

August 01, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

**Project Name - KMG - Adamson Ernie F GU #X1    Project Number - [none]**

Attached are your analytical results for KMG - Adamson Ernie F GU #X1 received by Origins Laboratory, Inc. July 29, 2016. This project is associated with Origins project number X607324-01.

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 - Adamson Ernie F GU #X1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01 @ 12'	X607324-01	Soil	July 29, 2016 12:50	07/29/2016 17:00
E01 @ 12'	X607324-02	Soil	July 29, 2016 12:55	07/29/2016 17:00
W01 @ 12'	X607324-03	Soil	July 29, 2016 13:00	07/29/2016 17:00
B01 @ 14'	X607324-04	Soil	July 29, 2016 13:05	07/29/2016 17:00

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Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X607324

Client: Tasman  
 Client Project ID: Adamson Ernie F GU #X1

Checklist Completed by: J.Pellegrini  
 Date/time completed: 7/27/16

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

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

Cooler Number/Temperature: \_\_\_\_\_ °C \_\_\_\_\_ °C \_\_\_\_\_ °C (Describe)

Thermometer ID: T203

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)	X			
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> ?	X			PH
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 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)			✓	
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.

J.Pellegrini  
 Reviewed by (Project Manager)

7/29/16  
 Date/Time Reviewed

Origins Laboratory, Inc.



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 Project: KMG - Adamson Ernie F GU #X1

**S01 @ 12'**  
**7/29/2016 12:50:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X607324-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6G2903	07/29/2016	07/29/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 75.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6G2902	07/29/2016	07/29/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 107 % 70-130 " " "  
*Surrogate: Toluene-d8* 96.5 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 101 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.83		pH Units	1	B6G2906	07/29/2016	07/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.457		mmhos/cm	"	B6G2907	07/29/2016	07/29/2016	
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**E01 @ 12'**  
**7/29/2016 12:55:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X607324-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6G2903	07/29/2016	07/29/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 72.1 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6G2902	07/29/2016	07/29/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 108 % 70-130 " " "  
*Surrogate: Toluene-d8* 96.6 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 102 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.52		pH Units	1	B6G2906	07/29/2016	07/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0779		mmhos/cm	"	B6G2907	07/29/2016	07/29/2016	
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**W01 @ 12'**  
**7/29/2016 1:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X607324-03 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6G2903	07/29/2016	07/29/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 64.7 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6G2902	07/29/2016	07/29/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 108 % 70-130 " " "  
*Surrogate: Toluene-d8* 96.4 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 100 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.47		pH Units	1	B6G2906	07/29/2016	07/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0151		mmhos/cm	"	B6G2907	07/29/2016	07/29/2016	
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**B01 @ 14'**  
**7/29/2016 1:05:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X607324-04 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6G2903	07/29/2016	07/29/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 77.8 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6G2902	07/29/2016	07/29/2016	U
Benzene	<b>0.202</b>	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	<b>0.141</b>	0.050	"	"	"	"	"	
Xylenes, total	<b>0.203</b>	0.050	"	"	"	"	"	

*Surrogate: 1,2-Dichloroethane-d4* 109 % 70-130 " " "  
*Surrogate: Toluene-d8* 97.4 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 103 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	<b>7.59</b>		pH Units	1	B6G2906	07/29/2016	07/29/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	<b>0.282</b>		mmhos/cm	"	B6G2907	07/29/2016	07/29/2016	
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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
<b>Batch B6G2902 - EPA 5030 (soil)</b>										
<b>Blank (B6G2902-BLK1)</b>										
					Prepared: 07/29/2016 Analyzed: 07/29/2016					
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	72		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	59		"	62.5		93.8	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	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 B6G2902 - EPA 5030 (soil)**

**LCS (B6G2902-BS1)**

Prepared: 07/29/2016 Analyzed: 07/29/2016

Benzene	0.113	0.002	mg/kg	0.100		113	77.1-124			
Toluene	0.106	0.002	"	0.100		106	74.5-128			
Ethylbenzene	0.107	0.002	"	0.100		107	66.4-127			
m,p-Xylene	0.217	0.004	"	0.200		109	76.6-124			
o-Xylene	0.107	0.002	"	0.100		107	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	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 B6G2902 - EPA 5030 (soil)

Matrix Spike (B6G2902-MS1)	Source: X607311-01			Prepared: 07/29/2016 Analyzed: 07/29/2016						
Benzene	0.105	0.002	mg/kg	0.100	ND	105	71.8-126			
Toluene	0.098	0.002	"	0.100	ND	98.1	65.1-130			
Ethylbenzene	0.100	0.002	"	0.100	ND	100	62.2-130			
m,p-Xylene	0.203	0.004	"	0.200	ND	102	46.5-137			
o-Xylene	0.100	0.002	"	0.100	ND	100	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.0	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 B6G2902 - EPA 5030 (soil)

Matrix Spike Dup (B6G2902-MSD1)	Source: X607311-01			Prepared: 07/29/2016 Analyzed: 07/29/2016						
Benzene	0.104	0.002	mg/kg	0.100	ND	104	71.8-126	0.877	11.3	
Toluene	0.097	0.002	"	0.100	ND	97.1	65.1-130	1.00	15.4	
Ethylbenzene	0.100	0.002	"	0.100	ND	100	62.2-130	0.240	19.6	
m,p-Xylene	0.203	0.004	"	0.200	ND	102	46.5-137	0.138	19.2	
o-Xylene	0.100	0.002	"	0.100	ND	100	54.2-134	0.160	17.9	
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.3	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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**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 B6G2903 - EPA 3580**

**Blank (B6G2903-BLK1)**

Prepared: 07/29/2016 Analyzed: 07/29/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	45		"	50.0		89.1	59-131			

**LCS (B6G2903-BS1)**

Prepared: 07/29/2016 Analyzed: 07/29/2016

Diesel (C10-C28)	1030	50.0	mg/kg	1000		103	64-121			
Residual Range Organics (C28-C40)	1020	200	"	1000		102	58-124			
Surrogate: o-Terphenyl	48		"	50.0		95.7	59-131			

**Matrix Spike (B6G2903-MS1)**

**Source: X607311-01**

Prepared: 07/29/2016 Analyzed: 07/29/2016

Diesel (C10-C28)	1150	50.0	mg/kg	1000	17.4	113	53-125			
Residual Range Organics (C28-C40)	1100	200	"	1000	ND	110	47-133			
Surrogate: o-Terphenyl	52		"	50.0		103	59-131			

**Matrix Spike Dup (B6G2903-MSD1)**

**Source: X607311-01**

Prepared: 07/29/2016 Analyzed: 07/29/2016

Diesel (C10-C28)	1080	50.0	mg/kg	1000	17.4	107	53-125	6.03	20	
Residual Range Organics (C28-C40)	1000	200	"	1000	ND	100	47-133	9.20	20	
Surrogate: o-Terphenyl	49		"	50.0		98.9	59-131			

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**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 B6G2906 - NO PREP</b>										
<b>Duplicate (B6G2906-DUP1)</b>		<b>Source: X607320-01</b>			Prepared: 07/29/2016 Analyzed: 07/29/2016					
pH	8.22		pH Units		8.26			0.485	25	
<b>Batch B6G2907 - NO PREP</b>										
<b>Blank (B6G2907-BLK1)</b>		Prepared: 07/29/2016 Analyzed: 07/29/2016								
Specific Conductance (EC)	0.00310		mmhos/cm							
<b>Duplicate (B6G2907-DUP1)</b>		<b>Source: X607320-01</b>			Prepared: 07/29/2016 Analyzed: 07/29/2016					
Specific Conductance (EC)	0.160		mmhos/cm		0.158			1.13	25	

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Bob Cornez  
Project Number: [none]  
Project: KMG - Adamson Ernie F GU #X1

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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.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President