562-BLK1)**

Prepared & Analyzed: 08/21/24

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>0.0200</i>		"	<i>0.0333</i>		<i>60.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0216</i>		"	<i>0.0333</i>		<i>64.8</i>	<i>40-150</i>			

**LCS (BHH0562-BS1)**

Prepared & Analyzed: 08/21/24

Acenaphthene	0.0219	0.00500	mg/kg	0.0333		65.7	31-137			
Anthracene	0.0209	0.00500	"	0.0333		62.7	30-120			
Benzo (a) anthracene	0.0228	0.00500	"	0.0333		68.4	30-120			
Benzo (a) pyrene	0.0193	0.00500	"	0.0333		57.8	30-120			
Benzo (b) fluoranthene	0.0205	0.00500	"	0.0333		61.5	30-120			
Benzo (k) fluoranthene	0.0201	0.00500	"	0.0333		60.2	30-120			
Chrysene	0.0216	0.00500	"	0.0333		64.7	30-120			
Dibenz (a,h) anthracene	0.0179	0.00500	"	0.0333		53.8	30-120			
Fluoranthene	0.0220	0.00500	"	0.0333		66.1	30-120			
Fluorene	0.0215	0.00500	"	0.0333		64.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0139	0.00500	"	0.0333		41.7	30-120			
Pyrene	0.0243	0.00500	"	0.0333		72.8	35-142			
1-Methylnaphthalene	0.0199	0.00500	"	0.0333		59.8	35-142			
2-Methylnaphthalene	0.0198	0.00500	"	0.0333		59.5	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0203</i>		"	<i>0.0333</i>		<i>61.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0227</i>		"	<i>0.0333</i>		<i>68.1</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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**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 BHH0562 - EPA 5030 Soil MS**

<b>Matrix Spike (BHH0562-MS1)</b>	<b>Source: 2408123-08</b>			<b>Prepared &amp; Analyzed: 08/21/24</b>						
Acenaphthene	0.0239	0.00500	mg/kg	0.0333	ND	71.7	31-137			
Anthracene	0.0245	0.00500	"	0.0333	ND	73.4	30-120			
Benzo (a) anthracene	0.0270	0.00500	"	0.0333	ND	81.0	30-120			
Benzo (a) pyrene	0.0241	0.00500	"	0.0333	ND	72.3	30-120			
Benzo (b) fluoranthene	0.0250	0.00500	"	0.0333	ND	74.9	30-120			
Benzo (k) fluoranthene	0.0234	0.00500	"	0.0333	ND	70.2	30-120			
Chrysene	0.0254	0.00500	"	0.0333	ND	76.2	30-120			
Dibenz (a,h) anthracene	0.0206	0.00500	"	0.0333	ND	61.7	30-120			
Fluoranthene	0.0257	0.00500	"	0.0333	ND	77.0	30-120			
Fluorene	0.0264	0.00500	"	0.0333	ND	79.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0172	0.00500	"	0.0333	ND	51.6	30-120			
Pyrene	0.0278	0.00500	"	0.0333	ND	83.4	35-142			
1-Methylnaphthalene	0.0225	0.00500	"	0.0333	ND	67.6	15-130			
2-Methylnaphthalene	0.0229	0.00500	"	0.0333	ND	68.6	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0235</i>		<i>"</i>	<i>0.0333</i>		<i>70.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0256</i>		<i>"</i>	<i>0.0333</i>		<i>76.7</i>	<i>40-150</i>			

<b>Matrix Spike Dup (BHH0562-MSD1)</b>	<b>Source: 2408123-08</b>			<b>Prepared &amp; Analyzed: 08/21/24</b>						
Acenaphthene	0.0205	0.00500	mg/kg	0.0333	ND	61.4	31-137	15.5	30	
Anthracene	0.0216	0.00500	"	0.0333	ND	64.9	30-120	12.3	30	
Benzo (a) anthracene	0.0243	0.00500	"	0.0333	ND	73.0	30-120	10.4	30	
Benzo (a) pyrene	0.0218	0.00500	"	0.0333	ND	65.4	30-120	9.94	30	
Benzo (b) fluoranthene	0.0228	0.00500	"	0.0333	ND	68.5	30-120	8.92	30	
Benzo (k) fluoranthene	0.0207	0.00500	"	0.0333	ND	62.1	30-120	12.2	30	
Chrysene	0.0230	0.00500	"	0.0333	ND	69.1	30-120	9.88	30	
Dibenz (a,h) anthracene	0.0184	0.00500	"	0.0333	ND	55.3	30-120	11.1	30	
Fluoranthene	0.0237	0.00500	"	0.0333	ND	71.0	30-120	8.06	30	
Fluorene	0.0208	0.00500	"	0.0333	ND	62.4	30-120	23.6	30	
Indeno (1,2,3-cd) pyrene	0.0155	0.00500	"	0.0333	ND	46.5	30-120	10.3	30	
Pyrene	0.0257	0.00500	"	0.0333	ND	77.0	35-142	8.05	30	
1-Methylnaphthalene	0.0209	0.00500	"	0.0333	ND	62.7	15-130	7.51	50	
2-Methylnaphthalene	0.0206	0.00500	"	0.0333	ND	61.7	15-130	10.5	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0215</i>		<i>"</i>	<i>0.0333</i>		<i>64.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0234</i>		<i>"</i>	<i>0.0333</i>		<i>70.3</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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

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

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

**Batch BHH0626 - EPA 3050B**

**Blank (BHH0626-BLK1)**

Prepared: 08/22/24 Analyzed: 08/23/24

Boron ND 2.00 mg/L

**LCS (BHH0626-BS1)**

Prepared: 08/22/24 Analyzed: 08/23/24

Boron 4.77 2.00 mg/L 5.00 95.5 80-120

**Duplicate (BHH0626-DUP1)**

Source: 2408212-01

Prepared: 08/22/24 Analyzed: 08/23/24

Boron 0.220 2.00 mg/L 0.218 1.15 20

**Matrix Spike (BHH0626-MS1)**

Source: 2408212-01

Prepared: 08/22/24 Analyzed: 08/23/24

Boron 6.76 2.00 mg/L 5.03 0.218 130 75-125 QM-07

**Matrix Spike Dup (BHH0626-MSD1)**

Source: 2408212-01

Prepared: 08/22/24 Analyzed: 08/23/24

Boron 6.42 2.00 mg/L 5.03 0.218 123 75-125 5.08 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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**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 BHH0590 - EPA 3050B**

**Blank (BHH0590-BLK1)**

Prepared: 08/21/24 Analyzed: 08/22/24

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

**LCS (BHH0590-BS1)**

Prepared: 08/21/24 Analyzed: 08/22/24

Arsenic	35.8	0.181	mg/kg wet	36.2	98.7	80-120
Barium	34.4	0.362	"	36.2	95.1	80-120
Cadmium	1.73	0.181	"	1.81	95.4	80-120
Copper	36.0	0.362	"	36.2	99.4	80-120
Lead	17.0	0.181	"	18.1	94.1	80-120
Nickel	35.7	0.362	"	36.2	98.6	80-120
Silver	1.75	0.0181	"	1.81	96.4	80-120
Zinc	35.8	0.362	"	36.2	98.7	80-120
Selenium	3.46	0.236	"	3.62	95.4	80-120

**Duplicate (BHH0590-DUP1)**

Source: 2408212-01

Prepared: 08/21/24 Analyzed: 08/22/24

Arsenic	2.19	0.200	mg/kg dry	2.86	26.6	20	QR-02
Barium	85.8	0.400	"	85.6	0.206	20	
Cadmium	0.318	0.200	"	0.288	9.92	20	
Copper	7.59	0.400	"	7.76	2.21	20	
Lead	11.2	0.200	"	11.1	0.835	20	
Nickel	6.61	0.400	"	6.17	6.89	20	
Silver	0.0402	0.0200	"	0.0318	23.5	20	QR-01
Zinc	25.3	0.400	"	28.0	10.3	20	
Selenium	ND	0.260	"	ND		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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**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 BHH0590 - EPA 3050B**

**Matrix Spike (BHH0590-MS1)**

Source: 2408212-01

Prepared: 08/21/24 Analyzed: 08/22/24

Arsenic	21.9	0.200	mg/kg dry	43.9	2.86	43.3	75-125				QM-05
Barium	102	0.400	"	43.9	85.6	38.4	75-125				QM-07
Cadmium	2.34	0.200	"	2.19	0.288	93.6	75-125				
Copper	27.9	0.400	"	43.9	7.76	45.9	75-125				QM-05
Lead	30.9	0.200	"	21.9	11.1	90.3	75-125				
Nickel	26.3	0.400	"	43.9	6.17	46.0	75-125				QM-05
Silver	2.09	0.0200	"	2.19	0.0318	93.8	75-125				
Zinc	41.8	0.400	"	43.9	28.0	31.4	75-125				QM-05
Selenium	3.39	0.260	"	4.39	ND	77.2	75-125				

**Matrix Spike Dup (BHH0590-MSD1)**

Source: 2408212-01

Prepared: 08/21/24 Analyzed: 08/22/24

Arsenic	24.0	0.200	mg/kg dry	43.9	2.86	48.3	75-125	9.54	25		QM-05
Barium	127	0.400	"	43.9	85.6	93.9	75-125	21.2	25		
Cadmium	2.42	0.200	"	2.19	0.288	97.1	75-125	3.28	25		
Copper	29.0	0.400	"	43.9	7.76	48.5	75-125	3.93	25		QM-05
Lead	30.4	0.200	"	21.9	11.1	87.8	75-125	1.76	25		
Nickel	27.8	0.400	"	43.9	6.17	49.3	75-125	5.35	25		QM-05
Silver	2.18	0.0200	"	2.19	0.0318	97.9	75-125	4.21	25		
Zinc	43.9	0.400	"	43.9	28.0	36.2	75-125	4.94	25		QM-05
Selenium	3.52	0.260	"	4.39	ND	80.2	75-125	3.84	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BHH0571 - 3060A Mod**

**Blank (BHH0571-BLK1)**

Prepared & Analyzed: 08/21/24

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BHH0571-BS1)**

Prepared & Analyzed: 08/21/24

Chromium, Hexavalent      25.8      0.30 mg/kg wet      25.0      103      80-120

**Duplicate (BHH0571-DUP1)**

**Source: 2408123-08**

Prepared & Analyzed: 08/21/24

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BHH0571-MS1)**

**Source: 2408123-08**

Prepared & Analyzed: 08/21/24

Chromium, Hexavalent      25.6      0.30 mg/kg dry      26.1      ND      98.0      75-125

**Matrix Spike Dup (BHH0571-MSD1)**

**Source: 2408123-08**

Prepared & Analyzed: 08/21/24

Chromium, Hexavalent      25.7      0.30 mg/kg dry      26.1      ND      98.4      75-125      0.407      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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

**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 BHH0544 - General Preparation**

**Blank (BHH0544-BLK1)**

Prepared: 08/20/24 Analyzed: 08/22/24

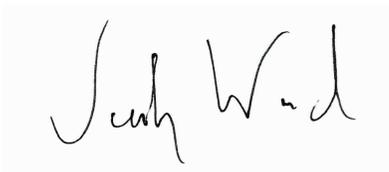
Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BHH0544-BS1)**

Prepared: 08/20/24 Analyzed: 08/22/24

Calcium	4.87	0.0500	mg/L wet	5.00	97.4	70-130
Magnesium	4.85	0.0500	"	5.00	97.0	70-130
Sodium	4.63	0.0500	"	5.00	92.6	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

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

**Summit Scientific**

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

**Batch BHH0612 - General Preparation**

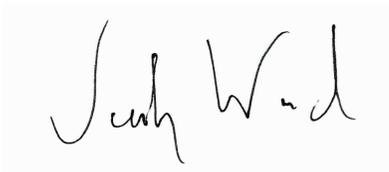
**Duplicate (BHH0612-DUP1)**

**Source: 2408211-01**

Prepared: 08/21/24 Analyzed: 08/22/24

% Solids	86.8		%		87.4			0.740	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

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

**Summit Scientific**

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

**Batch BHH0545 - General Preparation**

**Blank (BHH0545-BLK1)**

Prepared: 08/20/24 Analyzed: 08/21/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BHH0545-BS1)**

Prepared: 08/20/24 Analyzed: 08/21/24

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

**Duplicate (BHH0545-DUP1)**

Source: 2408161-01

Prepared: 08/20/24 Analyzed: 08/21/24

Specific Conductance (EC) 1.64 0.0100 mmhos/cm 1.67 1.51 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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

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

**Summit Scientific**

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

**Batch BHH0546 - General Preparation**

**LCS (BHH0546-BS1)**

Prepared: 08/20/24 Analyzed: 08/21/24

pH	9.22	pH Units	9.18	100	95-105
----	------	----------	------	-----	--------

**Duplicate (BHH0546-DUP1)**

Source: 2408161-01

Prepared: 08/20/24 Analyzed: 08/21/24

pH	8.13	pH Units	8.14	0.123	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 - Hoffman B33-19 Tank Battery

Project Number: [none]  
Project Manager: Karen Olson

**Reported:**  
08/23/24 11:46

### Notes and Definitions

- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- 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.
- QR-01 Analyses are not controlled on RPD values from sample concentrations below the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
- I-03 Sample was received and prepared outside of holding time.
- 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