



October 11, 2021

**Tasman Geosciences**

**Mike Jahn**

**6855 West 119th Avenue**

**Broomfield CO 80020**

**Project Name - KMG - NESG 13-24**

**Project Number - 90112143**

Attached are your analytical results for KMG - NESG 13-24 received by Origins Laboratory, Inc. October 01, 2021. This project is associated with Origins project number Y110034-01.

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

Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Mike Jahn  
Project Number: 90112143  
Project: KMG - NESG 13-24

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-B01@6'	Y110034-01	Soil	October 1, 2021 13:40	10/01/2021 16:27
WH-BG01@3'	Y110034-02	Soil	October 1, 2021 14:07	10/01/2021 16:27
WH-BG01@6'	Y110034-03	Soil	October 1, 2021 14:10	10/01/2021 16:27
WH-BG02@3'	Y110034-04	Soil	October 1, 2021 14:13	10/01/2021 16:27
WH-BG02@6'	Y110034-05	Soil	October 1, 2021 14:16	10/01/2021 16:27

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 Project Number: 90112143  
 Project: KMG - NESG 13-24

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

**Sample Receipt Checklist**

Origins Work Order: 1110034 Client: TASMAN  
 Client Project ID: KMG-NESG 13-24

Checklist Completed by: KH Shipped Via: FD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Date/time completed: 10/1/12 Airbill #: NA

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

Cooler Number/Temperature: 1 / 3.1 °C  / \_\_\_\_\_ °C  / \_\_\_\_\_ °C  / \_\_\_\_\_ °C

Thermometer ID: TU03

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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +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: [Signature] (Project Manager) Date/Time Reviewed: 10/1/12

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Mike Jahn  
 Project Number: 90112143  
 Project: KMG - NESG 13-24

**WH-B01@6'**  
**10/1/2021 1:40:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110034-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.776	0.199	mg/L	1	B1J0632	CJM	10/06/2021	10/07/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1J0122	KDK	10/01/2021	10/01/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

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

Naphthalene	ND	0.00380	mg/kg	1	B1I2814	AJP	10/01/2021	10/01/2021	U
Benzene	ND	0.00200	"	"	"	AJP	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	AJP	"	"	U
Toluene	ND	0.00200	"	"	"	AJP	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	AJP	"	"	U
Xylenes, total	ND	0.00200	"	"	"	AJP	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	103 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	"	

**Metals by Saturated Paste**

Calcium	2.15	0.499	meq/L	10	[CALC]	CJM	10/05/2021	10/07/2021	
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**WH-B01@6'**  
**10/1/2021 1:40:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110034-01 (Soil)**

**Metals by Saturated Paste**

Magnesium	1.96	0.823	meq/L	10	[CALC]	CJM	10/05/2021	10/07/2021	
Sodium	4.82	0.435	"	"	"	CJM	"	"	

**pH in Soil by 9045D**

pH	8.66		pH Units	1	B1J0606	AHK	10/06/2021	10/07/2021	
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**SAR by 20B Saturated Paste**

SAR	3.37		SAR	1	B1J0507	CJM	10/05/2021	10/07/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	1.01	0.00500	mmhos/cm	1	B1J0610	AHK	10/06/2021	10/07/2021	
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**WH-BG01@3'**  
**10/1/2021 2:07:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110034-02 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.518	0.199	mg/L	1	B1J0632	CJM	10/06/2021	10/07/2021	
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**Metals by Saturated Paste**

Calcium	5.80	0.499	meq/L	10	[CALC]	CJM	10/05/2021	10/07/2021	
Magnesium	3.18	0.823	"	"	"	CJM	"	"	
Sodium	4.28	0.435	"	"	"	CJM	"	"	

**pH in Soil by 9045D**

pH	7.85		pH Units	1	B1J0603	AHK	10/06/2021	10/07/2021	
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**SAR by 20B Saturated Paste**

SAR	2.02		SAR	1	B1J0507	CJM	10/05/2021	10/07/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	1.44	0.00500	mmhos/cm	1	B1J0607	AHK	10/06/2021	10/07/2021	
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**WH-BG01@6'**  
**10/1/2021 2:10:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110034-03 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.582	0.201	mg/L	1	B1J0632	CJM	10/06/2021	10/07/2021
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**Metals by Saturated Paste**

Calcium	2.01	0.499	meq/L	10	[CALC]	CJM	10/05/2021	10/07/2021
Magnesium	1.44	0.823	"	"	"	CJM	"	"
Sodium	4.17	0.435	"	"	"	CJM	"	"

**pH in Soil by 9045D**

pH	8.17		pH Units	1	B1J0603	AHK	10/06/2021	10/07/2021
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**SAR by 20B Saturated Paste**

SAR	3.17		SAR	1	B1J0507	CJM	10/05/2021	10/07/2021
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.908	0.00500	mmhos/cm	1	B1J0607	AHK	10/06/2021	10/07/2021
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**WH-BG02@3'**  
**10/1/2021 2:13:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110034-04 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.514	0.198	mg/L	1	B1J0632	CJM	10/06/2021	10/07/2021	
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**Metals by Saturated Paste**

Calcium	8.02	0.499	meq/L	10	[CALC]	CJM	10/05/2021	10/07/2021	
Magnesium	5.64	0.823	"	"	"	CJM	"	"	
Sodium	6.90	0.435	"	"	"	CJM	"	"	

**pH in Soil by 9045D**

pH	7.84		pH Units	1	B1J0603	AHK	10/06/2021	10/07/2021	
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**SAR by 20B Saturated Paste**

SAR	2.64		SAR	1	B1J0507	CJM	10/05/2021	10/07/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	2.09	0.00500	mmhos/cm	1	B1J0607	AHK	10/06/2021	10/07/2021	
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**WH-BG02@6'**  
**10/1/2021 2:16:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110034-05 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	1.25	0.198	mg/L	1	B1J0505	KAP	10/05/2021	10/06/2021	
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**Metals by Saturated Paste**

Calcium	1.93	0.499	meq/L	10	[CALC]	CJM	10/05/2021	10/07/2021	
Magnesium	6.30	0.823	"	"	"	CJM	"	"	
Sodium	3.09	0.435	"	"	"	CJM	"	"	

**pH in Soil by 9045D**

pH	8.13		pH Units	1	B1J0604	AHK	10/06/2021	10/07/2021	
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**SAR by 20B Saturated Paste**

SAR	1.52		SAR	1	B1J0509	CJM	10/05/2021	10/07/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	1.16	0.00500	mmhos/cm	1	B1J0608	AHK	10/06/2021	10/07/2021	
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**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B112814 - EPA 5030 (soil)**

**Blank (B112814-BLK1)**

Prepared: 09/28/2021 Analyzed: 10/01/2021

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
Naphthalene	ND	0.00380	"							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Toluene	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Xylenes, total	ND	0.00200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	107		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	93.3		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	101		70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B112814 - EPA 5030 (soil)**

**LCS (B112814-BS1)**

Prepared: 09/28/2021 Analyzed: 10/01/2021

1,2,4-Trimethylbenzene	0.0425	0.00200	mg/kg	0.0500		85.0	70-130			
Naphthalene	0.0416	0.0100	"	0.0500		83.3	70-130			
1,3,5-Trimethylbenzene	0.0420	0.00200	"	0.0500		84.0	70-130			
Benzene	0.0458	0.00200	"	0.0500		91.6	70-130			
Ethylbenzene	0.0417	0.00200	"	0.0500		83.3	70-130			
m,p-Xylene	0.0870	0.00400	"	0.100		87.0	70-130			
o-Xylene	0.0426	0.00200	"	0.0500		85.1	70-130			
Toluene	0.0416	0.00200	"	0.0500		83.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		109	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		93.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.6	70-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B112814 - EPA 5030 (soil)**

Matrix Spike (B112814-MS1)	Source: Y109593-01			Prepared: 09/28/2021 Analyzed: 10/01/2021						
1,2,4-Trimethylbenzene	0.0344	0.00200	mg/kg	0.0500	ND	68.8	70-130			QM-07
Naphthalene	0.0308	0.0100	"	0.0500	0.000720	60.1	70-130			QM-07
1,3,5-Trimethylbenzene	0.0342	0.00200	"	0.0500	ND	68.4	70-130			QM-07
Benzene	0.0406	0.00200	"	0.0500	ND	81.1	70-130			
Ethylbenzene	0.0344	0.00200	"	0.0500	ND	68.9	70-130			QM-07
m,p-Xylene	0.0705	0.00400	"	0.100	ND	70.5	70-130			
o-Xylene	0.0353	0.00200	"	0.0500	ND	70.6	70-130			
Toluene	0.0350	0.00200	"	0.0500	ND	70.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.1	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B112814 - EPA 5030 (soil)**

Matrix Spike Dup (B112814-MSD1)	Source: Y109593-01			Prepared: 09/28/2021 Analyzed: 10/01/2021						
1,2,4-Trimethylbenzene	0.0352	0.00200	mg/kg	0.0500	ND	70.5	70-130	2.41	20	
Naphthalene	0.0346	0.0100	"	0.0500	0.000720	67.8	70-130	11.7	20	QM-07
1,3,5-Trimethylbenzene	0.0356	0.00200	"	0.0500	ND	71.3	70-130	4.07	20	
Benzene	0.0436	0.00200	"	0.0500	ND	87.3	70-130	7.32	20	
Ethylbenzene	0.0355	0.00200	"	0.0500	ND	71.0	70-130	2.97	20	
m,p-Xylene	0.0724	0.00400	"	0.100	ND	72.4	70-130	2.74	20	
o-Xylene	0.0363	0.00200	"	0.0500	ND	72.6	70-130	2.68	20	
Toluene	0.0371	0.00200	"	0.0500	ND	74.2	70-130	5.71	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.7	70-130			

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**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B1J0122 - EPA 3550B</b>										
<b>Blank (B1J0122-BLK1)</b>										
					Prepared: 10/01/2021 Analyzed: 10/01/2021					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	21		"	25.0		83.7	50-150			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J0122 - EPA 3550B**

**LCS (B1J0122-BS1)**

Prepared: 10/01/2021 Analyzed: 10/01/2021

Diesel (C10-C28)	936	50.0	mg/kg	1000		93.6	70-130			
Residual Range Organics (C28-C40)	856	200	"	1000		85.6	70-130			
Surrogate: o-Terphenyl	44		"	50.0		87.1	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Mike Jahn  
 Project Number: 90112143  
 Project: KMG - NESG 13-24

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J0122 - EPA 3550B**

<b>Matrix Spike (B1J0122-MS1)</b>	<b>Source: Y110031-01</b>			Prepared: 10/01/2021 Analyzed: 10/01/2021						
Diesel (C10-C28)	1520	50.0	mg/kg	1000	ND	152	70-130			QM-07
Residual Range Organics (C28-C40)	1400	200	"	1000	25.1	138	70-130			QM-07
Surrogate: o-Terphenyl	66		"	50.0		132	50-150			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J0122 - EPA 3550B**

<b>Matrix Spike Dup (B1J0122-MSD1)</b>	<b>Source: Y110031-01</b>		<b>Prepared: 10/01/2021 Analyzed: 10/01/2021</b>							
Diesel (C10-C28)	1910	50.0	mg/kg	1000	ND	191	70-130	22.5	35	QM-07
Residual Range Organics (C28-C40)	1850	200	"	1000	25.1	182	70-130	27.4	35	QM-07
Surrogate: o-Terphenyl	89		"	50.0		178	50-150			QM-07

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**Saturated Paste - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B1J0608 - NO PREP</b>										
<b>Blank (B1J0608-BLK1)</b>					Prepared: 10/06/2021 Analyzed: 10/07/2021					
<b>Duplicate (B1J0608-DUP1)</b>		<b>Source: Y110055-01</b>			Prepared: 10/06/2021 Analyzed: 10/07/2021					
Specific Conductance (EC)	0.424	0.00500	mmhos/cm		0.423			0.260	25	
<b>Batch B1J0610 - NO PREP</b>										
<b>Blank (B1J0610-BLK1)</b>					Prepared: 10/06/2021 Analyzed: 10/07/2021					
Specific Conductance (EC)	0.00120	0.00500	mmhos/cm							
<b>Duplicate (B1J0610-DUP1)</b>		<b>Source: Y110034-01</b>			Prepared: 10/06/2021 Analyzed: 10/07/2021					
Specific Conductance (EC)	1.01	0.00500	mmhos/cm		1.01			0.288	25	

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### Notes and Definitions

U Sample is Non-Detect.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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