

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 11, 2021

Chris Roy

WSP

4600 West 60th Avenue

Arvada, CO 80003

RE: Grynberg State

Work Order #2105444

Enclosed are the results of analyses for samples received by Summit Scientific on 05/27/21 17:25. 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



WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20


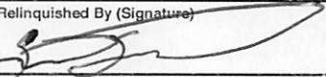
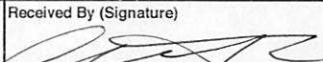
**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01 SE	2105444-01	Soil	05/27/21 10:25	05/27/21 17:25
SB02 SW	2105444-02	Soil	05/27/21 10:50	05/27/21 17:25
SB03 NW	2105444-03	Soil	05/27/21 11:20	05/27/21 17:25
SB04 NE	2105444-04	Soil	05/27/21 12:00	05/27/21 17:25

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.*

## 2105444

WSP   Parsons Brinckerhoff Office Address				Requested Analyses & Preservatives												No. 005608		WSP   PARSONS BRINCKERHOFF					
Project Name Grynborg State		WSP   Parsons Brinckerhoff Contact Name Chris Roy						Number of Containers Complete Table 915-1 PATS													Laboratory Name & Location Summit Analytical Scientific		
Project Location		WSP   Parsons Brinckerhoff Contact E-mail chris.Roy@wsp.com @wspgroup.com																			Laboratory Project Manager		
Project Number & Task		WSP   Parsons Brinckerhoff Contact Phone 303 - 829 - 5763																					
Sampler(s) Name(s) Sam Schaeenmann (STS)		Sampler(s) Signature(s) 																					
Sample Identification		Matrix	Collection Start* Date Time		Collection Stop* Date Time															Requested Turn-Around-Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR <input type="checkbox"/> ____ HR			
SB01 SE		S	5/27/21 10:25																	Sample Comments			
SB02 SW		S	5/27/21 10:50																				
SB03 NW		S	5/27/21 11:20																				
SB04 NE		S	5/27/21 12:00																				
END																							
Relinquished By (Signature) 		Date 5-27-21	Time 1725	Received By (Signature) 		Date 5-27-21	Time 1725	Shipment Method 3.7		Tracking Number(s)													
Relinquished By (Signature)		Date	Time	Received By (Signature)		Date	Time	Number of Packages		Custody Seal Number(s)													
*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.												Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comment)											

2105444

## Sample Receipt Checklist

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

Client: WSP Client Project ID: Grynberg StateShipped Via: ☒ H.D. ☐ P.U. ☐ FedEx ☐ UPS ☐ USPS ☐ Other \_\_\_\_\_ Airbill #: \_\_\_\_\_Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

Temp (°C)	3.7
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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"/>	on ice
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.				

AT  
Custodian Printed Name or Initials[Signature]  
Signature of Custodian5.29.21  
Date/Time



WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB01 SE**  
**2105444-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	2.2	0.20	mg/kg	100	BEF0100	06/03/21	06/04/21	EPA 8260B	
Toluene	71	0.50	"	"	"	"	"	"	
Ethylbenzene	24	0.50	"	"	"	"	"	"	
Xylenes (total)	240	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	52	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	31	0.50	"	"	"	"	"	"	
Naphthalene	3.4	0.38	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3100	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		45.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		331 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	1200	50	mg/kg	1	BEF0099	06/03/21	06/04/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		67.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
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**SB01 SE**  
**2105444-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0204	06/09/21	06/10/21	EPA 8270D SIM	
<b>Anthracene</b>	<b>0.0238</b>	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	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.0274</b>	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>1.49</b>	0.0500	"	10	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>2.25</b>	0.0500	"	"	"	"	"	"	

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		79.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		78.5 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.939</b>	0.0100	mg/L	1	BEF0110	06/04/21	06/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB01 SE**  
**2105444-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	88.8	0.256	mg/kg dry	1	BEF0092	06/03/21	06/07/21	EPA 6020B
Barium	92.0	0.513	"	"	"	"	"	"
Cadmium	ND	0.256	"	"	"	"	"	"
Copper	40.2	0.513	"	"	"	"	"	"
Lead	18.8	0.256	"	"	"	"	"	"
Nickel	10.8	0.513	"	"	"	"	"	"
Selenium	5.58	0.333	"	"	"	"	"	"
Silver	0.117	0.0256	"	"	"	"	"	"
Zinc	23.8	0.513	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEF0109	06/04/21	06/07/21	EPA 7196A	

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

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	216	0.0641	mg/L dry	1	BEF0010	06/01/21	06/04/21	EPA 6020B	
Magnesium	306	0.0641	"	"	"	"	"	"	
Sodium	530	0.0641	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.44	0.00100	units	1	BEF0121	06/04/21	06/04/21	Calculation	

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

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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4600 West 60th Avenue  
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Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB01 SE**  
**2105444-01 (Soil)**

**Summit Scientific**

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

% Solids	78.0	%	1	BEF0082	06/03/21	06/04/21	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.68	0.0100	mmhos/cm	1	BEF0052	06/02/21	06/02/21	EPA 120.1	

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

Date Sampled: **05/27/21 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	4.21		pH Units	1	BEF0051	06/02/21	06/02/21	EPA 9045D	

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB02 SW**  
**2105444-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	0.86	0.20	mg/kg	100	BEF0100	06/03/21	06/04/21	EPA 8260B	
Toluene	21	0.50	"	"	"	"	"	"	
Ethylbenzene	14	0.50	"	"	"	"	"	"	
Xylenes (total)	150	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	35	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	20	0.50	"	"	"	"	"	"	
Naphthalene	2.7	0.38	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1900	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		69.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		91.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		229 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	470	50	mg/kg	1	BEF0099	06/03/21	06/04/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		84.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
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Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB02 SW**  
**2105444-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0204	06/09/21	06/10/21	EPA 8270D SIM	
<b>Anthracene</b>	<b>0.0101</b>	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	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.00843</b>	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.802</b>	0.0500	"	10	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>1.36</b>	0.0500	"	"	"	"	"	"	

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		102 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		67.5 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.19</b>	0.0100	mg/L	1	BEF0110	06/04/21	06/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB02 SW**  
**2105444-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	51.5	0.248	mg/kg dry	1	BEF0092	06/03/21	06/07/21	EPA 6020B
Barium	53.8	0.495	"	"	"	"	"	"
Cadmium	ND	0.248	"	"	"	"	"	"
Copper	26.5	0.495	"	"	"	"	"	"
Lead	10.1	0.248	"	"	"	"	"	"
Nickel	3.13	0.495	"	"	"	"	"	"
Selenium	1.86	0.322	"	"	"	"	"	"
Silver	0.0715	0.0248	"	"	"	"	"	"
Zinc	13.7	0.495	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEF0109	06/04/21	06/07/21	EPA 7196A	

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

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	62.8	0.0619	mg/L dry	1	BEF0010	06/01/21	06/04/21	EPA 6020B	
Magnesium	250	0.0619	"	"	"	"	"	"	
Sodium	398	0.0619	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.03	0.00100	units	1	BEF0121	06/04/21	06/04/21	Calculation	

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

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB02 SW**  
**2105444-02 (Soil)**

**Summit Scientific**

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

% Solids	80.7	%	1	BEF0082	06/03/21	06/04/21	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.69	0.0100	mmhos/cm	1	BEF0052	06/02/21	06/02/21	EPA 120.1	

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

Date Sampled: **05/27/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	3.82		pH Units	1	BEF0051	06/02/21	06/02/21	EPA 9045D	

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB03 NW**  
**2105444-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	7.9	0.20	mg/kg	100	BEF0100	06/03/21	06/04/21	EPA 8260B	
Toluene	98	0.50	"	"	"	"	"	"	
Ethylbenzene	47	0.50	"	"	"	"	"	"	
Xylenes (total)	340	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	84	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	53	0.50	"	"	"	"	"	"	
Naphthalene	7.0	0.38	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	5700	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		39.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		87.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		340 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	800	50	mg/kg	1	BEF0099	06/03/21	06/04/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		42.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB03 NW**  
**2105444-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0204	06/09/21	06/10/21	EPA 8270D SIM	
<b>Anthracene</b>	<b>0.0271</b>	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	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.0323</b>	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.959</b>	0.0500	"	10	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>1.46</b>	0.0500	"	"	"	"	"	"	

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		33.7 %	40-150		"	"	"	"	S-02
Surrogate: Fluoranthene-d10		63.1 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.05</b>	0.0100	mg/L	1	BEF0110	06/04/21	06/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State

Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB03 NW**  
**2105444-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	81.1	0.253	mg/kg dry	1	BEF0092	06/03/21	06/07/21	EPA 6020B
Barium	65.3	0.506	"	"	"	"	"	"
Cadmium	ND	0.253	"	"	"	"	"	"
Copper	45.5	0.506	"	"	"	"	"	"
Lead	16.0	0.253	"	"	"	"	"	"
Nickel	10.6	0.506	"	"	"	"	"	"
Selenium	5.05	0.329	"	"	"	"	"	"
Silver	0.138	0.0253	"	"	"	"	"	"
Zinc	21.2	0.506	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEF0109	06/04/21	06/07/21	EPA 7196A	

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

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	6.30	0.0632	mg/L dry	1	BEF0010	06/01/21	06/04/21	EPA 6020B	
Magnesium	3.89	0.0632	"	"	"	"	"	"	
Sodium	16.0	0.0632	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.24	0.00100	units	1	BEF0121	06/04/21	06/04/21	Calculation	

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

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB03 NW**  
**2105444-03 (Soil)**

**Summit Scientific**

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

% Solids	79.1	%	1	BEF0082	06/03/21	06/04/21	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.117	0.0100	mmhos/cm	1	BEF0052	06/02/21	06/02/21	EPA 120.1	

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

Date Sampled: **05/27/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.70		pH Units	1	BEF0051	06/02/21	06/02/21	EPA 9045D	

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB04 NE**  
**2105444-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	12	0.20	mg/kg	100	BEF0100	06/03/21	06/04/21	EPA 8260B	
Toluene	55	0.50	"	"	"	"	"	"	
Ethylbenzene	42	0.50	"	"	"	"	"	"	
Xylenes (total)	300	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	76	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	46	0.50	"	"	"	"	"	"	
Naphthalene	5.6	0.38	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	5400	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		42.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		87.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		320 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	1300	50	mg/kg	1	BEF0099	06/03/21	06/04/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB04 NE**  
**2105444-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0204	06/09/21	06/10/21	EPA 8270D SIM	
<b>Anthracene</b>	<b>0.00730</b>	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	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>1.34</b>	0.500	"	100	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>2.31</b>	0.500	"	"	"	"	"	"	

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		90.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.1 %	40-150		"	"	"	"	

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

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.19</b>	0.0100	mg/L	1	BEF0110	06/04/21	06/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB04 NE**  
**2105444-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	61.8	0.249	mg/kg dry	1	BEF0092	06/03/21	06/07/21	EPA 6020B
Barium	68.9	0.498	"	"	"	"	"	"
Cadmium	ND	0.249	"	"	"	"	"	"
Copper	38.9	0.498	"	"	"	"	"	"
Lead	24.6	0.249	"	"	"	"	"	"
Nickel	6.47	0.498	"	"	"	"	"	"
Selenium	3.49	0.323	"	"	"	"	"	"
Silver	0.0731	0.0249	"	"	"	"	"	"
Zinc	27.6	0.498	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEF0109	06/04/21	06/07/21	EPA 7196A	

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

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	3.16	0.0622	mg/L dry	1	BEF0010	06/01/21	06/04/21	EPA 6020B	
Magnesium	2.53	0.0622	"	"	"	"	"	"	
Sodium	7.50	0.0622	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.763	0.00100	units	1	BEF0121	06/04/21	06/04/21	Calculation	

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

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**SB04 NE**  
**2105444-04 (Soil)**

**Summit Scientific**

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

% Solids	80.4	%	1	BEF0082	06/03/21	06/04/21	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0714	0.0100	mmhos/cm	1	BEF0052	06/02/21	06/02/21	EPA 120.1	

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

Date Sampled: **05/27/21 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.50		pH Units	1	BEF0051	06/02/21	06/02/21	EPA 9045D	

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

## 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 BEF0100 - EPA 5030 Soil MS

##### Blank (BEF0100-BLK1)

Prepared & Analyzed: 06/03/21

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	0.0386	"	0.0400	96.4	23-173
Surrogate: Toluene-d8	0.0431	"	0.0400	108	20-170
Surrogate: 4-Bromofluorobenzene	0.0406	"	0.0400	102	21-167

##### LCS (BEF0100-BS1)

Prepared & Analyzed: 06/03/21

Benzene	0.0888	0.0020	mg/kg	0.100	88.8	70-130
Toluene	0.0844	0.0050	"	0.100	84.4	70-130
Ethylbenzene	0.0958	0.0050	"	0.100	95.8	70-130
m,p-Xylene	0.185	0.010	"	0.200	92.4	70-130
o-Xylene	0.0857	0.0050	"	0.100	85.7	70-130
1,2,4-Trimethylbenzene	0.0901	0.0050	"	0.100	90.1	70-130
1,3,5-Trimethylbenzene	0.0913	0.0050	"	0.100	91.3	70-130
Naphthalene	0.0969	0.0038	"	0.100	96.9	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0268	"	0.0400	67.0	23-173
Surrogate: Toluene-d8	0.0411	"	0.0400	103	20-170
Surrogate: 4-Bromofluorobenzene	0.0386	"	0.0400	96.5	21-167

##### Matrix Spike (BEF0100-MS1)

Source: 2105450-06

Prepared & Analyzed: 06/03/21

Benzene	0.0851	0.0020	mg/kg	0.100	ND	85.1	70-130
Toluene	0.0821	0.0050	"	0.100	ND	82.1	70-130
Ethylbenzene	0.0962	0.0050	"	0.100	ND	96.2	70-130
m,p-Xylene	0.186	0.010	"	0.200	ND	92.8	70-130
o-Xylene	0.0871	0.0050	"	0.100	ND	87.1	70-130
1,2,4-Trimethylbenzene	0.0922	0.0050	"	0.100	ND	92.2	70-130
1,3,5-Trimethylbenzene	0.0924	0.0050	"	0.100	ND	92.4	70-130
Naphthalene	0.0789	0.0038	"	0.100	ND	78.9	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0226	"	0.0400	56.5	23-173
Surrogate: Toluene-d8	0.0418	"	0.0400	104	20-170
Surrogate: 4-Bromofluorobenzene	0.0371	"	0.0400	92.8	21-167

Summit Scientific

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0100 - EPA 5030 Soil MS**

Matrix Spike Dup (BEF0100-MSD1)		Source: 2105450-06			Prepared & Analyzed: 06/03/21					
Benzene	0.0852	0.0020	mg/kg	0.100	ND	85.2	70-130	0.106	30	
Toluene	0.0812	0.0050	"	0.100	ND	81.2	70-130	1.10	30	
Ethylbenzene	0.0943	0.0050	"	0.100	ND	94.3	70-130	2.02	30	
m,p-Xylene	0.181	0.010	"	0.200	ND	90.4	70-130	2.59	30	
o-Xylene	0.0852	0.0050	"	0.100	ND	85.2	70-130	2.16	30	
1,2,4-Trimethylbenzene	0.0903	0.0050	"	0.100	ND	90.3	70-130	2.04	30	
1,3,5-Trimethylbenzene	0.0898	0.0050	"	0.100	ND	89.8	70-130	2.83	30	
Naphthalene	0.0789	0.0038	"	0.100	ND	78.9	70-130	0.0760	30	
Surrogate: 1,2-Dichloroethane-d4		0.0232	"	0.0400		57.9	23-173			
Surrogate: Toluene-d8		0.0422	"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene		0.0363	"	0.0400		90.8	21-167			

Summit Scientific

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0099 - EPA 3550A**

**Blank (BEF0099-BLK1)**

Prepared: 06/03/21 Analyzed: 06/04/21

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

**LCS (BEF0099-BS1)**

Prepared: 06/03/21 Analyzed: 06/04/21

C10-C28 (DRO)	513	50	mg/kg	500	103	70-130
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**Matrix Spike (BEF0099-MS1)**

**Source: 2105450-01**

Prepared: 06/03/21 Analyzed: 06/04/21

C10-C28 (DRO)	447	50	mg/kg	500	13.8	86.6	70-130
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**Matrix Spike Dup (BEF0099-MSD1)**

**Source: 2105450-01**

Prepared: 06/03/21 Analyzed: 06/04/21

C10-C28 (DRO)	467	50	mg/kg	500	13.8	90.7	70-130	4.45	20
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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

## 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 BEF0204 - EPA 5030 Soil MS

##### Blank (BEF0204-BLK1)

Prepared & Analyzed: 06/09/21

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	0.0293		"	0.0333		87.9		40-150			
Surrogate: Fluoranthene-d10	0.0278		"	0.0333		83.5		40-150			

##### LCS (BEF0204-BS1)

Prepared & Analyzed: 06/09/21

Acenaphthene	0.0318	0.00500	mg/kg	0.0333		95.4		31-137			
Anthracene	0.0329	0.00500	"	0.0333		98.7		30-120			
Benzo (a) anthracene	0.0374	0.00500	"	0.0333		112		30-120			
Benzo (a) pyrene	0.0321	0.00500	"	0.0333		96.3		30-120			
Benzo (b) fluoranthene	0.0310	0.00500	"	0.0333		92.9		30-120			
Benzo (k) fluoranthene	0.0286	0.00500	"	0.0333		85.8		30-120			
Chrysene	0.0345	0.00500	"	0.0333		104		30-120			
Dibenz (a,h) anthracene	0.0353	0.00500	"	0.0333		106		30-120			
Fluoranthene	0.0250	0.00500	"	0.0333		75.0		30-120			
Fluorene	0.0340	0.00500	"	0.0333		102		30-120			
Indeno (1,2,3-cd) pyrene	0.0342	0.00500	"	0.0333		103		30-120			
Pyrene	0.0289	0.00500	"	0.0333		86.8		35-142			
1-Methylnaphthalene	0.0303	0.00500	"	0.0333		90.8		35-142			
2-Methylnaphthalene	0.0426	0.00500	"	0.0333		128		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0244		"	0.0333		73.3		40-150			
Surrogate: Fluoranthene-d10	0.0278		"	0.0333		83.5		40-150			

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WSP  
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Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0204 - EPA 5030 Soil MS**

**Matrix Spike (BEF0204-MS1)**

Source: 2105434-01

Prepared & Analyzed: 06/09/21

Acenaphthene	0.0339	0.00500	mg/kg	0.0333	ND	102	31-137		
Anthracene	0.0338	0.00500	"	0.0333	ND	101	30-120		
Benzo (a) anthracene	0.0391	0.00500	"	0.0333	ND	117	30-120		
Benzo (a) pyrene	0.0333	0.00500	"	0.0333	ND	100	30-120		
Benzo (b) fluoranthene	0.0319	0.00500	"	0.0333	ND	95.7	30-120		
Benzo (k) fluoranthene	0.0288	0.00500	"	0.0333	ND	86.5	30-120		
Chrysene	0.0363	0.00500	"	0.0333	ND	109	30-120		
Dibenz (a,h) anthracene	0.0359	0.00500	"	0.0333	ND	108	30-120		
Fluoranthene	0.0334	0.00500	"	0.0333	ND	100	30-120		
Fluorene	0.0361	0.00500	"	0.0333	ND	108	30-120		
Indeno (1,2,3-cd) pyrene	0.0351	0.00500	"	0.0333	ND	105	30-120		
Pyrene	0.0299	0.00500	"	0.0333	ND	89.7	35-142		
1-Methylnaphthalene	0.0315	0.00500	"	0.0333	ND	94.4	15-130		
2-Methylnaphthalene	0.0432	0.00500	"	0.0333	ND	129	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0213		"	0.0333		63.9	40-150		
Surrogate: Fluoranthene-d10	0.0235		"	0.0333		70.6	40-150		

**Matrix Spike Dup (BEF0204-MSD1)**

Source: 2105434-01

Prepared & Analyzed: 06/09/21

Acenaphthene	0.0339	0.00500	mg/kg	0.0333	ND	102	31-137	0.0383	30
Anthracene	0.0345	0.00500	"	0.0333	ND	103	30-120	2.00	30
Benzo (a) anthracene	0.0393	0.00500	"	0.0333	ND	118	30-120	0.420	30
Benzo (a) pyrene	0.0334	0.00500	"	0.0333	ND	100	30-120	0.145	30
Benzo (b) fluoranthene	0.0321	0.00500	"	0.0333	ND	96.3	30-120	0.601	30
Benzo (k) fluoranthene	0.0296	0.00500	"	0.0333	ND	88.7	30-120	2.51	30
Chrysene	0.0367	0.00500	"	0.0333	ND	110	30-120	1.07	30
Dibenz (a,h) anthracene	0.0361	0.00500	"	0.0333	ND	108	30-120	0.637	30
Fluoranthene	0.0297	0.00500	"	0.0333	ND	89.2	30-120	11.5	30
Fluorene	0.0359	0.00500	"	0.0333	ND	108	30-120	0.636	30
Indeno (1,2,3-cd) pyrene	0.0350	0.00500	"	0.0333	ND	105	30-120	0.530	30
Pyrene	0.0307	0.00500	"	0.0333	ND	92.0	35-142	2.55	30
1-Methylnaphthalene	0.0307	0.00500	"	0.0333	ND	92.2	15-130	2.35	50
2-Methylnaphthalene	0.0424	0.00500	"	0.0333	ND	127	15-130	1.68	50
Surrogate: 2-Methylnaphthalene-d10	0.0262		"	0.0333		78.7	40-150		
Surrogate: Fluoranthene-d10	0.0205		"	0.0333		61.6	40-150		

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0110 - EPA 3050B**

**Blank (BEF0110-BLK1)**

Prepared: 06/04/21 Analyzed: 06/07/21

Boron ND 0.0100 mg/L

**LCS (BEF0110-BS1)**

Prepared: 06/04/21 Analyzed: 06/07/21

Boron 5.45 0.0100 mg/L 5.00 109 80-120

**Duplicate (BEF0110-DUP1)**

**Source: 2105438-02**

Prepared: 06/04/21 Analyzed: 06/07/21

Boron 1.23 0.0100 mg/L 1.13 8.51 20

**Matrix Spike (BEF0110-MS1)**

**Source: 2105438-02**

Prepared: 06/04/21 Analyzed: 06/07/21

Boron 6.44 0.0100 mg/L 5.00 1.13 106 75-125

**Matrix Spike Dup (BEF0110-MSD1)**

**Source: 2105438-02**

Prepared: 06/04/21 Analyzed: 06/07/21

Boron 5.22 0.0100 mg/L 5.00 1.13 81.8 75-125 21.0 25

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0092 - EPA 3050B**

**Blank (BEF0092-BLK1)**

Prepared: 06/03/21 Analyzed: 06/07/21

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 (BEF0092-BS1)**

Prepared: 06/03/21 Analyzed: 06/07/21

Arsenic	38.9	0.200	mg/kg wet	40.0	97.3	80-120
Barium	38.1	0.400	"	40.0	95.3	80-120
Cadmium	2.03	0.200	"	2.00	101	80-120
Copper	36.6	0.400	"	40.0	91.5	80-120
Lead	20.0	0.200	"	20.0	99.8	80-120
Nickel	36.8	0.400	"	40.0	92.1	80-120
Selenium	3.12	0.260	"	4.00	77.9	80-120
Silver	2.00	0.0200	"	2.00	99.8	80-120
Zinc	38.8	0.400	"	40.0	97.0	80-120

**Duplicate (BEF0092-DUP1)**

Source: 2105370-12

Prepared: 06/03/21 Analyzed: 06/07/21

Arsenic	5.78	0.258	mg/kg dry	6.03	4.23	20
Barium	237	0.516	"	245	3.45	20
Cadmium	0.379	0.258	"	0.378	0.254	20
Copper	18.3	0.516	"	18.9	3.28	20
Lead	17.9	0.258	"	17.9	0.110	20
Nickel	18.7	0.516	"	19.3	3.38	20
Selenium	0.557	0.335	"	0.527	5.63	20
Silver	0.0896	0.0258	"	0.0924	3.15	20
Zinc	60.8	0.516	"	62.2	2.40	20

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0092 - EPA 3050B**

Matrix Spike (BEF0092-MS1)			Source: 2105370-12		Prepared: 06/03/21		Analyzed: 06/07/21	
Arsenic	53.2	0.258	mg/kg dry	51.6	6.03	91.5	75-125	
Barium	308	0.516	"	51.6	245	121	75-125	
Cadmium	2.98	0.258	"	2.58	0.378	101	75-125	
Copper	67.0	0.516	"	51.6	18.9	93.3	75-125	
Lead	42.8	0.258	"	25.8	17.9	96.4	75-125	
Nickel	69.0	0.516	"	51.6	19.3	96.2	75-125	
Selenium	4.90	0.335	"	5.16	0.527	84.8	75-125	
Silver	2.54	0.0258	"	2.58	0.0924	95.0	75-125	
Zinc	117	0.516	"	51.6	62.2	106	75-125	

Matrix Spike Dup (BEF0092-MSD1)			Source: 2105370-12		Prepared: 06/03/21		Analyzed: 06/07/21	
Arsenic	50.0	0.258	mg/kg dry	51.6	6.03	85.2	75-125	6.30 25
Barium	288	0.516	"	51.6	245	82.4	75-125	6.70 25
Cadmium	2.77	0.258	"	2.58	0.378	92.7	75-125	7.29 25
Copper	62.4	0.516	"	51.6	18.9	84.3	75-125	7.15 25
Lead	39.7	0.258	"	25.8	17.9	84.3	75-125	7.57 25
Nickel	63.8	0.516	"	51.6	19.3	86.2	75-125	7.76 25
Selenium	4.42	0.335	"	5.16	0.527	75.4	75-125	10.4 25
Silver	2.37	0.0258	"	2.58	0.0924	88.4	75-125	6.90 25
Zinc	109	0.516	"	51.6	62.2	91.3	75-125	6.90 25

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0109 - 3060A Mod**

**Blank (BEF0109-BLK1)**

Prepared: 06/04/21 Analyzed: 06/07/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEF0109-BS1)**

Prepared: 06/04/21 Analyzed: 06/07/21

Chromium, Hexavalent 22.8 0.30 mg/kg wet 25.0 91.0 80-120

**Duplicate (BEF0109-DUP1)**

**Source: 2105370-12**

Prepared: 06/04/21 Analyzed: 06/07/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEF0109-MS1)**

**Source: 2105370-12**

Prepared: 06/04/21 Analyzed: 06/07/21

Chromium, Hexavalent 28.7 0.30 mg/kg dry 32.3 ND 89.0 75-125

**Matrix Spike Dup (BEF0109-MSD1)**

**Source: 2105370-12**

Prepared: 06/04/21 Analyzed: 06/07/21

Chromium, Hexavalent 28.7 0.30 mg/kg dry 32.3 ND 89.0 75-125 0.00 20

Summit Scientific

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0010 - General Preparation**

**Blank (BEF0010-BLK1)**

Prepared: 06/01/21 Analyzed: 06/04/21

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

**LCS (BEF0010-BS1)**

Prepared: 06/01/21 Analyzed: 06/04/21

Calcium	5.00	0.0500	mg/L wet	5.00	100	70-130
Magnesium	5.69	0.0500	"	5.00	114	70-130
Sodium	5.08	0.0500	"	5.00	102	70-130

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State

Project Number: [none]

Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0082 - General Preparation**

Duplicate (BEF0082-DUP1)		Source: 2105284-09		Prepared: 06/03/21 Analyzed: 06/04/21	
% Solids	95.3		%	95.1	0.183 20

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

**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 BEF0052 - General Preparation**

**Blank (BEF0052-BLK1)**

Prepared & Analyzed: 06/02/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEF0052-BS1)**

Prepared & Analyzed: 06/02/21

Specific Conductance (EC) 0.149 0.0100 mmhos/cm 0.150 99.2 90-110

**Duplicate (BEF0052-DUP1)**

**Source: 2105410-02**

Prepared & Analyzed: 06/02/21

Specific Conductance (EC) 0.137 0.0100 mmhos/cm 0.136 0.366 20

Summit Scientific

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State

Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

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

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

**Batch BEF0051 - General Preparation**

**LCS (BEF0051-BS1)**

Prepared & Analyzed: 06/02/21

pH	9.19	pH Units	9.21	99.8	95-105
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**Duplicate (BEF0051-DUP1)**

**Source: 2105410-02**

Prepared & Analyzed: 06/02/21

pH	7.79	pH Units	7.78	0.128	20
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Summit Scientific

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WSP  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Grynberg State  
Project Number: [none]  
Project Manager: Chris Roy

**Reported:**  
06/11/21 12:20

### 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.
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