

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 19, 2024

Andy Sagen

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Chevron - Hagemeister USX AA-07-01

Work Order #2410593

Enclosed are the results of analyses for samples received by Summit Scientific on 10/30/24 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Natalie Tessier For Paul Shrewsbury

President



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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-W@4'	2410593-01	Soil	10/30/24 10:34	10/30/24 16:30
BKG01-FL@4'	2410593-02	Soil	10/30/24 13:50	10/30/24 16:30

S₂

Sample Receipt Checklist

S2 Work Order# 2410593

Client: Charch Client Project ID: Hagermeister USXAA 07-01

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? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK
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):				

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

AS
Custodian Printed Name

10/30/24
Date/Time



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Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

FL01-W@4'
2410593-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHK0146	11/04/24	11/05/24	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: **10/30/24 10:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0410	103 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0406	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0388	97.0 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHK0147	11/04/24	11/05/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	7.45	59.6 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHJ1396	10/31/24	11/01/24	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: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0231	69.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0215	64.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK0402	11/08/24	11/11/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.77	0.200	mg/kg dry	1	BHK0551	11/12/24	11/18/24	EPA 6020B
Barium	55.5	0.400	"	"	"	"	"	"
Cadmium	0.271	0.200	"	"	"	"	"	"
Copper	5.84	0.400	"	"	"	"	"	"
Lead	10.1	0.200	"	"	"	"	"	"
Nickel	4.03	0.400	"	"	"	"	"	"
Silver	0.0260	0.0200	"	"	"	"	"	"
Zinc	18.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHK0475	11/11/24	11/12/24	EPA 7196A	

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

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	189	0.0500	mg/L dry	1	BHK0384	11/07/24	11/12/24	EPA 6020B	
Magnesium	147	0.0500	"	"	"	"	"	"	
Sodium	1270	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	16.8	0.00100	units	1	BHK0587	11/12/24	11/12/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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2410593-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	84.9	%	1	BHK0244	11/06/24	11/06/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	6.78	0.0100	mmhos/cm	1	BHK0385	11/07/24	11/08/24	EPA 120.1	

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

Date Sampled: **10/30/24 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.68		pH Units	1	BHK0386	11/07/24	11/08/24	EPA 9045D	

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BKG01-FL@4'
2410593-02 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHK0402	11/08/24	11/11/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.92	0.200	mg/kg dry	1	BHK0551	11/12/24	11/18/24	EPA 6020B	
Barium	46.5	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.63	0.400	"	"	"	"	"	"	
Lead	4.10	0.200	"	"	"	"	"	"	
Nickel	3.26	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	11.9	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHK0475	11/11/24	11/12/24	EPA 7196A	

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

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	60.0	0.0500	mg/L dry	1	BHK0384	11/07/24	11/12/24	EPA 6020B	
Magnesium	19.6	0.0500	"	"	"	"	"	"	
Sodium	255	0.0500	"	"	"	"	"	"	

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Reported:
11/19/24 10:37

BKG01-FL@4'
2410593-02 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.31	0.00100	units	1	BHK0587	11/12/24	11/12/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.9		%	1	BHK0244	11/06/24	11/06/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.75	0.0100	mmhos/cm	1	BHK0385	11/07/24	11/08/24	EPA 120.1	

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

Date Sampled: **10/30/24 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.57		pH Units	1	BHK0386	11/07/24	11/08/24	EPA 9045D	

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Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHK0146 - EPA 5030 Soil MS

Blank (BHK0146-BLK1)

Prepared & Analyzed: 11/04/24

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>	<i>0.0355</i>		<i>"</i>	<i>0.0400</i>		<i>88.6</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.4</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0383</i>		<i>"</i>	<i>0.0400</i>		<i>95.8</i>	<i>50-150</i>				

LCS (BHK0146-BS1)

Prepared & Analyzed: 11/04/24

Benzene	0.102	0.0020	mg/kg	0.100		102	70-130				
Toluene	0.106	0.0050	"	0.100		106	70-130				
Ethylbenzene	0.106	0.0050	"	0.100		106	70-130				
m,p-Xylene	0.214	0.010	"	0.200		107	70-130				
o-Xylene	0.104	0.0050	"	0.100		104	70-130				
1,2,4-Trimethylbenzene	0.101	0.0050	"	0.100		101	70-130				
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100		104	70-130				
Naphthalene	0.0882	0.0038	"	0.100		88.2	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.5</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0402</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>98.1</i>	<i>50-150</i>				

Matrix Spike (BHK0146-MS1)

Source: 2410585-01

Prepared & Analyzed: 11/04/24

Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130				
Toluene	0.100	0.0050	"	0.100	ND	100	70-130				
Ethylbenzene	0.0955	0.0050	"	0.100	ND	95.5	70-130				
m,p-Xylene	0.195	0.010	"	0.200	ND	97.4	70-130				
o-Xylene	0.0950	0.0050	"	0.100	ND	95.0	70-130				
1,2,4-Trimethylbenzene	0.0906	0.0050	"	0.100	ND	90.6	70-130				
1,3,5-Trimethylbenzene	0.0933	0.0050	"	0.100	ND	93.3	70-130				
Naphthalene	0.0839	0.0038	"	0.100	ND	83.9	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0415</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.6</i>	<i>50-150</i>				

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Reported:
11/19/24 10:37

Volatile Organic Compounds by EPA Method 8260B - Quality Control
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Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BHK0146 - EPA 5030 Soil MS

Matrix Spike Dup (BHK0146-MSD1)	Source: 2410585-01			Prepared & Analyzed: 11/04/24						
Benzene	0.0944	0.0020	mg/kg	0.100	ND	94.4	70-130	7.90	30	
Toluene	0.0981	0.0050	"	0.100	ND	98.1	70-130	1.94	30	
Ethylbenzene	0.0947	0.0050	"	0.100	ND	94.7	70-130	0.820	30	
m,p-Xylene	0.195	0.010	"	0.200	ND	97.3	70-130	0.139	30	
o-Xylene	0.0952	0.0050	"	0.100	ND	95.2	70-130	0.221	30	
1,2,4-Trimethylbenzene	0.0897	0.0050	"	0.100	ND	89.7	70-130	1.03	30	
1,3,5-Trimethylbenzene	0.0922	0.0050	"	0.100	ND	92.2	70-130	1.26	30	
Naphthalene	0.0865	0.0038	"	0.100	ND	86.5	70-130	3.03	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0401</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.1</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>			

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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 BHK0147 - EPA 3550A

Blank (BHK0147-BLK1)

Prepared: 11/04/24 Analyzed: 11/05/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	14.2		"	12.5		113		30-150			

LCS (BHK0147-BS1)

Prepared: 11/04/24 Analyzed: 11/05/24

C10-C28 (DRO)	431	50	mg/kg	500		86.1		70-130			
Surrogate: <i>o</i> -Terphenyl	12.9		"	12.5		103		30-150			

Matrix Spike (BHK0147-MS1)

Source: 2410585-01

Prepared: 11/04/24 Analyzed: 11/05/24

C10-C28 (DRO)	459	50	mg/kg	500	22.1	87.3		70-130			
Surrogate: <i>o</i> -Terphenyl	13.3		"	12.5		107		30-150			

Matrix Spike Dup (BHK0147-MSD1)

Source: 2410585-01

Prepared: 11/04/24 Analyzed: 11/05/24

C10-C28 (DRO)	433	50	mg/kg	500	22.1	82.2		70-130	5.79	20	
Surrogate: <i>o</i> -Terphenyl	12.1		"	12.5		96.7		30-150			

Summit Scientific

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

Project: Chevron - Hagemeister USX AA-07-01
Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHJ1396 - EPA 5030 Soil MS

Blank (BHJ1396-BLK1)

Prepared: 10/31/24 Analyzed: 11/01/24

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>0.0215</i>		<i>"</i>	<i>0.0333</i>		<i>64.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0213</i>		<i>"</i>	<i>0.0333</i>		<i>63.8</i>	<i>40-150</i>			

LCS (BHJ1396-BS1)

Prepared: 10/31/24 Analyzed: 11/01/24

Acenaphthene	0.0222	0.00500	mg/kg	0.0333	66.7	31-137
Anthracene	0.0205	0.00500	"	0.0333	61.4	30-120
Benzo (a) anthracene	0.0193	0.00500	"	0.0333	58.0	30-120
Benzo (a) pyrene	0.0189	0.00500	"	0.0333	56.7	30-120
Benzo (b) fluoranthene	0.0161	0.00500	"	0.0333	48.4	30-120
Benzo (k) fluoranthene	0.0201	0.00500	"	0.0333	60.3	30-120
Chrysene	0.0235	0.00500	"	0.0333	70.4	30-120
Dibenz (a,h) anthracene	0.0229	0.00500	"	0.0333	68.6	30-120
Fluoranthene	0.0192	0.00500	"	0.0333	57.5	30-120
Fluorene	0.0205	0.00500	"	0.0333	61.4	30-120
Indeno (1,2,3-cd) pyrene	0.0233	0.00500	"	0.0333	69.8	30-120
Pyrene	0.0294	0.00500	"	0.0333	88.1	35-142
1-Methylnaphthalene	0.0215	0.00500	"	0.0333	64.4	35-142
2-Methylnaphthalene	0.0227	0.00500	"	0.0333	68.0	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0223</i>		<i>"</i>	<i>0.0333</i>	<i>66.8</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0198</i>		<i>"</i>	<i>0.0333</i>	<i>59.4</i>	<i>40-150</i>

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHJ1396 - EPA 5030 Soil MS

Matrix Spike (BHJ1396-MS1)	Source: 2410558-01			Prepared: 10/31/24 Analyzed: 11/01/24						
Acenaphthene	0.0198	0.00500	mg/kg	0.0333	ND	59.5	31-137			
Anthracene	0.0189	0.00500	"	0.0333	ND	56.6	30-120			
Benzo (a) anthracene	0.0182	0.00500	"	0.0333	ND	54.6	30-120			
Benzo (a) pyrene	0.0177	0.00500	"	0.0333	ND	53.1	30-120			
Benzo (b) fluoranthene	0.0149	0.00500	"	0.0333	ND	44.8	30-120			
Benzo (k) fluoranthene	0.0181	0.00500	"	0.0333	ND	54.3	30-120			
Chrysene	0.0200	0.00500	"	0.0333	ND	59.9	30-120			
Dibenz (a,h) anthracene	0.0234	0.00500	"	0.0333	ND	70.2	30-120			
Fluoranthene	0.0185	0.00500	"	0.0333	ND	55.6	30-120			
Fluorene	0.0184	0.00500	"	0.0333	ND	55.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0226	0.00500	"	0.0333	ND	67.8	30-120			
Pyrene	0.0242	0.00500	"	0.0333	ND	72.7	35-142			
1-Methylnaphthalene	0.0212	0.00500	"	0.0333	ND	63.6	15-130			
2-Methylnaphthalene	0.0214	0.00500	"	0.0333	ND	64.2	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0215</i>		<i>"</i>	<i>0.0333</i>		<i>64.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0186</i>		<i>"</i>	<i>0.0333</i>		<i>55.7</i>	<i>40-150</i>			

Matrix Spike Dup (BHJ1396-MSD1)	Source: 2410558-01			Prepared: 10/31/24 Analyzed: 11/01/24						
Acenaphthene	0.0202	0.00500	mg/kg	0.0333	ND	60.7	31-137	1.99	30	
Anthracene	0.0188	0.00500	"	0.0333	ND	56.5	30-120	0.0513	30	
Benzo (a) anthracene	0.0191	0.00500	"	0.0333	ND	57.2	30-120	4.70	30	
Benzo (a) pyrene	0.0174	0.00500	"	0.0333	ND	52.2	30-120	1.64	30	
Benzo (b) fluoranthene	0.0186	0.00500	"	0.0333	ND	55.7	30-120	21.6	30	
Benzo (k) fluoranthene	0.0211	0.00500	"	0.0333	ND	63.4	30-120	15.4	30	
Chrysene	0.0204	0.00500	"	0.0333	ND	61.1	30-120	1.98	30	
Dibenz (a,h) anthracene	0.0158	0.00500	"	0.0333	ND	47.5	30-120	38.5	30	QR-02
Fluoranthene	0.0197	0.00500	"	0.0333	ND	59.0	30-120	6.01	30	
Fluorene	0.0194	0.00500	"	0.0333	ND	58.2	30-120	5.10	30	
Indeno (1,2,3-cd) pyrene	0.0176	0.00500	"	0.0333	ND	52.7	30-120	25.0	30	
Pyrene	0.0200	0.00500	"	0.0333	ND	60.1	35-142	18.9	30	
1-Methylnaphthalene	0.0209	0.00500	"	0.0333	ND	62.6	15-130	1.61	50	
2-Methylnaphthalene	0.0228	0.00500	"	0.0333	ND	68.5	15-130	6.44	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0224</i>		<i>"</i>	<i>0.0333</i>		<i>67.1</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0199</i>		<i>"</i>	<i>0.0333</i>		<i>59.6</i>	<i>40-150</i>			

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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

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

Batch BHK0402 - EPA 3050B

Blank (BHK0402-BLK1)

Prepared: 11/08/24 Analyzed: 11/11/24

Boron ND 2.00 mg/L

LCS (BHK0402-BS1)

Prepared: 11/08/24 Analyzed: 11/11/24

Boron 5.07 2.00 mg/L 5.00 101 80-120

Duplicate (BHK0402-DUP1)

Source: 2410587-03

Prepared: 11/08/24 Analyzed: 11/11/24

Boron 1.83 2.00 mg/L 1.79 2.49 20

Matrix Spike (BHK0402-MS1)

Source: 2410587-03

Prepared: 11/08/24 Analyzed: 11/11/24

Boron 5.48 2.00 mg/L 5.00 1.79 73.8 75-125 QM-05

Matrix Spike Dup (BHK0402-MSD1)

Source: 2410587-03

Prepared: 11/08/24 Analyzed: 11/11/24

Boron 5.71 2.00 mg/L 5.00 1.79 78.4 75-125 4.14 25

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHK0551 - EPA 3050B

Blank (BHK0551-BLK1)

Prepared: 11/12/24 Analyzed: 11/18/24

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 (BHK0551-BS1)

Prepared: 11/12/24 Analyzed: 11/18/24

Arsenic	41.8	0.200	mg/kg wet	40.0		105	80-120			
Barium	41.4	0.400	"	40.0		103	80-120			
Cadmium	2.02	0.200	"	2.00		101	80-120			
Copper	40.4	0.400	"	40.0		101	80-120			
Lead	19.8	0.200	"	20.0		99.2	80-120			
Nickel	40.8	0.400	"	40.0		102	80-120			
Silver	1.68	0.0200	"	2.00		83.8	80-120			
Zinc	41.0	0.400	"	40.0		102	80-120			
Selenium	4.32	0.260	"	4.00		108	80-120			

Duplicate (BHK0551-DUP1)

Source: 2410585-01

Prepared: 11/12/24 Analyzed: 11/18/24

Arsenic	2.45	0.200	mg/kg dry		2.08			16.4	20	
Barium	77.4	0.400	"		65.1			17.3	20	
Cadmium	0.363	0.200	"		0.304			17.7	20	
Copper	9.61	0.400	"		8.53			11.9	20	
Lead	14.5	0.200	"		10.3			34.1	20	QR-04
Nickel	3.87	0.400	"		3.38			13.6	20	
Silver	0.131	0.0200	"		0.114			14.3	20	
Zinc	31.0	0.400	"		27.3			12.7	20	
Selenium	ND	0.260	"		ND				20	

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHK0551 - EPA 3050B

Matrix Spike (BHK0551-MS1)

Source: 2410585-01

Prepared: 11/12/24 Analyzed: 11/18/24

Arsenic	45.3	0.200	mg/kg dry	41.3	2.08	105	75-125				
Barium	123	0.400	"	41.3	65.1	141	75-125				QM-05
Cadmium	2.50	0.200	"	2.07	0.304	106	75-125				
Copper	36.0	0.400	"	41.3	8.53	66.4	75-125				QM-05
Lead	33.1	0.200	"	20.7	10.3	110	75-125				
Nickel	30.5	0.400	"	41.3	3.38	65.5	75-125				QM-05
Silver	0.215	0.0200	"	2.07	0.114	4.91	75-125				QM-05
Zinc	59.1	0.400	"	41.3	27.3	77.0	75-125				
Selenium	3.69	0.260	"	4.13	ND	89.3	75-125				

Matrix Spike Dup (BHK0551-MSD1)

Source: 2410585-01

Prepared: 11/12/24 Analyzed: 11/18/24

Arsenic	47.4	0.200	mg/kg dry	42.7	2.08	106	75-125	4.48	25		
Barium	125	0.400	"	42.7	65.1	140	75-125	1.20	25		QM-05
Cadmium	2.63	0.200	"	2.13	0.304	109	75-125	5.12	25		
Copper	38.2	0.400	"	42.7	8.53	69.5	75-125	5.97	25		QM-05
Lead	34.4	0.200	"	21.3	10.3	113	75-125	3.84	25		
Nickel	31.9	0.400	"	42.7	3.38	67.0	75-125	4.75	25		QM-05
Silver	0.229	0.0200	"	2.13	0.114	5.40	75-125	6.23	25		QM-05
Zinc	61.5	0.400	"	42.7	27.3	80.1	75-125	3.90	25		
Selenium	3.88	0.260	"	4.27	ND	90.9	75-125	4.90	25		

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

Project: Chevron - Hagemeister USX AA-07-01
Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHK0475 - 3060A Mod

Blank (BHK0475-BLK1)

Prepared: 11/11/24 Analyzed: 11/12/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHK0475-BS1)

Prepared: 11/11/24 Analyzed: 11/12/24

Chromium, Hexavalent 25.6 0.30 mg/kg wet 25.0 103 80-120

Duplicate (BHK0475-DUP1)

Source: 2410548-01

Prepared: 11/11/24 Analyzed: 11/12/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHK0475-MS1)

Source: 2410548-01

Prepared: 11/11/24 Analyzed: 11/12/24

Chromium, Hexavalent 27.8 0.30 mg/kg dry 26.0 ND 107 75-125

Matrix Spike Dup (BHK0475-MSD1)

Source: 2410548-01

Prepared: 11/11/24 Analyzed: 11/12/24

Chromium, Hexavalent 27.8 0.30 mg/kg dry 26.0 ND 107 75-125 0.187 20

Summit Scientific

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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

Summit Scientific

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

Batch BHK0384 - General Preparation

Blank (BHK0384-BLK1)

Prepared: 11/07/24 Analyzed: 11/12/24

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

LCS (BHK0384-BS1)

Prepared: 11/07/24 Analyzed: 11/12/24

Calcium	6.32	0.0500	mg/L wet	5.00	126	70-130
Magnesium	5.04	0.0500	"	5.00	101	70-130
Sodium	5.02	0.0500	"	5.00	100	70-130

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
 Project Manager: Andy Sagen

Reported:
 11/19/24 10:37

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

Summit Scientific

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

Batch BHK0244 - General Preparation

Duplicate (BHK0244-DUP1)

Source: 2410586-01

Prepared & Analyzed: 11/06/24

% Solids	95.9		%		96.0			0.0673	20	
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Chevron - Hagemeister USX AA-07-01
Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHK0385 - General Preparation

Blank (BHK0385-BLK1)

Prepared: 11/07/24 Analyzed: 11/08/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHK0385-BS1)

Prepared: 11/07/24 Analyzed: 11/08/24

Specific Conductance (EC) 0.151 0.0100 mmhos/cm 0.150 101 95-105

Duplicate (BHK0385-DUP1)

Source: 2410576-31

Prepared: 11/07/24 Analyzed: 11/08/24

Specific Conductance (EC) 0.190 0.0100 mmhos/cm 0.192 0.992 20

Summit Scientific

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

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 BHK0386 - General Preparation

LCS (BHK0386-BS1)

Prepared: 11/07/24 Analyzed: 11/08/24

pH	9.36	pH Units	9.18	102	95-105
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Duplicate (BHK0386-DUP1)

Source: 2410576-31

Prepared: 11/07/24 Analyzed: 11/08/24

pH	7.95	pH Units	7.94	0.126	20
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Summit Scientific

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

Project: Chevron - Hagemeister USX AA-07-01

Project Number: UWRWE-A4249-AES
Project Manager: Andy Sagen

Reported:
11/19/24 10:37

Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits. Sample results were accepted based on LCS and/or LCSD recoveries 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-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- 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