



Absaroka  
Max Dahlgren  
112 High St.

October 09, 2024

Buffalo WY 82834

**Project Name - KMG - Mulga 29C Small Eyed 14C HZ OSA**    **Project Number - [none]**

Attached are your analytical results for KMG - Mulga 29C Small Eyed 14C HZ OSA received by Origins Laboratory October 08, 2024. This project is associated with Origins project number E410238-01.

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

Absaroka  
112 High St.  
Buffalo

WY 82834

Max Dahlgren  
Project Number: [none]  
Project: KMG - Mulga 29C Small Eyed 14C HZ  
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## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WP01@3"	E410238-01	Soil	October 8, 2024 9:10	10/08/2024 12:56
BG01@3"	E410238-02	Soil	October 8, 2024 9:00	10/08/2024 12:56
BG02@3"	E410238-03	Soil	October 8, 2024 9:05	10/08/2024 12:56
BG03@3"	E410238-04	Soil	October 8, 2024 9:20	10/08/2024 12:56
BG04@3"	E410238-05	Soil	October 8, 2024 9:23	10/08/2024 12:56

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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ORIGINS

LABORATORY

ORIGINAL WORK SHEET

E410238

Page 1 of 1

Client: OXY / Absaroka

Project Manager:

Max Dahlgren

Key:

Address: \_\_\_\_\_

Project Name:

Melpige 29C Shell Field Wt H<sub>2</sub>O/S

W= Water

Telephone Number: 970-481-6909

Collected By:

Luis Delacruz

GM-Groundwater

Email Address: oxy.co.rem@absarakasolutions.com

Invoice/Billing Info:

On File - Oxy

SW-Surface Water

WW=Waste Water

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

#	Sample ID	Date Sampled	Time Sampled	# of Containers	Matrix Preservative	Analysis										Comments
						Full 915	pH, EC, SAR	Boron	915 - Metals							
1	WP 01 @ 3"	10/8/24	910	3	S	UNP	X									
2	B6e1 @ 3"		960	2	S		X	X	K							
3	B6e2 @ 3"		905	2	S		X	X	K							
4	B6e3 @ 3"		920	2	S		X	X	K							
5	B6e4 @ 3"	V	923	2	S	V	X	X	K							
6																
7																
8																
9																
10																

Relinquished By:	Date: 10/8/24	Time: 1130	Received By:	Date: 10/8/24	Time: 1250
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

☐ Standard

☐ 48 Hr ☐ 72

☒ SAME DAY ☐ 24

Temp Received - 12.8 Received On Ice? ☒ Yes ☐ No

1725 Elk Place Denver, Co. 80211 • 303.433.1322 | originslab.com |

## Origins Laboratory

Jeff Pellgrini

Jen Pellegrini For Jordan A. Bynon, Project Manager

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

## Sample Receipt Checklist

Origins Work Order: E410238

Client: Absaroka

Client Project ID: Mulga

Checklist Completed by: EH

Shipped Via: HO

Date/time completed: 10/8/12

(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 12.8 °C / °C / °C / °C (Describe)

Thermometer ID: 1004

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"/>		<u>SO</u>
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 (Project Manager) EH Date/Time Reviewed 10/8/12

Origins Laboratory

*Jen Pellegrini*

Jen Pellegrini For Jordan A. Bynon, Project Manager

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Project Number: [none]  
Project: KMG - Mulga 29C Small Eyed 14C HZ  
OSA

WP01@3"

10/8/2024 9:10:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory

### E410238-01 (Soil)

### DRO/ORO by EPA 8015D

Diesel (C10-C28)	18200	250	mg/kg	10	B4J0801	10/08/2024	10/09/2024
Residual Range Organics (C28-C40)	4510	1000	"	"	"	"	"

Surrogate: o-Terphenyl 152 % 50-150 " " " S-06, U

### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	49.1	0.500	mg/kg	250	B4J0835	10/08/2024	10/09/2024
1,3,5-Trimethylbenzene	28.0	0.500	"	"	"	"	"
Benzene	5.09	0.0500	"	25	"	"	10/09/2024
Ethylbenzene	5.36	0.0500	"	"	"	"	"
Toluene	29.7	0.500	"	250	"	"	10/09/2024
Xylenes, total	86.0	0.500	"	"	"	"	"
Gasoline Range Hydrocarbons	7620	50.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 124 % 70-130 " " "

Surrogate: Toluene-d8 95.9 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 134 % 70-130 " " " S-GC

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

1-Methylnaphthalene	15.6	0.200	mg/kg	100	B4J0839	10/08/2024	10/09/2024
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10/8/2024 9:10:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory

### E410238-01 (Soil)

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

2-Methylnaphthalene	31.4	0.200	mg/kg	100	B4J0839	10/08/2024	10/09/2024	
Acenaphthene	ND	0.200	"	10	"	"	10/08/2024	R-05, U
Anthracene	ND	0.200	"	"	"	"	"	R-05, U
Benzo (a) anthracene	0.070	0.050	"	"	"	"	"	
Benzo (a) pyrene	ND	0.200	"	"	"	"	"	R-05, U
Benzo (b) fluoranthene	ND	0.200	"	"	"	"	"	R-05, U
Benzo (k) fluoranthene	ND	0.200	"	"	"	"	"	R-05, U
Chrysene	0.457	0.200	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.200	"	"	"	"	"	R-05, U
Fluoranthene	ND	0.200	"	"	"	"	"	R-05, U
Fluorene	3.13	0.200	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.200	"	"	"	"	"	R-05, U
Naphthalene	4.44	0.020	"	"	"	"	"	
Pyrene	0.212	0.200	"	"	"	"	"	

Surrogate: Fluorene-d10	96.0 %	60-130	"	"	"
Surrogate: Anthracene-d10	94.9 %	60-130	"	"	"
Surrogate: Pyrene-d10	78.4 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	99.2 %	60-130	"	"	"

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10/8/2024 9:10:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory

E410238-01 (Soil)

### Table 915 metals by EPA 6020B

Arsenic	10.6	0.273	mg/kg	10	B4J0840	10/08/2024	10/09/2024	
Barium	172	9.42	"	"	"	"	"	
Cadmium	0.280	0.0942	"	"	"	"	"	
Copper	9.96	9.42	"	"	"	"	"	
Lead	12.8	0.942	"	"	"	"	"	
Nickel	10.3	0.942	"	"	"	"	"	
Selenium	ND	0.245	"	"	"	"	"	U
Silver	ND	0.0942	"	"	"	"	"	U
Zinc	ND	34.8	"	"	"	"	"	U

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BG01@3"

10/8/2024 9:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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E410238-02 (Soil)

## Table 915 metals by EPA 6020B

Arsenic	4.11	0.251	mg/kg	10	B4J0840	10/08/2024	10/09/2024	
Barium	209	8.66	"	"	"	"	"	
Cadmium	0.149	0.0866	"	"	"	"	"	
Copper	10.1	8.66	"	"	"	"	"	
Lead	8.24	0.866	"	"	"	"	"	
Nickel	9.42	0.866	"	"	"	"	"	
Selenium	ND	0.225	"	"	"	"	"	U
Silver	ND	0.0866	"	"	"	"	"	U
Zinc	38.7	32.0	"	"	"	"	"	

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BG02@3"

10/8/2024 9:05:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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E410238-03 (Soil)

## Table 915 metals by EPA 6020B

Arsenic	3.42	0.269	mg/kg	10	B4J0840	10/08/2024	10/09/2024	
Barium	502	9.28	"	"	"	"	"	
Cadmium	0.0993	0.0928	"	"	"	"	"	
Copper	ND	9.28	"	"	"	"	"	U
Lead	6.46	0.928	"	"	"	"	"	
Nickel	9.13	0.928	"	"	"	"	"	
Selenium	ND	0.241	"	"	"	"	"	U
Silver	ND	0.0928	"	"	"	"	"	U
Zinc	ND	34.3	"	"	"	"	"	U

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BG03@3"

10/8/2024 9:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory

E410238-04 (Soil)

### Table 915 metals by EPA 6020B

Arsenic	5.58	0.244	mg/kg	10	B4J0840	10/08/2024	10/09/2024	
Barium	130	8.43	"	"	"	"	"	
Cadmium	0.150	0.0843	"	"	"	"	"	
Copper	8.94	8.43	"	"	"	"	"	
Lead	8.19	0.843	"	"	"	"	"	
Nickel	9.12	0.843	"	"	"	"	"	
Selenium	0.269	0.219	"	"	"	"	"	
Silver	ND	0.0843	"	"	"	"	"	U
Zinc	ND	31.2	"	"	"	"	"	U

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BG04@3"

10/8/2024 9:23:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory

E410238-05 (Soil)

## Table 915 metals by EPA 6020B

Arsenic	2.54	0.280	mg/kg	10	B4J0840	10/08/2024	10/09/2024	
Barium	88.7	9.66	"	"	"	"	"	
Cadmium	ND	0.0966	"	"	"	"	"	U
Copper	ND	9.66	"	"	"	"	"	U
Lead	5.01	0.966	"	"	"	"	"	
Nickel	6.48	0.966	"	"	"	"	"	
Selenium	ND	0.251	"	"	"	"	"	U
Silver	ND	0.0966	"	"	"	"	"	U
Zinc	ND	35.7	"	"	"	"	"	U

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**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
<b>Batch B4J0801 - EPA 3550B</b>										
<b>Blank (B4J0801-BLK1)</b>					Prepared: 10/08/2024 Analyzed: 10/08/2024					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	21		"	24.9		82.6	50-150			

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## 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 B4J0801 - EPA 3550B

#### LCS (B4J0801-BS1)

Prepared: 10/08/2024 Analyzed: 10/08/2024

Diesel (C10-C28)	1110	50.0	mg/kg	1000		111	70-130			
Residual Range Organics (C28-C40)	1100	200	"	1000		110	70-130			
Surrogate: o-Terphenyl	54		"	49.8		109	50-150			

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## 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 B4J0801 - EPA 3550B

Matrix Spike (B4J0801-MS1)		Source: E410224-01			Prepared: 10/08/2024 Analyzed: 10/08/2024					
Diesel (C10-C28)	1190	50.0	mg/kg	1000	ND	119	70-130			
Residual Range Organics (C28-C40)	1230	200	"	1000	ND	123	70-130			
Surrogate: o-Terphenyl	59		"	49.8		118	50-150			

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## 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 B4J0801 - EPA 3550B

Matrix Spike Dup (B4J0801-MSD1)		Source: E410224-01			Prepared: 10/08/2024 Analyzed: 10/08/2024					
Diesel (C10-C28)	1140	50.0	mg/kg	1000	ND	114	70-130	4.75	35	
Residual Range Organics (C28-C40)	1150	200	"	1000	ND	115	70-130	6.98	35	
Surrogate: o-Terphenyl	55		"	49.8		110	50-150			

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## 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
Batch B4J0835 - EPA 5030 (soil)										
Blank (B4J0835-BLK1)					Prepared: 10/08/2024 Analyzed: 10/08/2024					
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	0.13		"	0.125		108	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	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 B4J0835 - EPA 5030 (soil)

#### LCS (B4J0835-BS1)

Prepared: 10/08/2024 Analyzed: 10/08/2024

1,2,4-Trimethylbenzene	0.107	0.00200	mg/kg	0.100		107	70-130			
1,3,5-Trimethylbenzene	0.107	0.00200	"	0.100		107	70-130			
Benzene	0.0929	0.00200	"	0.100		92.9	70-130			
Ethylbenzene	0.105	0.00200	"	0.100		105	70-130			
Naphthalene	0.0984	0.00380	"	0.100		98.4	70-130			
Toluene	0.0962	0.00200	"	0.100		96.2	70-130			
o-Xylene	0.107	0.00200	"	0.100		107	70-130			
m,p-Xylene	0.221	0.00400	"	0.200		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		104	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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WY 82834

Max Dahlgren  
Project Number: [none]  
Project: KMG - Mulga 29C Small Eyed 14C HZ  
OSA

## 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 B4J0835 - EPA 5030 (soil)

Matrix Spike (B4J0835-MS1)		Source: E410224-01			Prepared: 10/08/2024 Analyzed: 10/08/2024					
1,2,4-Trimethylbenzene	0.0993	0.00200	mg/kg	0.100	ND	99.3	70-130			
1,3,5-Trimethylbenzene	0.0985	0.00200	"	0.100	ND	98.5	70-130			
Benzene	0.0895	0.00200	"	0.100	ND	89.5	70-130			
Ethylbenzene	0.0956	0.00200	"	0.100	ND	95.6	70-130			
Naphthalene	0.0989	0.00380	"	0.100	ND	98.9	70-130			
Toluene	0.0903	0.00200	"	0.100	ND	90.3	70-130			
o-Xylene	0.0981	0.00200	"	0.100	ND	98.1	70-130			
m,p-Xylene	0.203	0.00400	"	0.200	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

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Max Dahlgren  
Project Number: [none]  
Project: KMG - Mulga 29C Small Eyed 14C HZ  
OSA

## 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 B4J0835 - EPA 5030 (soil)

Matrix Spike Dup (B4J0835-MSD1)		Source: E410224-01			Prepared: 10/08/2024 Analyzed: 10/08/2024					
1,2,4-Trimethylbenzene	0.0884	0.00200	mg/kg	0.100	ND	88.4	70-130	11.7	20	
1,3,5-Trimethylbenzene	0.0885	0.00200	"	0.100	ND	88.5	70-130	10.7	20	
Benzene	0.0811	0.00200	"	0.100	ND	81.1	70-130	9.87	20	
Ethylbenzene	0.0858	0.00200	"	0.100	ND	85.8	70-130	10.7	20	
Naphthalene	0.0890	0.00380	"	0.100	ND	89.0	70-130	10.5	20	
Toluene	0.0815	0.00200	"	0.100	ND	81.5	70-130	10.2	20	
o-Xylene	0.0879	0.00200	"	0.100	ND	87.9	70-130	11.1	20	
m,p-Xylene	0.182	0.00400	"	0.200	ND	91.0	70-130	10.9	20	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		108	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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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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## 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 B4J0840 - EPA 3050B

#### Blank (B4J0840-BLK1)

Prepared: 10/08/2024 Analyzed: 10/09/2024

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

#### LCS (B4J0840-BS1)

Prepared: 10/08/2024 Analyzed: 10/09/2024

Arsenic	5.64	0.290	mg/kg	5.00		113	80-120
Barium	542	10.0	"	500		108	80-120
Cadmium	5.38	0.100	"	5.00		108	80-120
Copper	59.3	10.0	"	50.0		119	80-120
Lead	5.44	1.00	"	5.00		109	80-120
Nickel	5.94	1.00	"	5.00		119	80-120
Selenium	5.65	0.260	"	5.00		113	80-120
Silver	5.64	0.100	"	5.00		113	80-120
Zinc	58.0	37.0	"	50.0		116	80-120

#### Matrix Spike (B4J0840-MS1)

Source: E410238-05

Prepared: 10/08/2024 Analyzed: 10/09/2024

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Project: KMG - Mulga 29C Small Eyed 14C HZ  
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## 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 B4J0840 - EPA 3050B

Matrix Spike (B4J0840-MS1)		Source: E410238-05			Prepared: 10/08/2024 Analyzed: 10/09/2024					
Arsenic	7.15	0.242	mg/kg	4.18	2.54	110	75-125			
Barium	531	8.36	"	418	88.7	106	75-125			
Cadmium	4.70	0.0836	"	4.18	0.0744	111	75-125			
Copper	55.0	8.36	"	41.8	7.83	113	75-125			
Lead	9.63	0.836	"	4.18	5.01	111	75-125			
Nickel	11.1	0.836	"	4.18	6.48	110	75-125			
Selenium	4.82	0.217	"	4.18	0.0918	113	75-125			
Silver	4.86	0.0836	"	4.18	0.0242	116	75-125			
Zinc	74.5	30.9	"	41.8	30.8	105	75-125			
Matrix Spike Dup (B4J0840-MSD1)		Source: E410238-05			Prepared: 10/08/2024 Analyzed: 10/09/2024					
Arsenic	7.84	0.257	mg/kg	4.43	2.54	120	75-125	9.27	20	
Barium	587	8.86	"	443	88.7	113	75-125	9.94	20	
Cadmium	5.19	0.0886	"	4.43	0.0744	115	75-125	9.83	20	
Copper	59.8	8.86	"	44.3	7.83	117	75-125	8.34	20	
Lead	10.2	0.886	"	4.43	5.01	117	75-125	5.47	20	
Nickel	12.0	0.886	"	4.43	6.48	124	75-125	7.55	20	
Selenium	4.89	0.230	"	4.43	0.0918	108	75-125	1.46	20	
Silver	5.31	0.0886	"	4.43	0.0242	119	75-125	9.03	20	
Zinc	83.4	32.8	"	44.3	30.8	119	75-125	11.3	20	

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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Max Dahlgren  
Project Number: [none]  
Project: KMG - Mulga 29C Small Eyed 14C HZ  
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**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 B4J0839 - EPA 3580**

**Blank (B4J0839-BLK1)**

Prepared: 10/08/2024 Analyzed: 10/08/2024

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	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	180		"	200		89.7	60-130			
Surrogate: Pyrene-d10	200		"	200		102	60-130			
Surrogate: Benzo (a) pyrene-d12	210		"	200		103	60-130			

**LCS (B4J0839-BS1)**

Prepared: 10/08/2024 Analyzed: 10/08/2024

1-Methylnaphthalene	0.190	0.002	mg/kg	0.200		94.9	70-130
2-Methylnaphthalene	0.189	0.002	"	0.200		94.5	70-130
Acenaphthene	0.193	0.020	"	0.200		96.3	70-130
Anthracene	0.178	0.020	"	0.200		88.8	70-130

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Max Dahlgren  
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Project: KMG - Mulga 29C Small Eyed 14C HZ  
OSA

## 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 B4J0839 - EPA 3580

#### LCS (B4J0839-BS1)

Prepared: 10/08/2024 Analyzed: 10/08/2024

Benzo (a) anthracene	0.181	0.005	mg/kg	0.200		90.4	70-130
Benzo (a) pyrene	0.190	0.020	"	0.200		95.1	70-130
Benzo (b) fluoranthene	0.204	0.020	"	0.200		102	70-130
Benzo (g,h,i) perylene	0.195	0.020	"	0.200		97.3	70-130
Benzo (k) fluoranthene	0.191	0.020	"	0.200		95.7	70-130
Chrysene	0.184	0.020	"	0.200		92.2	70-130
Dibenz (a,h) anthracene	0.194	0.020	"	0.200		97.2	70-130
Fluoranthene	0.169	0.020	"	0.200		84.6	70-130
Fluorene	0.194	0.020	"	0.200		96.8	70-130
Indeno (1,2,3-cd) pyrene	0.232	0.020	"	0.200		116	70-130
Naphthalene	0.198	0.002	"	0.200		98.8	70-130
Phenanthrene	0.176	0.020	"	0.200		88.0	70-130
Pyrene	0.198	0.020	"	0.200		99.1	70-130
Surrogate: Fluorene-d10	200		ug/kg	200		98.7	60-130
Surrogate: Anthracene-d10	180		"	200		89.5	60-130
Surrogate: Pyrene-d10	210		"	200		106	60-130
Surrogate: Benzo (a) pyrene-d12	210		"	200		104	60-130

#### Matrix Spike (B4J0839-MS1)

Source: E410224-01

Prepared: 10/08/2024 Analyzed: 10/08/2024

1-Methylnaphthalene	0.216	0.002	mg/kg	0.200	ND	108	70-130
2-Methylnaphthalene	0.211	0.002	"	0.200	ND	106	70-130
Acenaphthene	0.214	0.020	"	0.200	ND	107	70-130
Anthracene	0.199	0.020	"	0.200	ND	99.3	70-130
Benzo (a) anthracene	0.207	0.005	"	0.200	0.0004	103	70-130
Benzo (a) pyrene	0.216	0.020	"	0.200	ND	108	70-130
Benzo (b) fluoranthene	0.226	0.020	"	0.200	0.0008	113	70-130
Benzo (g,h,i) perylene	0.212	0.020	"	0.200	0.001	105	70-130

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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Max Dahlgren  
Project Number: [none]  
Project: KMG - Mulga 29C Small Eyed 14C HZ  
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**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 B4J0839 - EPA 3580**

Matrix Spike (B4J0839-MS1)		Source: E410224-01			Prepared: 10/08/2024 Analyzed: 10/08/2024					
Benzo (k) fluoranthene	0.211	0.020	mg/kg	0.200	0.001	105	70-130			
Chrysene	0.194	0.020	"	0.200	0.0008	96.7	70-130			
Dibenz (a,h) anthracene	0.209	0.020	"	0.200	0.002	104	70-130			
Fluoranthene	0.190	0.020	"	0.200	ND	95.1	70-130			
Fluorene	0.217	0.020	"	0.200	ND	109	70-130			
Indeno (1,2,3-cd) pyrene	0.206	0.020	"	0.200	0.002	102	70-130			
Naphthalene	0.218	0.002	"	0.200	ND	109	70-130			
Phenanthrene	0.194	0.020	"	0.200	ND	96.8	70-130			
Pyrene	0.211	0.020	"	0.200	ND	105	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	180		"	200		90.5	60-130			
Surrogate: Pyrene-d10	200		"	200		102	60-130			
Surrogate: Benzo (a) pyrene-d12	210		"	200		105	60-130			

Matrix Spike Dup (B4J0839-MSD1)		Source: E410224-01			Prepared: 10/08/2024 Analyzed: 10/08/2024					
1-Methylnaphthalene	0.205	0.002	mg/kg	0.200	ND	102	70-130	5.60	20	
2-Methylnaphthalene	0.201	0.002	"	0.200	ND	101	70-130	4.72	20	
Acenaphthene	0.205	0.020	"	0.200	ND	102	70-130	4.39	20	
Anthracene	0.185	0.020	"	0.200	ND	92.7	70-130	6.88	20	
Benzo (a) anthracene	0.185	0.005	"	0.200	0.0004	92.1	70-130	11.3	20	
Benzo (a) pyrene	0.201	0.020	"	0.200	ND	101	70-130	7.12	20	
Benzo (b) fluoranthene	0.202	0.020	"	0.200	0.0008	101	70-130	11.2	20	
Benzo (g,h,i) perylene	0.207	0.020	"	0.200	0.001	103	70-130	2.38	20	
Benzo (k) fluoranthene	0.203	0.020	"	0.200	0.001	101	70-130	3.89	20	
Chrysene	0.176	0.020	"	0.200	0.0008	87.8	70-130	9.59	20	
Dibenz (a,h) anthracene	0.199	0.020	"	0.200	0.002	98.5	70-130	4.89	20	
Fluoranthene	0.191	0.020	"	0.200	ND	95.4	70-130	0.342	20	

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Max Dahlgren  
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**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 B4J0839 - EPA 3580**

Matrix Spike Dup (B4J0839-MSD1)		Source: E410224-01			Prepared: 10/08/2024 Analyzed: 10/08/2024					
Fluorene	0.209	0.020	mg/kg	0.200	ND	104	70-130	3.92	20	
Indeno (1,2,3-cd) pyrene	0.201	0.020	"	0.200	0.002	99.2	70-130	2.38	20	
Naphthalene	0.208	0.002	"	0.200	ND	104	70-130	4.61	20	
Phenanthrene	0.184	0.020	"	0.200	ND	92.1	70-130	4.97	20	
Pyrene	0.201	0.020	"	0.200	ND	101	70-130	4.58	20	
Surrogate: Fluorene-d10	200		ug/kg	200		99.6	60-130			
Surrogate: Anthracene-d10	180		"	200		90.8	60-130			
Surrogate: Pyrene-d10	200		"	200		102	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		100	60-130			

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Max Dahlgren

Project Number: [none]

Project: KMG - Mulga 29C Small Eyed 14C HZ  
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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.

S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.

R-05 The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting limits.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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