

March 30, 2018

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Held 12-14 I8

Project Number - [none]

Attached are your analytical results for KMG - Held 12-14 I8 received by Origins Laboratory, Inc. March 23, 2018. This project is associated with Origins project number Y803412-01.

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



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - Held 12-14 18

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@7'	Y803412-01	Soil	March 23, 2018 0:00	03/23/2018 15:40
N01@5'	Y803412-02	Soil	March 23, 2018 0:00	03/23/2018 15:40
S01@5'	Y803412-03	Soil	March 23, 2018 0:00	03/23/2018 15:40
E01@5'	Y803412-04	Soil	March 23, 2018 0:00	03/23/2018 15:40
W01@5'	Y803412-05	Soil	March 23, 2018 0:00	03/23/2018 15:40

Per the email from Mike on 3/29/18, samples N01@5', S01@5', E01@5', and W01@4' were taken off hold for same day analysis.

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 Project Number: [none]  
 Project: KMG - Held 12-14 18

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

Origins Laboratory

**Sample Receipt Checklist**

Origins Work Order: Y803412 Client: Tasman  
 Client Project ID: KMG - Held 12-14 18  
 Checklist Completed by: JG Shipped Via: Pick up  
 Date/time completed: 3/23/12 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: DIA  
 Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_ (Describe)  
 Cooler Number/Temperature: 1 / 2.1 °C 1 °C 1 °C 1 °C  
 Thermometer ID: T003

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? <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)

Date/Time Reviewed 3/1

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 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**B01@7'**  
**3/23/2018 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803412-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	<b>372</b>	25.0	mg/kg	1	B8C2305	03/23/2018	03/23/2018	
Residual Range Organics (C28-C40)	<b>375</b>	100	"	"	"	"	"	

Surrogate: *o*-Terphenyl 106 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	<b>0.567</b>	0.200	mg/kg	1	B8C2304	"	03/23/2018	
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 124 % 70-130 " " "  
 Surrogate: Toluene-d8 96.9 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 116 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	<b>8.24</b>		pH Units	1	B8C2306	03/23/2018	03/23/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	<b>0.647</b>		mmhos/cm	"	B8C2307	"	03/23/2018	
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Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**N01@5'**  
**3/23/2018 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803412-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2902	03/29/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 87.7 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2906	03/29/2018	03/29/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 96.6 % 70-130 " " "  
*Surrogate: Toluene-d8* 94.2 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 99.6 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.79		pH Units	1	B8C2908	03/29/2018	03/30/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.119		mmhos/cm	"	B8C2909	03/29/2018	03/30/2018	
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**S01@5'**  
**3/23/2018 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803412-03 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2902	03/29/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 88.4 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2906	03/29/2018	03/29/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 90.7 % 70-130 " " "  
*Surrogate: Toluene-d8* 102 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 99.4 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.38		pH Units	1	B8C2908	03/29/2018	03/30/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0543		mmhos/cm	"	B8C2909	03/29/2018	03/30/2018	
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 Project: KMG - Held 12-14 I8

**E01@5'**  
**3/23/2018 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803412-04 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2902	03/29/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 86.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2906	03/29/2018	03/29/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 93.3 % 70-130 " " "  
*Surrogate: Toluene-d8* 106 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 106 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.29		pH Units	1	B8C2908	03/29/2018	03/30/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0681		mmhos/cm	"	B8C2909	03/29/2018	03/30/2018	
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**W01@5'**  
**3/23/2018 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803412-05 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2902	03/29/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 80.9 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2906	03/29/2018	03/29/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 98.5 % 70-130 " " "  
*Surrogate: Toluene-d8* 94.4 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 109 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.46		pH Units	1	B8C2908	03/29/2018	03/30/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0745		mmhos/cm	"	B8C2909	03/29/2018	03/30/2018	
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Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 I8

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2304 - EPA 5030 (soil)</b>										
<b>Blank (B8C2304-BLK1)</b>										
					Prepared: 03/23/2018 Analyzed: 03/23/2018					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	76		ug/kg	62.5		122	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2304 - EPA 5030 (soil)

**LCS (B8C2304-BS1)**

Prepared: 03/23/2018 Analyzed: 03/23/2018

Benzene	0.101	0.002	mg/kg	0.100		101	77.1-124			
Toluene	0.092	0.002	"	0.100		91.6	74.5-128			
Ethylbenzene	0.092	0.002	"	0.100		92.1	66.4-127			
m,p-Xylene	0.181	0.004	"	0.200		90.7	76.6-124			
o-Xylene	0.088	0.002	"	0.100		87.9	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	59		"	62.5		95.2	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.8	70-130			

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 Denver CO 80211

Bob Cornez  
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 Project: KMG - Held 12-14 I8

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2304 - EPA 5030 (soil)

Matrix Spike (B8C2304-MS1)	Source: Y803412-01			Prepared: 03/23/2018 Analyzed: 03/23/2018						
Benzene	0.117	0.002	mg/kg	0.100	ND	117	71.8-126			
Toluene	0.108	0.002	"	0.100	ND	108	65.1-130			
Ethylbenzene	0.128	0.002	"	0.100	0.0007	127	62.2-130			
m,p-Xylene	0.247	0.004	"	0.200	0.001	123	46.5-137			
o-Xylene	0.120	0.002	"	0.100	0.001	119	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	73		ug/kg	62.5		117	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.1	70-130			
Surrogate: 4-Bromofluorobenzene	77		"	62.5		123	70-130			

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 Project: KMG - Held 12-14 18

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2304 - EPA 5030 (soil)

Matrix Spike Dup (B8C2304-MSD1)	Source: Y803412-01			Prepared: 03/23/2018 Analyzed: 03/23/2018						
Benzene	0.108	0.002	mg/kg	0.100	ND	108	71.8-126	8.35	11.3	
Toluene	0.095	0.002	"	0.100	ND	95.0	65.1-130	12.7	15.4	
Ethylbenzene	0.107	0.002	"	0.100	0.0007	106	62.2-130	17.9	19.6	
m,p-Xylene	0.204	0.004	"	0.200	0.001	101	46.5-137	19.3	19.2	QR-02
o-Xylene	0.098	0.002	"	0.100	0.001	97.0	54.2-134	20.1	17.9	QR-02
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.6	70-130			
Surrogate: 4-Bromofluorobenzene	73		"	62.5		116	70-130			

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Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 I8

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2906 - EPA 5030 (soil)</b>										
<b>Blank (B8C2906-BLK1)</b>										
					Prepared: 03/29/2018 Analyzed: 03/29/2018					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	52		ug/kg	62.5		83.5	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.7	70-130			

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Bob Cornez  
 Project Number: [none]  
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**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2906 - EPA 5030 (soil)**

**LCS (B8C2906-BS1)**

Prepared: 03/29/2018 Analyzed: 03/29/2018

Benzene	0.117	0.002	mg/kg	0.100		117	77.1-124			
Toluene	0.115	0.002	"	0.100		115	74.5-128			
Ethylbenzene	0.105	0.002	"	0.100		105	66.4-127			
m,p-Xylene	0.200	0.004	"	0.200		99.9	76.6-124			
o-Xylene	0.098	0.002	"	0.100		97.8	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	48		ug/kg	62.5		76.1	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.6	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2906 - EPA 5030 (soil)

Matrix Spike (B8C2906-MS1)	Source: Y803507-01			Prepared: 03/29/2018 Analyzed: 03/29/2018						
Benzene	0.109	0.002	mg/kg	0.100	0.004	106	71.8-126			
Toluene	0.107	0.002	"	0.100	0.0009	106	65.1-130			
Ethylbenzene	0.094	0.002	"	0.100	0.002	91.7	62.2-130			
m,p-Xylene	0.187	0.004	"	0.200	0.004	91.3	46.5-137			
o-Xylene	0.099	0.002	"	0.100	0.006	92.9	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	49		ug/kg	62.5		78.3	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tasman Geosciences  
 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 I8

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2906 - EPA 5030 (soil)

Matrix Spike Dup (B8C2906-MSD1)	Source: Y803507-01			Prepared: 03/29/2018 Analyzed: 03/29/2018						
Benzene	0.112	0.002	mg/kg	0.100	0.004	109	71.8-126	2.78	11.3	
Toluene	0.106	0.002	"	0.100	0.0009	105	65.1-130	1.33	15.4	
Ethylbenzene	0.097	0.002	"	0.100	0.002	94.4	62.2-130	2.86	19.6	
m,p-Xylene	0.185	0.004	"	0.200	0.004	90.5	46.5-137	0.828	19.2	
o-Xylene	0.094	0.002	"	0.100	0.006	87.9	54.2-134	5.21	17.9	
Surrogate: 1,2-Dichloroethane-d4	49		ug/kg	62.5		78.1	70-130			
Surrogate: Toluene-d8	59		"	62.5		94.9	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		90.8	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**Volatile Organic Compounds by GC/MS SW846 8260C - 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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**Extractable Petroleum Hydrocarbons by 8015C - 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 B8C2305 - EPA 3550B**

**Blank (B8C2305-BLK1)**

Prepared: 03/23/2018 Analyzed: 03/23/2018

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	43		"	50.0		86.1	59-131			

**LCS (B8C2305-BS1)**

Prepared: 03/23/2018 Analyzed: 03/23/2018

Diesel (C10-C28)	1020	50.0	mg/kg	1000		102	64-121			
Residual Range Organics (C28-C40)	951	200	"	1000		95.1	58-124			
Surrogate: o-Terphenyl	49		"	50.0		97.4	59-131			

**Matrix Spike (B8C2305-MS1)**

Source: Y803412-01

Prepared: 03/23/2018 Analyzed: 03/23/2018

Diesel (C10-C28)	1320	50.0	mg/kg	1000	372	94.8	53-125			
Residual Range Organics (C28-C40)	1240	200	"	1000	375	87.0	47-133			
Surrogate: o-Terphenyl	54		"	50.0		107	59-131			

**Matrix Spike Dup (B8C2305-MSD1)**

Source: Y803412-01

Prepared: 03/23/2018 Analyzed: 03/23/2018

Diesel (C10-C28)	1470	50.0	mg/kg	1000	372	110	53-125	14.7	20	
Residual Range Organics (C28-C40)	1320	200	"	1000	375	94.6	47-133	8.37	20	
Surrogate: o-Terphenyl	54		"	50.0		108	59-131			

**Batch B8C2902 - EPA 3550B**

**Blank (B8C2902-BLK1)**

Prepared: 03/29/2018 Analyzed: 03/29/2018

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 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2902 - EPA 3550B</b>										
<b>Blank (B8C2902-BLK1)</b>										
					Prepared: 03/29/2018 Analyzed: 03/29/2018					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	47		"	50.0		93.4	59-131			
<b>LCS (B8C2902-BS1)</b>										
					Prepared: 03/29/2018 Analyzed: 03/29/2018					
Diesel (C10-C28)	822	50.0	mg/kg	1000		82.2	64-121			
Residual Range Organics (C28-C40)	788	200	"	1000		78.8	58-124			
Surrogate: o-Terphenyl	49		"	50.0		98.8	59-131			
<b>Matrix Spike (B8C2902-MS1)</b>										
		<b>Source: Y803416-01</b>			Prepared: 03/29/2018 Analyzed: 03/29/2018					
Diesel (C10-C28)	787	50.0	mg/kg	1000	ND	78.7	53-125			
Residual Range Organics (C28-C40)	755	200	"	1000	ND	75.5	47-133			
Surrogate: o-Terphenyl	47		"	50.0		94.6	59-131			
<b>Matrix Spike Dup (B8C2902-MSD1)</b>										
		<b>Source: Y803416-01</b>			Prepared: 03/29/2018 Analyzed: 03/29/2018					
Diesel (C10-C28)	813	50.0	mg/kg	1000	ND	81.3	53-125	3.24	20	
Residual Range Organics (C28-C40)	761	200	"	1000	ND	76.1	47-133	0.690	20	
Surrogate: o-Terphenyl	49		"	50.0		98.1	59-131			

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 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2306 - NO PREP</b>										
<b>Duplicate (B8C2306-DUP1)</b>		<b>Source: Y803412-01</b>			Prepared: 03/23/2018 Analyzed: 03/23/2018					
pH	8.03		pH Units		8.24			2.58	25	
<b>Batch B8C2307 - NO PREP</b>										
<b>Blank (B8C2307-BLK1)</b>		Prepared: 03/23/2018 Analyzed: 03/23/2018								
Specific Conductance (EC)	0.00250		mmhos/cm							
<b>Duplicate (B8C2307-DUP1)</b>		<b>Source: Y803412-01</b>			Prepared: 03/23/2018 Analyzed: 03/23/2018					
Specific Conductance (EC)	0.649		mmhos/cm		0.647			0.262	25	
<b>Batch B8C2908 - NO PREP</b>										
<b>Duplicate (B8C2908-DUP1)</b>		<b>Source: Y803412-02</b>			Prepared: 03/29/2018 Analyzed: 03/30/2018					
pH	7.60		pH Units		7.79			2.47	25	
<b>Batch B8C2909 - NO PREP</b>										
<b>Blank (B8C2909-BLK1)</b>		Prepared: 03/29/2018 Analyzed: 03/30/2018								
Specific Conductance (EC)	0.00350		mmhos/cm							
<b>Duplicate (B8C2909-DUP1)</b>		<b>Source: Y803412-02</b>			Prepared: 03/29/2018 Analyzed: 03/30/2018					
Specific Conductance (EC)	0.135		mmhos/cm		0.119			12.2	25	

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - Held 12-14 18

---

### Notes and Definitions

U Sample is Non-Detect.

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.

Origins Laboratory, Inc.



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---

Jen Pellegrini For Noelle Doyle Mathis, President

March 29, 2018

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Held 12-14 I8

Project Number - [none]

Attached are your analytical results for KMG - Held 12-14 I8 received by Origins Laboratory, Inc. March 28, 2018. This project is associated with Origins project number Y803498-01.

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



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - Held 12-14 18

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B02@19'	Y803498-01	Soil	March 28, 2018 15:30	03/28/2018 18:00
N02@18'	Y803498-02	Soil	March 28, 2018 15:32	03/28/2018 18:00
E02@18'	Y803498-03	Soil	March 28, 2018 15:34	03/28/2018 18:00
S02@18'	Y803498-04	Soil	March 28, 2018 15:36	03/28/2018 18:00
W02@18'	Y803498-05	Soil	March 28, 2018 15:38	03/28/2018 18:00

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: Y803498 Client: Tasman  
 Client Project ID: KMG - Held 12-14 18  
 Checklist Completed by: JG Shipped Via: HD  
 Date/time completed: 3/28/18 (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 5.6 °C 1 °C 1 °C 1 °C (Describe)  
 Thermometer ID: T003

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> ?	/			
Is there ice present (document if blue ice is used)	/			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		/		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		/		
Were all samples received intact <sup>(1)</sup> ?	/			
Was adequate sample volume provided <sup>(1)</sup> ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	/			
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	/			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	/			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>			/	
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)		/		
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.

[Signature]  
 Reviewed by (Project Manager)

3/28/18  
 Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Tasman Geosciences  
 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**B02@19'**  
**3/28/2018 3:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803498-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2805	03/28/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 82.1 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2804	"	03/28/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 96.1 % 70-130 " " "  
 Surrogate: Toluene-d8 99.5 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.61		pH Units	1	B8C2808	03/28/2018	03/29/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	1.18		mmhos/cm	"	B8C2809	"	03/29/2018	
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Origins Laboratory, Inc.



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 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**N02@18'**  
**3/28/2018 3:32:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803498-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2805	03/28/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 83.5 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2804	"	03/28/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 97.0 % 70-130 " " "

*Surrogate: Toluene-d8* 97.2 % 70-130 " " "

*Surrogate: 4-Bromofluorobenzene* 100 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.50		pH Units	1	B8C2808	03/28/2018	03/29/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.203		mmhos/cm	"	B8C2809	"	03/29/2018	
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Origins Laboratory, Inc.



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 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**E02@18'**  
**3/28/2018 3:34:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803498-03 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2805	03/28/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 89.3 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2804	"	03/28/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 100 % 70-130 " " "  
*Surrogate: Toluene-d8* 99.2 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 98.3 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.33		pH Units	1	B8C2808	03/28/2018	03/29/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.110		mmhos/cm	"	B8C2809	"	03/29/2018	
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 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**S02@18'**  
**3/28/2018 3:36:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803498-04 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2805	03/28/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 86.5 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2804	"	03/28/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 102 % 70-130 " " "  
*Surrogate: Toluene-d8* 103 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 101 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.09		pH Units	1	B8C2808	03/28/2018	03/29/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.142		mmhos/cm	"	B8C2809	"	03/29/2018	
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Origins Laboratory, Inc.



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 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**W02@18'**  
**3/28/2018 3:38:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y803498-05 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8C2805	03/28/2018	03/29/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 83.7 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8C2804	"	03/28/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 98.6 % 70-130 " " "  
*Surrogate: Toluene-d8* 100 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 98.6 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.17		pH Units	1	B8C2808	03/28/2018	03/29/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.220		mmhos/cm	"	B8C2809	"	03/29/2018	
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Tasman Geosciences  
 6899 Pecos Street, Unit C  
 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 I8

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2804 - EPA 5030 (soil)</b>										
<b>Blank (B8C2804-BLK1)</b>										
					Prepared: 03/28/2018 Analyzed: 03/28/2018					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	57		ug/kg	62.5		91.4	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.2	70-130			

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 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 I8

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2804 - EPA 5030 (soil)</b>										
<b>Blank (B8C2804-BLK2)</b>										
					Prepared: 03/28/2018 Analyzed: 03/28/2018					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		92.3	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.8	70-130			

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 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 I8

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2804 - EPA 5030 (soil)**

**LCS (B8C2804-BS1)**

Prepared: 03/28/2018 Analyzed: 03/28/2018

Benzene	0.107	0.002	mg/kg	0.100		107	77.1-124			
Toluene	0.102	0.002	"	0.100		102	74.5-128			
Ethylbenzene	0.095	0.002	"	0.100		94.7	66.4-127			
m,p-Xylene	0.180	0.004	"	0.200		90.1	76.6-124			
o-Xylene	0.087	0.002	"	0.100		87.2	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	53		ug/kg	62.5		85.2	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		93.0	70-130			

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Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 I8

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2804 - EPA 5030 (soil)**

**LCS (B8C2804-BS2)**

Prepared: 03/28/2018 Analyzed: 03/28/2018

Benzene	0.116	0.002	mg/kg	0.100		116	77.1-124			
Toluene	0.112	0.002	"	0.100		112	74.5-128			
Ethylbenzene	0.102	0.002	"	0.100		102	66.4-127			
m,p-Xylene	0.204	0.004	"	0.200		102	76.6-124			
o-Xylene	0.095	0.002	"	0.100		95.4	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	52		ug/kg	62.5		82.7	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.3	70-130			

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 Project: KMG - Held 12-14 I8

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2804 - EPA 5030 (soil)

Matrix Spike (B8C2804-MS1)	Source: Y803478-01			Prepared: 03/28/2018 Analyzed: 03/28/2018						
Benzene	0.102	0.002	mg/kg	0.100	ND	102	71.8-126			
Toluene	0.089	0.002	"	0.100	0.0007	88.8	65.1-130			
Ethylbenzene	0.094	0.002	"	0.100	0.002	92.7	62.2-130			
m,p-Xylene	0.181	0.004	"	0.200	0.007	86.7	46.5-137			
o-Xylene	0.099	0.002	"	0.100	0.009	90.7	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	57		"	62.5		91.5	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2804 - EPA 5030 (soil)

Matrix Spike (B8C2804-MS2)	Source: Y803383-01			Prepared: 03/28/2018 Analyzed: 03/28/2018						
Benzene	0.114	0.002	mg/kg	0.100	ND	114	71.8-126			
Toluene	0.113	0.002	"	0.100	ND	113	65.1-130			
Ethylbenzene	0.097	0.002	"	0.100	ND	96.5	62.2-130			
m,p-Xylene	0.190	0.004	"	0.200	ND	95.2	46.5-137			
o-Xylene	0.095	0.002	"	0.100	ND	95.1	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	52		ug/kg	62.5		83.1	70-130			
Surrogate: Toluene-d8	68		"	62.5		108	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2804 - EPA 5030 (soil)

Matrix Spike Dup (B8C2804-MSD1)	Source: Y803478-01			Prepared: 03/28/2018 Analyzed: 03/28/2018						
Benzene	0.103	0.002	mg/kg	0.100	ND	103	71.8-126	0.254	11.3	
Toluene	0.092	0.002	"	0.100	0.0007	92.4	65.1-130	4.00	15.4	
Ethylbenzene	0.090	0.002	"	0.100	0.002	87.9	62.2-130	5.22	19.6	
m,p-Xylene	0.172	0.004	"	0.200	0.007	82.2	46.5-137	5.16	19.2	
o-Xylene	0.089	0.002	"	0.100	0.009	80.3	54.2-134	11.0	17.9	
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		98.6	70-130			
Surrogate: Toluene-d8	59		"	62.5		94.1	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.0	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8C2804 - EPA 5030 (soil)

Matrix Spike Dup (B8C2804-MSD2)	Source: Y803383-01			Prepared: 03/28/2018 Analyzed: 03/28/2018						
Benzene	0.118	0.002	mg/kg	0.100	ND	118	71.8-126	3.85	11.3	
Toluene	0.116	0.002	"	0.100	ND	116	65.1-130	2.55	15.4	
Ethylbenzene	0.101	0.002	"	0.100	ND	101	62.2-130	4.87	19.6	
m,p-Xylene	0.190	0.004	"	0.200	ND	95.2	46.5-137	0.0315	19.2	
o-Xylene	0.095	0.002	"	0.100	ND	95.1	54.2-134	0.00	17.9	
Surrogate: 1,2-Dichloroethane-d4	48		ug/kg	62.5		77.0	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		90.9	70-130			

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 Project: KMG - Held 12-14 18

**Volatile Organic Compounds by GC/MS SW846 8260C - 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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**Extractable Petroleum Hydrocarbons by 8015C - 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 B8C2805 - EPA 3550B**

**Blank (B8C2805-BLK1)**

Prepared: 03/28/2018 Analyzed: 03/28/2018

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	45		"	50.0		90.8	59-131			

**Blank (B8C2805-BLK2)**

Prepared: 03/28/2018 Analyzed: 03/28/2018

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	46		"	50.0		91.1	59-131			

**LCS (B8C2805-BS1)**

Prepared: 03/28/2018 Analyzed: 03/28/2018

Diesel (C10-C28)	802	50.0	mg/kg	1000		80.2	64-121			
Residual Range Organics (C28-C40)	750	200	"	1000		75.0	58-124			
Surrogate: o-Terphenyl	47		"	50.0		94.5	59-131			

**LCS (B8C2805-BS2)**

Prepared: 03/28/2018 Analyzed: 03/28/2018

Diesel (C10-C28)	808	50.0	mg/kg	1000		80.8	64-121			
Residual Range Organics (C28-C40)	749	200	"	1000		74.9	58-124			
Surrogate: o-Terphenyl	46		"	50.0		92.6	59-131			

**Matrix Spike (B8C2805-MS1)**

Source: Y803478-01

Prepared: 03/28/2018 Analyzed: 03/28/2018

Diesel (C10-C28)	734	50.0	mg/kg	1000	118	61.6	53-125			
Residual Range Organics (C28-C40)	658	200	"	1000	84.0	57.4	47-133			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2805 - EPA 3550B</b>										
<b>Matrix Spike (B8C2805-MS1)</b>		<b>Source: Y803478-01</b>			Prepared: 03/28/2018 Analyzed: 03/28/2018					
Surrogate: o-Terphenyl	40		mg/kg	50.0		79.4	59-131			
<b>Matrix Spike (B8C2805-MS2)</b>		<b>Source: Y803383-01</b>			Prepared: 03/28/2018 Analyzed: 03/28/2018					
Diesel (C10-C28)	892	50.0	mg/kg	1000	ND	89.2	53-125			
Residual Range Organics (C28-C40)	850	200	"	1000	20.0	83.0	47-133			
Surrogate: o-Terphenyl	51		"	50.0		101	59-131			
<b>Matrix Spike Dup (B8C2805-MSD1)</b>		<b>Source: Y803478-01</b>			Prepared: 03/28/2018 Analyzed: 03/28/2018					
Diesel (C10-C28)	942	50.0	mg/kg	1000	118	82.4	53-125	28.9	20	QR-02
Residual Range Organics (C28-C40)	853	200	"	1000	84.0	76.9	47-133	29.0	20	QR-02
Surrogate: o-Terphenyl	49		"	50.0		98.8	59-131			
<b>Matrix Spike Dup (B8C2805-MSD2)</b>		<b>Source: Y803383-01</b>			Prepared: 03/28/2018 Analyzed: 03/28/2018					
Diesel (C10-C28)	853	50.0	mg/kg	1000	ND	85.3	53-125	4.49	20	
Residual Range Organics (C28-C40)	811	200	"	1000	20.0	79.1	47-133	4.83	20	
Surrogate: o-Terphenyl	47		"	50.0		94.9	59-131			

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 Denver CO 80211

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Held 12-14 18

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B8C2808 - NO PREP</b>										
<b>Duplicate (B8C2808-DUP1)</b>		<b>Source: Y803374-01</b>			Prepared: 03/28/2018 Analyzed: 03/29/2018					
pH	7.22		pH Units		7.81			7.85	25	
<b>Batch B8C2809 - NO PREP</b>										
<b>Blank (B8C2809-BLK1)</b>		Prepared: 03/28/2018 Analyzed: 03/29/2018								
Specific Conductance (EC)	0.00240		mmhos/cm							
<b>Duplicate (B8C2809-DUP1)</b>		<b>Source: Y803374-01</b>			Prepared: 03/28/2018 Analyzed: 03/29/2018					
Specific Conductance (EC)	0.0242		mmhos/cm		0.0260			7.17	25	

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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - Held 12-14 18

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**Notes and Definitions**

U Sample is Non-Detect.

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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