

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

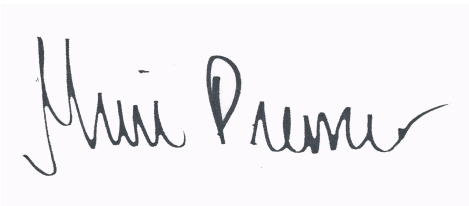
303.277.9310

August 27, 2021

Vince DeCianne  
Whiting Oil & Gas  
retail  
Denver, CO 80215  
RE: Rangely Sampling  
Work Order #2107460

Enclosed are the results of analyses for samples received by Summit Scientific on 07/30/21 11:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Muri Premier", is displayed on a light purple rectangular background.

Muri Premier For Paul Shrewsbury  
President



Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Emerald 182_01	2107460-01	Soil	07/27/21 12:00	07/30/21 11:25
Emerald 182_02	2107460-02	Soil	07/27/21 12:35	07/30/21 11:25
Emerald 182_03	2107460-03	Soil	07/27/21 13:00	07/30/21 11:25

Summit Scientific

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

# Summit Scientific

2107460

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: Whiting Oil + Gas (from Kleinfelder)

Project Manager: Vince DeCiarro

Address: 707 17th St Suite 3000

E-Mail: jveth@kleinfelder.com

City/State/Zip: Denver CO 80202

Kyle Waggoner@whiting.com

Phone: 970 309 6553

Project Name: Rangeland Sampling

Sampler Name: Jordan Veth

Project Number: Revolving

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	LOCC 915-1	EC	SAR	pH					
1	Emerald 182-01	7/27/2021	1200	3			X			X				X							
2	Emerald 182-02	7/27/2021	1235	3			X			X				X							
3	Emerald 182-03	7/27/2021	1300	3			X			X				X							
4	Emerald C134-01	7/27/2021	1315	3			X			X					X	X					
5	EQW#2-01	7/27/2021	1345	3			X			X					X	X	X				
6	EQW#3-01	7/27/2021	1435	3			X			X					X	X	X				
7	Emerald 273-01	7/27/2021	1525	3			X			X				X							
8	Emerald 273-02	7/27/2021	1545	3			X			X				X							
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <u>X</u> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: <u>13</u> Samples Intact: <u>(Yes)</u> No	Notes:
<u>Jordan Veth</u>	<u>7/27/2021</u> <u>1930</u>	<u>John Ben</u>	<u>7/30/21</u> <u>1125</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

2107460

## Sample Receipt Checklist

S2 Work Order \_\_\_\_\_

Client: Whiting Oil & Gas Client Project ID: Rangely SamplingShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: 2819 2500 1195☐ ☐ ☒ ☐ ☐Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

Temp (°C)

13

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>On ice.</u>
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"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	
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"/>	
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"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<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.JB  
Custodian Printed Name or InitialsJohn B...  
Signature of Custodian7/30/21  
Date/Time



Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_01**  
**2107460-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0009	08/02/21	08/05/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0010	08/02/21	08/05/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		83.0 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_01**  
**2107460-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0025	08/03/21	08/04/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		66.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		72.7 %	40-150		"	"	"	"	

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

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.455</b>	0.0100	mg/L	1	BEH0029	08/03/21	08/04/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

**Emerald 182\_01**  
**2107460-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	7.34	0.225	mg/kg dry	1	BEH0028	08/03/21	08/04/21	EPA 6020B
Barium	70.3	0.449	"	"	"	"	"	"
Cadmium	0.565	0.225	"	"	"	"	"	"
Copper	16.3	0.449	"	"	"	"	"	"
Lead	17.9	0.225	"	"	"	"	"	"
Nickel	20.8	0.449	"	"	"	"	"	"
Selenium	2.26	0.292	"	"	"	"	"	"
Silver	0.133	0.0225	"	"	"	"	"	"
Zinc	98.1	0.449	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0033	08/03/21	08/04/21	EPA 7196A	

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

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	450	0.0562	mg/L dry	1	BEH0030	08/03/21	08/04/21	EPA 6020B	
Magnesium	651	0.0562	"	"	"	"	"	"	
Sodium	1120	0.0562	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.90	0.00100	units	1	BEH0078	08/05/21	08/05/21	Calculation	

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

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

**Emerald 182\_01**

**2107460-01 (Soil)**

**Summit Scientific**

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

% Solids	89.0	%	1	BEH0041	08/04/21	08/04/21	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	7.76	0.0100	mmhos/cm	1	BEH0058	08/04/21	08/04/21	EPA 120.1	

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

Date Sampled: **07/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.22		pH Units	1	BEH0057	08/04/21	08/04/21	EPA 9045D	

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_02**  
**2107460-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0009	08/02/21	08/05/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.1 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0010	08/02/21	08/05/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		83.9 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling  
Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_02**  
**2107460-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0025	08/03/21	08/04/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		65.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		68.7 %	40-150		"	"	"	"	

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

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.267</b>	0.0100	mg/L	1	BEH0029	08/03/21	08/04/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_02**  
**2107460-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	5.87	0.208	mg/kg dry	1	BEH0028	08/03/21	08/04/21	EPA 6020B
Barium	85.9	0.416	"	"	"	"	"	"
Cadmium	0.394	0.208	"	"	"	"	"	"
Copper	11.6	0.416	"	"	"	"	"	"
Lead	11.6	0.208	"	"	"	"	"	"
Nickel	13.6	0.416	"	"	"	"	"	"
Selenium	1.50	0.270	"	"	"	"	"	"
Silver	0.0801	0.0208	"	"	"	"	"	"
Zinc	62.2	0.416	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0033	08/03/21	08/04/21	EPA 7196A	

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

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	467	0.0520	mg/L dry	1	BEH0030	08/03/21	08/04/21	EPA 6020B	
Magnesium	320	0.0520	"	"	"	"	"	"	
Sodium	665	0.0520	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.81	0.00100	units	1	BEH0078	08/05/21	08/05/21	Calculation	

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

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_02**  
**2107460-02 (Soil)**

**Summit Scientific**

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

% Solids	96.2	%	1	BEH0041	08/04/21	08/04/21	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	5.58	0.0100	mmhos/cm	1	BEH0058	08/04/21	08/04/21	EPA 120.1	

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

Date Sampled: **07/27/21 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.18		pH Units	1	BEH0057	08/04/21	08/04/21	EPA 9045D	

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

Reported:

08/27/21 14:30

### Emerald 182\_03

2107460-03 (Soil)

### Summit Scientific

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

Date Sampled: 07/27/21 13:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0009	08/02/21	08/05/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/27/21 13:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.2 %	21-167		"	"	"	"	

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/27/21 13:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0010	08/02/21	08/05/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: 07/27/21 13:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		86.6 %	30-150		"	"	"	"	

#### PAH by EPA Method 8270D SIM

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_03**  
**2107460-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0025	08/03/21	08/04/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		71.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		64.0 %	40-150		"	"	"	"	

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

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.282</b>	0.0100	mg/L	1	BEH0029	08/03/21	08/04/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

**Emerald 182\_03**

**2107460-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	7.71	0.237	mg/kg dry	1	BEH0028	08/03/21	08/04/21	EPA 6020B
Barium	111	0.474	"	"	"	"	"	"
Cadmium	0.754	0.237	"	"	"	"	"	"
Copper	20.0	0.474	"	"	"	"	"	"
Lead	21.4	0.237	"	"	"	"	"	"
Nickel	23.1	0.474	"	"	"	"	"	"
Selenium	2.66	0.308	"	"	"	"	"	"
Silver	0.139	0.0237	"	"	"	"	"	"
Zinc	125	0.474	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0033	08/03/21	08/04/21	EPA 7196A	

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

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	560	0.0593	mg/L dry	1	BEH0030	08/03/21	08/04/21	EPA 6020B	
Magnesium	115	0.0593	"	"	"	"	"	"	
Sodium	100	0.0593	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.01	0.00100	units	1	BEH0078	08/05/21	08/05/21	Calculation	

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

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**Emerald 182\_03**  
**2107460-03 (Soil)**

**Summit Scientific**

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

% Solids	84.4	%	1	BEH0041	08/04/21	08/04/21	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.76	0.0100	mmhos/cm	1	BEH0058	08/04/21	08/04/21	EPA 120.1	

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

Date Sampled: **07/27/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04		pH Units	1	BEH0057	08/04/21	08/04/21	EPA 9045D	

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Whiting Oil & Gas  
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Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

## 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 BEH0009 - EPA 5030 Soil MS

##### Blank (BEH0009-BLK1)

Prepared: 08/02/21 Analyzed: 08/05/21

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	0.0421		"	0.0400		105	23-173			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0368		"	0.0400		91.9	21-167			

##### LCS (BEH0009-BS1)

Prepared: 08/02/21 Analyzed: 08/05/21

Benzene	0.0651	0.0020	mg/kg	0.0750		86.8	70-130			
Toluene	0.0661	0.0050	"	0.0750		88.2	70-130			
Ethylbenzene	0.0819	0.0050	"	0.0750		109	70-130			
m,p-Xylene	0.162	0.010	"	0.150		108	70-130			
o-Xylene	0.0835	0.0050	"	0.0750		111	70-130			
1,2,4-Trimethylbenzene	0.0833	0.0050	"	0.0750		111	70-130			
1,3,5-Trimethylbenzene	0.0815	0.0050	"	0.0750		109	70-130			
Naphthalene	0.0778	0.0038	"	0.0750		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0400		107	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0361		"	0.0400		90.2	21-167			

##### Matrix Spike (BEH0009-MS1)

Source: 2107462-01

Prepared: 08/02/21 Analyzed: 08/05/21

Benzene	0.0561	0.0020	mg/kg	0.0750	ND	74.8	70-130			
Toluene	0.0553	0.0050	"	0.0750	ND	73.8	70-130			
Ethylbenzene	0.0659	0.0050	"	0.0750	ND	87.8	70-130			
m,p-Xylene	0.129	0.010	"	0.150	ND	85.7	70-130			
o-Xylene	0.0677	0.0050	"	0.0750	ND	90.3	70-130			
1,2,4-Trimethylbenzene	0.0628	0.0050	"	0.0750	ND	83.7	70-130			
1,3,5-Trimethylbenzene	0.0621	0.0050	"	0.0750	ND	82.8	70-130			
Naphthalene	0.0833	0.0038	"	0.0750	ND	111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0400		113	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0364		"	0.0400		90.9	21-167			

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Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

## 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 BEH0009 - EPA 5030 Soil MS

##### Matrix Spike Dup (BEH0009-MSD1)

Source: 2107462-01

Prepared: 08/02/21 Analyzed: 08/05/21

Benzene	0.0551	0.0020	mg/kg	0.0750	ND	73.5	70-130	1.83	30	
Toluene	0.0536	0.0050	"	0.0750	ND	71.4	70-130	3.20	30	
Ethylbenzene	0.0640	0.0050	"	0.0750	ND	85.4	70-130	2.86	30	
m,p-Xylene	0.126	0.010	"	0.150	ND	83.8	70-130	2.29	30	
o-Xylene	0.0662	0.0050	"	0.0750	ND	88.3	70-130	2.19	30	
1,2,4-Trimethylbenzene	0.0609	0.0050	"	0.0750	ND	81.2	70-130	3.11	30	
1,3,5-Trimethylbenzene	0.0605	0.0050	"	0.0750	ND	80.7	70-130	2.59	30	
Naphthalene	0.0797	0.0038	"	0.0750	ND	106	70-130	4.42	30	
Surrogate: 1,2-Dichloroethane-d4	0.0440		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0368		"	0.0400		92.1	21-167			

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

### Extractable Petroleum Hydrocarbons by 8015 - Quality Control

#### Summit Scientific

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

#### Batch BEH0010 - EPA 3550A

##### Blank (BEH0010-BLK1)

Prepared: 08/02/21 Analyzed: 08/05/21

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

##### LCS (BEH0010-BS1)

Prepared: 08/02/21 Analyzed: 08/05/21

C10-C28 (DRO)	533	50	mg/kg	500	107	70-130
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##### Matrix Spike (BEH0010-MS1)

Source: 2107462-01

Prepared: 08/02/21 Analyzed: 08/05/21

C10-C28 (DRO)	545	50	mg/kg	500	16.9	106	70-130
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##### Matrix Spike Dup (BEH0010-MSD1)

Source: 2107462-01

Prepared: 08/02/21 Analyzed: 08/05/21

C10-C28 (DRO)	617	50	mg/kg	500	16.9	120	70-130	12.4	20
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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

## 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

#### Batch BEH0025 - EPA 5030 Soil MS

##### Blank (BEH0025-BLK1)

Prepared & Analyzed: 08/03/21

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	0.0244		"	0.0333		73.2		40-150			
Surrogate: Fluoranthene-d10	0.0267		"	0.0333		80.1		40-150			

##### LCS (BEH0025-BS1)

Prepared & Analyzed: 08/03/21

Acenaphthene	0.0241	0.00500	mg/kg	0.0333		72.3		31-137			
Anthracene	0.0256	0.00500	"	0.0333		76.7		30-120			
Benzo (a) anthracene	0.0266	0.00500	"	0.0333		79.7		30-120			
Benzo (a) pyrene	0.0216	0.00500	"	0.0333		64.8		30-120			
Benzo (b) fluoranthene	0.0214	0.00500	"	0.0333		64.1		30-120			
Benzo (k) fluoranthene	0.0208	0.00500	"	0.0333		62.5		30-120			
Chrysene	0.0266	0.00500	"	0.0333		79.8		30-120			
Dibenz (a,h) anthracene	0.0236	0.00500	"	0.0333		70.9		30-120			
Fluoranthene	0.0256	0.00500	"	0.0333		76.9		30-120			
Fluorene	0.0250	0.00500	"	0.0333		75.1		30-120			
Indeno (1,2,3-cd) pyrene	0.0229	0.00500	"	0.0333		68.8		30-120			
Pyrene	0.0249	0.00500	"	0.0333		74.7		35-142			
1-Methylnaphthalene	0.0243	0.00500	"	0.0333		73.0		35-142			
2-Methylnaphthalene	0.0244	0.00500	"	0.0333		73.3		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0243		"	0.0333		72.8		40-150			
Surrogate: Fluoranthene-d10	0.0263		"	0.0333		78.9		40-150			

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**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 BEH0025 - EPA 5030 Soil MS**

**Matrix Spike (BEH0025-MS1)**

Source: 2107460-01

Prepared & Analyzed: 08/03/21

Acenaphthene	0.0318	0.00500	mg/kg	0.0333	ND	95.3	31-137		
Anthracene	0.0318	0.00500	"	0.0333	0.00203	89.3	30-120		
Benzo (a) anthracene	0.0321	0.00500	"	0.0333	ND	96.3	30-120		
Benzo (a) pyrene	0.0308	0.00500	"	0.0333	ND	92.3	30-120		
Benzo (b) fluoranthene	0.0292	0.00500	"	0.0333	ND	87.7	30-120		
Benzo (k) fluoranthene	0.0297	0.00500	"	0.0333	ND	89.2	30-120		
Chrysene	0.0321	0.00500	"	0.0333	ND	96.2	30-120		
Dibenz (a,h) anthracene	0.0332	0.00500	"	0.0333	ND	99.5	30-120		
Fluoranthene	0.0307	0.00500	"	0.0333	ND	92.2	30-120		
Fluorene	0.0308	0.00500	"	0.0333	ND	92.3	30-120		
Indeno (1,2,3-cd) pyrene	0.0315	0.00500	"	0.0333	ND	94.4	30-120		
Pyrene	0.0338	0.00500	"	0.0333	ND	101	35-142		
1-Methylnaphthalene	0.0347	0.00500	"	0.0333	ND	104	15-130		
2-Methylnaphthalene	0.0363	0.00500	"	0.0333	ND	109	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0328		"	0.0333		98.5	40-150		
Surrogate: Fluoranthene-d10	0.0289		"	0.0333		86.6	40-150		

**Matrix Spike Dup (BEH0025-MSD1)**

Source: 2107460-01

Prepared: 08/03/21 Analyzed: 08/04/21

Acenaphthene	0.0308	0.00500	mg/kg	0.0333	ND	92.5	31-137	2.99	30
Anthracene	0.0317	0.00500	"	0.0333	0.00203	89.1	30-120	0.270	30
Benzo (a) anthracene	0.0304	0.00500	"	0.0333	ND	91.2	30-120	5.39	30
Benzo (a) pyrene	0.0292	0.00500	"	0.0333	ND	87.6	30-120	5.18	30
Benzo (b) fluoranthene	0.0278	0.00500	"	0.0333	ND	83.4	30-120	5.06	30
Benzo (k) fluoranthene	0.0281	0.00500	"	0.0333	ND	84.4	30-120	5.62	30
Chrysene	0.0304	0.00500	"	0.0333	ND	91.3	30-120	5.29	30
Dibenz (a,h) anthracene	0.0321	0.00500	"	0.0333	ND	96.3	30-120	3.29	30
Fluoranthene	0.0300	0.00500	"	0.0333	ND	90.0	30-120	2.45	30
Fluorene	0.0301	0.00500	"	0.0333	ND	90.3	30-120	2.19	30
Indeno (1,2,3-cd) pyrene	0.0309	0.00500	"	0.0333	ND	92.8	30-120	1.66	30
Pyrene	0.0318	0.00500	"	0.0333	ND	95.3	35-142	6.13	30
1-Methylnaphthalene	0.0303	0.00500	"	0.0333	ND	90.9	15-130	13.5	50
2-Methylnaphthalene	0.0304	0.00500	"	0.0333	ND	91.1	15-130	17.8	50
Surrogate: 2-Methylnaphthalene-d10	0.0307		"	0.0333		92.2	40-150		
Surrogate: Fluoranthene-d10	0.0286		"	0.0333		85.7	40-150		

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

**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 BEH0029 - EPA 3050B**

**Blank (BEH0029-BLK1)**

Prepared: 08/03/21 Analyzed: 08/04/21

Boron ND 0.0100 mg/L

**LCS (BEH0029-BS1)**

Prepared: 08/03/21 Analyzed: 08/04/21

Boron 5.00 0.0100 mg/L 5.00 100 80-120

**Duplicate (BEH0029-DUP1)**

**Source: 2107459-01**

Prepared: 08/03/21 Analyzed: 08/04/21

Boron 0.131 0.0100 mg/L 0.142 7.57 20

**Matrix Spike (BEH0029-MS1)**

**Source: 2107459-01**

Prepared: 08/03/21 Analyzed: 08/04/21

Boron 4.65 0.0100 mg/L 5.00 0.142 90.1 75-125

**Matrix Spike Dup (BEH0029-MSD1)**

**Source: 2107459-01**

Prepared: 08/03/21 Analyzed: 08/04/21

Boron 5.09 0.0100 mg/L 5.00 0.142 99.0 75-125 9.16 25

Summit Scientific

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

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

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

**Batch BEH0028 - EPA 3050B**

**Blank (BEH0028-BLK1)**

Prepared: 08/03/21 Analyzed: 08/04/21

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

**LCS (BEH0028-BS1)**

Prepared: 08/03/21 Analyzed: 08/04/21

Arsenic	47.1	0.200	mg/kg wet	40.0	118	80-120
Barium	41.3	0.400	"	40.0	103	80-120
Cadmium	2.20	0.200	"	2.00	110	80-120
Copper	41.9	0.400	"	40.0	105	80-120
Lead	20.2	0.200	"	20.0	101	80-120
Nickel	40.8	0.400	"	40.0	102	80-120
Selenium	3.97	0.260	"	4.00	99.3	80-120
Silver	2.00	0.0200	"	2.00	100	80-120
Zinc	45.0	0.400	"	40.0	113	80-120

**Duplicate (BEH0028-DUP1)**

Source: 2107460-01

Prepared: 08/03/21 Analyzed: 08/04/21

Arsenic	7.92	0.225	mg/kg dry	7.34	7.54	20
Barium	73.4	0.449	"	70.3	4.25	20
Cadmium	0.530	0.225	"	0.565	6.38	20
Copper	17.2	0.449	"	16.3	5.35	20
Lead	18.1	0.225	"	17.9	1.53	20
Nickel	21.7	0.449	"	20.8	4.23	20
Selenium	2.43	0.292	"	2.26	7.34	20
Silver	0.135	0.0225	"	0.133	1.49	20
Zinc	102	0.449	"	98.1	3.99	20

Summit Scientific

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

### 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 BEH0028 - EPA 3050B

##### Matrix Spike (BEH0028-MS1)

Source: 2107460-01

Prepared: 08/03/21 Analyzed: 08/04/21

Arsenic	60.3	0.225	mg/kg dry	44.9	7.34	118	75-125
Barium	118	0.449	"	44.9	70.3	105	75-125
Cadmium	3.02	0.225	"	2.25	0.565	109	75-125
Copper	63.4	0.449	"	44.9	16.3	105	75-125
Lead	38.7	0.225	"	22.5	17.9	92.9	75-125
Nickel	66.3	0.449	"	44.9	20.8	101	75-125
Selenium	6.96	0.292	"	4.49	2.26	105	75-125
Silver	2.33	0.0225	"	2.25	0.133	97.6	75-125
Zinc	139	0.449	"	44.9	98.1	90.2	75-125

##### Matrix Spike Dup (BEH0028-MSD1)

Source: 2107460-01

Prepared: 08/03/21 Analyzed: 08/04/21

Arsenic	58.7	0.225	mg/kg dry	44.9	7.34	114	75-125	2.72	25
Barium	121	0.449	"	44.9	70.3	112	75-125	2.78	25
Cadmium	2.91	0.225	"	2.25	0.565	104	75-125	3.65	25
Copper	60.2	0.449	"	44.9	16.3	97.8	75-125	5.11	25
Lead	37.3	0.225	"	22.5	17.9	86.4	75-125	3.82	25
Nickel	64.8	0.449	"	44.9	20.8	97.8	75-125	2.28	25
Selenium	6.74	0.292	"	4.49	2.26	99.7	75-125	3.19	25
Silver	2.29	0.0225	"	2.25	0.133	96.2	75-125	1.37	25
Zinc	149	0.449	"	44.9	98.1	114	75-125	7.48	25

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Whiting Oil & Gas  
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Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]  
Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

**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 BEH0033 - 3060A Mod**

**Blank (BEH0033-BLK1)**

Prepared: 08/03/21 Analyzed: 08/04/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEH0033-BS1)**

Prepared: 08/03/21 Analyzed: 08/04/21

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

**Duplicate (BEH0033-DUP1)**

**Source: 2107456-01**

Prepared: 08/03/21 Analyzed: 08/04/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEH0033-MS1)**

**Source: 2107456-01**

Prepared: 08/03/21 Analyzed: 08/04/21

Chromium, Hexavalent 29.3 0.30 mg/kg dry 34.5 ND 85.0 75-125

**Matrix Spike Dup (BEH0033-MSD1)**

**Source: 2107456-01**

Prepared: 08/03/21 Analyzed: 08/04/21

Chromium, Hexavalent 29.3 0.30 mg/kg dry 34.5 ND 85.0 75-125 0.00 20

Summit Scientific

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Whiting Oil & Gas  
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Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

**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 BEH0030 - General Preparation**

**Blank (BEH0030-BLK1)**

Prepared: 08/03/21 Analyzed: 08/04/21

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

**LCS (BEH0030-BS1)**

Prepared: 08/03/21 Analyzed: 08/04/21

Calcium	5.43	0.0500	mg/L wet	5.00	109	70-130
Magnesium	6.23	0.0500	"	5.00	125	70-130
Sodium	5.54	0.0500	"	5.00	111	70-130

Summit Scientific

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

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

**Summit Scientific**

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

**Batch BEH0041 - General Preparation**

**Duplicate (BEH0041-DUP1)**

**Source: 2106292-12**

**Prepared & Analyzed: 08/04/21**

% Solids	85.3	%	85.7	0.460	20
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Summit Scientific

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

**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 BEH0058 - General Preparation**

**Blank (BEH0058-BLK1)**

Prepared & Analyzed: 08/04/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0058-BS1)**

Prepared & Analyzed: 08/04/21

Specific Conductance (EC) 0.146 0.0100 mmhos/cm 0.150 97.7 90-110

**Duplicate (BEH0058-DUP1)**

**Source: 2107460-01**

Prepared & Analyzed: 08/04/21

Specific Conductance (EC) 7.76 0.0100 mmhos/cm 7.76 0.0129 20

Summit Scientific

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**

08/27/21 14:30

**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 BEH0057 - General Preparation**

**LCS (BEH0057-BS1)**

Prepared & Analyzed: 08/04/21

pH	9.33	pH Units	9.21	101	95-105
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**Duplicate (BEH0057-DUP1)**

**Source: 2107460-01**

Prepared & Analyzed: 08/04/21

pH	8.24	pH Units	8.22	0.243	20
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Summit Scientific

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Whiting Oil & Gas  
retail  
Denver CO, 80215

Project: Rangely Sampling

Project Number: [none]

Project Manager: Vince DeCianne

**Reported:**  
08/27/21 14:30

### Notes and Definitions

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