

January 24, 2019

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Kern L 4-14

Project Number - [none]

Attached are your analytical results for KMG - Kern L 4-14 received by Origins Laboratory, Inc. January 23, 2019. This project is associated with Origins project number Y901300-01.

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 - Kern L 4-14

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E02@3.5'	Y901300-01	Soil	January 23, 2019 12:00	01/23/2019 16:05

Origins Laboratory, Inc.



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 Project: KMG - Kern L 4-14

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y901300

Client: Tasman  
 Client Project ID: KMG - Kern L 4-14

Checklist Completed by: JG  
 Date/time completed: 1/23/2019

Shipped Via: HD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A

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

Cooler Number/Temperature: 1 / 4.6 °C \_\_\_\_\_ °C \_\_\_\_\_ °C \_\_\_\_\_ °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? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

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

Reviewed by: [Signature] Date/Time Reviewed: 1/23/19

Origins Laboratory, Inc.

*Jefe Pellegrini*

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**E02@3.5'**  
**1/23/2019 12:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y901300-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9A2302	KDK	01/23/2019	01/23/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: *o*-Terphenyl 84.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9A2301	KDK	"	01/23/2019	U
Benzene	ND	0.002	"	"	"	KDK	"	"	U
Toluene	ND	0.002	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.002	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.002	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 96.7 % 70-130 " " "  
 Surrogate: Toluene-d8 96.0 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 97.2 % 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 B9A2301 - EPA 5030 (soil)**

**Blank (B9A2301-BLK1)**

Prepared: 01/23/2019 Analyzed: 01/23/2019

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	0.12		"	0.125		93.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.1	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 B9A2301 - EPA 5030 (soil)**

**LCS (B9A2301-BS1)**

Prepared: 01/23/2019 Analyzed: 01/23/2019

Benzene	0.110	0.002	mg/kg	0.100		110	77.1-124			
Toluene	0.108	0.002	"	0.100		108	74.5-128			
Ethylbenzene	0.111	0.002	"	0.100		111	66.4-127			
m,p-Xylene	0.224	0.004	"	0.200		112	76.6-124			
o-Xylene	0.112	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		91.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.9	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 B9A2301 - EPA 5030 (soil)

Matrix Spike (B9A2301-MS1)	Source: Y901298-01			Prepared: 01/23/2019 Analyzed: 01/23/2019						
Benzene	0.095	0.002	mg/kg	0.100	ND	94.8	71.8-126			
Toluene	0.091	0.002	"	0.100	ND	90.6	65.1-130			
Ethylbenzene	0.092	0.002	"	0.100	ND	92.3	62.2-130			
m,p-Xylene	0.187	0.004	"	0.200	0.0009	92.9	46.5-137			
o-Xylene	0.095	0.002	"	0.100	0.0004	94.8	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		91.1	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		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 B9A2301 - EPA 5030 (soil)

Matrix Spike Dup (B9A2301-MSD1)	Source: Y901298-01			Prepared: 01/23/2019 Analyzed: 01/23/2019						
Benzene	0.099	0.002	mg/kg	0.100	ND	99.4	71.8-126	4.70	11.3	
Toluene	0.095	0.002	"	0.100	ND	95.1	65.1-130	4.87	15.4	
Ethylbenzene	0.096	0.002	"	0.100	ND	95.7	62.2-130	3.70	19.6	
m,p-Xylene	0.192	0.004	"	0.200	0.0009	95.8	46.5-137	3.07	19.2	
o-Xylene	0.098	0.002	"	0.100	0.0004	97.2	54.2-134	2.45	17.9	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		91.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.9	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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**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 B9A2302 - EPA 3580**

**Blank (B9A2302-BLK1)**

Prepared: 01/23/2019 Analyzed: 01/23/2019

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		83.5	59-131			

**LCS (B9A2302-BS1)**

Prepared: 01/23/2019 Analyzed: 01/23/2019

Diesel (C10-C28)	920	50.0	mg/kg	1000		92.0	64-121			
Residual Range Organics (C28-C40)	867	200	"	1000		86.7	58-124			
Surrogate: o-Terphenyl	45		"	50.0		90.7	59-131			

**Matrix Spike (B9A2302-MS1)**

**Source: Y901283-01**

Prepared: 01/23/2019 Analyzed: 01/23/2019

Diesel (C10-C28)	921	50.0	mg/kg	1000	21.6	89.9	53-125			
Residual Range Organics (C28-C40)	919	200	"	1000	7.30	91.2	47-133			
Surrogate: o-Terphenyl	45		"	50.0		89.6	59-131			

**Matrix Spike Dup (B9A2302-MSD1)**

**Source: Y901283-01**

Prepared: 01/23/2019 Analyzed: 01/23/2019

Diesel (C10-C28)	972	50.0	mg/kg	1000	21.6	95.0	53-125	5.57	20	
Residual Range Organics (C28-C40)	946	200	"	1000	7.30	93.9	47-133	2.89	20	
Surrogate: o-Terphenyl	47		"	50.0		93.6	59-131			

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**Notes and Definitions**

U Sample is Non-Detect.

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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