



October 13, 2017

Apex Companies, LLC

Chandler Cole

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - Troutd 44-7 FP

Project Number - 89374932

Attached are your analytical results for KMG - Troutd 44-7 FP received by Origins Laboratory, Inc. October 12, 2017. This project is associated with Origins project number Y710175-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



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

Apex Companies, LLC

4150 Darley Avenue, Suite 1

Boulder CO 80305

Chandler Cole

Project Number: 89374932

Project: KMG - Troudt 44-7 FP

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E02@5'	Y710175-01	Soil	October 12, 2017 15:03	10/12/2017 16:29

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

Chandler Cole  
Project Number: 89374932  
Project: KMG - Troudt 44-7 FP

# ORIGINS

LABORATORY, INC



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970175

page 1 of 1

Client: Apex Companies  
Address: 1746 Cole Blvd, Lakewood, CO 80401  
Telephone Number: 970-903-1260  
Email Address: Chandler.Cole@apexcos.com

Project Manager: Chandler Cole  
Project Name: Troutd 44-7 FP  
Project Number: WO#89374932 Erik Mickelson  
Samples Collected By: Brian Gibson  
Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis				Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Alt Summa #	Other	GRTEX	DRO/RRO	EC, pH	HOLD SAR	
E02051	10/12/2017	1503	1	X					X				X	X	X	1
																2
																3
																4
																5
																6
																7
																8
																9
																10
Relinquished by: 	Date: 10/12/2017		Time: 1624	Received by: 				Date: 10.2.17				Time: 1624				Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>
Relinquished by:	Date:		Time:	Received by:				Date:				Time:				

12.1

Date Results Needed

7am, 10/13/2017

Origins Laboratory, Inc.

Jeff Pellipini

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Boulder CO 80305

Chandler Cole  
Project Number: 89374932  
Project: KMG - Troudt 44-7 FP

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 11710-75 Client: Apex Co.  
Client Project ID: KMG-Troudt 44-7 FP  
Checklist Completed by: Don Lu Shipped Via: HD  
Date/time completed: 10-12-17 1639 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Airbill #: NA  
Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
Cooler Number/Temperature: 1 13.3 °C 1 °C 1 °C (Describe)  
Thermometer ID: 7003

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"/>		sampled same Day
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"/>			pH
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)

10-12-17 1639  
Date/Time Reviewed

Origins Laboratory, Inc.

*Jefe Pellegrini*

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4150 Darley Avenue, Suite 1  
Boulder CO 80305

Chandler Cole  
Project Number: 89374932  
Project: KMG - Troutd 44-7 FP

E02@5'

10/12/2017 3:03:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y710175-01 (Soil)

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	360	25.0	mg/kg	1	B7J1203	10/12/2017	10/12/2017	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	90.8 %	59-131			"	"	"	
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**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	171	5.00	mg/kg	25	B7J1202	10/12/2017	10/12/2017	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.274	0.050	"	"	"	"	"	
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	91.0 %	70-130			"	"	"	
Surrogate: Toluene-d8	75.1 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	117 %	70-130			"	"	"	

**pH in Soil by EPA 9045D**

pH	8.71		pH Units	1	B7J1204	10/12/2017	10/12/2017	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.310		mmhos/cm	"	B7J1205	10/12/2017	"	
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Project Number: 89374932  
Project: KMG - Troutd 44-7 FP

**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 B7J1202 - EPA 5030 (soil)</b>										
<b>Blank (B7J1202-BLK1)</b>					Prepared: 10/12/2017 Analyzed: 10/12/2017					
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	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

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**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B7J1202 - EPA 5030 (soil)</b>										
<b>LCS (B7J1202-BS1)</b>					Prepared: 10/12/2017 Analyzed: 10/12/2017					
Benzene	0.103	0.002	mg/kg	0.100		103	77.1-124			
Toluene	0.109	0.002	"	0.100		109	74.5-128			
Ethylbenzene	0.108	0.002	"	0.100		108	66.4-127			
m,p-Xylene	0.223	0.004	"	0.200		111	76.6-124			
o-Xylene	0.109	0.002	"	0.100		109	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		97.8	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.8	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 B7J1202 - EPA 5030 (soil)**

Matrix Spike (B7J1202-MS1)		Source: Y710170-05			Prepared: 10/12/2017 Analyzed: 10/12/2017					
Benzene	2.55	0.050	mg/kg	2.50	ND	102	71.8-126			
Toluene	2.66	0.050	"	2.50	ND	106	65.1-130			
Ethylbenzene	2.68	0.050	"	2.50	0.086	104	62.2-130			
m,p-Xylene	7.21	0.100	"	5.00	1.62	112	46.5-137			
o-Xylene	2.60	0.050	"	2.50	ND	104	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.3	70-130			
Surrogate: 4-Bromofluorobenzene	73		"	62.5		117	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
<b>Batch B7J1202 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B7J1202-MSD1)</b>					<b>Source: Y710170-05</b>					Prepared: 10/12/2017 Analyzed: 10/12/2017
Benzene	2.55	0.050	mg/kg	2.50	ND	102	71.8-126	0.118	11.3	
Toluene	2.65	0.050	"	2.50	ND	106	65.1-130	0.283	15.4	
Ethylbenzene	2.63	0.050	"	2.50	0.086	102	62.2-130	1.71	19.6	
m,p-Xylene	7.04	0.100	"	5.00	1.62	108	46.5-137	2.39	19.2	
o-Xylene	2.54	0.050	"	2.50	ND	101	54.2-134	2.59	17.9	
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	59		"	62.5		94.6	70-130			
Surrogate: 4-Bromofluorobenzene	72		"	62.5		116	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 B7J1203 - EPA 3550B**

**Blank (B7J1203-BLK1)**

Prepared: 10/12/2017 Analyzed: 10/12/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	45		"	50.0		90.2	59-131			

**LCS (B7J1203-BS1)**

Prepared: 10/12/2017 Analyzed: 10/12/2017

Diesel (C10-C28)	1070	50.0	mg/kg	1000		107	64-121			
Residual Range Organics (C28-C40)	1050	200	"	1000		105	58-124			
Surrogate: o-Terphenyl	55		"	50.0		110	59-131			

**Matrix Spike (B7J1203-MS1)**

**Source: Y710170-05**

Prepared: 10/12/2017 Analyzed: 10/12/2017

Diesel (C10-C28)	1060	50.0	mg/kg	1000	210	85.0	53-125			
Residual Range Organics (C28-C40)	920	200	"	1000	ND	92.0	47-133			
Surrogate: o-Terphenyl	51		"	50.0		102	59-131			

**Matrix Spike Dup (B7J1203-MSD1)**

**Source: Y710170-05**

Prepared: 10/12/2017 Analyzed: 10/12/2017

Diesel (C10-C28)	1080	50.0	mg/kg	1000	210	86.9	53-125	2.23	20	
Residual Range Organics (C28-C40)	637	200	"	1000	ND	63.7	47-133	36.3	20	QR-02
Surrogate: o-Terphenyl	41		"	50.0		82.4	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 B7J1204 - NO PREP</b>										
<b>Duplicate (B7J1204-DUP1)</b>		<b>Source: Y710170-05</b>			Prepared: 10/12/2017 Analyzed: 10/12/2017					
pH	7.36		pH Units		7.24			1.64	25	
<b>Batch B7J1205 - NO PREP</b>										
<b>Blank (B7J1205-BLK1)</b>		Prepared: 10/12/2017 Analyzed: 10/12/2017								
Specific Conductance (EC)	0.00290		mmhos/cm							
<b>Duplicate (B7J1205-DUP1)</b>		<b>Source: Y710170-05</b>			Prepared: 10/12/2017 Analyzed: 10/12/2017					
Specific Conductance (EC)	0.0355		mmhos/cm		0.0311			13.2	25	

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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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