



July 16, 2024

**Tasman Geosciences**

**Andy Sagen**

**6855 West 119th Avenue**

**Broomfield CO 80020**

**Project Name - KMG - McHale 2-5**

**Project Number - [none]**

Attached are your analytical results for KMG - McHale 2-5 received by Origins Laboratory, Inc. July 02, 2024. This project is associated with Origins project number Y407093-01.

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  
o-squad@oelabinc.com



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

Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Andy Sagen  
Project Number: [none]  
Project: KMG - McHale 2-5

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-B02@9'	Y407093-01	Soil	July 2, 2024 0:00	07/02/2024 18:07
WH-N02@8'	Y407093-02	Soil	July 2, 2024 0:00	07/02/2024 18:07
WH-S02@8'	Y407093-03	Soil	July 2, 2024 0:00	07/02/2024 18:07
WH-E02@8'	Y407093-04	Soil	July 2, 2024 0:00	07/02/2024 18:07
WH-W02@8'	Y407093-05	Soil	July 2, 2024 0:00	07/02/2024 18:07

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 6855 West 119th Avenue  
 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

# ORIGINS

LABORATORY, INC  
 Client: TASMAN/OXY

Address: 68555 W 119th Ave, Broomfield, Co 80020

Telephone Number: PM Contact # (720)939-3631

Email Address: OXY/Tasman distribution list

Project Manager: Andy Sagen

Project Name: McHale 2-5 W/Inhal

Project Number:

Collected By: Doug Decker

Invoice/Billing Info:

Page 1 of 1

S=Soil | SO=Solid | O=Oil | A=Air | G=Gas | UNP=Unpres | HCL= Hydrochloric | HNO3=Nitric | H2SO4=Sulfuric | NaOH=Sodium Hydroxide

#	Sample ID	Date	Time	Sampled	# of Containers	Matrix	Preservative	Analysis							Comments	
								GBTEXN+	TMBS	DRO/ORO	PAH	pH/EC/SAR	Boron	915 Metals		Full Table 915
1	WH-BO109	7/2/14			3	S		X	X	X						PH, SAR, As, Ba
2	WH-NO108															Cd, Cu, Pb, Ni, Sr
3	WH-SO108															Zn
4	WH-EO108															
5	WH-VO108															
6																
7																
8																
9																
10																


Relinquished By: [Signature] Date: 7/1/14 Time: 1:09

Received By: [Signature] Date: 7/2/14 Time: 1:07

Temp Received: 3 | Received On Ice?  Yes  No

Turnaround Time:  SAME DAY  24 Hr  48 Hr  72 Hr

Standard

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 Project: KMG - McHale 2-5

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 4407093 Client: Tasman  
 Client Project ID: McHale2-SWT1  
 Checklist Completed by: TJH Shipped Via: TLV  
 Date/time completed: 7/12/12 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A  
 Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_  
 Cooler Number/Temperature: 1/B.1 °C \_\_\_\_\_ °C \_\_\_\_\_ °C (Describe)  
 Thermometer ID: 7005

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"/>		SD
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? <b>If yes, contact client and note in narrative.</b>			<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 (Project Manager) [Signature] Date/Time Reviewed 7/12/12

Origins Laboratory, Inc.

[Signature]

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 6855 West 119th Avenue  
 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**WH-B02@9'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-01 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4G0255	ADM	07/02/2024	07/03/2024	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ADM	"	"	U

Surrogate: *o*-Terphenyl 84.9 % 50-150 " " "

**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4G0256	JSM	07/02/2024	07/03/2024	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Benzene	ND	0.00200	"	"	"	JSM	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Toluene	ND	0.00200	"	"	"	JSM	"	"	U
Xylenes, total	ND	0.00200	"	"	"	JSM	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	JSM	"	"	U

Surrogate: 1,2-Dichloroethane-d4 101 % 70-130 " " "  
 Surrogate: Toluene-d8 102 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

**Metals by Saturated Paste by EPA 6010**

Calcium	0.626	0.499	meq/L	10	[CALC]	ACC	07/03/2024	07/08/2024
Magnesium	ND	0.823	"	"	"	ACC	"	"
Sodium	1.53	0.435	"	"	"	ACC	"	"

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**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-01 (Soil)**

**PAH by EPA 8270E**

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4G0254	agile	07/02/2024	07/03/2024	U
2-Methylnaphthalene	ND	0.002	"	"	"	agile	"	"	U
Acenaphthene	ND	0.020	"	"	"	agile	"	"	U
Anthracene	ND	0.020	"	"	"	agile	"	"	U
Benzo (a) anthracene	ND	0.005	"	"	"	agile	"	"	U
Benzo (a) pyrene	ND	0.020	"	"	"	agile	"	"	U
Benzo (b) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Benzo (k) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Chrysene	ND	0.020	"	"	"	agile	"	"	U
Dibenz (a,h) anthracene	ND	0.020	"	"	"	agile	"	"	U
Fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Fluorene	ND	0.020	"	"	"	agile	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	agile	"	"	U
Naphthalene	ND	0.002	"	"	"	agile	"	"	U
Pyrene	ND	0.020	"	"	"	agile	"	"	U

Surrogate: Fluorene-d10	87.2 %	60-130	"	"	"
Surrogate: Anthracene-d10	94.4 %	60-130	"	"	"
Surrogate: Pyrene-d10	109 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	92.3 %	60-130	"	"	"

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**WH-B02@9'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-01 (Soil)**

**pH in Soil by 9045D**

pH	8.36		pH Units	1	B4G0318	GCG	07/03/2024	07/05/2024	
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**SAR by 20B Saturated Paste**

SAR	2.31	0.0100	SAR	1	B4G0313	ACC	07/03/2024	07/08/2024	
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**Table 915 metals by EPA 6020B**

Arsenic	2.22	0.247	mg/kg	10	B4G0253	KMC	07/02/2024	07/03/2024	
Barium	95.6	8.50	"	"	"	KMC	"	"	
Cadmium	0.0876	0.0850	"	"	"	KMC	"	"	
Copper	10.1	8.50	"	"	"	KMC	"	"	
Lead	8.61	0.850	"	"	"	KMC	"	"	
Nickel	11.8	0.850	"	"	"	KMC	"	"	
Selenium	ND	0.221	"	"	"	KMC	"	"	
Zinc	42.2	31.5	"	"	"	KMC	"	"	

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Andy Sagen  
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 Project: KMG - McHale 2-5

**WH-N02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-02 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4G0255	ADM	07/02/2024	07/03/2024	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ADM	"	"	U

Surrogate: *o*-Terphenyl 84.2 % 50-150 " " "

**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4G0256	JSM	07/02/2024	07/03/2024	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Benzene	ND	0.00200	"	"	"	JSM	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Toluene	ND	0.00200	"	"	"	JSM	"	"	U
Xylenes, total	ND	0.00200	"	"	"	JSM	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	JSM	"	"	U

Surrogate: 1,2-Dichloroethane-d4 101 % 70-130 " " "  
 Surrogate: Toluene-d8 98.1 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

**Metals by Saturated Paste by EPA 6010**

Calcium	0.719	0.499	meq/L	10	[CALC]	ACC	07/03/2024	07/08/2024
Magnesium	ND	0.823	"	"	"	ACC	"	"
Sodium	1.02	0.435	"	"	"	ACC	"	"

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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

WH-N02@8'  
 7/2/2024 12:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-02 (Soil)**

**PAH by EPA 8270E**

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4G0254	agile	07/02/2024	07/03/2024	U
2-Methylnaphthalene	ND	0.002	"	"	"	agile	"	"	U
Acenaphthene	ND	0.020	"	"	"	agile	"	"	U
Anthracene	ND	0.020	"	"	"	agile	"	"	U
Benzo (a) anthracene	ND	0.005	"	"	"	agile	"	"	U
Benzo (a) pyrene	ND	0.020	"	"	"	agile	"	"	U
Benzo (b) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Benzo (k) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Chrysene	ND	0.020	"	"	"	agile	"	"	U
Dibenz (a,h) anthracene	ND	0.020	"	"	"	agile	"	"	U
Fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Fluorene	ND	0.020	"	"	"	agile	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	agile	"	"	U
Naphthalene	ND	0.002	"	"	"	agile	"	"	U
Pyrene	ND	0.020	"	"	"	agile	"	"	U

Surrogate: Fluorene-d10	105 %	60-130			"	"	"	
Surrogate: Anthracene-d10	102 %	60-130			"	"	"	
Surrogate: Pyrene-d10	101 %	60-130			"	"	"	
Surrogate: Benzo (a) pyrene-d12	91.6 %	60-130			"	"	"	

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 Project: KMG - McHale 2-5

**WH-N02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-02 (Soil)**

**pH in Soil by 9045D**

pH	8.30		pH Units	1	B4G0318	GCG	07/03/2024	07/05/2024	
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**SAR by 20B Saturated Paste**

SAR	1.43	0.0100	SAR	1	B4G0313	ACC	07/03/2024	07/08/2024	
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**Table 915 metals by EPA 6020B**

Arsenic	2.12	0.265	mg/kg	10	B4G0253	KMC	07/02/2024	07/03/2024	
Barium	106	9.15	"	"	"	KMC	"	"	
Cadmium	0.111	0.0915	"	"	"	KMC	"	"	
Copper	10.0	9.15	"	"	"	KMC	"	"	
Lead	9.65	0.915	"	"	"	KMC	"	"	
Nickel	12.1	0.915	"	"	"	KMC	"	"	
Selenium	ND	0.238	"	"	"	KMC	"	"	
Zinc	38.6	33.8	"	"	"	KMC	"	"	

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**WH-S02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-03 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4G0255	ADM	07/02/2024	07/03/2024	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ADM	"	"	U

Surrogate: *o*-Terphenyl 87.5 % 50-150 " " "

**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4G0256	JSM	07/02/2024	07/03/2024	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Benzene	ND	0.00200	"	"	"	JSM	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Toluene	ND	0.00200	"	"	"	JSM	"	"	U
Xylenes, total	ND	0.00200	"	"	"	JSM	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	JSM	"	"	U

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "  
 Surrogate: Toluene-d8 99.0 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 97.8 % 70-130 " " "

**Metals by Saturated Paste by EPA 6010**

Calcium	0.595	0.499	meq/L	10	[CALC]	ACC	07/03/2024	07/08/2024
Magnesium	ND	0.823	"	"	"	ACC	"	"
Sodium	ND	0.435	"	"	"	ACC	"	"

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**WH-S02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-03 (Soil)**

**PAH by EPA 8270E**

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4G0254	agile	07/02/2024	07/03/2024	U
2-Methylnaphthalene	ND	0.002	"	"	"	agile	"	"	U
Acenaphthene	ND	0.020	"	"	"	agile	"	"	U
Anthracene	ND	0.020	"	"	"	agile	"	"	U
Benzo (a) anthracene	ND	0.005	"	"	"	agile	"	"	U
Benzo (a) pyrene	ND	0.020	"	"	"	agile	"	"	U
Benzo (b) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Benzo (k) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Chrysene	ND	0.020	"	"	"	agile	"	"	U
Dibenz (a,h) anthracene	ND	0.020	"	"	"	agile	"	"	U
Fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Fluorene	ND	0.020	"	"	"	agile	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	agile	"	"	U
Naphthalene	ND	0.002	"	"	"	agile	"	"	U
Pyrene	ND	0.020	"	"	"	agile	"	"	U

Surrogate: Fluorene-d10	101 %	60-130			"	"	"	
Surrogate: Anthracene-d10	105 %	60-130			"	"	"	
Surrogate: Pyrene-d10	109 %	60-130			"	"	"	
Surrogate: Benzo (a) pyrene-d12	87.9 %	60-130			"	"	"	

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**WH-S02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-03 (Soil)**

**pH in Soil by 9045D**

pH	7.83		pH Units	1	B4G0318	GCG	07/03/2024	07/05/2024	
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**SAR by 20B Saturated Paste**

SAR	0.272	0.0100	SAR	1	B4G0313	ACC	07/03/2024	07/08/2024	
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**Table 915 metals by EPA 6020B**

Arsenic	2.20	0.286	mg/kg	10	B4G0253	KMC	07/02/2024	07/03/2024	
Barium	80.3	9.86	"	"	"	KMC	"	"	
Cadmium	ND	0.0986	"	"	"	KMC	"	"	
Copper	10.1	9.86	"	"	"	KMC	"	"	
Lead	7.32	0.986	"	"	"	KMC	"	"	
Nickel	10.6	0.986	"	"	"	KMC	"	"	
Selenium	ND	0.256	"	"	"	KMC	"	"	
Zinc	ND	36.5	"	"	"	KMC	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**WH-E02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-04 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4G0255	ADM	07/02/2024	07/03/2024	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ADM	"	"	U

Surrogate: o-Terphenyl 87.6 % 50-150 " " "

**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4G0256	JSM	07/02/2024	07/03/2024	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Benzene	ND	0.00200	"	"	"	JSM	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Toluene	ND	0.00200	"	"	"	JSM	"	"	U
Xylenes, total	ND	0.00200	"	"	"	JSM	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	JSM	"	"	U

Surrogate: 1,2-Dichloroethane-d4 103 % 70-130 " " "  
 Surrogate: Toluene-d8 98.4 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 99.7 % 70-130 " " "

**Metals by Saturated Paste by EPA 6010**

Calcium	1.08	0.499	meq/L	10	[CALC]	ACC	07/03/2024	07/08/2024
Magnesium	ND	0.823	"	"	"	ACC	"	"
Sodium	ND	0.435	"	"	"	ACC	"	"

Origins Laboratory, Inc.



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 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**WH-E02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-04 (Soil)**

**PAH by EPA 8270E**

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4G0254	agile	07/02/2024	07/03/2024	U
2-Methylnaphthalene	ND	0.002	"	"	"	agile	"	"	U
Acenaphthene	ND	0.020	"	"	"	agile	"	"	U
Anthracene	ND	0.020	"	"	"	agile	"	"	U
Benzo (a) anthracene	ND	0.005	"	"	"	agile	"	"	U
Benzo (a) pyrene	ND	0.020	"	"	"	agile	"	"	U
Benzo (b) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Benzo (k) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Chrysene	ND	0.020	"	"	"	agile	"	"	U
Dibenz (a,h) anthracene	ND	0.020	"	"	"	agile	"	"	U
Fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Fluorene	ND	0.020	"	"	"	agile	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	agile	"	"	U
Naphthalene	ND	0.002	"	"	"	agile	"	"	U
Pyrene	ND	0.020	"	"	"	agile	"	"	U

Surrogate: Fluorene-d10	100 %	60-130	"	"	"
Surrogate: Anthracene-d10	107 %	60-130	"	"	"
Surrogate: Pyrene-d10	114 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	94.6 %	60-130	"	"	"

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 Project Number: [none]  
 Project: KMG - McHale 2-5

**WH-E02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-04 (Soil)**

**pH in Soil by 9045D**

pH	<b>8.08</b>		pH Units	1	B4G0318	GCG	07/03/2024	07/05/2024	
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**SAR by 20B Saturated Paste**

SAR	<b>0.242</b>	0.0100	SAR	1	B4G0313	ACC	07/03/2024	07/08/2024	
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**Table 915 metals by EPA 6020B**

Arsenic	<b>2.14</b>	0.257	mg/kg	10	B4G0253	KMC	07/02/2024	07/03/2024	
Barium	<b>76.1</b>	8.86	"	"	"	KMC	"	"	
Cadmium	<b>0.101</b>	0.0886	"	"	"	KMC	"	"	
Copper	<b>10.4</b>	8.86	"	"	"	KMC	"	"	
Lead	<b>8.19</b>	0.886	"	"	"	KMC	"	"	
Nickel	<b>11.5</b>	0.886	"	"	"	KMC	"	"	
Selenium	<b>ND</b>	0.230	"	"	"	KMC	"	"	
Zinc	<b>35.5</b>	32.8	"	"	"	KMC	"	"	

Origins Laboratory, Inc.



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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**WH-W02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-05 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4G0255	ADM	07/02/2024	07/03/2024	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ADM	"	"	U

Surrogate: *o*-Terphenyl 87.4 % 50-150 " " "

**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4G0256	JSM	07/02/2024	07/03/2024	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Benzene	ND	0.00200	"	"	"	JSM	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Toluene	ND	0.00200	"	"	"	JSM	"	"	U
Xylenes, total	ND	0.00200	"	"	"	JSM	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	JSM	"	"	U

Surrogate: 1,2-Dichloroethane-d4 104 % 70-130 " " "  
 Surrogate: Toluene-d8 98.0 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 98.5 % 70-130 " " "

**Metals by Saturated Paste by EPA 6010**

Calcium	0.836	0.499	meq/L	10	[CALC]	ACC	07/03/2024	07/08/2024
Magnesium	ND	0.823	"	"	"	ACC	"	"
Sodium	0.954	0.435	"	"	"	ACC	"	"

Origins Laboratory, Inc.



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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**WH-W02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-05 (Soil)**

**PAH by EPA 8270E**

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4G0254	agile	07/02/2024	07/03/2024	U
2-Methylnaphthalene	ND	0.002	"	"	"	agile	"	"	U
Acenaphthene	ND	0.020	"	"	"	agile	"	"	U
Anthracene	ND	0.020	"	"	"	agile	"	"	U
Benzo (a) anthracene	ND	0.005	"	"	"	agile	"	"	U
Benzo (a) pyrene	ND	0.020	"	"	"	agile	"	"	U
Benzo (b) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Benzo (k) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Chrysene	ND	0.020	"	"	"	agile	"	"	U
Dibenz (a,h) anthracene	ND	0.020	"	"	"	agile	"	"	U
Fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Fluorene	ND	0.020	"	"	"	agile	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	agile	"	"	U
Naphthalene	ND	0.002	"	"	"	agile	"	"	U
Pyrene	ND	0.020	"	"	"	agile	"	"	U

Surrogate: Fluorene-d10	99.3 %	60-130			"	"	"	"	
Surrogate: Anthracene-d10	107 %	60-130			"	"	"	"	
Surrogate: Pyrene-d10	115 %	60-130			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	93.5 %	60-130			"	"	"	"	

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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**WH-W02@8'**  
**7/2/2024 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y407093-05 (Soil)**

**pH in Soil by 9045D**

pH	8.33		pH Units	1	B4G0318	GCG	07/03/2024	07/05/2024	
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**SAR by 20B Saturated Paste**

SAR	1.24	0.0100	SAR	1	B4G0313	ACC	07/03/2024	07/08/2024	
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**Table 915 metals by EPA 6020B**

Arsenic	2.34	0.269	mg/kg	10	B4G0253	KMC	07/02/2024	07/03/2024	
Barium	103	9.27	"	"	"	KMC	"	"	
Cadmium	0.102	0.0927	"	"	"	KMC	"	"	
Copper	11.8	9.27	"	"	"	KMC	"	"	
Lead	9.92	0.927	"	"	"	KMC	"	"	
Nickel	13.7	0.927	"	"	"	KMC	"	"	
Selenium	ND	0.241	"	"	"	KMC	"	"	
Zinc	42.3	34.3	"	"	"	KMC	"	"	

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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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
<b>Batch B4G0255 - EPA 3550B</b>										
<b>Blank (B4G0255-BLK1)</b>										
					Prepared: 07/02/2024 Analyzed: 07/03/2024					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	22		"	24.9		88.0	50-150			

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 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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 B4G0255 - EPA 3550B**

**LCS (B4G0255-BS1)**

Prepared: 07/02/2024 Analyzed: 07/03/2024

Diesel (C10-C28)	948	50.0	mg/kg	1000		94.8	70-130			
Residual Range Organics (C28-C40)	979	200	"	1000		97.9	70-130			
Surrogate: o-Terphenyl	53		"	49.8		107	50-150			

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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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 B4G0255 - EPA 3550B**

<b>Matrix Spike (B4G0255-MS1)</b>	<b>Source: Y407092-02</b>			<b>Prepared: 07/02/2024 Analyzed: 07/03/2024</b>						
Diesel (C10-C28)	1010	50.0	mg/kg	1000	ND	101	70-130			
Residual Range Organics (C28-C40)	1070	200	"	1000	ND	107	70-130			
Surrogate: o-Terphenyl	57		"	49.8		115	50-150			

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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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 B4G0255 - EPA 3550B**

<b>Matrix Spike Dup (B4G0255-MSD1)</b>	<b>Source: Y407092-02</b>		<b>Prepared: 07/02/2024 Analyzed: 07/03/2024</b>							
Diesel (C10-C28)	925	50.0	mg/kg	1000	ND	92.5	70-130	9.04	35	
Residual Range Organics (C28-C40)	990	200	"	1000	ND	99.0	70-130	7.81	35	
Surrogate: o-Terphenyl	52		"	49.8		104	50-150			

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 Project Number: [none]  
 Project: KMG - McHale 2-5

**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 B4G0256 - EPA 5030 (soil)**

**Blank (B4G0256-BLK1)**

Prepared: 07/02/2024 Analyzed: 07/02/2024

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.16		"	0.125	127		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	108		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	98.2		70-130			

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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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 B4G0256 - EPA 5030 (soil)**

**LCS (B4G0256-BS1)**

Prepared: 07/02/2024 Analyzed: 07/02/2024

1,2,4-Trimethylbenzene	0.0901	0.00200	mg/kg	0.100		90.1	70-130			
1,3,5-Trimethylbenzene	0.0902	0.00200	"	0.100		90.2	70-130			
Benzene	0.0904	0.00200	"	0.100		90.4	70-130			
Ethylbenzene	0.0901	0.00200	"	0.100		90.1	70-130			
Naphthalene	0.0846	0.00380	"	0.100		84.6	70-130			
Toluene	0.0948	0.00200	"	0.100		94.8	70-130			
o-Xylene	0.0919	0.00200	"	0.100		91.9	70-130			
m,p-Xylene	0.166	0.00400	"	0.200		83.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.16		"	0.125		131	70-130			S-GC
Surrogate: Toluene-d8	0.13		"	0.125		106	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.7	70-130			

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Tasman Geosciences  
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 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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 B4G0256 - EPA 5030 (soil)

Matrix Spike (B4G0256-MS1)	Source: Y407093-01			Prepared: 07/02/2024 Analyzed: 07/03/2024						
1,2,4-Trimethylbenzene	0.0932	0.00200	mg/kg	0.100	ND	93.2	70-130			
1,3,5-Trimethylbenzene	0.0932	0.00200	"	0.100	ND	93.2	70-130			
Benzene	0.0888	0.00200	"	0.100	ND	88.8	70-130			
Ethylbenzene	0.0901	0.00200	"	0.100	ND	90.1	70-130			
Naphthalene	0.0931	0.00380	"	0.100	ND	93.1	70-130			
Toluene	0.0895	0.00200	"	0.100	ND	89.5	70-130			
o-Xylene	0.0819	0.00200	"	0.100	ND	81.9	70-130			
m,p-Xylene	0.179	0.00400	"	0.200	ND	89.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

Origins Laboratory, Inc.



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 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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 B4G0256 - EPA 5030 (soil)

Matrix Spike Dup (B4G0256-MSD1)	Source: Y407093-01			Prepared: 07/02/2024 Analyzed: 07/03/2024						
1,2,4-Trimethylbenzene	0.103	0.00200	mg/kg	0.100	ND	103	70-130	9.99	20	
1,3,5-Trimethylbenzene	0.104	0.00200	"	0.100	ND	104	70-130	11.0	20	
Benzene	0.0960	0.00200	"	0.100	ND	96.0	70-130	7.81	20	
Ethylbenzene	0.103	0.00200	"	0.100	ND	103	70-130	13.7	20	
Naphthalene	0.114	0.00380	"	0.100	ND	114	70-130	20.2	20	QR-02
Toluene	0.0946	0.00200	"	0.100	ND	94.6	70-130	5.52	20	
o-Xylene	0.0916	0.00200	"	0.100	ND	91.6	70-130	11.2	20	
m,p-Xylene	0.204	0.00400	"	0.200	ND	102	70-130	13.2	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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 Broomfield CO 80020

Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**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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**Metals by EPA 6000/7000 Series Methods - 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 B4G0253 - EPA 3050B**

**Blank (B4G0253-BLK1)**

Prepared: 07/02/2024 Analyzed: 07/03/2024

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 (B4G0253-BS1)**

Prepared: 07/02/2024 Analyzed: 07/03/2024

Arsenic	5.41	0.290	mg/kg	5.00		108	80-120			
Barium	552	10.0	"	500		110	80-120			
Cadmium	5.51	0.100	"	5.00		110	80-120			
Copper	56.8	10.0	"	50.0		114	80-120			
Lead	5.22	1.00	"	5.00		104	80-120			
Nickel	5.60	1.00	"	5.00		112	80-120			
Selenium	5.30	0.260	"	5.00		106	80-120			
Silver	5.42	0.100	"	5.00		108	80-120			
Zinc	54.2	37.0	"	50.0		108	80-120			

**Matrix Spike (B4G0253-MS1)**

Source: Y407093-01

Prepared: 07/02/2024 Analyzed: 07/03/2024

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**Metals by EPA 6000/7000 Series Methods - 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 B4G0253 - EPA 3050B**

<b>Matrix Spike (B4G0253-MS1)</b>		<b>Source: Y407093-01</b>			Prepared: 07/02/2024 Analyzed: 07/03/2024					
Arsenic	6.94	0.270	mg/kg	4.65	2.22	101	75-125			
Barium	608	9.30	"	465	95.6	110	75-125			
Cadmium	5.32	0.0930	"	4.65	0.0876	112	75-125			
Copper	60.0	9.30	"	46.5	10.1	107	75-125			
Lead	13.2	0.930	"	4.65	8.61	98.3	75-125			
Nickel	16.3	0.930	"	4.65	11.8	96.6	75-125			
Selenium	4.96	0.242	"	4.65	0.0816	105	75-125			
Silver	5.15	0.0930	"	4.65	0.0128	111	75-125			
Zinc	87.8	34.4	"	46.5	42.2	98.0	75-125			

<b>Matrix Spike Dup (B4G0253-MSD1)</b>		<b>Source: Y407093-01</b>			Prepared: 07/02/2024 Analyzed: 07/03/2024					
Arsenic	6.27	0.248	mg/kg	4.28	2.22	94.5	75-125	10.1	20	
Barium	546	8.56	"	428	95.6	105	75-125	10.8	20	
Cadmium	4.68	0.0856	"	4.28	0.0876	107	75-125	12.7	20	
Copper	52.7	8.56	"	42.8	10.1	99.5	75-125	12.9	20	
Lead	12.5	0.856	"	4.28	8.61	89.9	75-125	5.64	20	
Nickel	15.0	0.856	"	4.28	11.8	75.0	75-125	8.17	20	
Selenium	4.35	0.223	"	4.28	0.0816	99.6	75-125	13.2	20	
Silver	4.41	0.0856	"	4.28	0.0128	103	75-125	15.5	20	
Zinc	79.0	31.7	"	42.8	42.2	86.0	75-125	10.5	20	

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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B4G0254 - EPA 3580**

**Blank (B4G0254-BLK1)**

Prepared: 07/02/2024 Analyzed: 07/03/2024

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

Surrogate: Fluorene-d10	210		ug/kg	200		105	60-130			
Surrogate: Anthracene-d10	190		"	200		94.7	60-130			
Surrogate: Pyrene-d10	210		"	200		103	60-130			
Surrogate: Benzo (a) pyrene-d12	190		"	200		94.2	60-130			

**LCS (B4G0254-BS1)**

Prepared: 07/02/2024 Analyzed: 07/03/2024

1-Methylnaphthalene	0.195	0.002	mg/kg	0.200		97.6	70-130			
2-Methylnaphthalene	0.187	0.002	"	0.200		93.6	70-130			
Acenaphthene	0.165	0.020	"	0.200		82.3	70-130			
Anthracene	0.180	0.020	"	0.200		90.2	70-130			

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Andy Sagen  
 Project Number: [none]  
 Project: KMG - McHale 2-5

**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B4G0254 - EPA 3580**

**LCS (B4G0254-BS1)**

Prepared: 07/02/2024 Analyzed: 07/03/2024

Benzo (a) anthracene	0.183	0.005	mg/kg	0.200		91.4	70-130			
Benzo (a) pyrene	0.175	0.020	"	0.200		87.6	70-130			
Benzo (b) fluoranthene	0.192	0.020	"	0.200		95.8	70-130			
Benzo (g,h,i) perylene	0.173	0.020	"	0.200		86.7	70-130			
Benzo (k) fluoranthene	0.178	0.020	"	0.200		89.0	70-130			
Chrysene	0.169	0.020	"	0.200		84.4	70-130			
Dibenz (a,h) anthracene	0.173	0.020	"	0.200		86.3	70-130			
Fluoranthene	0.187	0.020	"	0.200		93.4	70-130			
Fluorene	0.157	0.020	"	0.200		78.6	70-130			
Indeno (1,2,3-cd) pyrene	0.166	0.020	"	0.200		83.2	70-130			
Naphthalene	0.175	0.002	"	0.200		87.5	70-130			
Phenanthrene	0.192	0.020	"	0.200		95.9	70-130			
Pyrene	0.180	0.020	"	0.200		90.1	70-130			
Surrogate: Fluorene-d10	190		ug/kg	200		97.1	60-130			
Surrogate: Anthracene-d10	210		"	200		104	60-130			
Surrogate: Pyrene-d10	200		"	200		100	60-130			
Surrogate: Benzo (a) pyrene-d12	180		"	200		90.8	60-130			

**Matrix Spike (B4G0254-MS1)**

Source: Y407093-01

Prepared: 07/02/2024 Analyzed: 07/03/2024

1-Methylnaphthalene	0.188	0.002	mg/kg	0.200	0.002	93.1	70-130			
2-Methylnaphthalene	0.209	0.002	"	0.200	0.001	104	70-130			
Acenaphthene	0.191	0.020	"	0.200	ND	95.6	70-130			
Anthracene	0.207	0.020	"	0.200	0.001	103	70-130			
Benzo (a) anthracene	0.210	0.005	"	0.200	0.001	104	70-130			
Benzo (a) pyrene	0.187	0.020	"	0.200	0.005	91.2	70-130			
Benzo (b) fluoranthene	0.234	0.020	"	0.200	0.006	114	70-130			
Benzo (g,h,i) perylene	0.219	0.020	"	0.200	0.012	104	70-130			

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 Project: KMG - McHale 2-5

**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B4G0254 - EPA 3580**

<b>Matrix Spike (B4G0254-MS1)</b>		<b>Source: Y407093-01</b>			<b>Prepared: 07/02/2024 Analyzed: 07/03/2024</b>					
Benzo (k) fluoranthene	0.201	0.020	mg/kg	0.200	0.006	97.7	70-130			
Chrysene	0.190	0.020	"	0.200	0.002	93.7	70-130			
Dibenz (a,h) anthracene	0.198	0.020	"	0.200	0.010	93.9	70-130			
Fluoranthene	0.176	0.020	"	0.200	0.002	86.9	70-130			
Fluorene	0.217	0.020	"	0.200	ND	108	70-130			
Indeno (1,2,3-cd) pyrene	0.200	0.020	"	0.200	0.010	94.7	70-130			
Naphthalene	0.185	0.002	"	0.200	ND	92.4	70-130			
Phenanthrene	0.213	0.020	"	0.200	0.001	106	70-130			
Pyrene	0.172	0.020	"	0.200	ND	85.9	70-130			
Surrogate: Fluorene-d10	210		ug/kg	200		107	60-130			
Surrogate: Anthracene-d10	210		"	200		103	60-130			
Surrogate: Pyrene-d10	170		"	200		84.4	60-130			
Surrogate: Benzo (a) pyrene-d12	180		"	200		91.0	60-130			

<b>Matrix Spike Dup (B4G0254-MSD1)</b>		<b>Source: Y407093-01</b>			<b>Prepared: 07/02/2024 Analyzed: 07/03/2024</b>					
1-Methylnaphthalene	0.194	0.002	mg/kg	0.200	0.002	96.2	70-130	3.19	20	
2-Methylnaphthalene	0.194	0.002	"	0.200	0.001	96.5	70-130	7.25	20	
Acenaphthene	0.179	0.020	"	0.200	ND	89.6	70-130	6.49	20	
Anthracene	0.174	0.020	"	0.200	0.001	86.6	70-130	17.1	20	
Benzo (a) anthracene	0.210	0.005	"	0.200	0.001	104	70-130	0.301	20	
Benzo (a) pyrene	0.203	0.020	"	0.200	0.005	99.3	70-130	8.36	20	
Benzo (b) fluoranthene	0.242	0.020	"	0.200	0.006	118	70-130	3.50	20	
Benzo (g,h,i) perylene	0.212	0.020	"	0.200	0.012	99.8	70-130	3.63	20	
Benzo (k) fluoranthene	0.205	0.020	"	0.200	0.006	99.7	70-130	2.03	20	
Chrysene	0.191	0.020	"	0.200	0.002	94.4	70-130	0.687	20	
Dibenz (a,h) anthracene	0.217	0.020	"	0.200	0.010	103	70-130	9.13	20	
Fluoranthene	0.206	0.020	"	0.200	0.002	102	70-130	15.8	20	

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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B4G0254 - EPA 3580**

<b>Matrix Spike Dup (B4G0254-MSD1)</b>	<b>Source: Y407093-01</b>			<b>Prepared: 07/02/2024 Analyzed: 07/03/2024</b>						
Fluorene	0.202	0.020	mg/kg	0.200	ND	101	70-130	7.24	20	
Indeno (1,2,3-cd) pyrene	0.212	0.020	"	0.200	0.010	101	70-130	6.00	20	
Naphthalene	0.195	0.002	"	0.200	ND	97.4	70-130	5.20	20	
Phenanthrene	0.196	0.020	"	0.200	0.001	97.5	70-130	8.39	20	
Pyrene	0.186	0.020	"	0.200	ND	93.1	70-130	8.09	20	
Surrogate: Fluorene-d10	210		ug/kg	200		105	60-130			
Surrogate: Anthracene-d10	190		"	200		93.2	60-130			
Surrogate: Pyrene-d10	200		"	200		97.5	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		99.5	60-130			

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 Project Number: [none]  
 Project: KMG - McHale 2-5

**Classical Chemistry Parameters - 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 B4G0313 - Saturated Paste Metals**

**Blank (B4G0313-BLK1)**

Prepared: 07/03/2024 Analyzed: 07/08/2024

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

**Duplicate (B4G0313-DUP1)**

**Source: Y406820-01**

Prepared: 07/03/2024 Analyzed: 07/08/2024

SAR	ND	0.0100	SAR		0.0528				200	
Calcium PPM	16.6	10.0	mg/L		17.0			2.14	50	
Magnesium PPM	2.16	10.0	"		2.20			1.83	50	
Sodium PPM	1.07	10.0	"		0.870			20.6	50	

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 Project: KMG - McHale 2-5

**Saturated Paste - 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 B4G0318 - Saturated Paste pH/EC**

**Duplicate (B4G0318-DUP1)**

**Source: Y406820-01**

Prepared: 07/03/2024 Analyzed: 07/05/2024

pH	8.36		pH Units		8.32			0.480	25	
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Andy Sagen  
Project Number: [none]  
Project: KMG - McHale 2-5

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### Notes and Definitions

- U Sample is Non-Detect.
- S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- 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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