

Attachment A

Laboratory Analytical Report



February 28, 2019

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - NRC 3-9

Project Number - COT0152

Attached are your analytical results for KMG - NRC 3-9 received by Origins Laboratory, Inc. February 27, 2019. This project is associated with Origins project number Y902374-01.

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: COT0152

Project: KMG - NRC 3-9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@5'	Y902374-01	Soil	February 27, 2019 14:28	02/27/2019 17:17

Origins Laboratory, Inc.



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Boulder CO 80305

Maggie Graham
Project Number: COT0152
Project: KMG - NRC 3-9

www.originslaboratory.com

page 1 of 1

9902374

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: NRC 3-9
Project Number: WO# COT0152 Greg Hamilton
Samples Collected By: ~~Greg~~ AS Helen Bouvier
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 Sampling	Other	GRTEX	DRO/RRO	EC, pH	
BOL @ 5	2/27/19	1428	1	✓						✓					1
NOL @ 3		1431	1	✓						✓					2
WOL @ 3		1433	1	✓						✓					3
EOL @ 3		1435	1	✓						✓					4
SOL @ 3		1443	1	✓						✓					5
BK @ 0.05		1450	1	✓						✓					6
															7
															8
															9
															10
Relinquished By: <i>Andri Boh</i>	Date: 2/27/19	Time: 1630		Received By: <i>[Signature]</i>	Date: 2/27/19	Time: 1630									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: 2/27/19	Time: 1616		Received By: <i>[Signature]</i>	Date: 2/27/19	Time: 1717									

Date Results Needed Next day, Tam

2.9

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

Origins Laboratory, Inc.

Jefe Pellegrini

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Boulder CO 80305

Maggie Graham
Project Number: COT0152
Project: KMG - NRC 3-9

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y902374

Client: Apex

Client Project ID: KMG - NRC 3-9

Checklist Completed by: JG

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

Date/time completed: 2/27/2019

Airbill #: N/A

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

Cooler Number/Temperature: 1 2.8 °C / _____ °C / _____ °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 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 Na ₂ CO ₃ +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~~ narrative.

Reviewed by: (Project Manager)

2/27/19
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: COT0152
Project: KMG - NRC 3-9

B01@5'

2/27/2019 2:28:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y902374-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9B2703	KDK	02/27/2019	02/27/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl 87.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9B2702	KDK	"	02/27/2019	U
Benzene	ND	0.050	"	"	"	KDK	"	"	U
Toluene	ND	0.050	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.050	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.050	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 92.8 % 70-130 " " "
Surrogate: Toluene-d8 100 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.4 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.23		pH Units	1	B9B2705	OLAB	"	02/27/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.229	0.00500	mmhos/cm	"	B9B2706	OLAB	"	"	
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Boulder CO 80305

Maggie Graham
Project Number: COT0152
Project: KMG - NRC 3-9

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 B9B2702 - EPA 5030 (soil)										
Blank (B9B2702-BLK1)					Prepared: 02/27/2019 Analyzed: 02/27/2019					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		100	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.4	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 B9B2702 - EPA 5030 (soil)										
LCS (B9B2702-BS1)					Prepared: 02/27/2019 Analyzed: 02/27/2019					
Benzene	0.104	0.002	mg/kg	0.100		104	77.1-124			
Toluene	0.099	0.002	"	0.100		99.0	74.5-128			
Ethylbenzene	0.106	0.002	"	0.100		106	66.4-127			
m,p-Xylene	0.211	0.004	"	0.200		106	76.6-124			
o-Xylene	0.110	0.002	"	0.100		110	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.5	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9B2702 - EPA 5030 (soil)

Matrix Spike (B9B2702-MS1)		Source: Y902357-01			Prepared: 02/27/2019 Analyzed: 02/27/2019					
Benzene	0.094	0.002	mg/kg	0.100	ND	94.1	71.8-126			
Toluene	0.089	0.002	"	0.100	ND	89.5	65.1-130			
Ethylbenzene	0.102	0.002	"	0.100	ND	102	62.2-130			
m,p-Xylene	0.211	0.004	"	0.200	0.007	102	46.5-137			
o-Xylene	0.109	0.002	"	0.100	0.0005	108	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.14		"	0.125		114	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9B2702 - EPA 5030 (soil)

Matrix Spike Dup (B9B2702-MSD1)		Source: Y902357-01			Prepared: 02/27/2019 Analyzed: 02/27/2019					
Benzene	0.113	0.002	mg/kg	0.100	ND	113	71.8-126	18.4	11.3	QR-02
Toluene	0.106	0.002	"	0.100	ND	106	65.1-130	16.8	15.4	QR-02
Ethylbenzene	0.112	0.002	"	0.100	ND	112	62.2-130	9.44	19.6	
m,p-Xylene	0.224	0.004	"	0.200	0.007	108	46.5-137	5.81	19.2	
o-Xylene	0.119	0.002	"	0.100	0.0005	119	54.2-134	9.15	17.9	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

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Maggie Graham
Project Number: COT0152
Project: KMG - NRC 3-9

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 B9B2703 - EPA 3580

Blank (B9B2703-BLK1)

Prepared: 02/27/2019 Analyzed: 02/27/2019

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		83.2	59-131			

LCS (B9B2703-BS1)

Prepared: 02/27/2019 Analyzed: 02/27/2019

Diesel (C10-C28)	948	50.0	mg/kg	1000		94.8	64-121			
Residual Range Organics (C28-C40)	903	200	"	1000		90.3	58-124			
Surrogate: o-Terphenyl	45		"	50.0		90.3	59-131			

Matrix Spike (B9B2703-MS1)

Source: Y902357-01

Prepared: 02/27/2019 Analyzed: 02/27/2019

Diesel (C10-C28)	1020	50.0	mg/kg	1000	14.7	101	53-125			
Residual Range Organics (C28-C40)	938	200	"	1000	7.29	93.1	47-133			
Surrogate: o-Terphenyl	50		"	50.0		100	59-131			

Matrix Spike Dup (B9B2703-MSD1)

Source: Y902357-01

Prepared: 02/27/2019 Analyzed: 02/27/2019

Diesel (C10-C28)	931	50.0	mg/kg	1000	14.7	91.6	53-125	9.61	20	
Residual Range Organics (C28-C40)	848	200	"	1000	7.29	84.1	47-133	10.2	20	
Surrogate: o-Terphenyl	43		"	50.0		85.2	59-131			

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Project Number: COT0152
Project: KMG - NRC 3-9

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 B9B2705 - NO PREP										
Duplicate (B9B2705-DUP1)		Source: Y902350-01			Prepared: 02/27/2019 Analyzed: 02/27/2019					
pH	7.44		pH Units		7.46			0.268	25	
Batch B9B2706 - NO PREP										
Blank (B9B2706-BLK1)		Prepared: 02/27/2019 Analyzed: 02/27/2019								
Specific Conductance (EC)	0.00210	0.00500	mmhos/cm							
Duplicate (B9B2706-DUP1)		Source: Y902350-01			Prepared: 02/27/2019 Analyzed: 02/27/2019					
Specific Conductance (EC)	1.35	0.00507	mmhos/cm		1.34			1.29	25	

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Notes and Definitions

U Sample is Non-Detect.

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Jen Pellegrini For Noelle Doyle Mathis, President