



**Blue Star Helium**

**March 18, 2025**

**Peter Kondrat**

**5 Tamarade Dr.**

**Littleton CO 80127**

**Project Name - Jackson #31**

**Project Number - [none]**

Attached are your analytical results for Jackson #31 received by Origins Laboratory February 28, 2025. This project is associated with Origins project number E5C0012-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory  
303.433.1322  
projectmanager@originslab.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645



Blue Star Helium  
5 Tamarade Dr.  
Littleton CO 80127

Peter Kondrat  
Project Number: [none]  
Project: Jackson #31

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J31-S1	E5C0012-01	Soil	February 28, 2025 10:35	02/28/2025 17:16
J31-S2	E5C0012-02	Soil	February 28, 2025 10:45	02/28/2025 17:16
J31-S3	E5C0012-03	Soil	February 28, 2025 10:45	02/28/2025 17:16

#### Chain of Custody Replacement Request

On 3/3/2025, Peter Kondrat from Blue Star Helium contacted Jordan Bynon via email regarding E5C0012 requesting that the sample IDs be revised. Requested modifications to the chain of custody were made by Jordan Bynon on 3/4/2025 and modified chain of custody is included in the final report.

Origins Laboratory

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# ORIGINS LABORATORY

Blue Star Helium  
 5 Tamarade Dr.  
 Littleton CO 80127

Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**ORIGINS LABORATORY, INC**

Client: Blue Star Helium  
 Address: 2011 Forest Ave Durango CO 81301  
 Telephone Number: 970-759-5370  
 Email Address: pkondrat@bluestarhelium.com

Fax: 303-265-9545

Project Manager: Peter Kondrat  
 Project Name: Jackson #31  
 Project Number:  
 Samples Collected By: pkondrat@bluestarhelium.com

NOTE - PLEASE ESCORIA LABORATORY.COM  
 PROVIDE RESULTS EXACT  
 PHONE 6 IN 5 DAYS

page 1 of 1

Sample ID/Description	Date Sampled	Time Sampled	# of Containers	Preservative			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>		
J31-S1	2/28/2025	10:35	2		X		Drill Cuttings	ECNIC Table 915-1
J31-S2	2/28/2025	10:45	2		X		Drill Cuttings	ECNIC Table 915-1
J31-S3	2/28/2025	10:45	2		X		Drill Cuttings	ECNIC Table 915-1
Note Please provide results in 5 days Except Chromes 6								
Relinquished By: Andy Weigant	Date: 2/28/2025	Time: 17:16		Received By: [Signature]	Date: 2/28/25	Time: 17:16		Time: [Signature]
Relinquished By:	Date:	Time:		Received By:	Date:	Time:		Time: [Signature]

1725 Elk Place  
 Denver, CO 80211  
 Phone: 303.433.1322

ICEV 3.1

Date Results Needed

Origins Laboratory

*EHO*

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# ORIGINS LABORATORY

Blue Star Helium  
5 Tamarade Dr.  
Littleton CO 80127

Peter Kondrat  
Project Number: [none]  
Project: Jackson #31

Origins Laboratory F-012207-01-R1  
Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: ESCO012 Client: Blue Star Helium  
Client Project ID: Jackson #31

Checklist Completed by: JAR/scm Shipped Via: HD  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Date/time completed: 3/03/25 Airbill #: N/A

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_  
(Describe)


Cooler Number/Temperature: 1/21 °C

Thermometer ID: 7007

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO3, HCL, H2SO4) / (pH > 10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) PA Date/Time Reviewed 3/4/25

Origins Laboratory  


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# ORIGINS LABORATORY

Blue Star Helium  
5 Tamarade Dr.  
Littleton CO 80127

Peter Kondrat  
Project Number: [none]  
Project: Jackson #31

## J31-S1

2/28/2025 10:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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### Origins Laboratory E5C0012-01 (Soil)

#### Boron (DTPA Sorbitol)

Boron	0.741		0.0982	mg/L	1	B5C0423	03/04/2025	03/05/2025	
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#### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B5C0446	03/04/2025	03/06/2025	Ua
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	76.9 %		50-150			"	"	"	
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#### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B5C0455	03/04/2025	03/10/2025	Ua
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	Ua
Benzene	ND		0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND		0.00200	"	"	"	"	"	Ua
Toluene	ND		0.00200	"	"	"	"	"	Ua
Xylenes, total	ND		0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	107 %		70-130			"	"	"	
Surrogate: Toluene-d8	105 %		70-130			"	"	"	

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Peter Kondrat  
Project Number: [none]  
Project: Jackson #31

**J31-S1**

**2/28/2025 10:35:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E5C0012-01 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: 4-Bromofluorobenzene	100 %	70-130	B5C04	03/04/2025	03/10/2025
			55		

**Metals by Saturated Paste by EPA 6010**

Calcium	42.0	0.499	meq/L	10	[CALC]	03/04/2025	03/06/2025
Magnesium	ND	0.823	"	"	"	"	"
Sodium	16.6	0.435	"	"	"	"	"

**PAH by EPA 8270E extracted via 3580A**

1-Methylnaphthalene	ND	0.002	mg/kg	1	B5C0338	03/03/2025	03/04/2025	Ua
2-Methylnaphthalene	0.002	0.002	"	"	"	"	"	"
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua
Fluorene	ND	0.020	"	"	"	"	"	Ua

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**J31-S1**

**2/28/2025 10:35:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory  
 E5C0012-01 (Soil)**

**PAH by EPA 8270E extracted via 3580A**

Indeno (1,2,3-cd) pyrene	ND	0.020	mg/kg	1	B5C0338	03/03/2025	03/04/2025	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	101 %	60-130	"	"	"	"	"	"
Surrogate: Anthracene-d10	102 %	60-130	"	"	"	"	"	"
Surrogate: Pyrene-d10	93.9 %	60-130	"	"	"	"	"	"
Surrogate: Benzo (a) pyrene-d12	97.3 %	60-130	"	"	"	"	"	"

**pH in Soil by 9045D**

pH	12.2		pH Units	1	B5C0431	03/04/2025	03/05/2025	
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**SAR by 20B Saturated Paste**

SAR	3.61	0.0100	SAR	1	B5C0415	03/04/2025	03/06/2025	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	6.29	0.00500	mmhos/cm	1	B5C0431	03/04/2025	03/05/2025	
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**Table 915 metals by EPA 6020B**

Arsenic	2.20	0.265	mg/kg	10	B5C0346	03/03/2025	03/04/2025	
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**J31-S1**

**2/28/2025 10:35:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory  
 E5C0012-01 (Soil)**

**Table 915 metals by EPA 6020B**

Barium	52.2		9.14	mg/kg	10	B5C0346	03/03/2025	03/04/2025	
Cadmium	ND		0.0914	"	"	"	"	"	
Copper	39.5		9.14	"	"	"	"	"	
Lead	2.03		0.914	"	"	"	"	"	
Nickel	7.74		0.914	"	"	"	"	"	
Selenium	0.398		0.238	"	"	"	"	"	
Silver	ND		0.0914	"	"	"	"	"	
Zinc	ND		33.8	"	"	"	"	"	

**Total Metals 7196A**

Hexavalent Chromium	ND	0.157	0.393	mg/kg dry	1	2762693	03/14/2025	03/14/2025	U
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Blue Star Helium  
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 Littleton CO 80127

Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**J31-S2**

**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory  
 E5C0012-02 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.522		0.0992	mg/L	1	B5C0423	03/04/2025	03/05/2025	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B5C0446	03/04/2025	03/06/2025	Ua
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	Ua

Surrogate: <i>o</i> -Terphenyl	85.6 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B5C0455	03/04/2025	03/08/2025	Ua
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	Ua
Benzene	ND		0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND		0.00200	"	"	"	"	"	Ua
Toluene	ND		0.00200	"	"	"	"	"	Ua
Xylenes, total	ND		0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	104 %		70-130			"	"	"	
Surrogate: Toluene-d8	96.0 %		70-130			"	"	"	

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# ORIGINS LABORATORY

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Littleton CO 80127

Peter Kondrat  
Project Number: [none]  
Project: Jackson #31

**J31-S2**

**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E5C0012-02 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: 4-Bromofluorobenzene	102 %	70-130	B5C04	03/04/2025	03/08/2025
			55		

**Metals by Saturated Paste by EPA 6010**

Calcium	24.0	0.499	meq/L	10	[CALC]	03/04/2025	03/06/2025
Magnesium	ND	0.823	"	"	"	"	"
Sodium	30.0	0.435	"	"	"	"	"

**PAH by EPA 8270E extracted via 3580A**

1-Methylnaphthalene	0.011	0.002	mg/kg	1	B5C0338	03/03/2025	03/04/2025
2-Methylnaphthalene	0.020	0.002	"	"	"	"	"
Acenaphthene	ND	0.020	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	Ua
Fluorene	ND	0.020	"	"	"	"	Ua

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Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**J31-S2**

**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory  
 E5C0012-02 (Soil)**

**PAH by EPA 8270E extracted via 3580A**

Indeno (1,2,3-cd) pyrene	ND		0.020	mg/kg	1	B5C0338	03/03/2025	03/04/2025	Ua
Naphthalene	0.019		0.002	"	"	"	"	"	"
Pyrene	ND		0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	99.1 %		60-130			"	"	"	
Surrogate: Anthracene-d10	99.5 %		60-130			"	"	"	
Surrogate: Pyrene-d10	99.3 %		60-130			"	"	"	
Surrogate: Benzo (a) pyrene-d12	99.2 %		60-130			"	"	"	

**pH in Soil by 9045D**

pH	9.56			pH Units	1	B5C0431	03/04/2025	03/05/2025	
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**SAR by 20B Saturated Paste**

SAR	8.63		0.0100	SAR	1	B5C0415	03/04/2025	03/06/2025	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	4.79		0.00500	mmhos/cm	1	B5C0431	03/04/2025	03/05/2025	
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**Table 915 metals by EPA 6020B**

Arsenic	1.97		0.246	mg/kg	10	B5C0346	03/03/2025	03/04/2025	
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 Littleton CO 80127

Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**J31-S2**  
**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E5C0012-02 (Soil)**

**Table 915 metals by EPA 6020B**

Barium	152		8.48	mg/kg	10	B5C0346	03/03/2025	03/04/2025	
Cadmium	ND		0.0848	"	"	"	"	"	
Copper	ND		8.48	"	"	"	"	"	
Lead	4.07		0.848	"	"	"	"	"	
Nickel	5.93		0.848	"	"	"	"	"	
Selenium	ND		0.220	"	"	"	"	"	
Silver	0.182		0.0848	"	"	"	"	"	
Zinc	ND		31.4	"	"	"	"	"	

**Total Metals 7196A**

Hexavalent Chromium	ND	0.124	0.310	mg/kg dry	1	2762693	03/14/2025	03/14/2025	U
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Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**J31-S3**  
**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E5C0012-03 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.497		0.0986	mg/L	1	B5C0423	03/04/2025	03/05/2025	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	41.4		25.0	mg/kg	1	B5C0446	03/04/2025	03/06/2025	
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	Ua

Surrogate: <i>o</i> -Terphenyl	57.2 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B5C0455	03/04/2025	03/08/2025	Ua
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	Ua
Benzene	ND		0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND		0.00200	"	"	"	"	"	Ua
Toluene	ND		0.00200	"	"	"	"	"	Ua
Xylenes, total	ND		0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	104 %		70-130			"	"	"	
Surrogate: Toluene-d8	97.8 %		70-130			"	"	"	

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 Littleton CO 80127

Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**J31-S3**

**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory  
 E5C0012-03 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: 4-Bromofluorobenzene	99.6 %		70-130			B5C04 55	03/04/2025	03/08/2025	
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**Metals by Saturated Paste by EPA 6010**

Calcium	22.5		0.499	meq/L	10	[CALC]	03/04/2025	03/06/2025	
Magnesium	0.966		0.823	"	"	"	"	"	
Sodium	42.0		0.435	"	"	"	"	"	

**PAH by EPA 8270E extracted via 3580A**

1-Methylnaphthalene	0.005		0.002	mg/kg	1	B5C0338	03/03/2025	03/04/2025	
2-Methylnaphthalene	0.011		0.002	"	"	"	"	"	
Acenaphthene	ND		0.020	"	"	"	"	"	Ua
Anthracene	ND		0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND		0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND		0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND		0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND		0.020	"	"	"	"	"	Ua
Chrysene	ND		0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND		0.020	"	"	"	"	"	Ua
Fluoranthene	ND		0.020	"	"	"	"	"	Ua
Fluorene	ND		0.020	"	"	"	"	"	Ua

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Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**J31-S3**

**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory  
 E5C0012-03 (Soil)**

**PAH by EPA 8270E extracted via 3580A**

Indeno (1,2,3-cd) pyrene	ND		0.020	mg/kg	1	B5C0338	03/03/2025	03/04/2025	Ua
Naphthalene	0.006		0.002	"	"	"	"	"	"
Pyrene	ND		0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	101 %		60-130			"	"	"	
Surrogate: Anthracene-d10	99.6 %		60-130			"	"	"	
Surrogate: Pyrene-d10	99.8 %		60-130			"	"	"	
Surrogate: Benzo (a) pyrene-d12	99.6 %		60-130			"	"	"	

**pH in Soil by 9045D**

pH	9.33			pH Units	1	B5C0431	03/04/2025	03/05/2025	
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**SAR by 20B Saturated Paste**

SAR	12.2		0.0100	SAR	1	B5C0415	03/04/2025	03/06/2025	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	5.58		0.00500	mmhos/cm	1	B5C0431	03/04/2025	03/05/2025	
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**Table 915 metals by EPA 6020B**

Arsenic	3.37		0.252	mg/kg	10	B5C0346	03/03/2025	03/04/2025	
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Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**J31-S3**

**2/28/2025 10:45:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory  
 E5C0012-03 (Soil)**

**Table 915 metals by EPA 6020B**

Barium	102		8.70	mg/kg	10	B5C0346	03/03/2025	03/04/2025	
Cadmium	ND		0.0870	"	"	"	"	"	"
Copper	10.2		8.70	"	"	"	"	"	"
Lead	3.08		0.870	"	"	"	"	"	"
Nickel	9.41		0.870	"	"	"	"	"	"
Selenium	ND		0.226	"	"	"	"	"	"
Silver	0.0966		0.0870	"	"	"	"	"	"
Zinc	ND		32.2	"	"	"	"	"	"

**Total Metals 7196A**

Hexavalent Chromium	ND	0.105	0.262	mg/kg dry	1	2762693	03/14/2025	03/14/2025	U
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 Project: Jackson #31

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0415 - Saturated Paste Metals**

**Blank (B5C0415-BLK1)**

Prepared: 03/04/2025 Analyzed: 03/06/2025

SAR	ND	0.0100	SAR							
Calcium PPM	ND	10.0	mg/L							
Magnesium PPM	ND	10.0	"							
Sodium PPM	ND	10.0	"							

**Duplicate (B5C0415-DUP1)**

Source: E5C0005-12

Prepared: 03/04/2025 Analyzed: 03/06/2025

SAR	ND	0.0100	SAR	10.7				200		
Calcium PPM	79.4	10.0	mg/L	81.5			2.62	50		
Magnesium PPM	348	10.0	"	363			4.04	50		
Sodium PPM	961	10.0	"	1010			5.41	50		

**Batch B5C0423 - DTPA Sorbitol Preparation**

**Blank (B5C0423-BLK1)**

Prepared: 03/04/2025 Analyzed: 03/05/2025

Boron	ND	0.100	mg/L							
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**Duplicate (B5C0423-DUP1)**

Source: E5C0011-01

Prepared: 03/04/2025 Analyzed: 03/05/2025

Boron	0.0386	0.0995	mg/L	0.0448			14.8	50		
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 Project: Jackson #31

**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0338 - EPA 3580**

**Blank (B5C0338-BLK1)**

Prepared: 03/03/2025 Analyzed: 03/04/2025

1-Methylnaphthalene	ND	0.002	mg/kg							Ua
2-Methylnaphthalene	ND	0.002	"							Ua
Acenaphthene	ND	0.020	"							Ua
Anthracene	ND	0.020	"							Ua
Benzo (a) anthracene	ND	0.005	"							Ua
Benzo (a) pyrene	ND	0.020	"							Ua
Benzo (b) fluoranthene	ND	0.020	"							Ua
Benzo (k) fluoranthene	ND	0.020	"							Ua
Chrysene	ND	0.020	"							Ua
Dibenz (a,h) anthracene	ND	0.020	"							Ua
Fluoranthene	ND	0.020	"							Ua
Fluorene	ND	0.020	"							Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"							Ua
Naphthalene	ND	0.002	"							Ua
Pyrene	ND	0.020	"							Ua

Surrogate: Fluorene-d10	200		ug/kg	200		101	60-130			
Surrogate: Anthracene-d10	190		"	200		94.6	60-130			
Surrogate: Pyrene-d10	200		"	200		100	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		98.4	60-130			

**LCS (B5C0338-BS1)**

Prepared: 03/03/2025 Analyzed: 03/04/2025

1-Methylnaphthalene	0.202	0.002	mg/kg	0.200		101	70-130			
2-Methylnaphthalene	0.198	0.002	"	0.200		98.8	70-130			
Acenaphthene	0.199	0.020	"	0.200		99.7	70-130			
Anthracene	0.172	0.020	"	0.200		86.1	70-130			
Benzo (a) anthracene	0.147	0.005	"	0.200		73.3	70-130			
Benzo (a) pyrene	0.157	0.020	"	0.200		78.6	70-130			

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Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0338 - EPA 3580**

**LCS (B5C0338-BS1)**

Prepared: 03/03/2025 Analyzed: 03/04/2025

Benzo (b) fluoranthene	0.166	0.020	mg/kg	0.200		83.1	70-130			
Benzo (k) fluoranthene	0.151	0.020	"	0.200		75.5	70-130			
Chrysene	0.144	0.020	"	0.200		72.2	70-130			
Dibenz (a,h) anthracene	0.160	0.020	"	0.200		80.0	70-130			
Fluoranthene	0.154	0.020	"	0.200		77.0	70-130			
Fluorene	0.201	0.020	"	0.200		100	70-130			
Indeno (1,2,3-cd) pyrene	0.156	0.020	"	0.200		77.8	70-130			
Naphthalene	0.204	0.002	"	0.200		102	70-130			
Pyrene	0.155	0.020	"	0.200		77.3	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	180		"	200		87.7	60-130			
Surrogate: Pyrene-d10	160		"	200		77.7	60-130			
Surrogate: Benzo (a) pyrene-d12	160		"	200		78.0	60-130			

**Matrix Spike (B5C0338-MS1)**

Source: E5B0746-01

Prepared: 03/03/2025 Analyzed: 03/04/2025

1-Methylnaphthalene	0.193	0.002	mg/kg	0.200	ND	96.3	70-130			
2-Methylnaphthalene	0.193	0.002	"	0.200	ND	96.7	70-130			
Acenaphthene	0.193	0.020	"	0.200	0.0007	96.2	70-130			
Anthracene	0.180	0.020	"	0.200	ND	90.0	70-130			
Benzo (a) anthracene	0.147	0.005	"	0.200	ND	73.5	70-130			
Benzo (a) pyrene	0.158	0.020	"	0.200	ND	79.0	70-130			
Benzo (b) fluoranthene	0.165	0.020	"	0.200	ND	82.3	70-130			
Benzo (k) fluoranthene	0.165	0.020	"	0.200	ND	82.5	70-130			
Chrysene	0.145	0.020	"	0.200	ND	72.6	70-130			
Dibenz (a,h) anthracene	0.161	0.020	"	0.200	ND	80.5	70-130			
Fluoranthene	0.154	0.020	"	0.200	ND	77.0	70-130			
Fluorene	0.195	0.020	"	0.200	0.0006	97.5	70-130			

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Peter Kondrat  
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 Project: Jackson #31

**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0338 - EPA 3580**

<b>Matrix Spike (B5C0338-MS1)</b>		<b>Source: E5B0746-01</b>			<b>Prepared: 03/03/2025 Analyzed: 03/04/2025</b>					
Indeno (1,2,3-cd) pyrene	0.155	0.020	mg/kg	0.200	ND	77.7	70-130			
Naphthalene	0.197	0.002	"	0.200	ND	98.4	70-130			
Pyrene	0.153	0.020	"	0.200	ND	76.7	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	170		"	200		85.9	60-130			
Surrogate: Pyrene-d10	160		"	200		79.2	60-130			
Surrogate: Benzo (a) pyrene-d12	160		"	200		80.4	60-130			

<b>Matrix Spike Dup (B5C0338-MSD1)</b>		<b>Source: E5B0746-01</b>			<b>Prepared: 03/03/2025 Analyzed: 03/04/2025</b>					
1-Methylnaphthalene	0.193	0.002	mg/kg	0.200	ND	96.3	70-130	0.0769	20	
2-Methylnaphthalene	0.190	0.002	"	0.200	ND	95.0	70-130	1.78	20	
Acenaphthene	0.189	0.020	"	0.200	0.0007	94.1	70-130	2.22	20	
Anthracene	0.164	0.020	"	0.200	ND	82.2	70-130	9.08	20	
Benzo (a) anthracene	0.141	0.005	"	0.200	ND	70.4	70-130	4.29	20	
Benzo (a) pyrene	0.152	0.020	"	0.200	ND	76.2	70-130	3.65	20	
Benzo (b) fluoranthene	0.161	0.020	"	0.200	ND	80.5	70-130	2.24	20	
Benzo (k) fluoranthene	0.166	0.020	"	0.200	ND	82.9	70-130	0.419	20	
Chrysene	0.141	0.020	"	0.200	ND	70.4	70-130	3.06	20	
Dibenz (a,h) anthracene	0.158	0.020	"	0.200	ND	79.0	70-130	1.98	20	
Fluoranthene	0.146	0.020	"	0.200	ND	73.1	70-130	5.25	20	
Fluorene	0.187	0.020	"	0.200	0.0006	93.2	70-130	4.49	20	
Indeno (1,2,3-cd) pyrene	0.153	0.020	"	0.200	ND	76.4	70-130	1.81	20	
Naphthalene	0.196	0.002	"	0.200	ND	97.8	70-130	0.652	20	
Pyrene	0.149	0.020	"	0.200	ND	74.3	70-130	3.14	20	
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	180		"	200		88.6	60-130			
Surrogate: Pyrene-d10	160		"	200		79.9	60-130			

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Peter Kondrat  
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 Project: Jackson #31

**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0338 - EPA 3580**

**Matrix Spike Dup (B5C0338-MSD1)**

**Source: E5B0746-01**

Prepared: 03/03/2025 Analyzed: 03/04/2025

Surrogate: Benzo (a) pyrene-d12	160		ug/kg	200		81.8	60-130			
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 Project Number: [none]  
 Project: Jackson #31

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0446 - EPA 3550B**

**Blank (B5C0446-BLK1)**

Prepared: 03/04/2025 Analyzed: 03/05/2025

Diesel (C10-C28)	ND	25.0	mg/kg							Ua
Residual Range Organics (C28-C40)	ND	100	"							Ua
Surrogate: o-Terphenyl	16		"	24.9		62.8	50-150			

**LCS (B5C0446-BS1)**

Prepared: 03/04/2025 Analyzed: 03/05/2025

Diesel (C10-C28)	921	50.0	mg/kg	1000		92.1	70-130			
Residual Range Organics (C28-C40)	998	200	"	1000		99.8	70-130			
Surrogate: o-Terphenyl	46		"	49.8		93.0	50-150			

**Matrix Spike (B5C0446-MS1)**

**Source: E5B0780-01**

Prepared: 03/04/2025 Analyzed: 03/05/2025

Diesel (C10-C28)	936	50.0	mg/kg	1000	ND	93.6	70-130			
Residual Range Organics (C28-C40)	1030	200	"	1000	62.8	96.7	70-130			
Surrogate: o-Terphenyl	45		"	49.8		90.8	50-150			

**Matrix Spike Dup (B5C0446-MSD1)**

**Source: E5B0780-01**

Prepared: 03/04/2025 Analyzed: 03/05/2025

Diesel (C10-C28)	965	50.0	mg/kg	1000	ND	96.5	70-130	3.04	35	
Residual Range Organics (C28-C40)	1060	200	"	1000	62.8	99.5	70-130	2.71	35	
Surrogate: o-Terphenyl	46		"	49.8		91.6	50-150			

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Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**Metals by EPA 6000/7000 Series Methods - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0346 - EPA 3050B**

**Blank (B5C0346-BLK1)**

Prepared: 03/03/2025 Analyzed: 03/04/2025

Arsenic	ND	0.290	mg/kg							
Barium	ND	10.0	"							
Cadmium	ND	0.100	"							
Copper	ND	10.0	"							
Lead	ND	1.00	"							
Nickel	ND	1.00	"							
Selenium	ND	0.260	"							
Silver	ND	0.100	"							
Zinc	ND	37.0	"							

**LCS (B5C0346-BS1)**

Prepared: 03/03/2025 Analyzed: 03/04/2025

Arsenic	5.40	0.290	mg/kg	5.00		108	80-120			
Barium	535	10.0	"	500		107	80-120			
Cadmium	5.11	0.100	"	5.00		102	80-120			
Copper	51.5	10.0	"	50.0		103	80-120			
Lead	5.18	1.00	"	5.00		104	80-120			
Nickel	5.48	1.00	"	5.00		110	80-120			
Selenium	5.65	0.260	"	5.00		113	80-120			
Silver	5.36	0.100	"	5.00		107	80-120			
Zinc	53.7	37.0	"	50.0		107	80-120			

**Matrix Spike (B5C0346-MS1)**

**Source: E5C0011-01**

Prepared: 03/03/2025 Analyzed: 03/04/2025

Arsenic	6.21	0.263	mg/kg	4.54	1.84	96.3	75-125			
Barium	558	9.08	"	454	78.6	106	75-125			
Cadmium	4.54	0.0908	"	4.54	0.0728	98.4	75-125			
Copper	50.2	9.08	"	45.4	4.10	102	75-125			
Lead	8.60	0.908	"	4.54	4.09	99.5	75-125			

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Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**Metals by EPA 6000/7000 Series Methods - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0346 - EPA 3050B**

**Matrix Spike (B5C0346-MS1)**

**Source: E5C0011-01**

Prepared: 03/03/2025 Analyzed: 03/04/2025

Nickel	9.48	0.908	mg/kg	4.54	5.10	96.6	75-125			
Selenium	4.75	0.236	"	4.54	0.137	102	75-125			
Silver	4.75	0.0908	"	4.54	0.0202	104	75-125			
Zinc	58.6	33.6	"	45.4	16.3	93.3	75-125			

**Matrix Spike Dup (B5C0346-MSD1)**

**Source: E5C0011-01**

Prepared: 03/03/2025 Analyzed: 03/04/2025

Arsenic	7.12	0.288	mg/kg	4.96	1.84	106	75-125	13.7	20	
Barium	637	9.92	"	496	78.6	113	75-125	13.2	20	
Cadmium	5.19	0.0992	"	4.96	0.0728	103	75-125	13.5	20	
Copper	51.8	9.92	"	49.6	4.10	96.2	75-125	3.14	20	
Lead	9.26	0.992	"	4.96	4.09	104	75-125	7.31	20	
Nickel	9.86	0.992	"	4.96	5.10	96.0	75-125	3.90	20	
Selenium	5.13	0.258	"	4.96	0.137	101	75-125	7.70	20	
Silver	5.42	0.0992	"	4.96	0.0202	109	75-125	13.3	20	
Zinc	67.6	36.7	"	49.6	16.3	103	75-125	14.2	20	

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Blue Star Helium  
 5 Tamarade Dr.  
 Littleton CO 80127

Peter Kondrat  
 Project Number: [none]  
 Project: Jackson #31

**Saturated Paste - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0431 - Saturated Paste pH/EC**

**Blank (B5C0431-BLK1)**

Prepared: 03/04/2025 Analyzed: 03/05/2025

Specific Conductance (EC) ND 0.00500 mmhos/cm

**Duplicate (B5C0431-DUP1)**

**Source: E5C0005-12**

Prepared: 03/04/2025 Analyzed: 03/05/2025

pH 8.45 pH Units 8.42 0.356 25

Specific Conductance (EC) 5.84 0.00500 mmhos/cm 5.79 0.987 25

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Peter Kondrat  
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**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0455 - EPA 5030 (soil)**

**Blank (B5C0455-BLK1)**

Prepared: 03/04/2025 Analyzed: 03/08/2025

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							Ua
1,3,5-Trimethylbenzene	ND	0.00200	"							Ua
Benzene	ND	0.00200	"							Ua
Ethylbenzene	ND	0.00200	"							Ua
Toluene	ND	0.00200	"							Ua
Xylenes, total	ND	0.00200	"							Ua
Gasoline Range Hydrocarbons	ND	0.200	"							Ua

Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	103	70-130
Surrogate: Toluene-d8	0.12		"	0.125	97.4	70-130
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	98.9	70-130

**LCS (B5C0455-BS1)**

Prepared: 03/04/2025 Analyzed: 03/08/2025

1,2,4-Trimethylbenzene	0.104	0.00200	mg/kg	0.100	104	70-130
1,3,5-Trimethylbenzene	0.104	0.00200	"	0.100	104	70-130
Benzene	0.0898	0.00200	"	0.100	89.8	70-130
Ethylbenzene	0.0987	0.00200	"	0.100	98.7	70-130
Toluene	0.0875	0.00200	"	0.100	87.5	70-130
o-Xylene	0.107	0.00200	"	0.100	107	70-130
m,p-Xylene	0.216	0.00400	"	0.200	108	70-130

Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	102	70-130
Surrogate: Toluene-d8	0.12		"	0.125	98.5	70-130
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	103	70-130

**Matrix Spike (B5C0455-MS1)**

**Source: E5C0012-03**

Prepared: 03/04/2025 Analyzed: 03/08/2025

1,2,4-Trimethylbenzene	0.114	0.00200	mg/kg	0.100	ND	114	70-130
1,3,5-Trimethylbenzene	0.114	0.00200	"	0.100	ND	114	70-130
Benzene	0.0915	0.00200	"	0.100	ND	91.5	70-130

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**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B5C0455 - EPA 5030 (soil)**

Matrix Spike (B5C0455-MS1)			Source: E5C0012-03		Prepared: 03/04/2025 Analyzed: 03/08/2025					
Ethylbenzene	0.110	0.00200	mg/kg	0.100	ND	110	70-130			
Toluene	0.0903	0.00200	"	0.100	ND	90.3	70-130			
o-Xylene	0.116	0.00200	"	0.100	ND	116	70-130			
m,p-Xylene	0.239	0.00400	"	0.200	ND	120	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.2	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

Matrix Spike Dup (B5C0455-MSD1)			Source: E5C0012-03		Prepared: 03/04/2025 Analyzed: 03/08/2025					
1,2,4-Trimethylbenzene	0.102	0.00200	mg/kg	0.100	ND	102	70-130	11.4	20	
1,3,5-Trimethylbenzene	0.102	0.00200	"	0.100	ND	102	70-130	11.2	20	
Benzene	0.0880	0.00200	"	0.100	ND	88.0	70-130	3.92	20	
Ethylbenzene	0.0970	0.00200	"	0.100	ND	97.0	70-130	12.4	20	
Toluene	0.0871	0.00200	"	0.100	ND	87.1	70-130	3.67	20	
o-Xylene	0.105	0.00200	"	0.100	ND	105	70-130	9.33	20	
m,p-Xylene	0.212	0.00400	"	0.200	ND	106	70-130	12.3	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.2	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

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 Project: Jackson #31

**Total Metals 7196A - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2762693 - SW846 3060A</b>										
<b>BLANK (1206030944-BLK)</b>										
					Prepared: 03/14/2025 Analyzed: 03/14/2025					
Hexavalent Chromium	ND	0.376	mg/kg				-			U
<b>LCS (1206030945-BKS)</b>										
					Prepared: 03/14/2025 Analyzed: 03/14/2025					
Hexavalent Chromium	3.74	0.377	mg/kg	3.77		99.2	80-120			
<b>DUP (1206030946 D)</b>										
					Source: 712048001					
					Prepared: 03/14/2025 Analyzed: 03/14/2025					
Hexavalent Chromium	ND	0.328	mg/kg dry		<0.131		0-50	N/A	50	U
<b>MS (1206030947 S)</b>										
					Source: 712048001					
					Prepared: 03/14/2025 Analyzed: 03/14/2025					
Hexavalent Chromium	2.97	0.328	mg/kg dry	3.28	<0.131	89.1	75-125			
<b>DUP (1206030948 D)</b>										
					Source: 712048002					
					Prepared: 03/14/2025 Analyzed: 03/14/2025					
Hexavalent Chromium	ND	0.381	mg/kg dry		<0.152		0-50	N/A	50	U
<b>MS (1206030949 S)</b>										
					Source: 712048002					
					Prepared: 03/14/2025 Analyzed: 03/14/2025					
Hexavalent Chromium	3.74	0.381	mg/kg dry	3.81	<0.152	97.9	75-125			
<b>ILCS (1206030950-ILCS)</b>										
					Prepared: 03/14/2025 Analyzed: 03/14/2025					
Hexavalent Chromium	5.48	0.251	mg/kg	5.04		109	80-120			

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**Notes and Definitions**

- Ua Sample is Non-Detect.
  - U Result not detected above the detection limit
  - ND Analyte NOT DETECTED at or above the reporting limit
  - RPD Relative Percent Difference
- All soil results are reported on a wet weight basis.

Origins Laboratory

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