

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 21, 2024

Paul Henchan

Fremont Environmental

PO Box 1289

Wellington, CO 80549

RE: Noble - McKay Federal AB02-14

Work Order #2410249

Enclosed are the results of analyses for samples received by Summit Scientific on 10/16/24 17:18. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie Tessier". The signature is fluid and cursive, with the first name being more prominent.

Natalie Tessier For Paul Shrewsbury  
President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14

Project Number: UWRWE-A2604-ABN

Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH FL02 - 4FT	2410249-01	Soil	10/16/24 00:00	10/16/24 17:18



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

Lab ID	Page 1 of 1
2410249	

		Send Data To:										Send Invoice To:									
Client: Fremont Environmental		Project Manager: Paul Henehan										Company: Noble									
Address:		E-Mail: Fremont Distribution List										Project Name/Location:									
City/State/Zip:												AFE#:									
Phone: 303-261-6246		Project Name: McKay Federal AB02-14										PO/Billing Codes: UWRWF-A2604-ABN									
Sampler Name: Stanley Gilbert		Project Number:										Contact: Mike Montoya									
		Preservative				Matrix				Analysis Requested						Special Instructions					
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX, TMBs, Naph.	TPH	PAH (915)	EC, SAR, Ph, Boron	Metals (915)	TDS, Chloride, Sulfate	HOLD		
1	WH FLO2-4F+	10/16/24		2			X			X			X	X	X	X	X				
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time:	Received by:	Date/Time:	TAT Business Days	Field DO	Notes:
	10/16/24 17:18		10/16/24 17:18	Same Day <input checked="" type="checkbox"/>	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 1.90		Corrected Temperature		IR gun #: 12	HNO3 lot #:	

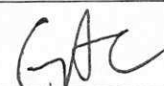
S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2410249Client: Fremont Environmental Client Project ID: Mukay Federal A802-14Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: \_\_\_\_\_
☒ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 1.90Thermometer # 02

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> 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"/>	on ice
If custody seals are present, are they intact? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same day
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? <b>If yes, contact client and note in narrative.</b>	<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.				

Control Form #: SRC-001

  
 Custodian Printed Name

10/16/24 17:18  
 Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

**WH FL02 - 4FT**  
**2410249-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHJ0654	10/16/24	10/16/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.063</b>	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.046</b>	0.0038		"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>9.7</b>	0.50		"	"	"	"	"	"	

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0427	107 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0412	103 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0484	121 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>C10-C28 (DRO)</b>	<b>2400</b>	50		mg/kg	1	BHJ0657	10/16/24	10/16/24	EPA 8015M	
<b>C28-C36 (ORO)</b>	<b>490</b>	50		"	"	"	"	"	"	

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.4	107 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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10/21/24 08:28

**WH FL02 - 4FT**  
**2410249-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHJ0666	10/17/24	10/18/24	EPA 8270D SIM	
<b>Anthracene</b>	<b>0.508</b>	0.250	"	50	"	"	10/18/24	"	
<b>Benzo (a) anthracene</b>	<b>0.895</b>	0.250	"	"	"	"	"	"	
<b>Benzo (a) pyrene</b>	<b>0.311</b>	0.250	"	"	"	"	"	"	
<b>Benzo (b) fluoranthene</b>	<b>0.597</b>	0.250	"	"	"	"	"	"	
<b>Benzo (k) fluoranthene</b>	<b>0.255</b>	0.00500	"	1	"	"	10/18/24	"	E
<b>Chrysene</b>	<b>1.00</b>	0.250	"	50	"	"	10/18/24	"	
<b>Dibenz (a,h) anthracene</b>	<b>0.101</b>	0.00500	"	1	"	"	10/18/24	"	
<b>Fluoranthene</b>	<b>2.85</b>	0.250	"	50	"	"	10/18/24	"	
<b>Fluorene</b>	<b>0.311</b>	0.250	"	"	"	"	"	"	
<b>Indeno (1,2,3-cd) pyrene</b>	<b>0.267</b>	0.250	"	"	"	"	"	"	
<b>Pyrene</b>	<b>2.32</b>	0.250	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	1	"	"	10/18/24	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0279	83.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0507	152 %	40-150		"	"	"	"	S-02

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

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHJ0670	10/17/24	10/18/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Arsenic</b>	<b>2.15</b>	0.200	mg/kg dry	1	BHJ0676	10/17/24	10/17/24	EPA 6020B	

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Project: Noble - McKay Federal AB02-14  
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10/21/24 08:28

**WH FL02 - 4FT**  
**2410249-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Barium	50.5	0.400	mg/kg dry	1	BHJ0676	10/17/24	10/17/24	EPA 6020B
Cadmium	0.262	0.200	"	"	"	"	"	"
Copper	10.3	0.400	"	"	"	"	"	"
Lead	13.8	0.200	"	"	"	"	"	"
Nickel	6.15	0.400	"	"	"	"	"	"
Silver	0.0702	0.0200	"	"	"	"	"	"
Zinc	22.4	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHJ0678	10/17/24	10/17/24	EPA 7196A	

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

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	23.7	0.0500	mg/L dry	1	BHJ0653	10/16/24	10/17/24	EPA 6020B	
Magnesium	8.44	0.0500	"	"	"	"	"	"	
Sodium	16.1	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.723	0.00100	units	1	BHJ0757	10/18/24	10/18/24	Calculation	

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

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.1		%	1	BHJ0664	10/17/24	10/17/24	Calculation	

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Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
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10/21/24 08:28

**WH FL02 - 4FT**  
**2410249-01 (Soil)**

**Summit Scientific**

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

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

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	<b>0.356</b>	0.0100		mmhos/cm	1	BHJ0658	10/16/24	10/17/24	EPA 120.1	

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

Date Sampled: **10/16/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>9.23</b>			pH Units	1	BHJ0660	10/16/24	10/17/24	EPA 9045D	

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**Reported:**  
10/21/24 08:28

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BHJ0654 - EPA 5030 Soil MS

##### Blank (BHJ0654-BLK1)

Prepared & Analyzed: 10/16/24

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0400		96.9	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		98.9	50-150			

##### LCS (BHJ0654-BS1)

Prepared: 10/16/24 Analyzed: 10/17/24

Benzene	0.0955	0.0020	mg/kg	0.100		95.5	70-130			
Toluene	0.0960	0.0050	"	0.100		96.0	70-130			
Ethylbenzene	0.0945	0.0050	"	0.100		94.5	70-130			
m,p-Xylene	0.193	0.010	"	0.200		96.6	70-130			
o-Xylene	0.100	0.0050	"	0.100		100	70-130			
1,2,4-Trimethylbenzene	0.0960	0.0050	"	0.100		96.0	70-130			
1,3,5-Trimethylbenzene	0.0957	0.0050	"	0.100		95.7	70-130			
Naphthalene	0.0911	0.0038	"	0.100		91.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0390		"	0.0400		97.5	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	50-150			

##### Matrix Spike (BHJ0654-MS1)

Source: 2410256-01

Prepared: 10/16/24 Analyzed: 10/17/24

Benzene	0.0872	0.0020	mg/kg	0.100	ND	87.2	70-130			
Toluene	0.0823	0.0050	"	0.100	ND	82.3	70-130			
Ethylbenzene	0.0718	0.0050	"	0.100	ND	71.8	70-130			
m,p-Xylene	0.142	0.010	"	0.200	0.00618	67.8	70-130			QM-05
o-Xylene	0.0723	0.0050	"	0.100	ND	72.3	70-130			
1,2,4-Trimethylbenzene	0.135	0.0050	"	0.100	0.0108	124	70-130			
1,3,5-Trimethylbenzene	0.0648	0.0050	"	0.100	ND	64.8	70-130			QM-05
Naphthalene	0.132	0.0038	"	0.100	ND	132	70-130			QM-05
Surrogate: 1,2-Dichloroethane-d4	0.0412		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0470		"	0.0400		118	50-150			

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Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

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

**Batch BHJ0654 - EPA 5030 Soil MS**

Matrix Spike Dup (BHJ0654-MSD1)		Source: 2410256-01			Prepared: 10/16/24 Analyzed: 10/17/24					
Benzene	0.0747	0.0020	mg/kg	0.100	ND	74.7	70-130	15.5	30	
Toluene	0.0671	0.0050	"	0.100	ND	67.1	70-130	20.2	30	QM-05
Ethylbenzene	0.0548	0.0050	"	0.100	ND	54.8	70-130	27.0	30	QM-05
m,p-Xylene	0.108	0.010	"	0.200	0.00618	50.7	70-130	27.5	30	QM-05
o-Xylene	0.0555	0.0050	"	0.100	ND	55.5	70-130	26.2	30	QM-05
1,2,4-Trimethylbenzene	0.138	0.0050	"	0.100	0.0108	127	70-130	1.85	30	
1,3,5-Trimethylbenzene	0.0489	0.0050	"	0.100	ND	48.9	70-130	28.0	30	QM-05
Naphthalene	0.126	0.0038	"	0.100	ND	126	70-130	4.99	30	
Surrogate: 1,2-Dichloroethane-d4		0.0413	"	0.0400		103	50-150			
Surrogate: Toluene-d8		0.0408	"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene		0.0503	"	0.0400		126	50-150			

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Project: Noble - McKay Federal AB02-14  
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Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BHJ0657 - EPA 3550A**

**Blank (BHJ0657-BLK1)**

Prepared: 10/16/24 Analyzed: 10/17/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.3		"	12.5		107	30-150			

**LCS (BHJ0657-BS1)**

Prepared: 10/16/24 Analyzed: 10/17/24

C10-C28 (DRO)	620	50	mg/kg	500		124	70-130			
Surrogate: o-Terphenyl	13.5		"	12.5		108	30-150			

**Matrix Spike (BHJ0657-MS1)**

Source: 2410256-03

Prepared: 10/16/24 Analyzed: 10/17/24

C10-C28 (DRO)	573	50	mg/kg	500	25.0	110	70-130			
Surrogate: o-Terphenyl	7.45		"	12.5		59.6	30-150			

**Matrix Spike Dup (BHJ0657-MSD1)**

Source: 2410256-03

Prepared: 10/16/24 Analyzed: 10/17/24

C10-C28 (DRO)	565	50	mg/kg	500	25.0	108	70-130	1.51	20	
Surrogate: o-Terphenyl	7.35		"	12.5		58.8	30-150			

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10/21/24 08:28

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BHJ0666 - EPA 5030 Soil MS

##### Blank (BHJ0666-BLK1)

Prepared & Analyzed: 10/17/24

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	"							
Surrogate: 2-Methylnaphthalene-d10	0.0183		"	0.0333		55.0	40-150			
Surrogate: Fluoranthene-d10	0.0255		"	0.0333		76.5	40-150			

##### LCS (BHJ0666-BS1)

Prepared & Analyzed: 10/17/24

Acenaphthene	0.0264	0.00500	mg/kg	0.0333		79.3	31-137			
Anthracene	0.0282	0.00500	"	0.0333		84.5	30-120			
Benzo (a) anthracene	0.0280	0.00500	"	0.0333		84.1	30-120			
Benzo (a) pyrene	0.0244	0.00500	"	0.0333		73.3	30-120			
Benzo (b) fluoranthene	0.0242	0.00500	"	0.0333		72.7	30-120			
Benzo (k) fluoranthene	0.0242	0.00500	"	0.0333		72.6	30-120			
Chrysene	0.0270	0.00500	"	0.0333		80.9	30-120			
Dibenz (a,h) anthracene	0.0223	0.00500	"	0.0333		66.9	30-120			
Fluoranthene	0.0274	0.00500	"	0.0333		82.1	30-120			
Fluorene	0.0266	0.00500	"	0.0333		79.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0149	0.00500	"	0.0333		44.6	30-120			
Pyrene	0.0301	0.00500	"	0.0333		90.4	35-142			
1-Methylnaphthalene	0.0217	0.00500	"	0.0333		65.2	35-142			
2-Methylnaphthalene	0.0231	0.00500	"	0.0333		69.3	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0217		"	0.0333		65.1	40-150			
Surrogate: Fluoranthene-d10	0.0279		"	0.0333		83.7	40-150			

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BHJ0666 - EPA 5030 Soil MS

##### Matrix Spike (BHJ0666-MS1)

Source: 2410257-01

Prepared & Analyzed: 10/17/24

Acenaphthene	0.0263	0.00500	mg/kg	0.0333	ND	79.0	31-137		
Anthracene	0.0302	0.00500	"	0.0333	ND	90.7	30-120		
Benzo (a) anthracene	0.0311	0.00500	"	0.0333	ND	93.3	30-120		
Benzo (a) pyrene	0.0234	0.00500	"	0.0333	ND	70.1	30-120		
Benzo (b) fluoranthene	0.0266	0.00500	"	0.0333	ND	79.9	30-120		
Benzo (k) fluoranthene	0.0221	0.00500	"	0.0333	ND	66.3	30-120		
Chrysene	0.0370	0.00500	"	0.0333	ND	111	30-120		
Dibenz (a,h) anthracene	0.0243	0.00500	"	0.0333	ND	73.0	30-120		
Fluoranthene	0.0224	0.00500	"	0.0333	ND	67.3	30-120		
Fluorene	0.0272	0.00500	"	0.0333	ND	81.7	30-120		
Indeno (1,2,3-cd) pyrene	0.0201	0.00500	"	0.0333	ND	60.4	30-120		
Pyrene	0.0378	0.00500	"	0.0333	ND	113	35-142		
1-Methylnaphthalene	0.0190	0.00500	"	0.0333	ND	56.9	15-130		
2-Methylnaphthalene	0.0201	0.00500	"	0.0333	ND	60.2	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0198		"	0.0333		59.5	40-150		
Surrogate: Fluoranthene-d10	0.0221		"	0.0333		66.3	40-150		

##### Matrix Spike Dup (BHJ0666-MSD1)

Source: 2410257-01

Prepared: 10/17/24 Analyzed: 10/18/24

Acenaphthene	0.0271	0.00500	mg/kg	0.0333	ND	81.3	31-137	2.95	30
Anthracene	0.0319	0.00500	"	0.0333	ND	95.8	30-120	5.45	30
Benzo (a) anthracene	0.0339	0.00500	"	0.0333	ND	102	30-120	8.52	30
Benzo (a) pyrene	0.0263	0.00500	"	0.0333	ND	78.8	30-120	11.7	30
Benzo (b) fluoranthene	0.0301	0.00500	"	0.0333	ND	90.4	30-120	12.4	30
Benzo (k) fluoranthene	0.0248	0.00500	"	0.0333	ND	74.5	30-120	11.7	30
Chrysene	0.0398	0.00500	"	0.0333	ND	119	30-120	7.33	30
Dibenz (a,h) anthracene	0.0243	0.00500	"	0.0333	ND	73.0	30-120	0.0520	30
Fluoranthene	0.0257	0.00500	"	0.0333	ND	77.0	30-120	13.4	30
Fluorene	0.0285	0.00500	"	0.0333	ND	85.4	30-120	4.45	30
Indeno (1,2,3-cd) pyrene	0.0201	0.00500	"	0.0333	ND	60.4	30-120	0.00661	30
Pyrene	0.0409	0.00500	"	0.0333	ND	123	35-142	7.89	30
1-Methylnaphthalene	0.0192	0.00500	"	0.0333	ND	57.6	15-130	1.22	50
2-Methylnaphthalene	0.0206	0.00500	"	0.0333	ND	61.7	15-130	2.47	50
Surrogate: 2-Methylnaphthalene-d10	0.0202		"	0.0333		60.5	40-150		
Surrogate: Fluoranthene-d10	0.0233		"	0.0333		70.0	40-150		

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

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

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

**Batch BHJ0670 - EPA 3050B**

**Blank (BHJ0670-BLK1)**

Prepared: 10/17/24 Analyzed: 10/18/24

Boron ND 2.00 mg/L

**LCS (BHJ0670-BS1)**

Prepared: 10/17/24 Analyzed: 10/18/24

Boron 4.86 2.00 mg/L 5.00 97.3 80-120

**Duplicate (BHJ0670-DUP1)**

**Source: 2410249-01**

Prepared: 10/17/24 Analyzed: 10/18/24

Boron 0.442 2.00 mg/L 0.471 6.47 20

**Matrix Spike (BHJ0670-MS1)**

**Source: 2410249-01**

Prepared: 10/17/24 Analyzed: 10/18/24

Boron 4.91 2.00 mg/L 5.02 0.471 88.5 75-125

**Matrix Spike Dup (BHJ0670-MSD1)**

**Source: 2410249-01**

Prepared: 10/17/24 Analyzed: 10/18/24

Boron 5.21 2.00 mg/L 5.02 0.471 94.4 75-125 5.84 25

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Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BHJ0676 - EPA 3050B**

**Blank (BHJ0676-BLK1)**

Prepared & Analyzed: 10/17/24

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 (BHJ0676-BS1)**

Prepared & Analyzed: 10/17/24

Arsenic	32.7	0.200	mg/kg wet	38.5	85.1	80-120
Barium	33.7	0.400	"	38.5	87.7	80-120
Cadmium	1.68	0.200	"	1.92	87.6	80-120
Copper	35.6	0.400	"	38.5	92.5	80-120
Lead	16.7	0.200	"	19.2	86.6	80-120
Nickel	35.3	0.400	"	38.5	91.9	80-120
Silver	1.68	0.0200	"	1.92	87.3	80-120
Zinc	35.6	0.400	"	38.5	92.6	80-120
Selenium	3.47	0.260	"	3.85	90.2	80-120

**Duplicate (BHJ0676-DUP1)**

Source: 2410249-01

Prepared & Analyzed: 10/17/24

Arsenic	2.28	0.200	mg/kg dry	2.15	5.89	20	
Barium	43.1	0.400	"	50.5	15.7	20	
Cadmium	0.505	0.200	"	0.262	63.5	20	QR-01
Copper	9.36	0.400	"	10.3	9.20	20	
Lead	26.3	0.200	"	13.8	62.5	20	QR-02
Nickel	6.41	0.400	"	6.15	4.16	20	
Silver	0.0635	0.0200	"	0.0702	10.0	20	
Zinc	23.6	0.400	"	22.4	5.21	20	
Selenium	ND	0.260	"	ND		20	

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Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BHJ0676 - EPA 3050B**

**Matrix Spike (BHJ0676-MS1)**

**Source: 2410249-01**

**Prepared & Analyzed: 10/17/24**

Arsenic	36.6	0.200	mg/kg dry	49.3	2.15	69.8	75-125			QM-05
Barium	91.8	0.400	"	49.3	50.5	83.8	75-125			
Cadmium	2.23	0.200	"	2.47	0.262	79.8	75-125			
Copper	27.2	0.400	"	49.3	10.3	34.3	75-125			QM-05
Lead	33.6	0.200	"	24.7	13.8	80.4	75-125			
Nickel	24.2	0.400	"	49.3	6.15	36.6	75-125			QM-05
Silver	1.94	0.0200	"	2.47	0.0702	75.6	75-125			
Zinc	39.8	0.400	"	49.3	22.4	35.3	75-125			QM-05
Selenium	3.08	0.260	"	4.93	ND	62.4	75-125			QM-05

**Matrix Spike Dup (BHJ0676-MSD1)**

**Source: 2410249-01**

**Prepared & Analyzed: 10/17/24**

Arsenic	38.0	0.200	mg/kg dry	47.7	2.15	75.0	75-125	3.73	25	
Barium	112	0.400	"	47.7	50.5	129	75-125	19.9	25	QM-05
Cadmium	2.26	0.200	"	2.39	0.262	83.7	75-125	1.40	25	
Copper	28.3	0.400	"	47.7	10.3	37.8	75-125	4.02	25	QM-05
Lead	28.3	0.200	"	23.9	13.8	60.9	75-125	17.1	25	QM-05
Nickel	23.8	0.400	"	47.7	6.15	37.0	75-125	1.71	25	QM-05
Silver	1.98	0.0200	"	2.39	0.0702	79.8	75-125	2.08	25	
Zinc	39.9	0.400	"	47.7	22.4	36.8	75-125	0.445	25	QM-05
Selenium	3.17	0.260	"	4.77	ND	66.5	75-125	3.14	25	QM-05

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

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

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

**Batch BHJ0678 - 3060A Mod**

**Blank (BHJ0678-BLK1)**

Prepared & Analyzed: 10/17/24

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BHJ0678-BS1)**

Prepared & Analyzed: 10/17/24

Chromium, Hexavalent 27.2 0.30 mg/kg wet 25.0 109 80-120

**Duplicate (BHJ0678-DUP1)**

**Source: 2410249-01**

Prepared & Analyzed: 10/17/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BHJ0678-MS1)**

**Source: 2410249-01**

Prepared & Analyzed: 10/17/24

Chromium, Hexavalent 30.9 0.30 mg/kg dry 30.1 ND 103 75-125

**Matrix Spike Dup (BHJ0678-MSD1)**

**Source: 2410249-01**

Prepared & Analyzed: 10/17/24

Chromium, Hexavalent 32.5 0.30 mg/kg dry 30.1 ND 108 75-125 4.93 20

Summit Scientific

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PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

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

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

**Batch BHJ0653 - General Preparation**

**Blank (BHJ0653-BLK1)**

Prepared: 10/16/24 Analyzed: 10/17/24

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

**LCS (BHJ0653-BS1)**

Prepared: 10/16/24 Analyzed: 10/17/24

Calcium	5.20	0.0500	mg/L wet	5.00	104	70-130
Magnesium	4.96	0.0500	"	5.00	99.1	70-130
Sodium	4.91	0.0500	"	5.00	98.2	70-130

Summit Scientific

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PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14

Project Number: UWRWE-A2604-ABN

Project Manager: Paul Henchan

**Reported:**

10/21/24 08:28

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

**Summit Scientific**

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

**Batch BHJ0664 - General Preparation**

Duplicate (BHJ0664-DUP1)		Source: 2410223-01			Prepared & Analyzed: 10/17/24						
% Solids	82.1		%		82.7			0.728		20	

Summit Scientific

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Wellington CO, 80549

Project: Noble - McKay Federal AB02-14  
Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

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

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

**Batch BHJ0658 - General Preparation**

**Blank (BHJ0658-BLK1)**

Prepared: 10/16/24 Analyzed: 10/17/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BHJ0658-BS1)**

Prepared: 10/16/24 Analyzed: 10/17/24

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 95-105

**Duplicate (BHJ0658-DUP1)**

**Source: 2410249-01**

Prepared: 10/16/24 Analyzed: 10/17/24

Specific Conductance (EC) 0.364 0.0100 mmhos/cm 0.356 2.44 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14

Project Number: UWRWE-A2604-ABN

Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

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

**Summit Scientific**

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

**Batch BHJ0660 - General Preparation**

**LCS (BHJ0660-BS1)**

Prepared: 10/16/24 Analyzed: 10/17/24

pH	9.21	pH Units	9.18	100	95-105
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**Duplicate (BHJ0660-DUP1)**

**Source: 2410249-01**

Prepared: 10/16/24 Analyzed: 10/17/24

pH	9.23	pH Units	9.23	0.00	20
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Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - McKay Federal AB02-14

Project Number: UWRWE-A2604-ABN  
Project Manager: Paul Henchan

**Reported:**  
10/21/24 08:28

### 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. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
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.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
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