

Attachment A

Laboratory Analytical Report



October 12, 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 11, 2017. This project is associated with Origins project number Y710154-01.

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
B01@6'	Y710154-01	Soil	October 11, 2017 13:30	10/11/2017 15:17
S01@4'	Y710154-02	Soil	October 11, 2017 13:35	10/11/2017 15:17
E01@4'	Y710154-03	Soil	October 11, 2017 13:42	10/11/2017 15:17
W01@4'	Y710154-04	Soil	October 11, 2017 13:45	10/11/2017 15:17
N01@4'	Y710154-05	Soil	October 11, 2017 13:47	10/11/2017 15:17

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

www.originslaboratory.com

page 1 of 1

1710154

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
Samples Collected By: Erik Mickelson
Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	GRTEX	DRO/RRO	EC, pH	
201e6'	10/11/2017	1330	1	X					X				X	X	1
201e4'		1335	1												2
201e4'		1342	1												3
201e4'		1345	1												4
201e4'		1347	1												5
Background		1400	1												6
															7
															8
															9
															10
Relinquished By: <i>[Signature]</i>	Date: 10/11/2017	Time: 1517		Received By: <i>[Signature]</i>	Date: 10-11-17	Time: 1517		Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/>							
Relinquished By:	Date:	Time:		Received By:	Date:	Time:		48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>							

Date Results Needed 7am. 10/12/2017

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
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: Y710154

Client: Apex Co.

Client Project ID: mgd - Troudt 44-7 FP

Checklist Completed by: Joe M

Shipped Via: 147

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10-11-12 1523

Airbill #: NR

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: _____

Cooler Number/Temperature: 1 11.0 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			pid
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

⁽¹⁾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 10-11-12 1523

Origins Laboratory, Inc.

Joe Pellegrini

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

B01@6'

10/11/2017 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710154-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	1010	25.0	mg/kg	1	B7J1104	10/11/2017	10/11/2017	
Residual Range Organics (C28-C40)	190	100	"	"	"	"	"	

Surrogate: o-Terphenyl	102 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	650	50.0	mg/kg	250	B7J1103	10/11/2017	10/11/2017	
Benzene	0.431	0.050	"	25	"	"	10/12/2017	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	2.66	0.050	"	"	"	"	"	
Xylenes, total	12.2	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.0 %	70-130			"	"	10/11/2017	
Surrogate: Toluene-d8	91.1 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	9.48		pH Units	1	B7J1105	10/11/2017	10/11/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.342		mmhos/cm	"	B7J1106	10/11/2017	"	
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Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

S01@4'

10/11/2017 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710154-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1104	10/11/2017	10/11/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 78.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7J1103	10/11/2017	10/11/2017	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	0.011	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 99.1 % 70-130 " " "
Surrogate: Toluene-d8 98.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.89		pH Units	1	B7J1105	10/11/2017	10/11/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.164		mmhos/cm	"	B7J1106	10/11/2017	"	
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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

E01@4'

10/11/2017 1:42:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710154-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	1660	25.0	mg/kg	1	B7J1104	10/11/2017	10/11/2017	
Residual Range Organics (C28-C40)	465	100	"	"	"	"	"	

Surrogate: o-Terphenyl 115 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	326	50.0	mg/kg	250	B7J1103	10/11/2017	10/11/2017	
Benzene	ND	0.050	"	25	"	"	10/12/2017	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.344	0.050	"	"	"	"	"	
Xylenes, total	0.689	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 96.4 % 70-130 " " 10/11/2017
Surrogate: Toluene-d8 97.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.78		pH Units	1	B7J1105	10/11/2017	10/11/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.268		mmhos/cm	"	B7J1106	10/11/2017	"	
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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

W01@4'

10/11/2017 1:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710154-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	869	25.0	mg/kg	1	B7J1104	10/11/2017	10/11/2017	
Residual Range Organics (C28-C40)	107	100	"	"	"	"	"	

Surrogate: o-Terphenyl	84.3 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	407	50.0	mg/kg	250	B7J1103	10/11/2017	10/11/2017	
Benzene	0.160	0.050	"	25	"	"	10/12/2017	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	1.24	0.050	"	"	"	"	"	
Xylenes, total	5.81	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	94.0 %	70-130			"	"	10/11/2017	
Surrogate: Toluene-d8	95.4 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.35		pH Units	1	B7J1105	10/11/2017	10/11/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.216		mmhos/cm	"	B7J1106	10/11/2017	"	
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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

N01@4'

10/11/2017 1:47:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710154-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	2140	25.0	mg/kg	1	B7J1104	10/11/2017	10/11/2017	
Residual Range Organics (C28-C40)	754	100	"	"	"	"	"	

Surrogate: o-Terphenyl	124 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	933	50.0	mg/kg	250	B7J1103	10/11/2017	10/11/2017	
Benzene	0.468	0.050	"	25	"	"	10/12/2017	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	4.84	0.050	"	"	"	"	"	
Xylenes, total	24.4	0.498	"	250	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	92.9 %	70-130			"	"	10/11/2017	
Surrogate: Toluene-d8	87.0 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.63		pH Units	1	B7J1105	10/11/2017	10/11/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.258		mmhos/cm	"	B7J1106	10/11/2017	"	
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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B7J1103 - EPA 5030 (soil)										
Blank (B7J1103-BLK1)					Prepared: 10/11/2017 Analyzed: 10/11/2017					
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	63		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1103 - EPA 5030 (soil)										
LCS (B7J1103-BS1)					Prepared: 10/11/2017 Analyzed: 10/11/2017					
Benzene	0.099	0.002	mg/kg	0.100		98.8	77.1-124			
Toluene	0.096	0.002	"	0.100		96.5	74.5-128			
Ethylbenzene	0.110	0.002	"	0.100		110	66.4-127			
m,p-Xylene	0.200	0.004	"	0.200		100	76.6-124			
o-Xylene	0.103	0.002	"	0.100		103	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		96.9	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.5	70-130			

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4150 Darley Avenue, Suite 1
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Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
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Batch B7J1103 - EPA 5030 (soil)

Matrix Spike (B7J1103-MS1)		Source: Y710155-03			Prepared: 10/11/2017 Analyzed: 10/11/2017					
Benzene	0.097	0.002	mg/kg	0.100	ND	97.2	71.8-126			
Toluene	0.094	0.002	"	0.100	ND	93.8	65.1-130			
Ethylbenzene	0.098	0.002	"	0.100	ND	97.5	62.2-130			
m,p-Xylene	0.191	0.004	"	0.200	ND	95.6	46.5-137			
o-Xylene	0.093	0.002	"	0.100	ND	93.4	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		93.9	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	70-130			

Origins Laboratory, Inc.



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4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
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Batch B7J1103 - EPA 5030 (soil)

Matrix Spike Dup (B7J1103-MSD1)		Source: Y710155-03			Prepared: 10/11/2017 Analyzed: 10/11/2017					
Benzene	0.098	0.002	mg/kg	0.100	ND	97.9	71.8-126	0.656	11.3	
Toluene	0.096	0.002	"	0.100	ND	96.1	65.1-130	2.42	15.4	
Ethylbenzene	0.099	0.002	"	0.100	ND	98.8	62.2-130	1.32	19.6	
m,p-Xylene	0.191	0.004	"	0.200	ND	95.6	46.5-137	0.0523	19.2	
o-Xylene	0.095	0.002	"	0.100	ND	94.9	54.2-134	1.61	17.9	
Surrogate: 1,2-Dichloroethane-d4	57		ug/kg	62.5		91.8	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.3	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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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 B7J1104 - EPA 3550B

Blank (B7J1104-BLK1)

Prepared: 10/11/2017 Analyzed: 10/11/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	50		"	50.0		99.2	59-131			

LCS (B7J1104-BS1)

Prepared: 10/11/2017 Analyzed: 10/11/2017

Diesel (C10-C28)	981	50.0	mg/kg	1000		98.1	64-121			
Residual Range Organics (C28-C40)	1020	200	"	1000		102	58-124			
Surrogate: o-Terphenyl	51		"	50.0		103	59-131			

Matrix Spike (B7J1104-MS1)

Source: Y710155-03

Prepared: 10/11/2017 Analyzed: 10/11/2017

Diesel (C10-C28)	898	50.0	mg/kg	1000	13.6	88.4	53-125			
Residual Range Organics (C28-C40)	907	200	"	1000	ND	90.7	47-133			
Surrogate: o-Terphenyl	47		"	50.0		93.8	59-131			

Matrix Spike Dup (B7J1104-MSD1)

Source: Y710155-03

Prepared: 10/11/2017 Analyzed: 10/11/2017

Diesel (C10-C28)	904	50.0	mg/kg	1000	13.6	89.0	53-125	0.698	20	
Residual Range Organics (C28-C40)	945	200	"	1000	ND	94.5	47-133	4.06	20	
Surrogate: o-Terphenyl	49		"	50.0		97.3	59-131			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

Classical Chemistry Parameters - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1105 - NO PREP										
Duplicate (B7J1105-DUP1)		Source: Y710155-03			Prepared: 10/11/2017 Analyzed: 10/11/2017					
pH	8.31		pH Units		8.74			5.04	25	
Batch B7J1106 - NO PREP										
Blank (B7J1106-BLK1)		Prepared: 10/11/2017 Analyzed: 10/11/2017								
Specific Conductance (EC)	0.00220		mmhos/cm							
Duplicate (B7J1106-DUP1)		Source: Y710155-03			Prepared: 10/11/2017 Analyzed: 10/11/2017					
Specific Conductance (EC)	0.0600		mmhos/cm		0.0619			3.12	25	

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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.



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.

Jen Pellegrini For Noelle Doyle Mathis, President



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.



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.

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 ₃	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

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
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 ⁽¹⁾ ?		<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			pH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

⁽¹⁾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

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.

Apex Companies, LLC
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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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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B7J1202 - EPA 5030 (soil)										
Blank (B7J1202-BLK1)					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			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B7J1202 - EPA 5030 (soil)										
LCS (B7J1202-BS1)					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			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
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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			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1202 - EPA 5030 (soil)										
Matrix Spike Dup (B7J1202-MSD1)	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	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			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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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			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1204 - NO PREP										
Duplicate (B7J1204-DUP1)		Source: Y710170-05			Prepared: 10/12/2017 Analyzed: 10/12/2017					
pH	7.36		pH Units		7.24			1.64	25	
Batch B7J1205 - NO PREP										
Blank (B7J1205-BLK1)		Prepared: 10/12/2017 Analyzed: 10/12/2017								
Specific Conductance (EC)	0.00290		mmhos/cm							
Duplicate (B7J1205-DUP1)		Source: Y710170-05			Prepared: 10/12/2017 Analyzed: 10/12/2017					
Specific Conductance (EC)	0.0355		mmhos/cm		0.0311			13.2	25	

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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.



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.



October 20, 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 13, 2017. This project is associated with Origins project number Y710210-01.

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
GW01	Y710210-01	Water	October 13, 2017 14:57	10/13/2017 18:17
E03@6'	Y710210-02	Soil	October 13, 2017 15:10	10/13/2017 18:17
NE01@7'	Y710210-03	Soil	October 13, 2017 15:12	10/13/2017 18:17
NW01@8'	Y710210-04	Soil	October 13, 2017 15:16	10/13/2017 18:17
WS01@8'	Y710210-05	Soil	October 13, 2017 15:28	10/13/2017 18:17
S02@6'	Y710210-06	Soil	October 13, 2017 15:31	10/13/2017 18:17

Per the phone call from Chandler on 10/20/2017, sample ID E01@6 was changed to E03@6 and S01@6 was changed to S02@6.

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.

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

ORIGINS

LABORATORY, INC

4710210

www.originslaboratory.com

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: Kennedy Whalen
Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	GRTEX	DRO/RRO	EC, pH		
QUAD1	10/13/2017	1457	3	X				X								1
QUAD1		1510	1	X				X								2
NED1071		1512	1	X				X								3
NW01081		1510	1	X				X								4
WS01081		1528	1	X				X								5
SO10101		1531	1	X				X								6
																7
																8
																9
																10
Relinquished By: <i>Kimberly W.</i>	Date: 10/13/2017	Time: 1407	Time: 1407	Received By: <i>[Signature]</i>				Date: 10-13-17				Time: 1517	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 checked="" type="checkbox"/>			

Date Results Needed 7am. 10/16/2017

Origins Laboratory, Inc.

Jeff Pellipini

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.

Apex Companies, LLC

4150 Darley Avenue, Suite 1

Boulder CO 80305

Chandler Cole

Project Number: 89374932

Project: KMG - Trout 44-7 FP

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4710210

Client: Apex

Client Project ID: Trout 44-7 FP

Checklist Completed by: Jen Pellegrini

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/16/17

Airbill #: NA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☒ Water ☐ Other: _____ (Describe)

Cooler Number/Temperature: 1 5.4 °C / _____ °C / _____ °C / _____ °C

Thermometer ID: TOB

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
Additional Comments (if any):				

⁽¹⁾ 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) [Signature]

Date/Time Reviewed 10/16/17

Origins Laboratory, Inc.

Jen 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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

GW01

10/13/2017 2:57:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710210-01 (Water)

BTEX by EPA 8260C

Benzene	214	4.00	ug/L	4	B7J1607	10/16/2017	10/16/2017
Toluene	254	4.00	"	"	"	"	"
Ethylbenzene	261	4.00	"	"	"	"	"
Xylenes, total	2090	50.0	"	50	"	"	10/16/2017
Surrogate: 1,2-Dichloroethane-d4	88.7 %	84-121			"	"	10/16/2017
Surrogate: Toluene-d8	87.2 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	112 %	84-114			"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

E03@6'

10/13/2017 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710210-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1604	10/16/2017	10/16/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B7J1603	10/16/2017	10/16/2017	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 102 % 70-130 " " "
Surrogate: Toluene-d8 101 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.6 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.02		pH Units	1	B7J1605	10/16/2017	10/16/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.146		mmhos/cm	"	B7J1606	10/16/2017	"	
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Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

NE01@7'

10/13/2017 3:12:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710210-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1604	10/16/2017	10/16/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B7J1603	10/16/2017	10/16/2017	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 102 % 70-130 " " "
Surrogate: Toluene-d8 102 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.12		pH Units	1	B7J1605	10/16/2017	10/16/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.294		mmhos/cm	"	B7J1606	10/16/2017	"	
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Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

NW01@8'

10/13/2017 3:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710210-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1604	10/16/2017	10/16/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 65.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B7J1603	10/16/2017	10/16/2017	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 103 % 70-130 " " "
Surrogate: Toluene-d8 101 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.02		pH Units	1	B7J1605	10/16/2017	10/16/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.480		mmhos/cm	"	B7J1606	10/16/2017	"	
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Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

WS01@8'

10/13/2017 3:28:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710210-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1604	10/16/2017	10/16/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 67.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	34.5	5.00	mg/kg	25	B7J1603	10/16/2017	10/16/2017	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	0.817	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 100 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.12		pH Units	1	B7J1605	10/16/2017	10/16/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.594		mmhos/cm	"	B7J1606	10/16/2017	"	
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Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

S02@6'

10/13/2017 3:31:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710210-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1604	10/16/2017	10/16/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 88.6 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	6.63	5.00	mg/kg	25	B7J1603	10/16/2017	10/16/2017	
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 104 % 70-130 " " "
Surrogate: Toluene-d8 102 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.3 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.18		pH Units	1	B7J1605	10/16/2017	10/16/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.154		mmhos/cm	"	B7J1606	10/16/2017	"	
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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
Blank (B7J1603-BLK1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
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	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		102	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
Blank (B7J1603-BLK2)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	0.008	0.002	"							O-01
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	56		ug/kg	62.5		89.0	70-130			
Surrogate: Toluene-d8	58		"	62.5		93.6	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
LCS (B7J1603-BS1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.099	0.002	mg/kg	0.100		99.4	77.1-124			
Toluene	0.096	0.002	"	0.100		96.0	74.5-128			
Ethylbenzene	0.094	0.002	"	0.100		93.9	66.4-127			
m,p-Xylene	0.191	0.004	"	0.200		95.5	76.6-124			
o-Xylene	0.095	0.002	"	0.100		95.4	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
LCS (B7J1603-BS2)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.091	0.002	mg/kg	0.100		91.0	77.1-124			
Toluene	0.096	0.002	"	0.100		96.2	74.5-128			
Ethylbenzene	0.096	0.002	"	0.100		95.5	66.4-127			
m,p-Xylene	0.191	0.004	"	0.200		95.5	76.6-124			
o-Xylene	0.091	0.002	"	0.100		91.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	54		ug/kg	62.5		85.7	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		95.0	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
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Batch B7J1603 - EPA 5030 (soil)

Matrix Spike (B7J1603-MS1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	2.45	0.050	mg/kg	2.50	ND	97.9	71.8-126			
Toluene	2.40	0.050	"	2.50	ND	95.8	65.1-130			
Ethylbenzene	2.36	0.050	"	2.50	ND	94.4	62.2-130			
m,p-Xylene	4.72	0.100	"	5.00	ND	94.3	46.5-137			
o-Xylene	2.38	0.050	"	2.50	ND	95.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.4	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
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Batch B7J1603 - EPA 5030 (soil)

Matrix Spike (B7J1603-MS2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.095	0.002	mg/kg	0.100	ND	94.9	71.8-126			
Toluene	0.105	0.002	"	0.100	ND	105	65.1-130			
Ethylbenzene	0.100	0.002	"	0.100	ND	99.9	62.2-130			
m,p-Xylene	0.191	0.004	"	0.200	ND	95.7	46.5-137			
o-Xylene	0.088	0.002	"	0.100	ND	87.7	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	56		ug/kg	62.5		89.2	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	51		"	62.5		82.0	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
Matrix Spike Dup (B7J1603-MSD1)	Source: Y710210-02				Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	2.56	0.050	mg/kg	2.50	ND	102	71.8-126	4.53	11.3	
Toluene	2.47	0.050	"	2.50	ND	98.7	65.1-130	3.00	15.4	
Ethylbenzene	2.45	0.050	"	2.50	ND	98.1	62.2-130	3.80	19.6	
m,p-Xylene	4.95	0.100	"	5.00	ND	99.0	46.5-137	4.83	19.2	
o-Xylene	2.49	0.050	"	2.50	ND	99.5	54.2-134	4.42	17.9	
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	62		"	62.5		99.2	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
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Batch B7J1603 - EPA 5030 (soil)

Matrix Spike Dup (B7J1603-MSD2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.089	0.002	mg/kg	0.100	ND	89.0	71.8-126	6.39	11.3	
Toluene	0.103	0.002	"	0.100	ND	103	65.1-130	2.21	15.4	
Ethylbenzene	0.094	0.002	"	0.100	ND	93.5	62.2-130	6.62	19.6	
m,p-Xylene	0.187	0.004	"	0.200	ND	93.6	46.5-137	2.24	19.2	
o-Xylene	0.090	0.002	"	0.100	ND	90.2	54.2-134	2.86	17.9	
Surrogate: 1,2-Dichloroethane-d4	54		ug/kg	62.5		87.2	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.5	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troudt 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
Batch B7J1607 - EPA 5030B (Water)										
Blank (B7J1607-BLK1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5	106		84-121			
Surrogate: Toluene-d8	62		"	62.5	100		85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5	99.8		84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B7J1607 - EPA 5030B (Water)										
LCS (B7J1607-BS1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	49.6	1.00	ug/L	50.0		99.2	73.3-129			
Toluene	48.1	1.00	"	50.0		96.2	76.2-123			
Ethylbenzene	48.2	1.00	"	50.0		96.5	73.6-130			
m,p-Xylene	96.6	2.00	"	100		96.6	76.1-126			
o-Xylene	47.6	1.00	"	50.0		95.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		109	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B7J1607 - EPA 5030B (Water)

Matrix Spike (B7J1607-MS1)		Source: Y710156-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	54.3	1.00	ug/L	50.0	ND	109	74-130			QM-07
Toluene	84.9	1.00	"	50.0	ND	170	73-131			
Ethylbenzene	53.6	1.00	"	50.0	ND	107	76-132			
m,p-Xylene	109	2.00	"	100	ND	109	69-139			
o-Xylene	53.0	1.00	"	50.0	ND	106	74-131			
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B7J1607 - EPA 5030B (Water)

Matrix Spike Dup (B7J1607-MSD1)		Source: Y710156-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	55.9	1.00	ug/L	50.0	ND	112	74-130	2.80	20	QM-07
Toluene	97.2	1.00	"	50.0	ND	194	73-131	13.6	20	
Ethylbenzene	55.1	1.00	"	50.0	ND	110	76-132	2.74	20	
m,p-Xylene	111	2.00	"	100	ND	111	69-139	2.51	20	
o-Xylene	54.5	1.00	"	50.0	ND	109	74-131	2.85	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		95.0	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.4	84-114			

Origins Laboratory, Inc.



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4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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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 B7J1604 - EPA 3550B

Blank (B7J1604-BLK1)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		77.9	59-131			

Blank (B7J1604-BLK2)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		87.2	59-131			

LCS (B7J1604-BS1)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	1080	50.0	mg/kg	1000		108	64-121			
Residual Range Organics (C28-C40)	1110	200	"	1000		111	58-124			
Surrogate: o-Terphenyl	56		"	50.0		111	59-131			

LCS (B7J1604-BS2)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	897	50.0	mg/kg	1000		89.7	64-121			
Residual Range Organics (C28-C40)	1030	200	"	1000		103	58-124			
Surrogate: o-Terphenyl	48		"	50.0		95.5	59-131			

Matrix Spike (B7J1604-MS1)

Source: Y710210-02

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	1040	50.0	mg/kg	1000	ND	104	53-125			
Residual Range Organics (C28-C40)	1010	200	"	1000	ND	101	47-133			

Origins Laboratory, Inc.



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4150 Darley Avenue, Suite 1
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Chandler Cole
Project Number: 89374932
Project: KMG - Troutd 44-7 FP

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
Batch B7J1604 - EPA 3550B										
Matrix Spike (B7J1604-MS1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Surrogate: o-Terphenyl	55		mg/kg	50.0		109	59-131			
Matrix Spike (B7J1604-MS2)		Source: Y710134-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Diesel (C10-C28)	945	50.0	mg/kg	1000	19.8	92.6	53-125			
Residual Range Organics (C28-C40)	887	200	"	1000	ND	88.7	47-133			
Surrogate: o-Terphenyl	45		"	50.0		90.1	59-131			
Matrix Spike Dup (B7J1604-MSD1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Diesel (C10-C28)	801	50.0	mg/kg	1000	ND	80.1	53-125	26.2	20	QR-02
Residual Range Organics (C28-C40)	597	200	"	1000	ND	59.7	47-133	51.4	20	QR-02
Surrogate: o-Terphenyl	41		"	50.0		81.2	59-131			
Matrix Spike Dup (B7J1604-MSD2)		Source: Y710134-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Diesel (C10-C28)	881	50.0	mg/kg	1000	19.8	86.1	53-125	7.17	20	
Residual Range Organics (C28-C40)	928	200	"	1000	ND	92.8	47-133	4.54	20	
Surrogate: o-Terphenyl	46		"	50.0		92.5	59-131			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1605 - NO PREP										
Duplicate (B7J1605-DUP1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
pH	7.73		pH Units		8.02			3.68	25	
Duplicate (B7J1605-DUP2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
pH	7.36		pH Units		7.47			1.48	25	
Batch B7J1606 - NO PREP										
Blank (B7J1606-BLK1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.00420		mmhos/cm							
Blank (B7J1606-BLK2)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B7J1606-DUP1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.149		mmhos/cm		0.146			2.10	25	
Duplicate (B7J1606-DUP2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.398		mmhos/cm		0.393			1.29	25	

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

O-01 This compound is a common laboratory contaminant.

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.



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.

Jen Pellegrini For Noelle Doyle Mathis, President



October 20, 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 16, 2017. This project is associated with Origins project number Y710237-01.

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
GW02	Y710237-01	Water	October 16, 2017 14:46	10/16/2017 17:57
WS02@7'	Y710237-02	Soil	October 16, 2017 14:50	10/16/2017 17:57
WN01@7'	Y710237-03	Soil	October 16, 2017 14:55	10/16/2017 17:57

Per the phone call from Chandler on 10/20/2017 sample ID WS01@7 was changed to WS02@7.

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.

Jen Pellegrini For Noelle Doyle Mathis, President

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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page 1 of 1

1710237

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: Trout 44-7 FP
Project Number: WO# 89374932 Erik Mickelson
Samples Collected By: Kennedy W. Warden
Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summary	Other	GRTEX	DRO/RRO	EC, pH	HOLD SAR		
QW02	10/10/17	1440	3	X				X									
WQ01	10/10/17	1450	1	X				X									
WQ071	10/10/17	1455	1	X				X									
Relinquished By: <i>[Signature]</i>	Date: 10/10/17	Time: 1757	Received By: <i>[Signature]</i>	Date: 10-16-17	Time: 1357	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: <i>[Signature]</i>	Date:	Time:	Received By: <i>[Signature]</i>	Date:	Time:												

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

Date Results Needed: 7am, 10/17/17

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
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: 711237 Client: Apex Co
Client Project ID: KMG - Troudt 44-7 FP
Checklist Completed by: HL Shipped Via: HL
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Date/time completed: 10-16-12 1809 Airbill #: N/A
Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☒ Water ☐ Other: _____
(Describe)
Cooler Number/Temperature: ☒ 1 10.7 °C ☐ _____ °C ☐ _____ °C ☐ _____ °C
Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			pH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

⁽¹⁾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) HL

10-16-12 1809
Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

GW02

10/16/2017 2:46:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y710237-01 (Water)

BTEX by EPA 8260C

Benzene	74.8	4.00	ug/L	4	B7J1608	10/16/2017	10/16/2017	
Toluene	ND	4.00	"	"	"	"	10/19/2017	U
Ethylbenzene	207	4.00	"	"	"	"	10/16/2017	
Xylenes, total	1770	4.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	106 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.4 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

WS02@7'

10/16/2017 2:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710237-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1604	10/16/2017	10/17/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	76.1 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7J1603	10/16/2017	10/17/2017	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	10/19/2017	U
Ethylbenzene	ND	0.002	"	"	"	"	10/17/2017	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.9 %	70-130			"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.3 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.86		pH Units	1	B7J1605	10/16/2017	10/16/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.514		mmhos/cm	"	B7J1606	10/16/2017	"	
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Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

WN01@7'

10/16/2017 2:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y710237-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J1604	10/16/2017	10/17/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 81.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7J1603	10/16/2017	10/17/2017	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	10/19/2017	U
Ethylbenzene	ND	0.002	"	"	"	"	10/17/2017	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 94.8 % 70-130 " " "
Surrogate: Toluene-d8 99.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.15		pH Units	1	B7J1605	10/16/2017	10/16/2017	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.463		mmhos/cm	"	B7J1606	10/16/2017	"	
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Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
Blank (B7J1603-BLK1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
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	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		102	70-130			

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Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
Blank (B7J1603-BLK2)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	0.008	0.002	"							O-01
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	56		ug/kg	62.5		89.0	70-130			
Surrogate: Toluene-d8	58		"	62.5		93.6	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		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
Batch B7J1603 - EPA 5030 (soil)										
LCS (B7J1603-BS1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.099	0.002	mg/kg	0.100		99.4	77.1-124			
Toluene	0.096	0.002	"	0.100		96.0	74.5-128			
Ethylbenzene	0.094	0.002	"	0.100		93.9	66.4-127			
m,p-Xylene	0.191	0.004	"	0.200		95.5	76.6-124			
o-Xylene	0.095	0.002	"	0.100		95.4	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	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
Batch B7J1603 - EPA 5030 (soil)										
LCS (B7J1603-BS2)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.091	0.002	mg/kg	0.100		91.0	77.1-124			
Toluene	0.096	0.002	"	0.100		96.2	74.5-128			
Ethylbenzene	0.096	0.002	"	0.100		95.5	66.4-127			
m,p-Xylene	0.191	0.004	"	0.200		95.5	76.6-124			
o-Xylene	0.091	0.002	"	0.100		91.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	54		ug/kg	62.5		85.7	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		95.0	70-130			

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Project: KMG - Troutdt 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
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Batch B7J1603 - EPA 5030 (soil)

Matrix Spike (B7J1603-MS1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	2.45	0.050	mg/kg	2.50	ND	97.9	71.8-126			
Toluene	2.40	0.050	"	2.50	ND	95.8	65.1-130			
Ethylbenzene	2.36	0.050	"	2.50	ND	94.4	62.2-130			
m,p-Xylene	4.72	0.100	"	5.00	ND	94.3	46.5-137			
o-Xylene	2.38	0.050	"	2.50	ND	95.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.4	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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Project: KMG - Troutdt 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
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Batch B7J1603 - EPA 5030 (soil)

Matrix Spike (B7J1603-MS2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.095	0.002	mg/kg	0.100	ND	94.9	71.8-126			
Toluene	0.105	0.002	"	0.100	ND	105	65.1-130			
Ethylbenzene	0.100	0.002	"	0.100	ND	99.9	62.2-130			
m,p-Xylene	0.191	0.004	"	0.200	ND	95.7	46.5-137			
o-Xylene	0.088	0.002	"	0.100	ND	87.7	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	56		ug/kg	62.5		89.2	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	51		"	62.5		82.0	70-130			

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Project: KMG - Troutdt 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
Batch B7J1603 - EPA 5030 (soil)										
Matrix Spike Dup (B7J1603-MSD1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	2.56	0.050	mg/kg	2.50	ND	102	71.8-126	4.53	11.3	
Toluene	2.47	0.050	"	2.50	ND	98.7	65.1-130	3.00	15.4	
Ethylbenzene	2.45	0.050	"	2.50	ND	98.1	62.2-130	3.80	19.6	
m,p-Xylene	4.95	0.100	"	5.00	ND	99.0	46.5-137	4.83	19.2	
o-Xylene	2.49	0.050	"	2.50	ND	99.5	54.2-134	4.42	17.9	
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	62		"	62.5		99.2	70-130			

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Chandler Cole
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Project: KMG - Troutdt 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
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Batch B7J1603 - EPA 5030 (soil)

Matrix Spike Dup (B7J1603-MSD2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	0.089	0.002	mg/kg	0.100	ND	89.0	71.8-126	6.39	11.3	
Toluene	0.103	0.002	"	0.100	ND	103	65.1-130	2.21	15.4	
Ethylbenzene	0.094	0.002	"	0.100	ND	93.5	62.2-130	6.62	19.6	
m,p-Xylene	0.187	0.004	"	0.200	ND	93.6	46.5-137	2.24	19.2	
o-Xylene	0.090	0.002	"	0.100	ND	90.2	54.2-134	2.86	17.9	
Surrogate: 1,2-Dichloroethane-d4	54		ug/kg	62.5		87.2	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.5	70-130			

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Chandler Cole
Project Number: 89374932
Project: KMG - Troudt 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
Batch B7J1608 - EPA 5030B (Water)										
Blank (B7J1608-BLK1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5	107		84-121			
Surrogate: Toluene-d8	63		"	62.5	101		85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	98.4		84-114			

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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
Batch B7J1608 - EPA 5030B (Water)										
LCS (B7J1608-BS1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	55.9	1.00	ug/L	50.0		112	73.3-129			
Toluene	57.5	1.00	"	50.0		115	76.2-123			
Ethylbenzene	53.1	1.00	"	50.0		106	73.6-130			
m,p-Xylene	108	2.00	"	100		108	76.1-126			
o-Xylene	52.1	1.00	"	50.0		104	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		98.0	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	84-114			

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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
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Batch B7J1608 - EPA 5030B (Water)

Matrix Spike (B7J1608-MS1)		Source: Y710227-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	53.8	1.00	ug/L	50.0	ND	108	74-130			
Toluene	58.9	1.00	"	50.0	ND	118	73-131			
Ethylbenzene	52.8	1.00	"	50.0	ND	106	76-132			
m,p-Xylene	111	2.00	"	100	3.00	108	69-139			
o-Xylene	51.4	1.00	"	50.0	ND	103	74-131			
Surrogate: 1,2-Dichloroethane-d4	69		"	62.5		111	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Chandler Cole
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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
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Batch B7J1608 - EPA 5030B (Water)

Matrix Spike Dup (B7J1608-MSD1)		Source: Y710227-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Benzene	51.7	1.00	ug/L	50.0	ND	103	74-130	4.00	20	
Toluene	55.8	1.00	"	50.0	ND	112	73-131	5.44	20	
Ethylbenzene	49.3	1.00	"	50.0	ND	98.7	76-132	6.79	20	
m,p-Xylene	105	2.00	"	100	3.00	102	69-139	6.06	20	
o-Xylene	49.3	1.00	"	50.0	ND	98.6	74-131	4.23	20	
Surrogate: 1,2-Dichloroethane-d4	69		"	62.5		111	84-121			
Surrogate: Toluene-d8	63		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Project: KMG - Troutdt 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
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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 B7J1604 - EPA 3550B

Blank (B7J1604-BLK1)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		77.9	59-131			

Blank (B7J1604-BLK2)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		87.2	59-131			

LCS (B7J1604-BS1)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	1080	50.0	mg/kg	1000		108	64-121			
Residual Range Organics (C28-C40)	1110	200	"	1000		111	58-124			
Surrogate: o-Terphenyl	56		"	50.0		111	59-131			

LCS (B7J1604-BS2)

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	897	50.0	mg/kg	1000		89.7	64-121			
Residual Range Organics (C28-C40)	1030	200	"	1000		103	58-124			
Surrogate: o-Terphenyl	48		"	50.0		95.5	59-131			

Matrix Spike (B7J1604-MS1)

Source: Y710210-02

Prepared: 10/16/2017 Analyzed: 10/16/2017

Diesel (C10-C28)	1040	50.0	mg/kg	1000	ND	104	53-125			
Residual Range Organics (C28-C40)	1010	200	"	1000	ND	101	47-133			

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Project: KMG - Troutd 44-7 FP

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
Batch B7J1604 - EPA 3550B										
Matrix Spike (B7J1604-MS1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Surrogate: o-Terphenyl	55		mg/kg	50.0		109	59-131			
Matrix Spike (B7J1604-MS2)		Source: Y710134-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Diesel (C10-C28)	945	50.0	mg/kg	1000	19.8	92.6	53-125			
Residual Range Organics (C28-C40)	887	200	"	1000	ND	88.7	47-133			
Surrogate: o-Terphenyl	45		"	50.0		90.1	59-131			
Matrix Spike Dup (B7J1604-MSD1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Diesel (C10-C28)	801	50.0	mg/kg	1000	ND	80.1	53-125	26.2	20	QR-02
Residual Range Organics (C28-C40)	597	200	"	1000	ND	59.7	47-133	51.4	20	QR-02
Surrogate: o-Terphenyl	41		"	50.0		81.2	59-131			
Matrix Spike Dup (B7J1604-MSD2)		Source: Y710134-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Diesel (C10-C28)	881	50.0	mg/kg	1000	19.8	86.1	53-125	7.17	20	
Residual Range Organics (C28-C40)	928	200	"	1000	ND	92.8	47-133	4.54	20	
Surrogate: o-Terphenyl	46		"	50.0		92.5	59-131			

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

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1605 - NO PREP										
Duplicate (B7J1605-DUP1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
pH	7.73		pH Units		8.02			3.68	25	
Duplicate (B7J1605-DUP2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
pH	7.36		pH Units		7.47			1.48	25	
Batch B7J1606 - NO PREP										
Blank (B7J1606-BLK1)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.00420		mmhos/cm							
Blank (B7J1606-BLK2)					Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B7J1606-DUP1)		Source: Y710210-02			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.149		mmhos/cm		0.146			2.10	25	
Duplicate (B7J1606-DUP2)		Source: Y710227-01			Prepared: 10/16/2017 Analyzed: 10/16/2017					
Specific Conductance (EC)	0.398		mmhos/cm		0.393			1.29	25	

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

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.

O-01 This compound is a common laboratory contaminant.

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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December 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. December 06, 2017. This project is associated with Origins project number Y712098-01.

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.
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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
MW-01	Y712098-01	Water	December 5, 2017 13:17	12/06/2017 16:24
MW-02	Y712098-02	Water	December 5, 2017 13:24	12/06/2017 16:24
MW-03	Y712098-03	Water	December 5, 2017 13:31	12/06/2017 16:24
MW-04	Y712098-04	Water	December 5, 2017 13:38	12/06/2017 16:24

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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Y12098

page 1 of 1

ORIGINS
LABORATORY, INC

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

Project Manager: Chandler Cole
Project Name: Troutd 44-7
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 ₃	Other	Groundwater	Soil	Air Summa Canister #	Other		
MW-01	12/5/17	1317	3	X				X				BTX	1
MW-02		1324											2
MW-03		1331											3
MW-04		1338											4
													5
													6
													7
													8
													9
													10
Relinquished By: [Signature]	Date: 12/5/2017	Time: 1604	Received By: [Signature]	Date: 12/5/17	Time: 1617	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>							
Relinquished By: [Signature]	Date:	Time:	Received By:	Date:	Time:								

Date Results Needed

42

Origins Laboratory, Inc.

Jen 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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
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: 4712098

Client: Apex

Client Project ID: KMG-Troudt 44-7

Checklist Completed by: Dan M

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12-17-9

Airbill #: NA

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

Cooler Number/Temperature: 1 / 4.2 °C / °C / °C

Thermometer ID: TA03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ -NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ 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) [Signature]

Date/Time Reviewed 12-17-9

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-01
12/5/2017 1:17:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y712098-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B7L1104	12/11/2017	12/12/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	121 %	84-121			"	"	"	
Surrogate: Toluene-d8	108 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	84-114			"	"	"	

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-02
12/5/2017 1:24:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y712098-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B7L1104	12/11/2017	12/12/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

119 % 84-121
106 % 85-115
113 % 84-114

" " "
" " "
" " "

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-03
12/5/2017 1:31:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y712098-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B7L1104	12/11/2017	12/12/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	1.65	1.00	"	"	"	"	"	
Xylenes, total	16.9	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	114 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.8 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	84-114			"	"	"	

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-04
12/5/2017 1:38:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y712098-04 (Water)

BTEX by EPA 8260C

Benzene	48.4	4.00	ug/L	4	B7L1104	12/11/2017	12/12/2017	
Toluene	ND	4.00	"	"	"	"	"	U
Ethylbenzene	118	4.00	"	"	"	"	"	
Xylenes, total	665	4.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	113 %	84-121			"	"	"	
Surrogate: Toluene-d8	104 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	110 %	84-114			"	"	"	

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B7L1104 - EPA 5030B (Water)										
Blank (B7L1104-BLK1)					Prepared: 12/11/2017 Analyzed: 12/11/2017					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5	109		84-121			
Surrogate: Toluene-d8	67		"	62.5	107		85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B7L1104 - EPA 5030B (Water)

LCS (B7L1104-BS1)

Prepared: 12/11/2017 Analyzed: 12/11/2017

Benzene	43.6	1.00	ug/L	50.0		87.2	73.3-129
Toluene	42.8	1.00	"	50.0		85.7	76.2-123
Ethylbenzene	46.2	1.00	"	50.0		92.3	73.6-130
m,p-Xylene	98.9	2.00	"	100		98.9	76.1-126
o-Xylene	50.4	1.00	"	50.0		101	76.6-124
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		102	84-121
Surrogate: Toluene-d8	66		"	62.5		105	85-115
Surrogate: 4-Bromofluorobenzene	69		"	62.5		110	84-114

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B7L1104 - EPA 5030B (Water)

Matrix Spike (B7L1104-MS1)		Source: Y712101-01			Prepared: 12/11/2017 Analyzed: 12/11/2017					
Benzene	47.0	1.00	ug/L	50.0	ND	93.9	74-130			
Toluene	48.4	1.00	"	50.0	ND	96.7	73-131			
Ethylbenzene	53.2	1.00	"	50.0	ND	106	76-132			
m,p-Xylene	101	2.00	"	100	ND	101	69-139			
o-Xylene	54.1	1.00	"	50.0	ND	108	74-131			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	62		"	62.5		98.7	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B7L1104 - EPA 5030B (Water)

Matrix Spike Dup (B7L1104-MSD1)		Source: Y712101-01			Prepared: 12/11/2017 Analyzed: 12/11/2017					
Benzene	51.6	1.00	ug/L	50.0	ND	103	74-130	9.53	20	
Toluene	51.6	1.00	"	50.0	ND	103	73-131	6.48	20	
Ethylbenzene	54.9	1.00	"	50.0	ND	110	76-132	3.13	20	
m,p-Xylene	113	2.00	"	100	ND	113	69-139	11.0	20	
o-Xylene	56.6	1.00	"	50.0	ND	113	74-131	4.52	20	
Surrogate: 1,2-Dichloroethane-d4	75		"	62.5		121	84-121			
Surrogate: Toluene-d8	65		"	62.5		103	85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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.



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.

Jen Pellegrini For Noelle Doyle Mathis, President



March 22, 2018

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. March 15, 2018. This project is associated with Origins project number Y803273-01.

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
MW-01	Y803273-01	Water	March 15, 2018 11:00	03/15/2018 18:33
MW-02	Y803273-02	Water	March 15, 2018 11:29	03/15/2018 18:33
MW-03	Y803273-03	Water	March 15, 2018 11:45	03/15/2018 18:33
MW-04	Y803273-04	Water	March 15, 2018 12:10	03/15/2018 18:33

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

www.originslaboratory.com

Y403273

page 1 of 1

ORIGINS
LABORATORY, INC

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: Trout 44-7
Project Number: WO# 89374932 Erik Mickelson
Samples Collected By: Ashley Gibbard
Bill to: Anadarko

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Groundwater	Soil	Air Summa	Other	Other	Other	Other	Other	
MW-01	3/15/18	1150	3		X		X								1
MW-02	3/15/18	1129	3		X		X								2
MW-03	3/15/18	1145	3		X		X								3
MW-04	3/15/18	1210	3		X		X								4
															5
															6
															7
															8
															9
															10

N.F. F

AA 3/15/18

Relinquished By: *[Signature]* Date: 3/15/18 Time: 1700
Relinquished By: *[Signature]* Date: 3/15/18 Time: 1833

Turnaround Time: ☒ 24 Hr ☐ 48 Hr ☐ 72 Hr

Date Results Needed: 7am

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
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: Y803273

Client: Apex

Client Project ID: KMG-Troudt 44-7

Checklist Completed by: SK

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 3/16/18

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid ☒ Water ☐ Other: ☐

Cooler Number/Temperature: 1 / 4.9 °C 1 / 1 °C 1 / 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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾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) W

3/19/18
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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-01

3/15/2018 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc. Y803273-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C1907	03/19/2018	03/20/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	90.9 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	84-114			"	"	"	

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-02

3/15/2018 11:29:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
Y803273-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C1907	03/19/2018	03/20/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	88.7 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	84-114			"	"	"	

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-03

3/15/2018 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803273-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C1907	03/19/2018	03/20/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	90.0 %	84-121	"	"	"
Surrogate: Toluene-d8	101 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	84-114	"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW-04

3/15/2018 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y803273-04 (Water)

BTEX by EPA 8260C

Benzene	4.37	1.00	ug/L	1	B8C1907	03/19/2018	03/20/2018	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	2.32	1.00	"	"	"	"	"	
Xylenes, total	2.29	1.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	91.6 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troudt 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
Batch B8C1907 - EPA 5030B (Water)										
Blank (B8C1907-BLK1)					Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		98.3	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.9	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troudt 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
Batch B8C1907 - EPA 5030B (Water)										
Blank (B8C1907-BLK2)					Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.2	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B8C1907 - EPA 5030B (Water)										
LCS (B8C1907-BS1)					Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	46.9	1.00	ug/L	50.0		93.7	73.3-129			
Toluene	48.3	1.00	"	50.0		96.6	76.2-123			
Ethylbenzene	47.8	1.00	"	50.0		95.7	73.6-130			
m,p-Xylene	97.5	2.00	"	100		97.5	76.1-126			
o-Xylene	49.3	1.00	"	50.0		98.5	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.9	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B8C1907 - EPA 5030B (Water)										
LCS (B8C1907-BS2)					Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	45.7	1.00	ug/L	50.0		91.4	73.3-129			
Toluene	49.3	1.00	"	50.0		98.7	76.2-123			
Ethylbenzene	47.4	1.00	"	50.0		94.7	73.6-130			
m,p-Xylene	96.4	2.00	"	100		96.4	76.1-126			
o-Xylene	48.6	1.00	"	50.0		97.1	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.9	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.3	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8C1907 - EPA 5030B (Water)

Matrix Spike (B8C1907-MS1)		Source: Y803254-03			Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	52.4	1.00	ug/L	50.0	ND	105	74-130			
Toluene	52.8	1.00	"	50.0	ND	106	73-131			
Ethylbenzene	52.9	1.00	"	50.0	ND	106	76-132			
m,p-Xylene	108	2.00	"	100	ND	108	69-139			
o-Xylene	52.9	1.00	"	50.0	ND	106	74-131			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.2	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8C1907 - EPA 5030B (Water)

Matrix Spike (B8C1907-MS2)		Source: Y803254-04			Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	55.8	1.00	ug/L	50.0	ND	112	74-130			
Toluene	55.9	1.00	"	50.0	ND	112	73-131			
Ethylbenzene	55.6	1.00	"	50.0	ND	111	76-132			
m,p-Xylene	113	2.00	"	100	ND	113	69-139			
o-Xylene	56.3	1.00	"	50.0	ND	113	74-131			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.6	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8C1907 - EPA 5030B (Water)

Matrix Spike Dup (B8C1907-MSD1)		Source: Y803254-03			Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	56.4	1.00	ug/L	50.0	ND	113	74-130	7.37	20	
Toluene	58.6	1.00	"	50.0	ND	117	73-131	10.5	20	
Ethylbenzene	59.0	1.00	"	50.0	ND	118	76-132	10.7	20	
m,p-Xylene	118	2.00	"	100	ND	118	69-139	9.19	20	
o-Xylene	57.9	1.00	"	50.0	ND	116	74-131	9.06	20	
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		91.0	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B8C1907 - EPA 5030B (Water)										
Matrix Spike Dup (B8C1907-MSD2)			Source: Y803254-04		Prepared: 03/19/2018 Analyzed: 03/20/2018					
Benzene	56.9	1.00	ug/L	50.0	ND	114	74-130	2.00	20	
Toluene	57.7	1.00	"	50.0	ND	115	73-131	3.10	20	
Ethylbenzene	58.7	1.00	"	50.0	ND	117	76-132	5.44	20	
m,p-Xylene	118	2.00	"	100	ND	118	69-139	3.82	20	
o-Xylene	57.1	1.00	"	50.0	ND	114	74-131	1.53	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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.



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.



June 27, 2018

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. June 21, 2018. This project is associated with Origins project number Y806313-01.

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
MW01	Y806313-01	Water	June 21, 2018 12:15	06/21/2018 14:42
MW02	Y806313-02	Water	June 21, 2018 12:59	06/21/2018 14:42

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.

Jen Pellegrini For Noelle Doyle Mathis, President

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

www.originslaboratory.com

1900313

page 1 of 1

ORIGINS
LABORATORY, INC

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: Trout 44-7
Project Number: WO# 89374932 Erik Mickelson
Samples Collected By: Kate MacDonald
Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative			Matrix			Analysis			Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other	DRO/RRO	
MWD1	6/21/18	1215	3		X			X					1
MWD2	6/21/18	1259	3		X			X					2
													3
													4
													5
													6
													7
													8
													9
													10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<i>[Signature]</i>	6/21/18	1347	<i>[Signature]</i>	6/21/18	1347	Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/>
<i>[Signature]</i>	6/21/18	1442	<i>[Signature]</i>	6/21/18	1442	48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>

Date Results Needed

2.1

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
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: Y800313

Client: Apex

Client Project ID: KMG-Troudt 44-7

Checklist Completed by: JP

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 6/21/18

Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid ☒ Water ☐ Other: NA (Describe)

Cooler Number/Temperature: 1 12.1 °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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾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] (Project Manager)

6-25-18
Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW01

6/21/2018 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y806313-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8F2207	06/22/2018	06/25/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.4 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW02

6/21/2018 12:59:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y806313-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8F2207	06/22/2018	06/25/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.8 %	84-114			"	"	"	

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Trout 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
Batch B8F2207 - EPA 5030B (Water)										
Blank (B8F2207-BLK1)					Prepared: 06/22/2018 Analyzed: 06/25/2018					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	102		84-121			
Surrogate: Toluene-d8	62		"	62.5	100		85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5	95.4		84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Trout 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
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Batch B8F2207 - EPA 5030B (Water)

Blank (B8F2207-BLK2)

Prepared: 06/22/2018 Analyzed: 06/25/2018

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5	104		84-121			
Surrogate: Toluene-d8	63		"	62.5	101		85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5	95.3		84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B8F2207 - EPA 5030B (Water)										
LCS (B8F2207-BS1)					Prepared: 06/22/2018 Analyzed: 06/25/2018					
Benzene	51.4	1.00	ug/L	50.0		103	73.3-129			
Toluene	52.6	1.00	"	50.0		105	76.2-123			
Ethylbenzene	52.2	1.00	"	50.0		104	73.6-130			
m,p-Xylene	106	2.00	"	100		106	76.1-126			
o-Xylene	49.3	1.00	"	50.0		98.6	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	73		"	62.5		116	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B8F2207 - EPA 5030B (Water)										
LCS (B8F2207-BS2)					Prepared: 06/22/2018 Analyzed: 06/25/2018					
Benzene	41.4	1.00	ug/L	50.0		82.7	73.3-129			
Toluene	42.6	1.00	"	50.0		85.2	76.2-123			
Ethylbenzene	41.4	1.00	"	50.0		82.7	73.6-130			
m,p-Xylene	84.0	2.00	"	100		84.0	76.1-126			
o-Xylene	41.4	1.00	"	50.0		82.8	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		"	62.5		111	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8F2207 - EPA 5030B (Water)

Matrix Spike (B8F2207-MS1)		Source: Y806299-01			Prepared: 06/22/2018 Analyzed: 06/25/2018					
Benzene	42.9	1.00	ug/L	50.0	ND	85.8	74-130			
Toluene	44.1	1.00	"	50.0	ND	88.2	73-131			
Ethylbenzene	44.3	1.00	"	50.0	ND	88.6	76-132			
m,p-Xylene	90.1	2.00	"	100	ND	90.1	69-139			
o-Xylene	44.4	1.00	"	50.0	ND	88.7	74-131			
Surrogate: 1,2-Dichloroethane-d4	70		"	62.5		112	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8F2207 - EPA 5030B (Water)

Matrix Spike (B8F2207-MS2)		Source: Y806313-01			Prepared: 06/22/2018 Analyzed: 06/25/2018					
Benzene	48.3	1.00	ug/L	50.0	ND	96.6	74-130			
Toluene	49.4	1.00	"	50.0	ND	98.8	73-131			
Ethylbenzene	47.8	1.00	"	50.0	ND	95.5	76-132			
m,p-Xylene	97.6	2.00	"	100	ND	97.6	69-139			
o-Xylene	47.5	1.00	"	50.0	ND	95.0	74-131			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

Origins Laboratory, Inc.



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4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8F2207 - EPA 5030B (Water)

Matrix Spike Dup (B8F2207-MSD1)		Source: Y806299-01			Prepared: 06/22/2018 Analyzed: 06/25/2018					
Benzene	51.4	1.00	ug/L	50.0	ND	103	74-130	18.1	20	
Toluene	52.0	1.00	"	50.0	ND	104	73-131	16.5	20	
Ethylbenzene	52.3	1.00	"	50.0	ND	105	76-132	16.6	20	
m,p-Xylene	105	2.00	"	100	ND	105	69-139	15.0	20	
o-Xylene	51.2	1.00	"	50.0	ND	102	74-131	14.3	20	
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		98.5	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8F2207 - EPA 5030B (Water)

Matrix Spike Dup (B8F2207-MSD2)		Source: Y806313-01			Prepared: 06/22/2018 Analyzed: 06/25/2018					
Benzene	49.7	1.00	ug/L	50.0	ND	99.3	74-130	2.76	20	
Toluene	51.4	1.00	"	50.0	ND	103	73-131	4.01	20	
Ethylbenzene	50.1	1.00	"	50.0	ND	100	76-132	4.78	20	
m,p-Xylene	102	2.00	"	100	ND	102	69-139	3.97	20	
o-Xylene	49.8	1.00	"	50.0	ND	99.6	74-131	4.77	20	
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		100	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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.



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.



July 18, 2018

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. July 16, 2018. This project is associated with Origins project number Y807207-01.

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
MW03R	Y807207-01	Water	July 16, 2018 13:30	07/16/2018 15:28
MW04R	Y807207-02	Water	July 16, 2018 14:20	07/16/2018 15:28

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

www.originslaboratory.com

page 1 of 1

ORIGINS

LABORATORY, INC

Y807207

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: Troudt 44-7
Project Number: WO#89374932 Erik Mickelson
Samples Collected By: Caitlin Thomas
Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other	GBTEX	DRO/RRO	EC, pH	
MW03R	7/16/18	1330	3												1
MW04R	7/16/18	1420	3												2
															3
															4
															5
															6
															7
															8
															9
															10
Relinquished By: <i>Caitlin Thomas</i>	Date: 7/16/18	Time: 1528		Received By: <i>[Signature]</i>	Date: 7/16/18	Time: 1528		Received By: <i>[Signature]</i>	Date: 7/16/18	Time: 1528		Turnaround Time: <i>same day</i>			
Relinquished By:	Date:	Time:		Received By:	Date:	Time:		Received By:	Date:	Time:		48 Hr	72 Hr	Standard	

Date Results Needed 7am,

10.4

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.

Apex Companies, LLC

4150 Darley Avenue, Suite 1

Boulder CO 80305

Chandler Cole

Project Number: 89374932

Project: KMG - Trout 44-7 FP

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y807207

Client: Apex

Client Project ID: KMG-Trout 44-7

Checklist Completed by: JG

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 7/17/2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 10.4 °C 1 / 10.4 °C 1 / 10.4 °C 1 / 10.4 °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 ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Same Day</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾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) JG

Date/Time Reviewed 7/18/18

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW03R

7/16/2018 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807207-01 (Water)

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	100	ug/L	1	B8G1704	07/17/2018	07/18/2018	U
Benzene	ND	1.00	"	"	"	"	"	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.1 %	85.9-113			"	"	"
Surrogate: Toluene-d8	100 %	89-110			"	"	"
Surrogate: 4-Bromofluorobenzene	94.8 %	84-114			"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

MW04R

7/16/2018 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807207-02 (Water)

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	400	ug/L	4	B8G1704	07/17/2018	07/18/2018	U
Benzene	ND	4.00	"	"	"	"	"	U
Toluene	ND	4.00	"	"	"	"	"	U
Ethylbenzene	ND	4.00	"	"	"	"	"	U
Xylenes, total	ND	4.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	92.9 %	85.9-113			"	"	"
Surrogate: Toluene-d8	101 %	89-110			"	"	"
Surrogate: 4-Bromofluorobenzene	96.9 %	84-114			"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
Project Number: 89374932
Project: KMG - Troutdt 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
Batch B8G1704 - EPA 5030B (Water)										
Blank (B8G1704-BLK1)					Prepared: 07/17/2018 Analyzed: 07/18/2018					
Gasoline Range Hydrocarbons	ND	100	ug/L							U
Benzene	ND	1.00	"							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	57.5		"	62.5		92.0	85.9-113			
Surrogate: Toluene-d8	63.1		"	62.5		101	89-110			
Surrogate: 4-Bromofluorobenzene	59.4		"	62.5		95.1	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
Batch B8G1704 - EPA 5030B (Water)										
LCS (B8G1704-BS1)					Prepared: 07/17/2018 Analyzed: 07/18/2018					
Benzene	45.4	1.00	ug/L	50.0		90.7	80-120			
Toluene	43.2	1.00	"	50.0		86.3	80-122			
Ethylbenzene	42.7	1.00	"	50.0		85.5	77-129			
m,p-Xylene	85.5	2.00	"	100		85.5	78.6-126			
o-Xylene	45.6	1.00	"	50.0		91.1	80-121			
Surrogate: 1,2-Dichloroethane-d4	55.5		"	62.5		88.8	85.9-113			
Surrogate: Toluene-d8	64.2		"	62.5		103	89-110			
Surrogate: 4-Bromofluorobenzene	60.8		"	62.5		97.2	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8G1704 - EPA 5030B (Water)

Matrix Spike (B8G1704-MS1)		Source: Y807206-02			Prepared: 07/17/2018 Analyzed: 07/18/2018					
Benzene	46.6	1.00	ug/L	50.0	ND	93.2	75.3-128			
Toluene	43.7	1.00	"	50.0	ND	87.4	74.2-132			
Ethylbenzene	43.1	1.00	"	50.0	ND	86.2	71.5-138			
m,p-Xylene	85.5	2.00	"	100	ND	85.5	70-136			
o-Xylene	46.6	1.00	"	50.0	ND	93.3	77.2-127			
Surrogate: 1,2-Dichloroethane-d4	55.8		"	62.5		89.3	85.9-113			
Surrogate: Toluene-d8	64.0		"	62.5		102	89-110			
Surrogate: 4-Bromofluorobenzene	59.6		"	62.5		95.3	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Chandler Cole
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
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Batch B8G1704 - EPA 5030B (Water)

Matrix Spike Dup (B8G1704-MSD1)		Source: Y807206-02			Prepared: 07/17/2018 Analyzed: 07/18/2018					
Benzene	46.9	1.00	ug/L	50.0	ND	93.8	75.3-128	0.599	20	
Toluene	44.8	1.00	"	50.0	ND	89.7	74.2-132	2.53	20	
Ethylbenzene	44.6	1.00	"	50.0	ND	89.3	71.5-138	3.58	20	
m,p-Xylene	88.6	2.00	"	100	ND	88.6	70-136	3.61	20	
o-Xylene	47.4	1.00	"	50.0	ND	94.7	77.2-127	1.51	20	
Surrogate: 1,2-Dichloroethane-d4	55.6		"	62.5		89.0	85.9-113			
Surrogate: Toluene-d8	64.3		"	62.5		103	89-110			
Surrogate: 4-Bromofluorobenzene	60.9		"	62.5		97.5	84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

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

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.



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.



September 25, 2018

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - Troutd 44-7

Project Number - 89374932

Attached are your analytical results for KMG - Troutd 44-7 received by Origins Laboratory, Inc. September 20, 2018. This project is associated with Origins project number Y809268-01.

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

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-01	Y809268-01	Water	September 20, 2018 12:00	09/20/2018 14:20
MW-02	Y809268-02	Water	September 20, 2018 12:20	09/20/2018 14:20
MW-03R	Y809268-03	Water	September 20, 2018 13:05	09/20/2018 14:20
MW-04R	Y809268-04	Water	September 20, 2018 13:25	09/20/2018 14:20

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

www.originslaboratory.com

4801268

page 1 of 1

ORIGINS
LABORATORY, INC

Client: Apex Companies
Address: 1746 Cole Blvd, Lakewood, CO 80401
Telephone Number: 720-501-5065
Email Address: Maggie.Graham@apexcos.com

Project Manager: Maggie Graham
Project Name: Troutd 44-7
Project Number: WO# 89374932 Greg Hamilton
Samples Collected By: Caitlin Thomas
Bill to Anadarko

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	BTEX	
MW-01	9/20/18	1200	3		✓			✓					1
MW-02	9/20/18	1220	3		✓			✓					2
MW-03R	9/20/18	1305	3		✓			✓					3
MW-04R	9/20/18	1325	3		✓			✓					4
													5
													6
													7
													8
													9
													10
Relinquished By: Caitlin	Date: 9/20/18	Time: 1340	Time: 1340	Received By: [Signature]	Date: 9/20/18	Time: 1340	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard						
Relinquished By: [Signature]	Date: 9/20/18	Time: 1340	Time: 1340	Received By: [Signature]	Date: 9/20/18	Time: 1340	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard						

Date Results Needed

21.8

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4809268

Client: Apex Co.

Client Project ID: Troudt 44-7

Checklist Completed by: Dan Lee

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 9-20-18

Airbill #: NA

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

Cooler Number/Temperature: 1 21.6 °C 1 °C 1 °C 1 °C

Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>sampled same Day</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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.				
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾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) JP

Date/Time Reviewed 9/21/18

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-01

9/20/2018 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc. Y809268-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B812007	JTD	09/20/2018	09/20/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	90.0 %	84-121	"	"	"
Surrogate: Toluene-d8	91.9 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	92.4 %	84-114	"	"	"

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-02

9/20/2018 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.
Y809268-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B812007	JTD	09/20/2018	09/20/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	90.2 %	84-121	"	"	"
Surrogate: Toluene-d8	92.1 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	93.5 %	84-114	"	"	"

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-03R

9/20/2018 1:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y809268-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B812007	JTD	09/20/2018	09/20/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	92.5 %	84-121	"	"	"
Surrogate: Toluene-d8	91.6 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	92.0 %	84-114	"	"	"

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-04R

9/20/2018 1:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y809268-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B812007	JTD	09/20/2018	09/20/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.0 %	84-121	"	"	"
Surrogate: Toluene-d8	90.9 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	93.9 %	84-114	"	"	"

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

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
Batch B8I2007 - EPA 5030B (Water)										
Blank (B8I2007-BLK1)					Prepared: 09/20/2018 Analyzed: 09/20/2018					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.8	84-121			
Surrogate: Toluene-d8	59		"	62.5		93.6	85-115			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.9	84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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
Batch B8I2007 - EPA 5030B (Water)										
LCS (B8I2007-BS1)					Prepared: 09/20/2018 Analyzed: 09/20/2018					
Benzene	59.3	1.00	ug/L	50.0		119	73.3-129			
Toluene	51.2	1.00	"	50.0		102	76.2-123			
Ethylbenzene	50.1	1.00	"	50.0		100	73.6-130			
m,p-Xylene	105	2.00	"	100		105	76.1-126			
o-Xylene	52.0	1.00	"	50.0		104	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		93.3	84-121			
Surrogate: Toluene-d8	58		"	62.5		92.5	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B8I2007 - EPA 5030B (Water)

Matrix Spike (B8I2007-MS1)		Source: Y809262-01			Prepared: 09/20/2018 Analyzed: 09/21/2018					
Benzene	50.1	1.00	ug/L	50.0	1.13	97.9	74-130			QM-07
Toluene	49.1	1.00	"	50.0	0.340	97.4	73-131			
Ethylbenzene	52.9	1.00	"	50.0	1.70	102	76-132			
m,p-Xylene	104	2.00	"	100	1.04	103	69-139			
o-Xylene	51.9	1.00	"	50.0	0.180	104	74-131			
Surrogate: 1,2-Dichloroethane-d4	56		"	62.5		90.3	84-121			
Surrogate: Toluene-d8	58		"	62.5		92.7	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B8I2007 - EPA 5030B (Water)

Matrix Spike Dup (B8I2007-MSD1)		Source: Y809262-01			Prepared: 09/20/2018 Analyzed: 09/21/2018					
Benzene	47.5	1.00	ug/L	50.0	1.13	92.8	74-130	5.24	20	QM-07
Toluene	46.8	1.00	"	50.0	0.340	92.9	73-131	4.78	20	
Ethylbenzene	49.8	1.00	"	50.0	1.70	96.2	76-132	5.92	20	
m,p-Xylene	98.3	2.00	"	100	1.04	97.3	69-139	5.56	20	
o-Xylene	49.6	1.00	"	50.0	0.180	98.8	74-131	4.65	20	
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.9	84-121			
Surrogate: Toluene-d8	57		"	62.5		91.9	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

Notes and Definitions

U Sample is Non-Detect.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

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.



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.



December 26, 2018

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder

CO 80305

Project Name - KMG - Troutd 44-7

Project Number - 89374932

Attached are your analytical results for KMG - Troutd 44-7 received by Origins Laboratory, Inc. December 17, 2018. This project is associated with Origins project number Y812283-01.

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

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-01	Y812283-01	Water	December 17, 2018 12:06	12/17/2018 17:30
MW-02	Y812283-02	Water	December 17, 2018 12:31	12/17/2018 17:30
MW-03R	Y812283-03	Water	December 17, 2018 12:51	12/17/2018 17:30
MW-04R	Y812283-04	Water	December 17, 2018 13:09	12/17/2018 17:30

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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Trout 44-7

www.originslaboratory.com

482283

page 1 of 1

ORIGINS
LABORATORY, INC

Client: Apex Companies
Address: 1746 Cole Blvd, Lakewood, CO 80401
Telephone Number: 720-501-5065
Email Address: Maggie.Graham@apexcos.com

Project Manager: Maggie Graham
Project Name: Trout 44-7
Project Number: WO# 08089 Greg Hamilton
Samples Collected By: Sage Mathis
Bill to: Anadarko

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	BTEX	
MIN-01	12/13/18	1204	3	X				X					1
MIN-02	12/13/18	1231	3	X				X					2
MIN-03R	12/13/18	1251	3	X				X					3
MIN-04R	12/13/18	1309	3	X				X					4
													5
													6
													7
													8
													9
													10
Relinquished By: <i>[Signature]</i>	Date: 12/17/18	Time: 1730		Received By: <i>[Signature]</i>	Date: 12/17/18	Time: 1730		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 checked="" type="checkbox"/>					
Relinquished By:	Date:	Time:		Received By:	Date:	Time:							

Date Results Needed: Standard Turn

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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.

Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 1812283

Client: Apex

Client Project ID: KMG-Troudt

Checklist Completed by: JP

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12/18/12

Airbill #: NA

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

Cooler Number/Temperature: 1 5.3 °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 ^{(1)?}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ^{(1)?}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ^{(1)?}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ^{(1)?}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ^{(1)?}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ^{(1)?}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ^{(1)?}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ^{(1)?}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ^{(1)?} (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 ₃ , HCL, H ₂ SO ₄ / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>HCL</u>
Additional Comments (if any):				

⁽¹⁾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)

12-18-12
Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-01

12/17/2018 12:06:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y812283-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8L2006	JTD	12/20/2018	12/21/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %	84-121	"	"	"
Surrogate: Toluene-d8	101 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	84-114	"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-02

12/17/2018 12:31:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y812283-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8L2006	JTD	12/20/2018	12/21/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121	"	"	"
Surrogate: Toluene-d8	101 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	84-114	"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-03R

12/17/2018 12:51:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y812283-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8L2006	JTD	12/20/2018	12/21/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121	"	"	"
Surrogate: Toluene-d8	103 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	84-114	"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

MW-04R

12/17/2018 1:09:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y812283-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8L2006	JTD	12/20/2018	12/21/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %	84-121	"	"	"
Surrogate: Toluene-d8	101 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	84-114	"	"	"

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutdt 44-7

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
Batch B8L2006 - EPA 5030B (Water)										
Blank (B8L2006-BLK1)					Prepared: 12/20/2018 Analyzed: 12/21/2018					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5	101		84-121			
Surrogate: Toluene-d8	63		"	62.5	101		85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

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
Batch B8L2006 - EPA 5030B (Water)										
Blank (B8L2006-BLK2)					Prepared: 12/20/2018 Analyzed: 12/22/2018					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	103		84-121			
Surrogate: Toluene-d8	63		"	62.5	101		85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5	104		84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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
Batch B8L2006 - EPA 5030B (Water)										
LCS (B8L2006-BS1)					Prepared: 12/20/2018 Analyzed: 12/21/2018					
Benzene	53.1	1.00	ug/L	50.0		106	73.3-129			
Toluene	52.9	1.00	"	50.0		106	76.2-123			
Ethylbenzene	53.9	1.00	"	50.0		108	73.6-130			
m,p-Xylene	107	2.00	"	100		107	76.1-126			
o-Xylene	54.3	1.00	"	50.0		109	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.8	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.2	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	84-114			

Origins Laboratory, Inc.



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4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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
Batch B8L2006 - EPA 5030B (Water)										
LCS (B8L2006-BS2)					Prepared: 12/20/2018 Analyzed: 12/21/2018					
Benzene	56.5	1.00	ug/L	50.0		113	73.3-129			
Toluene	57.5	1.00	"	50.0		115	76.2-123			
Ethylbenzene	59.2	1.00	"	50.0		118	73.6-130			
m,p-Xylene	114	2.00	"	100		114	76.1-126			
o-Xylene	55.3	1.00	"	50.0		111	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	84-114			

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Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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 B8L2006 - EPA 5030B (Water)

Matrix Spike (B8L2006-MS1)		Source: Y812290-09			Prepared: 12/20/2018 Analyzed: 12/21/2018					
Benzene	36.6	1.00	ug/L	50.0	ND	73.3	74-130			QM-07
Toluene	37.8	1.00	"	50.0	ND	75.6	73-131			
Ethylbenzene	38.9	1.00	"	50.0	ND	77.8	76-132			
m,p-Xylene	77.1	2.00	"	100	ND	77.1	69-139			
o-Xylene	38.0	1.00	"	50.0	ND	76.1	74-131			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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4150 Darley Avenue, Suite 1
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Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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 B8L2006 - EPA 5030B (Water)

Matrix Spike (B8L2006-MS2)		Source: Y812290-12			Prepared: 12/20/2018 Analyzed: 12/21/2018					
Benzene	47.5	1.00	ug/L	50.0	ND	95.1	74-130			
Toluene	45.4	1.00	"	50.0	ND	90.8	73-131			
Ethylbenzene	45.3	1.00	"	50.0	ND	90.5	76-132			
m,p-Xylene	90.8	2.00	"	100	ND	90.8	69-139			
o-Xylene	45.0	1.00	"	50.0	ND	90.0	74-131			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.6	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutdt 44-7

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 B8L2006 - EPA 5030B (Water)

Matrix Spike Dup (B8L2006-MSD1)		Source: Y812290-09			Prepared: 12/20/2018 Analyzed: 12/21/2018					
Benzene	48.8	1.00	ug/L	50.0	ND	97.6	74-130	28.5	20	QR-03
Toluene	46.1	1.00	"	50.0	ND	92.2	73-131	19.8	20	
Ethylbenzene	45.9	1.00	"	50.0	ND	91.8	76-132	16.4	20	
m,p-Xylene	91.3	2.00	"	100	ND	91.3	69-139	16.9	20	
o-Xylene	45.6	1.00	"	50.0	ND	91.3	74-131	18.2	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		105	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Apex Companies, LLC
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Boulder CO 80305

Maggie Graham
Project Number: 89374932
Project: KMG - Troutd 44-7

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 B8L2006 - EPA 5030B (Water)

Matrix Spike Dup (B8L2006-MSD2)		Source: Y812290-12			Prepared: 12/20/2018 Analyzed: 12/21/2018					
Benzene	47.9	1.00	ug/L	50.0	ND	95.7	74-130	0.692	20	
Toluene	46.8	1.00	"	50.0	ND	93.6	73-131	3.01	20	
Ethylbenzene	47.0	1.00	"	50.0	ND	94.0	76-132	3.79	20	
m,p-Xylene	94.2	2.00	"	100	ND	94.2	69-139	3.74	20	
o-Xylene	46.5	1.00	"	50.0	ND	92.9	74-131	3.26	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.7	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Apex Companies, LLC
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Maggie Graham
Project Number: 89374932
Project: KMG - Troudt 44-7

Notes and Definitions

U Sample is Non-Detect.

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

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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