

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 20, 2023

Paul Henchan

Fremont Environmental

PO Box 1289

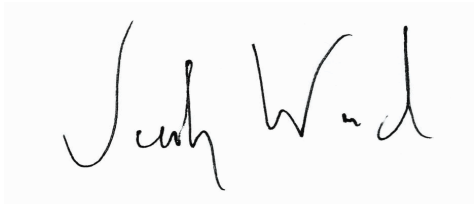
Wellington, CO 80549

RE: Noble - Wells Ranch AA 21-02 Flowline

Work Order #2311152

Enclosed are the results of analyses for samples received by Summit Scientific on 11/07/23 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLR01@4'	2311152-01	Soil	11/04/23 09:45	11/07/23 16:30
FL01-02@4'	2311152-02	Soil	11/04/23 09:55	11/07/23 16:30
SEP01-FL@4'	2311152-03	Soil	11/04/23 10:30	11/07/23 16:30
BKG01@4'	2311152-04	Soil	11/04/23 11:00	11/07/23 16:30
BKG02@4'	2311152-05	Soil	11/04/23 11:20	11/07/23 16:30

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

Lab ID	Page 1 of 1
231152	

		Send Data To:	Send Invoice To:
Client: Fremont Environmental	Project Manager: Paul Henehan		Company: Noble/Chevron
Address: 8305 9th Street	E-Mail: Fremont Distribution List		Project Name/Location: Wells Ranch AA 21-02 Flowline
City/State/Zip: Wellington, CO, 80549			AFE#: UWRWE-2964-ABN
Phone: 603-477-6907	Project Name: Wells Ranch AA 21-02 Flowline		PO/Billing Codes:
Sampler Name: Aaron Otilar	Project Number: C023-278		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 _____	BTEXN - 915	TPH (C6-C36)	PAH	TMB's - 915	Metals (915-1)	SAR, EC, pH, Boron	TDS, Cl, SO4			
1	FLR01E4'	11/4/23	0945	2			X			X			X	X	X	X	X	X				
2	FL01-02E4'		0955	2																		
3	SEPA-FL04'		1030	2																		
4	BK601E4'		1100	1													X	X				
5	BK602E4'		1120	1													X	X				
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: <i>[Signature]</i>	Date/Time: 11/4/23 1116 1700	Received by: Summit North Office	Date/Time: 11/4/23 1116 1700	TAT Business Days	Field DO	Notes:
Relinquished by: SL	Date/Time: 11/23 11030	Received by: <i>[Signature]</i>	Date/Time: 11/23 11030	Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 12.0 9.1		Corrected Temperature 8		IR gun #: 1		HNO3 lot #:

PC4

S₂

Sample Receipt Checklist

S2 Work Order# 231152Client: FremontClient Project ID: Wells Ranch AA21-02 FlowlineShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☐

Other

☐

Temp (°C)

9.1

Thermometer #

1

	Yes	No	N/A	Comments (If any)
If samples require cooling, is the temperature $< 6^{\circ}\text{C}$? ⁽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"/>	OUTICE
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_2SO_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.				

Custodian Printed Name

Date/Time

AS

11/7/23



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

FLR01@4'
2311152-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0347	11/09/23	11/10/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0396	99.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0438	110 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0426	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0350	11/09/23	11/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.4	83.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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2311152-01 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0374	11/10/23	11/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0157	47.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0155	46.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Number: UWRWE-A2964-ABN
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Reported:
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FLR01@4'
2311152-01 (Soil)

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Total Metals by EPA 6020B

Arsenic	2.08	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B
Barium	79.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	3.79	0.400	"	"	"	"	"	"
Lead	11.5	0.200	"	"	"	"	"	"
Nickel	3.44	0.400	"	"	"	"	"	"
Silver	0.0231	0.0200	"	"	"	"	"	"
Zinc	14.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	89.7	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	14.9	0.0500	"	"	"	"	"	"	
Sodium	64.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.66	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

FLR01@4'
2311152-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	86.8			%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.922	0.0100		mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 09:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.14			pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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FL01-02@4'
2311152-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0347	11/09/23	11/10/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0391	97.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0429	107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0438	109 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0350	11/09/23	11/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	15.2	121 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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FL01-02@4'
2311152-02 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0374	11/10/23	11/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.00578	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: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0179	53.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0183	54.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 09:55**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
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Reported:
11/20/23 08:36

FL01-02@4'
2311152-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.81	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B
Barium	65.3	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.99	0.400	"	"	"	"	"	"
Lead	4.98	0.200	"	"	"	"	"	"
Nickel	3.38	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	13.2	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	38.0	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	3.67	0.0500	"	"	"	"	"	"	
Sodium	2.24	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0929	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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FL01-02@4'
2311152-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	94.5			%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.251	0.0100		mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.94			pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

SEP01-FL@4'
2311152-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGK0347	11/09/23	11/10/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0397	99.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0445	111 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0443	111 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/04/23 10:30**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0350	11/09/23	11/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	16.9	135 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Reported:
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SEP01-FL@4'
2311152-03 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0374	11/10/23	11/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0159	47.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0176	52.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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11/20/23 08:36

SEP01-FL@4'
2311152-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.91	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B
Barium	45.3	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.35	0.400	"	"	"	"	"	"
Lead	3.32	0.200	"	"	"	"	"	"
Nickel	2.50	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	9.19	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	96.1	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	3.94	0.0500	"	"	"	"	"	"	
Sodium	1.51	0.0500	"	"	"	"	"	"	

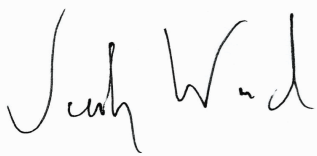
Calculated Analysis

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0411	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project Manager: Paul Henchan

Reported:
11/20/23 08:36

SEP01-FL@4'
2311152-03 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.0		%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.147	0.0100	mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.78		pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

BKG01@4'
2311152-04 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	1.33	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B	
Barium	44.5	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.61	0.400	"	"	"	"	"	"	
Lead	3.77	0.200	"	"	"	"	"	"	
Nickel	2.87	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	10.9	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	26.3	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	2.43	0.0500	"	"	"	"	"	"	
Sodium	1.83	0.0500	"	"	"	"	"	"	

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Project Manager: Paul Henchan

Reported:
11/20/23 08:36

BKG01@4'
2311152-04 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0915	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.9		%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.153	0.0100	mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.39		pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Reported:
11/20/23 08:36

BKG02@4'
2311152-05 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGK0449	11/13/23	11/14/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	1.14	0.200	mg/kg dry	1	BGK0620	11/16/23	11/17/23	EPA 6020B	
Barium	42.1	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.34	0.400	"	"	"	"	"	"	
Lead	3.98	0.200	"	"	"	"	"	"	
Nickel	2.51	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	9.59	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **11/04/23 11:20**

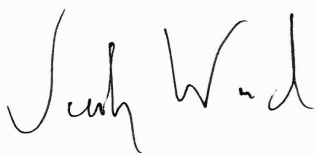
Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGK0475	11/13/23	11/14/23	EPA 7196A	

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

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	31.6	0.0500	mg/L dry	1	BGK0562	11/15/23	11/17/23	EPA 6020B	
Magnesium	2.84	0.0500	"	"	"	"	"	"	
Sodium	2.44	0.0500	"	"	"	"	"	"	

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Reported:
11/20/23 08:36

BKG02@4'
2311152-05 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.112	0.00100	units	1	BGK0667	11/17/23	11/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.3		%	1	BGK0356	11/09/23	11/09/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.210	0.0100	mmhos/cm	1	BGK0590	11/16/23	11/17/23	EPA 120.1	

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

Date Sampled: **11/04/23 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.22		pH Units	1	BGK0589	11/16/23	11/17/23	EPA 9045D	

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0347 - EPA 5030 Soil MS

Blank (BGK0347-BLK1)

Prepared & Analyzed: 11/09/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0400		107	50-150			
Surrogate: Toluene-d8	0.0428		"	0.0400		107	50-150			
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	50-150			

LCS (BGK0347-BS1)

Prepared & Analyzed: 11/09/23

Benzene	0.138	0.0020	mg/kg	0.100		138	70-130			QLCS-01
Toluene	0.138	0.0050	"	0.100		138	70-130			QLCS-01
Ethylbenzene	0.105	0.0050	"	0.100		105	70-130			
m,p-Xylene	0.210	0.010	"	0.200		105	70-130			
o-Xylene	0.0986	0.0050	"	0.100		98.6	70-130			
1,2,4-Trimethylbenzene	0.106	0.0050	"	0.100		106	70-130			
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100		108	70-130			
Naphthalene	0.116	0.0038	"	0.100		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0406		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0421		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0423		"	0.0400		106	50-150			

Matrix Spike (BGK0347-MS1)

Source: 2311149-01

Prepared & Analyzed: 11/09/23

Benzene	0.127	0.0020	mg/kg	0.100	ND	127	70-130			
Toluene	0.130	0.0050	"	0.100	ND	130	70-130			
Ethylbenzene	0.0947	0.0050	"	0.100	ND	94.7	70-130			
m,p-Xylene	0.191	0.010	"	0.200	ND	95.4	70-130			
o-Xylene	0.0891	0.0050	"	0.100	ND	89.1	70-130			
1,2,4-Trimethylbenzene	0.0912	0.0050	"	0.100	ND	91.2	70-130			
1,3,5-Trimethylbenzene	0.0934	0.0050	"	0.100	ND	93.4	70-130			
Naphthalene	0.0904	0.0038	"	0.100	ND	90.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0415		"	0.0400		104	50-150			
Surrogate: Toluene-d8	0.0441		"	0.0400		110	50-150			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	50-150			

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Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0347 - EPA 5030 Soil MS

Matrix Spike Dup (BGK0347-MSD1)	Source: 2311149-01			Prepared & Analyzed: 11/09/23						
Benzene	0.120	0.0020	mg/kg	0.100	ND	120	70-130	6.16	30	
Toluene	0.118	0.0050	"	0.100	ND	118	70-130	9.28	30	
Ethylbenzene	0.0852	0.0050	"	0.100	ND	85.2	70-130	10.6	30	
m,p-Xylene	0.172	0.010	"	0.200	ND	85.8	70-130	10.6	30	
o-Xylene	0.0827	0.0050	"	0.100	ND	82.7	70-130	7.47	30	
1,2,4-Trimethylbenzene	0.0845	0.0050	"	0.100	ND	84.5	70-130	7.65	30	
1,3,5-Trimethylbenzene	0.0850	0.0050	"	0.100	ND	85.0	70-130	9.42	30	
Naphthalene	0.0930	0.0038	"	0.100	ND	93.0	70-130	2.75	30	
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0400		104	50-150			
Surrogate: Toluene-d8	0.0433		"	0.0400		108	50-150			
Surrogate: 4-Bromofluorobenzene	0.0427		"	0.0400		107	50-150			

Summit Scientific

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0350 - EPA 3550A

Blank (BGK0350-BLK1)

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.6		"	12.5		108	30-150			

LCS (BGK0350-BS1)

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	444	50	mg/kg	500		88.8	70-130			
Surrogate: o-Terphenyl	10.8		"	12.5		86.6	30-150			

Matrix Spike (BGK0350-MS1)

Source: 2311149-01

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	449	50	mg/kg	500	31.3	83.5	70-130			
Surrogate: o-Terphenyl	9.71		"	12.5		77.7	30-150			

Matrix Spike Dup (BGK0350-MSD1)

Source: 2311149-01

Prepared: 11/09/23 Analyzed: 11/11/23

C10-C28 (DRO)	470	50	mg/kg	500	31.3	87.6	70-130	4.53	20	
Surrogate: o-Terphenyl	8.90		"	12.5		71.2	30-150			

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0374 - EPA 5030 Soil MS

Blank (BGK0374-BLK1)

Prepared: 11/10/23 Analyzed: 11/11/23

Acenaphthene	ND	0.00500	mg/kg
Anthracene	ND	0.00500	"
Benzo (a) anthracene	ND	0.00500	"
Benzo (a) pyrene	ND	0.00500	"
Benzo (b) fluoranthene	ND	0.00500	"
Benzo (k) fluoranthene	ND	0.00500	"
Chrysene	ND	0.00500	"
Dibenz (a,h) anthracene	ND	0.00500	"
Fluoranthene	ND	0.00500	"
Fluorene	ND	0.00500	"
Indeno (1,2,3-cd) pyrene	ND	0.00500	"
Pyrene	ND	0.00500	"
1-Methylnaphthalene	ND	0.00500	"
2-Methylnaphthalene	ND	0.00500	"

Surrogate: 2-Methylnaphthalene-d10	0.0277	"	0.0333	83.2	40-150
Surrogate: Fluoranthene-d10	0.0290	"	0.0333	87.0	40-150

LCS (BGK0374-BS1)

Prepared: 11/10/23 Analyzed: 11/11/23

Acenaphthene	0.0229	0.00500	mg/kg	0.0333	68.7	31-137
Anthracene	0.0247	0.00500	"	0.0333	74.0	30-120
Benzo (a) anthracene	0.0254	0.00500	"	0.0333	76.3	30-120
Benzo (a) pyrene	0.0234	0.00500	"	0.0333	70.1	30-120
Benzo (b) fluoranthene	0.0235	0.00500	"	0.0333	70.6	30-120
Benzo (k) fluoranthene	0.0215	0.00500	"	0.0333	64.6	30-120
Chrysene	0.0234	0.00500	"	0.0333	70.1	30-120
Dibenz (a,h) anthracene	0.0236	0.00500	"	0.0333	70.8	30-120
Fluoranthene	0.0244	0.00500	"	0.0333	73.1	30-120
Fluorene	0.0228	0.00500	"	0.0333	68.3	30-120
Indeno (1,2,3-cd) pyrene	0.0187	0.00500	"	0.0333	56.1	30-120
Pyrene	0.0254	0.00500	"	0.0333	76.2	35-142
1-Methylnaphthalene	0.0241	0.00500	"	0.0333	72.3	35-142
2-Methylnaphthalene	0.0242	0.00500	"	0.0333	72.7	35-142

Surrogate: 2-Methylnaphthalene-d10	0.0253	"	0.0333	75.8	40-150
Surrogate: Fluoranthene-d10	0.0246	"	0.0333	73.8	40-150

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGK0374 - EPA 5030 Soil MS

Matrix Spike (BGK0374-MS1)

Source: 2311149-01

Prepared: 11/10/23 Analyzed: 11/11/23

Acenaphthene	0.0163	0.00500	mg/kg	0.0333	ND	48.9	31-137		
Anthracene	0.0171	0.00500	"	0.0333	ND	51.4	30-120		
Benzo (a) anthracene	0.0170	0.00500	"	0.0333	ND	50.9	30-120		
Benzo (a) pyrene	0.0144	0.00500	"	0.0333	ND	43.1	30-120		
Benzo (b) fluoranthene	0.0151	0.00500	"	0.0333	ND	45.4	30-120		
Benzo (k) fluoranthene	0.0148	0.00500	"	0.0333	ND	44.5	30-120		
Chrysene	0.0172	0.00500	"	0.0333	ND	51.7	30-120		
Dibenz (a,h) anthracene	0.0140	0.00500	"	0.0333	ND	41.9	30-120		
Fluoranthene	0.0176	0.00500	"	0.0333	ND	52.9	30-120		
Fluorene	0.0166	0.00500	"	0.0333	ND	49.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0154	0.00500	"	0.0333	ND	46.3	30-120		
Pyrene	0.0176	0.00500	"	0.0333	ND	52.8	35-142		
1-Methylnaphthalene	0.0173	0.00500	"	0.0333	ND	52.0	15-130		
2-Methylnaphthalene	0.0175	0.00500	"	0.0333	ND	52.6	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0174		"	0.0333		52.2	40-150		
Surrogate: Fluoranthene-d10	0.0173		"	0.0333		51.8	40-150		

Matrix Spike Dup (BGK0374-MSD1)

Source: 2311149-01

Prepared: 11/10/23 Analyzed: 11/11/23

Acenaphthene	0.0167	0.00500	mg/kg	0.0333	ND	50.0	31-137	2.33	30
Anthracene	0.0143	0.00500	"	0.0333	ND	42.9	30-120	18.1	30
Benzo (a) anthracene	0.0157	0.00500	"	0.0333	ND	47.0	30-120	7.98	30
Benzo (a) pyrene	0.0149	0.00500	"	0.0333	ND	44.7	30-120	3.57	30
Benzo (b) fluoranthene	0.0141	0.00500	"	0.0333	ND	42.3	30-120	7.03	30
Benzo (k) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.1	30-120	1.50	30
Chrysene	0.0135	0.00500	"	0.0333	ND	40.5	30-120	24.2	30
Dibenz (a,h) anthracene	0.0136	0.00500	"	0.0333	ND	40.9	30-120	2.27	30
Fluoranthene	0.0145	0.00500	"	0.0333	ND	43.4	30-120	19.8	30
Fluorene	0.0160	0.00500	"	0.0333	ND	48.0	30-120	3.69	30
Indeno (1,2,3-cd) pyrene	0.0150	0.00500	"	0.0333	ND	45.1	30-120	2.52	30
Pyrene	0.0140	0.00500	"	0.0333	ND	41.9	35-142	23.1	30
1-Methylnaphthalene	0.0148	0.00500	"	0.0333	ND	44.3	15-130	16.1	50
2-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	41.9	15-130	22.5	50
Surrogate: 2-Methylnaphthalene-d10	0.0138		"	0.0333		41.3	40-150		
Surrogate: Fluoranthene-d10	0.0136		"	0.0333		40.9	40-150		

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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

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

Batch BGK0449 - EPA 3050B

Blank (BGK0449-BLK1)

Prepared: 11/13/23 Analyzed: 11/14/23

Boron ND 2.00 mg/L

LCS (BGK0449-BS1)

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 5.12 2.00 mg/L 5.00 102 80-120

Duplicate (BGK0449-DUP1)

Source: 2311148-01

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 0.147 2.00 mg/L 0.166 12.2 20

Matrix Spike (BGK0449-MS1)

Source: 2311148-01

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 5.32 2.00 mg/L 5.00 0.166 103 75-125

Matrix Spike Dup (BGK0449-MSD1)

Source: 2311148-01

Prepared: 11/13/23 Analyzed: 11/14/23

Boron 5.48 2.00 mg/L 5.00 0.166 106 75-125 2.98 25

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0620 - EPA 3050B

Blank (BGK0620-BLK1)

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"
Selenium	ND	0.260	"

LCS (BGK0620-BS1)

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	38.3	0.200	mg/kg wet	40.0	95.7	80-120
Barium	38.3	0.400	"	40.0	95.7	80-120
Cadmium	1.91	0.200	"	2.00	95.5	80-120
Copper	32.6	0.400	"	40.0	81.5	80-120
Lead	23.0	0.200	"	20.0	115	80-120
Nickel	32.1	0.400	"	40.0	80.2	80-120
Silver	1.93	0.0200	"	2.00	96.7	80-120
Zinc	32.2	0.400	"	40.0	80.5	80-120
Selenium	3.38	0.260	"	4.00	84.4	80-120

Duplicate (BGK0620-DUP1)

Source: 2311152-01

Prepared: 11/16/23 Analyzed: 11/17/23

Arsenic	2.07	0.200	mg/kg dry	2.08	0.688	20
Barium	76.6	0.400	"	79.2	3.33	20
Cadmium	0.184	0.200	"	0.176	4.87	20
Copper	4.21	0.400	"	3.79	10.6	20
Lead	13.2	0.200	"	11.5	13.6	20
Nickel	3.67	0.400	"	3.44	6.40	20
Silver	0.0235	0.0200	"	0.0231	1.98	20
Zinc	14.7	0.400	"	14.0	5.37	20
Selenium	ND	0.260	"	ND		20

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Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0620 - EPA 3050B

Matrix Spike (BGK0620-MS1)			Source: 2311152-01		Prepared: 11/16/23 Analyzed: 11/17/23					
Arsenic	34.3	0.200	mg/kg dry	46.1	2.08	69.8	75-125			QM-07
Barium	115	0.400	"	46.1	79.2	77.2	75-125			
Cadmium	1.84	0.200	"	2.31	0.176	72.3	75-125			QM-07
Copper	29.0	0.400	"	46.1	3.79	54.6	75-125			QM-07
Lead	30.1	0.200	"	23.1	11.5	80.7	75-125			
Nickel	28.4	0.400	"	46.1	3.44	54.2	75-125			QM-07
Silver	1.65	0.0200	"	2.31	0.0231	70.8	75-125			QM-07
Zinc	41.6	0.400	"	46.1	14.0	59.9	75-125			QM-07
Selenium	3.59	0.260	"	4.61	ND	77.9	75-125			

Matrix Spike Dup (BGK0620-MSD1)			Source: 2311152-01		Prepared: 11/16/23 Analyzed: 11/17/23					
Arsenic	38.4	0.200	mg/kg dry	46.1	2.08	78.7	75-125	11.2	25	
Barium	119	0.400	"	46.1	79.2	85.7	75-125	3.33	25	
Cadmium	2.10	0.200	"	2.31	0.176	83.6	75-125	13.2	25	
Copper	31.2	0.400	"	46.1	3.79	59.4	75-125	7.42	25	QM-07
Lead	45.7	0.200	"	23.1	11.5	149	75-125	41.2	25	QM-07
Nickel	30.9	0.400	"	46.1	3.44	59.5	75-125	8.21	25	QM-07
Silver	1.85	0.0200	"	2.31	0.0231	79.2	75-125	11.1	25	
Zinc	43.9	0.400	"	46.1	14.0	64.9	75-125	5.31	25	QM-07
Selenium	4.24	0.260	"	4.61	ND	91.9	75-125	16.5	25	

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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 BGK0475 - 3060A Mod

Blank (BGK0475-BLK1)

Prepared: 11/13/23 Analyzed: 11/14/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGK0475-BS1)

Prepared: 11/13/23 Analyzed: 11/14/23

Chromium, Hexavalent 26.2 0.30 mg/kg wet 25.0 105 80-120

Duplicate (BGK0475-DUP1)

Source: 2311151-01

Prepared: 11/13/23 Analyzed: 11/14/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGK0475-MS1)

Source: 2311151-01

Prepared: 11/13/23 Analyzed: 11/14/23

Chromium, Hexavalent 34.5 0.30 mg/kg dry 31.8 ND 109 75-125

Matrix Spike Dup (BGK0475-MSD1)

Source: 2311151-01

Prepared: 11/13/23 Analyzed: 11/14/23

Chromium, Hexavalent 34.4 0.30 mg/kg dry 31.8 ND 108 75-125 0.369 20

Summit Scientific

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Project: Noble - Wells Ranch AA 21-02 Flowline
Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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

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

Batch BGK0562 - General Preparation

Blank (BGK0562-BLK1)

Prepared: 11/15/23 Analyzed: 11/17/23

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

LCS (BGK0562-BS1)

Prepared: 11/15/23 Analyzed: 11/17/23

Calcium	5.33	0.0500	mg/L wet	5.00	107	70-130
Magnesium	4.98	0.0500	"	5.00	99.5	70-130
Sodium	4.93	0.0500	"	5.00	98.5	70-130

Summit Scientific

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN

Project Manager: Paul Henchan

Reported:

11/20/23 08:36

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 BGK0356 - General Preparation

Duplicate (BGK0356-DUP1)		Source: 2311151-06			Prepared & Analyzed: 11/09/23						
% Solids	76.1		%		77.3			1.54		20	

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Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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

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

Batch BGK0590 - General Preparation

Blank (BGK0590-BLK1)

Prepared: 11/16/23 Analyzed: 11/17/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGK0590-BS1)

Prepared: 11/16/23 Analyzed: 11/17/23

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BGK0590-DUP1)

Source: 2311151-01

Prepared: 11/16/23 Analyzed: 11/17/23

Specific Conductance (EC) 0.382 0.0100 mmhos/cm 0.383 0.105 20

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Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

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

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

Batch BGK0589 - General Preparation

LCS (BGK0589-BS1)

Prepared: 11/16/23 Analyzed: 11/17/23

pH	9.11	pH Units	9.18	99.2	95-105
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Duplicate (BGK0589-DUP1)

Source: 2311151-01

Prepared: 11/16/23 Analyzed: 11/17/23

pH	9.87	pH Units	9.87	0.00	20
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PO Box 1289
Wellington CO, 80549

Project: Noble - Wells Ranch AA 21-02 Flowline

Project Number: UWRWE-A2964-ABN
Project Manager: Paul Henchan

Reported:
11/20/23 08:36

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QLCS-01	The spike recovery was outside acceptance limits for this analyte indicating a potential high bias. The corresponding samples did not exhibit concentrations above reporting level for this analyte. Data quality is not affected.
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