

**Attachment A**

**Laboratory Analytical Report**



December 27, 2019

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - HSR Bangs 9-17A

Project Number - 2151040

Attached are your analytical results for KMG - HSR Bangs 9-17A received by Origins Laboratory, Inc. December 20, 2019. This project is associated with Origins project number Y912366-01.

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: 2151040  
Project: KMG - HSR Bangs 9-17A

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@7	Y912366-01	Soil	December 20, 2019 11:03	12/20/2019 15:29
S01@4.5	Y912366-02	Soil	December 20, 2019 11:08	12/20/2019 15:29
W01@4.5	Y912366-03	Soil	December 20, 2019 11:09	12/20/2019 15:29
N01@4.5	Y912366-04	Soil	December 20, 2019 11:10	12/20/2019 15:29
E01@4.5	Y912366-05	Soil	December 20, 2019 11:11	12/20/2019 15:29

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**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: HSR Bangs 9-17A  
Project Number: WO#2151040 Greg Hamilton  
Samples Collected By: *Seag Musher*  
Bill to Anadarko

www.originslaboratory.com

page 1 of 1

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #	Other	GRTEX	DRO/RRO	Naphthalene	
B0107	12/20/19	1103	2	X					X			X	X	X	1
S0104.5		1108	1									X	X	X	2
W0104.5		1109	1									X	X	X	3
N0104.5		1110	1									X	X	X	4
W0104.5		1111	1									X	X	X	5
BK601005		1117	1										X		6
															7
															8
															9
															10
Relinquished By: <i>[Signature]</i>	Date: 12/20/19	Time: 1529	Time: 1529	Received By: <i>[Signature]</i>				Date: 12-20-19	Time: 1529	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:	Time:	Received By:				Date:	Time:						

Data Recite Standard Maint Jan 7 am

Origins Laboratory, Inc.

*Jefe Pellegrini*

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Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 9912366

Client: Apex Co.

Client Project ID: KMG - HSR Bangs 9-17A

Checklist Completed by: Don Lee

Shipped Via: Pick-up

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

Date/time completed: 12-20-19

Airbill #: 212

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

Cooler Number/Temperature: 1 8.5 °C 1 °C 1 °C 1 °C (Describe)

Thermometer ID: 123

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		Sampled Since Dry
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			pH
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

Date/Time Reviewed 12-20-19

Origins Laboratory, Inc.

*Jefe Pellegrini*

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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

B01@7

12/20/2019 11:03:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912366-01 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	888	25.0	mg/kg	1	B9L2004	KDK	12/20/2019	12/20/2019	
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl 106 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	557	50.0	mg/kg	250	B9L2003	KDK	12/20/2019	12/20/2019	
Benzene	2.70	0.498	"	"	"	KDK	"	"	
Toluene	28.6	0.498	"	"	"	KDK	"	"	
Ethylbenzene	4.16	0.498	"	"	"	KDK	"	"	
Xylenes, total	64.1	0.498	"	"	"	KDK	"	"	
Naphthalene	0.773	0.200	"	25	"	KDK	"	12/21/2019	

Surrogate: 1,2-Dichloroethane-d4 100 % 70-130 " " 12/20/2019  
Surrogate: Toluene-d8 104 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 108 % 70-130 " " "

**Metals (Saturated Paste Prep)**

Calcium	6.49		me/L	1	[none]		12/23/2019	12/27/2019	
Magnesium	4.37		"	"	"		"	"	
Sodium	16.81		"	"	"		"	"	

**pH in Soil by EPA 9045D**

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B01@7

12/20/2019 11:03:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912366-01 (Soil)**

**pH in Soil by EPA 9045D**

pH	7.69	pH Units	1	B9L2005	KDK	12/20/2019	12/20/2019
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**SAR by 20B Saturated Paste**

SAR	7.21		1	[none]		12/23/2019	12/27/2019
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.270	0.00500	mmhos/cm	1	B9L2008	KDK	12/20/2019	12/20/2019
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Project Number: 2151040  
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S01@4.5

12/20/2019 11:08:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912366-02 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9L2004	KDK	12/20/2019	12/20/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl 78.8 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9L2003	KDK	12/20/2019	12/20/2019	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 99.6 % 70-130 " " "  
Surrogate: Toluene-d8 99.9 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 105 % 70-130 " " "

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W01@4.5

12/20/2019 11:09:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912366-03 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9L2004	KDK	12/20/2019	12/20/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl 77.1 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9L2003	KDK	12/20/2019	12/20/2019	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 100 % 70-130 " " "  
Surrogate: Toluene-d8 102 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 106 % 70-130 " " "

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Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

N01@4.5

12/20/2019 11:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912366-04 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	289	25.0	mg/kg	1	B9L2004	KDK	12/20/2019	12/20/2019	
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl 90.2 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	89.1	50.0	mg/kg	250	B9L2003	KDK	12/20/2019	12/20/2019	
Benzene	ND	0.050	"	25	"	KDK	"	12/21/2019	U
Toluene	0.064	0.050	"	"	"	KDK	"	"	
Ethylbenzene	0.202	0.050	"	"	"	KDK	"	"	
Xylenes, total	4.38	0.050	"	"	"	KDK	"	"	
Naphthalene	0.202	0.200	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " 12/20/2019  
Surrogate: Toluene-d8 100 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 106 % 70-130 " " "

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Boulder CO 80305

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

E01@4.5

12/20/2019 11:11:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912366-05 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	993	25.0	mg/kg	1	B9L2004	KDK	12/20/2019	12/20/2019
Residual Range Organics (C28-C40)	190	100	"	"	"	KDK	"	"

Surrogate: o-Terphenyl 98.6 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	1090	50.0	mg/kg	250	B9L2003	KDK	12/20/2019	12/20/2019
Benzene	1.09	0.498	"	"	"	KDK	"	"
Toluene	0.143	0.050	"	25	"	KDK	"	12/21/2019
Ethylbenzene	4.90	0.498	"	250	"	KDK	"	12/20/2019
Xylenes, total	117	0.498	"	"	"	KDK	"	12/21/2019
Naphthalene	1.18	0.200	"	25	"	KDK	"	"

Surrogate: 1,2-Dichloroethane-d4 99.5 % 70-130 " " 12/20/2019  
Surrogate: Toluene-d8 106 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 109 % 70-130 " " "

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B9L2003 - EPA 5030 (soil)</b>										
<b>Blank (B9L2003-BLK1)</b>					Prepared: 12/20/2019 Analyzed: 12/20/2019					
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
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B9L2003 - EPA 5030 (soil)</b>										
<b>LCS (B9L2003-BS1)</b>					Prepared: 12/20/2019 Analyzed: 12/20/2019					
Benzene	0.094	0.002	mg/kg	0.100		93.6	70-130			
Toluene	0.097	0.002	"	0.100		97.5	70-130			
Ethylbenzene	0.093	0.002	"	0.100		93.1	70-130			
m,p-Xylene	0.186	0.004	"	0.200		93.1	70-130			
o-Xylene	0.089	0.002	"	0.100		89.2	70-130			
Naphthalene	0.090	0.008	"	0.100		89.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		94.7	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		107	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9L2003 - EPA 5030 (soil)**

Matrix Spike (B9L2003-MS1)		Source: Y912344-02			Prepared: 12/20/2019 Analyzed: 12/20/2019					
Benzene	0.105	0.002	mg/kg	0.100	ND	105	70-130			
Toluene	0.109	0.002	"	0.100	ND	109	70-130			
Ethylbenzene	0.104	0.002	"	0.100	ND	104	70-130			
m,p-Xylene	0.210	0.004	"	0.200	ND	105	70-130			
o-Xylene	0.105	0.002	"	0.100	ND	105	70-130			
Naphthalene	0.112	0.008	"	0.100	0.026	86.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.0	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		107	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9L2003 - EPA 5030 (soil)**

Matrix Spike Dup (B9L2003-MSD1)		Source: Y912344-02			Prepared: 12/20/2019 Analyzed: 12/20/2019					
Benzene	0.084	0.002	mg/kg	0.100	ND	83.5	70-130	23.2	20	QR-03
Toluene	0.087	0.002	"	0.100	ND	86.5	70-130	22.8	20	QR-03
Ethylbenzene	0.082	0.002	"	0.100	ND	81.7	70-130	23.9	20	QR-03
m,p-Xylene	0.165	0.004	"	0.200	ND	82.3	70-130	24.1	20	QR-03
o-Xylene	0.082	0.002	"	0.100	ND	81.9	70-130	24.7	20	QR-03
Naphthalene	0.089	0.008	"	0.100	0.026	63.5	70-130	22.5	20	QM-07, QR-03
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.6	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.14		"	0.125		108	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B9L2004 - EPA 3580</b>										
<b>Blank (B9L2004-BLK1)</b>					Prepared: 12/20/2019 Analyzed: 12/20/2019					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	19		"	25.0		75.8	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - 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 B9L2004 - EPA 3580**

**LCS (B9L2004-BS1)**

Prepared: 12/20/2019 Analyzed: 12/20/2019

Diesel (C10-C28)	926	50.0	mg/kg	1000		92.6	70-130			
Residual Range Organics (C28-C40)	852	200	"	1000		85.2	70-130			
Surrogate: o-Terphenyl	42		"	50.0		83.8	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Extractable Petroleum Hydrocarbons by 8015D - 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 B9L2004 - EPA 3580**

Matrix Spike (B9L2004-MS1)		Source: Y912344-02			Prepared: 12/20/2019 Analyzed: 12/20/2019					
Diesel (C10-C28)	1010	50.0	mg/kg	1000	ND	101	70-130			
Residual Range Organics (C28-C40)	975	200	"	1000	ND	97.5	70-130			
Surrogate: o-Terphenyl	51		"	50.0		102	50-150			

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Maggie Graham  
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Project: KMG - HSR Bangs 9-17A

**Extractable Petroleum Hydrocarbons by 8015D - 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 B9L2004 - EPA 3580

Matrix Spike Dup (B9L2004-MSD1)		Source: Y912344-02			Prepared: 12/20/2019 Analyzed: 12/20/2019					
Diesel (C10-C28)	1130	50.0	mg/kg	1000	ND	113	70-130	11.1	35	
Residual Range Organics (C28-C40)	1040	200	"	1000	ND	104	70-130	6.12	35	
Surrogate: o-Terphenyl	59		"	50.0		117	50-150			

Origins Laboratory, Inc.



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Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

## Extractable Petroleum Hydrocarbons by 8015D - 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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## Classical Chemistry Parameters - 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 B9L2005 - NO PREP

<b>Duplicate (B9L2005-DUP1)</b>		<b>Source: Y912342-01</b>			Prepared: 12/20/2019 Analyzed: 12/20/2019					
pH	7.51		pH Units		7.44			0.936	25	

#### Batch B9L2008 - NO PREP

<b>Blank (B9L2008-BLK1)</b>		Prepared: 12/20/2019 Analyzed: 12/20/2019								
Specific Conductance (EC)	0.00250	0.00500	mmhos/cm							
<b>Duplicate (B9L2008-DUP1)</b>		<b>Source: Y912363-01</b>			Prepared: 12/20/2019 Analyzed: 12/20/2019					
Specific Conductance (EC)	0.0339	0.00507	mmhos/cm		0.0346			2.04	25	

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Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

### 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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February 07, 2020

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - HSR Bangs 9-17A

Project Number - 2151040

Attached are your analytical results for KMG - HSR Bangs 9-17A received by Origins Laboratory, Inc. January 31, 2020. This project is associated with Origins project number Y001496-01.

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: 2151040

Project: KMG - HSR Bangs 9-17A

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B02@19'	Y001496-01	Soil	January 31, 2020 14:25	01/31/2020 15:45

Origins Laboratory, Inc.



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Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

# ORIGINS

LABORATORY, INC

www.originslaboratory.com

Y00149C

page 1 of 1

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: HSL-Bowas 9-17A  
Project Number: WO# 215 040 Greg Hamilton  
Samples Collected By: Levin Ambrose  
Bill to Anatarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summary Container #	Other	GRTEX	DRO/RRO	Naphthalene	
B02 @ 19	1/31/20	1425	2	X					X			X	X	X	1
															2
															3
															4
															5
															6
															7
															8
															9
															10
Relinquished By: <u>M. Al</u>	Date: 1/31/20	Time: 1545	Received By: <u>[Signature]</u>	Date: 1/31/20	Time: 1545	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:										

Date Results Needed Monday Next day, 7am

4.7

Origins Laboratory, Inc.

Jeff Pellipini

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Boulder CO 80305

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: Y001496

Client: Apex

Client Project ID: HSR Bangs 9-17A

Checklist Completed by: JG

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

Date/time completed: 1/31/2020

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 4.7 °C \_\_\_\_\_ °C \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity): (pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 1/31/20

Origins Laboratory, Inc.

Jefe Pellegrini

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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**B02@19'**

**1/31/2020 2:25:00PM**

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y001496-01 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	516	25.0	mg/kg	1	B0A3102	TEM	01/31/2020	01/31/2020	
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 87.4 % 50-150 " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	1220	50.0	mg/kg	250	B0A3110	KDK	01/31/2020	01/31/2020	
Benzene	3.76	0.498	"	"	"	KDK	"	"	
Toluene	15.6	0.498	"	"	"	KDK	"	"	
Ethylbenzene	6.93	0.498	"	"	"	KDK	"	"	
Xylenes, total	97.3	0.498	"	"	"	KDK	"	"	
Naphthalene	ND	2.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 107 % 70-130 " "  
Surrogate: Toluene-d8 102 % 70-130 " "  
Surrogate: 4-Bromofluorobenzene 95.7 % 70-130 " "

**Metals (Saturated Paste Prep)**

Calcium	5.32		me/L	1	[none]		02/03/2020	02/05/2020	
Magnesium	6.34		"	"	"		"	"	
Sodium	8.22		"	"	"		"	"	

**pH in Soil by EPA 9045D**

Origins Laboratory, Inc.



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Boulder CO 80305

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**B02@19'**

**1/31/2020 2:25:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y001496-01 (Soil)**

**pH in Soil by EPA 9045D**

pH	7.04	pH Units	1	B0A3107	KDK	01/31/2020	01/31/2020
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**SAR by 20B Saturated Paste**

SAR	3.40		1	[none]		02/03/2020	02/05/2020
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.197	0.00500	mmhos/cm	1	B0A3108	KDK	01/31/2020	02/03/2020
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Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Extractable Petroleum Hydrocarbons by 8015D - Quality Control  
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B0A3102 - EPA 3580										
Blank (B0A3102-BLK1)					Prepared: 01/31/2020 Analyzed: 01/31/2020					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	16		"	25.0		63.5	50-150			

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Project: KMG - HSR Bangs 9-17A

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0A3102 - EPA 3580</b>										
<b>LCS (B0A3102-BS1)</b>					Prepared: 01/31/2020 Analyzed: 01/31/2020					
Diesel (C10-C28)	863	50.0	mg/kg	1000		86.3	70-130			
Residual Range Organics (C28-C40)	922	200	"	1000		92.2	70-130			
Surrogate: o-Terphenyl	44		"	50.0		89.0	50-150			

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Project: KMG - HSR Bangs 9-17A

Extractable Petroleum Hydrocarbons by 8015D - 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 B0A3102 - EPA 3580

Matrix Spike (B0A3102-MS1)		Source: Y001480-01			Prepared: 01/31/2020 Analyzed: 01/31/2020					
Diesel (C10-C28)	860	50.0	mg/kg	1000	ND	86.0	70-130			
Residual Range Organics (C28-C40)	907	200	"	1000	ND	90.7	70-130			
Surrogate: o-Terphenyl	44		"	50.0		87.6	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - 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 B0A3102 - EPA 3580**

Matrix Spike Dup (B0A3102-MSD1)		Source: Y001480-01			Prepared: 01/31/2020 Analyzed: 01/31/2020					
Diesel (C10-C28)	872	50.0	mg/kg	1000	ND	87.2	70-130	1.32	35	
Residual Range Organics (C28-C40)	919	200	"	1000	ND	91.9	70-130	1.27	35	
Surrogate: o-Terphenyl	43		"	50.0		86.7	50-150			

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## Extractable Petroleum Hydrocarbons by 8015D - Quality Control

### Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B0A3110 - EPA 5030 (soil)										
Blank (B0A3110-BLK1)					Prepared: 01/31/2020 Analyzed: 01/31/2020					
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
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		108	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.6	70-130			

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Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0A3110 - EPA 5030 (soil)</b>										
<b>LCS (B0A3110-BS1)</b>					Prepared: 01/31/2020 Analyzed: 01/31/2020					
Benzene	0.101	0.002	mg/kg	0.100		101	70-130			
Toluene	0.100	0.002	"	0.100		100	70-130			
Ethylbenzene	0.101	0.002	"	0.100		101	70-130			
m,p-Xylene	0.206	0.004	"	0.200		103	70-130			
o-Xylene	0.103	0.002	"	0.100		103	70-130			
Naphthalene	0.106	0.008	"	0.100		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.3	70-130			

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Maggie Graham  
Project Number: 2151040  
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**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0A3110 - EPA 5030 (soil)</b>										
<b>Matrix Spike (B0A3110-MS1)</b>		<b>Source: Y001493-01</b>			Prepared: 01/31/2020 Analyzed: 01/31/2020					
Benzene	0.101	0.002	mg/kg	0.100	ND	101	70-130			
Toluene	0.100	0.002	"	0.100	ND	100	70-130			
Ethylbenzene	0.100	0.002	"	0.100	ND	100	70-130			
m,p-Xylene	0.205	0.004	"	0.200	ND	103	70-130			
o-Xylene	0.102	0.002	"	0.100	ND	102	70-130			
Naphthalene	0.107	0.008	"	0.100	ND	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.8	70-130			

Origins Laboratory, Inc.



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Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0A3110 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B0A3110-MSD1)</b>	<b>Source: Y001493-01</b>				Prepared: 01/31/2020 Analyzed: 01/31/2020					
Benzene	0.099	0.002	mg/kg	0.100	ND	99.3	70-130	1.82	20	
Toluene	0.099	0.002	"	0.100	ND	98.7	70-130	1.77	20	
Ethylbenzene	0.098	0.002	"	0.100	ND	98.1	70-130	2.36	20	
m,p-Xylene	0.200	0.004	"	0.200	ND	100	70-130	2.50	20	
o-Xylene	0.102	0.002	"	0.100	ND	102	70-130	0.470	20	
Naphthalene	0.107	0.008	"	0.100	ND	107	70-130	0.112	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.9	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

## Volatile Organic Compounds by GC/MS SW846 8260D - 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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## 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 B0A3107 - NO PREP

<b>Duplicate (B0A3107-DUP1)</b>		<b>Source: Y001480-01</b>			Prepared: 01/31/2020 Analyzed: 02/03/2020					
pH	7.45		pH Units		7.52			0.935	25	

#### Batch B0A3108 - NO PREP

<b>Blank (B0A3108-BLK1)</b>		Prepared: 01/31/2020 Analyzed: 02/03/2020								
Specific Conductance (EC)	0.00260	0.00500	mmhos/cm							
<b>Duplicate (B0A3108-DUP1)</b>		<b>Source: Y001480-01</b>			Prepared: 01/31/2020 Analyzed: 02/03/2020					
Specific Conductance (EC)	0.0233	0.00507	mmhos/cm		0.0242			3.79	25	

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

### 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



February 06, 2020

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder

CO 80305

**Project Name - KMG - HSR Bangs 9-17A**

**Project Number - 2151040**

Attached are your analytical results for KMG - HSR Bangs 9-17A received by Origins Laboratory, Inc. February 05, 2020. This project is associated with Origins project number Y002045-01.

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: 2151040

Project: KMG - HSR Bangs 9-17A

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	Y002045-01	Water	February 5, 2020 15:05	02/05/2020 17:27

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.*

Page 3 of 10



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 4602045

Client: Apex Co.

Client Project ID: KMG - HSR Bangs 9-17A

Checklist Completed by: D. L.

Shipped Via: 1D

Date/time completed: 2-5-20

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

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid

Water Other: \_\_\_\_\_

Cooler Number/Temperature: 14.1 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe)

Thermometer ID: TC03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

Date/Time Reviewed 2-5-20

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: 2151040  
Project: KMG - HSR Bangs 9-17A

GW01

2/5/2020 3:05:00PM

Analyte	Result	Reporting		Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
		Limit								

Origins Laboratory, Inc.  
Y002045-01 (Water)

BTEX by EPA 8260D

Benzene	4060	50.0	ug/L	50	B0B0501	ZZZ	02/05/2020	02/05/2020
Toluene	3610	50.0	"	"	"	ZZZ	"	"
Ethylbenzene	302	50.0	"	"	"	ZZZ	"	"
Xylenes, total	4160	50.0	"	"	"	ZZZ	"	"

Surrogate: 1,2-Dichloroethane-d4	97.9 %	70-130	"	"	"
Surrogate: Toluene-d8	98.0 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	99.9 %	70-130	"	"	"

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B0B0501 - EPA 5030B (Water)**

**Blank (B0B0501-BLK1)**

Prepared: 02/05/2020 Analyzed: 02/05/2020

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	100		70-130			
Surrogate: Toluene-d8	59		"	62.5	95.2		70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5	99.5		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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0501 - EPA 5030B (Water)</b>										
<b>LCS (B0B0501-BS1)</b>					Prepared: 02/05/2020 Analyzed: 02/05/2020					
Benzene	47.9	1.00	ug/L	50.0		95.8	70-130			
Toluene	45.0	1.00	"	50.0		90.0	70-130			
Ethylbenzene	48.0	1.00	"	50.0		95.9	70-130			
m,p-Xylene	94.8	2.00	"	100		94.8	70-130			
o-Xylene	48.7	1.00	"	50.0		97.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.4	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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0B0501 - EPA 5030B (Water)**

Matrix Spike (B0B0501-MS1)		Source: Y002019-08			Prepared: 02/05/2020 Analyzed: 02/05/2020					
Benzene	59.2	1.00	ug/L	50.0	ND	118	70-130			
Toluene	61.3	1.00	"	50.0	ND	123	70-130			
Ethylbenzene	61.8	1.00	"	50.0	ND	124	70-130			
m,p-Xylene	120	2.00	"	100	0.230	120	70-130			
o-Xylene	62.7	1.00	"	50.0	ND	125	70-130			
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	70-130			
Surrogate: Toluene-d8	66		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.8	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0B0501 - EPA 5030B (Water)**

Matrix Spike Dup (B0B0501-MSD1)		Source: Y002019-08			Prepared: 02/05/2020 Analyzed: 02/05/2020					
Benzene	62.7	1.00	ug/L	50.0	ND	125	70-130	5.74	20	
Toluene	60.8	1.00	"	50.0	ND	122	70-130	0.852	20	
Ethylbenzene	64.0	1.00	"	50.0	ND	128	70-130	3.45	20	
m,p-Xylene	126	2.00	"	100	0.230	125	70-130	4.48	20	
o-Xylene	63.0	1.00	"	50.0	ND	126	70-130	0.525	20	
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		108	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.7	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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

### Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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February 13, 2020

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - HSR Bangs 9-17A

Project Number - 2151040

Attached are your analytical results for KMG - HSR Bangs 9-17A received by Origins Laboratory, Inc. February 05, 2020. This project is associated with Origins project number Y002046-01.

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.

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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: 2151040  
Project: KMG - HSR Bangs 9-17A

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W02@15	Y002046-01	Soil	February 5, 2020 15:30	02/05/2020 17:27
S02@15	Y002046-02	Soil	February 5, 2020 15:35	02/05/2020 17:27
B03@19	Y002046-03	Soil	February 5, 2020 15:40	02/05/2020 17:27
E03@15	Y002046-04	Soil	February 5, 2020 15:45	02/05/2020 17:27
E02@15	Y002046-05	Soil	February 5, 2020 15:50	02/05/2020 17:27
N02@15	Y002046-06	Soil	February 5, 2020 15:55	02/05/2020 17:27

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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

4002046

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: HSR Bangs 9-17A  
Project Number: WO# 2151040 Greg Hamilton  
Samples Collected By: AG  
Bill to Anadarko

Fax: 303.265.9645

Phone: 303.433.1322

Denver, CO 80211

1725 Elk Place

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative	Matrix	Analysis	Sample Instructions
W02015	2/5/15	1530	1	Unpreserved	Soil	EC, pH, SAR	1
S02015	2/5/15	1535	1	Other	Groundwater	Naphthalene	2
B03015	2/5/15	1540	2	HNO <sub>3</sub>	Air Summa	DRO/RRO	3
E03015	2/5/15	1545	1	HCl	Other	GBTEX	4
F02015	2/5/15	1550	1	Unpreserved	Soil	Other	5
N02015	2/5/15	1555	1	Unpreserved	Soil	Other	6
							7
							8
							9
							10
Relinquished By:	Date: 2/5/2015	Time: 1727	Time: 1727	Received By:	Date: 2-5-15	Time: 1727	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:	Time:	Received By:	Date:	Time:	

Next day, 7am

Date Results Needed

411

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: 2151040

Project: KMG - HSR Bangs 9-17A

Origins Laboratory

F-012207-01-R1

Effective Date: 01/09/12

## Sample Receipt Checklist

Origins Work Order: 4007046

Client: Apex Co.

Client Project ID: KMG - HSR Bangs 9-17A

Checklist Completed by: D. Lee

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

Date/time completed: 2-5-20

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 4.1 °C 1 / \_\_\_\_\_ °C 1 / \_\_\_\_\_ °C (Describe)

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 <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>8H</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 2-5-20

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: 2151040  
Project: KMG - HSR Bangs 9-17A

W02@15

2/5/2020 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y002046-01 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B0504	TEM	02/05/2020	02/06/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 59.5 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	5.52	5.00	mg/kg	25	B0B0503	KDK	02/05/2020	02/05/2020	
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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 107 % 70-130 " " "  
Surrogate: Toluene-d8 97.2 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 98.8 % 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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

S02@15

2/5/2020 3:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y002046-02 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B0504	TEM	02/05/2020	02/06/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 63.1 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B0503	KDK	02/05/2020	02/05/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 108 % 70-130 " " "  
Surrogate: Toluene-d8 97.4 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 97.2 % 70-130 " " "

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

B03@19

2/5/2020 3:40:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y002046-03 (Soil)

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	203	25.0	mg/kg	1	B0B0504	TEM	02/05/2020	02/06/2020	
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 67.0 % 50-150 " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	226	5.00	mg/kg	25	B0B0503	KDK	02/05/2020	02/05/2020	
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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " "  
Surrogate: Toluene-d8 97.7 % 70-130 " "  
Surrogate: 4-Bromofluorobenzene 98.4 % 70-130 " "

**Metals (Saturated Paste Prep)**

Calcium	9.97		me/L	1	[none]		02/10/2020	02/12/2020	
Magnesium	12.65		"	"	"		"	"	
Sodium	10.35		"	"	"		"	"	

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

B03@19

2/5/2020 3:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y002046-03 (Soil)

**pH in Soil by EPA 9045D**

pH	8.34	pH Units	1	B0B0505	TEM	02/05/2020	02/05/2020
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**SAR by 20B Saturated Paste**

SAR	3.08		1	[none]		02/10/2020	02/12/2020
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.251	0.00500	mmhos/cm	1	B0B0506	TEM	02/05/2020	02/05/2020
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Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

E03@15

2/5/2020 3:45:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y002046-04 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	1490	25.0	mg/kg	1	B0B0504	TEM	02/05/2020	02/06/2020
Residual Range Organics (C28-C40)	157	100	"	"	"	TEM	"	"

Surrogate: o-Terphenyl 121 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	4640	50.0	mg/kg	250	B0B0503	KDK	02/05/2020	02/05/2020
Benzene	0.106	0.050	"	25	"	KDK	"	02/05/2020
Toluene	0.113	0.050	"	"	"	KDK	"	"
Ethylbenzene	3.79	0.050	"	"	"	KDK	"	"
Xylenes, total	119	0.498	"	250	"	KDK	"	02/05/2020
Naphthalene	1.43	0.200	"	25	"	KDK	"	02/05/2020

Surrogate: 1,2-Dichloroethane-d4 107 % 70-130 " " "  
Surrogate: Toluene-d8 104 % 70-130 " " 02/05/2020  
Surrogate: 4-Bromofluorobenzene 92.8 % 70-130 " " 02/05/2020

Origins Laboratory, Inc.



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Boulder CO 80305

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

E02@15

2/5/2020 3:50:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y002046-05 (Soil)

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	842	25.0	mg/kg	1	B0B0504	TEM	02/05/2020	02/06/2020
Residual Range Organics (C28-C40)	123	100	"	"	"	TEM	"	"

Surrogate: o-Terphenyl	110 %	50-150	"	"	"
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**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	3580	50.0	mg/kg	250	B0B0503	KDK	02/05/2020	02/05/2020
Benzene	6.43	0.050	"	25	"	KDK	"	02/05/2020
Toluene	18.6	0.498	"	250	"	KDK	"	02/05/2020
Ethylbenzene	8.47	0.050	"	25	"	KDK	"	02/05/2020
Xylenes, total	136	0.498	"	250	"	KDK	"	02/05/2020
Naphthalene	0.813	0.200	"	25	"	KDK	"	02/05/2020

Surrogate: 1,2-Dichloroethane-d4	122 %	70-130	"	"	"
Surrogate: Toluene-d8	108 %	70-130	"	"	02/05/2020
Surrogate: 4-Bromofluorobenzene	91.9 %	70-130	"	"	02/05/2020

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

N02@15

2/5/2020 3:55:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y002046-06 (Soil)

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	529	25.0	mg/kg	1	B0B0504	TEM	02/05/2020	02/06/2020	
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 78.8 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	2540	50.0	mg/kg	250	B0B0503	KDK	02/05/2020	02/05/2020	
Benzene	8.03	0.050	"	25	"	KDK	"	02/05/2020	
Toluene	0.078	0.050	"	"	"	KDK	"	"	
Ethylbenzene	6.82	0.050	"	"	"	KDK	"	"	
Xylenes, total	93.2	0.498	"	250	"	KDK	"	02/05/2020	
Naphthalene	0.610	0.200	"	25	"	KDK	"	02/05/2020	

Surrogate: 1,2-Dichloroethane-d4 126 % 70-130 " " "

Surrogate: Toluene-d8 104 % 70-130 " " 02/05/2020

Surrogate: 4-Bromofluorobenzene 92.2 % 70-130 " " 02/05/2020

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0503 - EPA 5030 (soil)</b>										
<b>Blank (B0B0503-BLK1)</b>					Prepared: 02/05/2020 Analyzed: 02/05/2020					
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
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.8	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0503 - EPA 5030 (soil)</b>										
<b>LCS (B0B0503-BS1)</b>					Prepared: 02/05/2020 Analyzed: 02/05/2020					
Benzene	0.108	0.002	mg/kg	0.100		108	70-130			
Toluene	0.111	0.002	"	0.100		111	70-130			
Ethylbenzene	0.113	0.002	"	0.100		113	70-130			
m,p-Xylene	0.227	0.004	"	0.200		114	70-130			
o-Xylene	0.109	0.002	"	0.100		109	70-130			
Naphthalene	0.087	0.008	"	0.100		87.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0503 - EPA 5030 (soil)</b>										
<b>Matrix Spike (B0B0503-MS1)</b>		<b>Source: Y002041-01</b>			Prepared: 02/05/2020 Analyzed: 02/05/2020					
Benzene	0.112	0.002	mg/kg	0.100	ND	112	70-130			
Toluene	0.117	0.002	"	0.100	ND	117	70-130			
Ethylbenzene	0.115	0.002	"	0.100	ND	115	70-130			
m,p-Xylene	0.234	0.004	"	0.200	ND	117	70-130			
o-Xylene	0.112	0.002	"	0.100	ND	112	70-130			
Naphthalene	0.085	0.008	"	0.100	0.019	66.0	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0503 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B0B0503-MSD1)</b>					<b>Source: Y002041-01</b>					
Benzene	0.111	0.002	mg/kg	0.100	ND	111	70-130	1.45	20	
Toluene	0.114	0.002	"	0.100	ND	114	70-130	2.31	20	
Ethylbenzene	0.114	0.002	"	0.100	ND	114	70-130	0.836	20	
m,p-Xylene	0.232	0.004	"	0.200	ND	116	70-130	1.03	20	
o-Xylene	0.110	0.002	"	0.100	ND	110	70-130	1.26	20	
Naphthalene	0.088	0.008	"	0.100	0.019	68.7	70-130	3.08	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.0	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0504 - EPA 3550B</b>										
<b>Blank (B0B0504-BLK1)</b>					Prepared: 02/05/2020 Analyzed: 02/05/2020					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	14		"	25.0		57.6	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Extractable Petroleum Hydrocarbons by 8015D - 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 B0B0504 - EPA 3550B

**LCS (B0B0504-BS1)**

Prepared: 02/05/2020 Analyzed: 02/05/2020

Diesel (C10-C28)	823	50.0	mg/kg	1000		82.3	70-130			
Residual Range Organics (C28-C40)	805	200	"	1000		80.5	70-130			
Surrogate: o-Terphenyl	42		"	50.0		83.2	50-150			

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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Extractable Petroleum Hydrocarbons by 8015D - 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 B0B0504 - EPA 3550B

Matrix Spike (B0B0504-MS1)		Source: Y002041-01			Prepared: 02/05/2020 Analyzed: 02/05/2020					
Diesel (C10-C28)	745	50.0	mg/kg	1000	ND	74.5	70-130			
Residual Range Organics (C28-C40)	724	200	"	1000	ND	72.4	70-130			
Surrogate: o-Terphenyl	34		"	50.0		67.3	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

## Extractable Petroleum Hydrocarbons by 8015D - 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 B0B0504 - EPA 3550B

Matrix Spike Dup (B0B0504-MSD1)		Source: Y002041-01			Prepared: 02/05/2020 Analyzed: 02/05/2020					
Diesel (C10-C28)	738	50.0	mg/kg	1000	ND	73.8	70-130	0.935	35	
Residual Range Organics (C28-C40)	716	200	"	1000	ND	71.6	70-130	1.16	35	
Surrogate: o-Terphenyl	32		"	50.0		63.6	50-150			

Origins Laboratory, Inc.



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4150 Darley Avenue, Suite 1  
Boulder CO 80305

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

## Extractable Petroleum Hydrocarbons by 8015D - 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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## Classical Chemistry Parameters - 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 B0B0505 - NO PREP

##### Duplicate (B0B0505-DUP1)

Source: Y002041-03

Prepared: 02/05/2020 Analyzed: 02/05/2020

pH	7.84		pH Units		7.91			0.889	25	
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#### Batch B0B0506 - NO PREP

##### Blank (B0B0506-BLK1)

Prepared: 02/05/2020 Analyzed: 02/05/2020

Specific Conductance (EC)	0.00210	0.00500	mmhos/cm							
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##### Duplicate (B0B0506-DUP1)

Source: Y002041-03

Prepared: 02/05/2020 Analyzed: 02/05/2020

Specific Conductance (EC)	0.136	0.00500	mmhos/cm		0.164			19.1	25	
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4150 Darley Avenue, Suite 1  
Boulder CO 80305

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

### 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.*



February 07, 2020

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder

CO 80305

**Project Name - KMG - HSR Bangs 9-17A**

**Project Number - 2151040**

Attached are your analytical results for KMG - HSR Bangs 9-17A received by Origins Laboratory, Inc. February 06, 2020. This project is associated with Origins project number Y002065-01.

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: 2151040  
Project: KMG - HSR Bangs 9-17A

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N03@15'	Y002065-01	Soil	February 6, 2020 14:31	02/06/2020 15:45
W03@15'	Y002065-02	Soil	February 6, 2020 14:33	02/06/2020 15:45

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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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: HSR-BANGS 9-17A  
Project Number: WO# 2151040 Greg Hamilton  
Samples Collected By: Sage Mahur  
Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis				Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #	Other	DBTEX	DRO/RRO	Naphthalene	EC, PH, SAR	
N03015	2/6/20	1431	1	X						X				X		1
N03015	2/6/20	1433	1	X						X				X		2
																3
																4
																5
																6
																7
																8
																9
																10

Relinquished By: *[Signature]* Date: 2/6/20 Time: 1545  
Relinquished By: *[Signature]* Date: 2/6/20 Time: 1545

Received By: *[Signature]* Date: 2/6/20 Time: 1545  
Received By: *[Signature]* Date: 2/6/20 Time: 1545

Turnaround Time: Same Day ☒ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☐

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

46 Date Results Needed Next day 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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: Y002065

Client: Apex

Client Project ID: HSR Bangs 9-17A

Checklist Completed by: JG

Shipped Via: HD

Date/time completed: 2/6/2020

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

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

Cooler Number/Temperature: 1 / 4.6 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

Date/Time Reviewed 2/6/20

Origins Laboratory, Inc.

*Jefe Pellegrini*

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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

N03@15'

2/6/2020 2:31:00PM

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

Origins Laboratory, Inc.  
Y002065-01 (Soil)

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B0608	TEM	02/06/2020	02/06/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 69.0 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B0607	KDK	02/06/2020	02/06/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
Surrogate: Toluene-d8 95.9 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 99.4 % 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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

W03@15'

2/6/2020 2:33:00PM

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

**Origins Laboratory, Inc.**  
**Y002065-02 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B0608	TEM	02/06/2020	02/06/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 64.6 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B0607	KDK	02/06/2020	02/06/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
Surrogate: Toluene-d8 96.9 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 98.7 % 70-130 " " "

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0607 - EPA 5030 (soil)</b>										
<b>Blank (B0B0607-BLK1)</b>					Prepared: 02/06/2020 Analyzed: 02/06/2020					
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
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		110	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		100	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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0607 - EPA 5030 (soil)</b>										
<b>LCS (B0B0607-BS1)</b>					Prepared: 02/06/2020 Analyzed: 02/06/2020					
Benzene	0.099	0.002	mg/kg	0.100		99.3	70-130			
Toluene	0.102	0.002	"	0.100		102	70-130			
Ethylbenzene	0.101	0.002	"	0.100		101	70-130			
m,p-Xylene	0.207	0.004	"	0.200		104	70-130			
o-Xylene	0.103	0.002	"	0.100		103	70-130			
Naphthalene	0.096	0.008	"	0.100		95.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.9	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0B0607 - EPA 5030 (soil)**

Matrix Spike (B0B0607-MS1)		Source: Y002063-08			Prepared: 02/06/2020 Analyzed: 02/06/2020					
Benzene	0.085	0.002	mg/kg	0.100	0.184	NR	70-130			QM-07
Toluene	0.089	0.002	"	0.100	0.045	43.6	70-130			QM-07
Ethylbenzene	0.084	0.002	"	0.100	0.031	52.9	70-130			QM-07
m,p-Xylene	0.173	0.004	"	0.200	0.271	NR	70-130			QM-07
o-Xylene	0.088	0.002	"	0.100	ND	87.9	70-130			
Naphthalene	0.086	0.008	"	0.100	0.001	84.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0607 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B0B0607-MSD1)</b>		<b>Source: Y002063-08</b>			Prepared: 02/06/2020 Analyzed: 02/06/2020					
Benzene	0.088	0.002	mg/kg	0.100	0.184	NR	70-130	4.33	20	QM-07
Toluene	0.089	0.002	"	0.100	0.045	44.3	70-130	0.855	20	QM-07
Ethylbenzene	0.089	0.002	"	0.100	0.031	58.1	70-130	6.01	20	QM-07
m,p-Xylene	0.183	0.004	"	0.200	0.271	NR	70-130	5.35	20	QM-07
o-Xylene	0.091	0.002	"	0.100	ND	90.5	70-130	3.00	20	
Naphthalene	0.089	0.008	"	0.100	0.001	87.9	70-130	3.52	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.3	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B0608 - EPA 3580</b>										
<b>Blank (B0B0608-BLK1)</b>					Prepared: 02/06/2020 Analyzed: 02/06/2020					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	15		"	25.0		60.1	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Extractable Petroleum Hydrocarbons by 8015D - Quality Control  
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B0B0608 - EPA 3580										
LCS (B0B0608-BS1)					Prepared: 02/06/2020 Analyzed: 02/06/2020					
Diesel (C10-C28)	743	50.0	mg/kg	1000		74.3	70-130			
Residual Range Organics (C28-C40)	706	200	"	1000		70.6	70-130			
Surrogate: o-Terphenyl	39		"	50.0		78.7	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Extractable Petroleum Hydrocarbons by 8015D - 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 B0B0608 - EPA 3580**

Matrix Spike (B0B0608-MS1)		Source: Y002063-08			Prepared: 02/06/2020 Analyzed: 02/06/2020					
Diesel (C10-C28)	688	50.0	mg/kg	1000	ND	68.8	70-130			QM-07
Residual Range Organics (C28-C40)	678	200	"	1000	ND	67.8	70-130			QM-07
Surrogate: o-Terphenyl	39		"	50.0		78.1	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B0B0608 - EPA 3580**

Matrix Spike Dup (B0B0608-MSD1)		Source: Y002063-08			Prepared: 02/06/2020 Analyzed: 02/06/2020					
Diesel (C10-C28)	715	50.0	mg/kg	1000	ND	71.5	70-130	3.83	35	
Residual Range Organics (C28-C40)	700	200	"	1000	ND	70.0	70-130	3.14	35	
Surrogate: o-Terphenyl	41		"	50.0		81.1	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

### 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.*



February 19, 2020

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder

CO 80305

**Project Name - KMG - HSR Bangs 9-17A**

**Project Number - 2151040**

Attached are your analytical results for KMG - HSR Bangs 9-17A received by Origins Laboratory, Inc. February 12, 2020. This project is associated with Origins project number Y002155-01.

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: 2151040  
Project: KMG - HSR Bangs 9-17A

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N04@15'	Y002155-01	Soil	February 12, 2020 12:00	02/12/2020 15:37
E04@15'	Y002155-02	Soil	February 12, 2020 12:05	02/12/2020 15:37
B04@19'	Y002155-03	Soil	February 12, 2020 12:10	02/12/2020 15:37
B05@19'	Y002155-04	Soil	February 12, 2020 12:15	02/12/2020 15:37
E05@15'	Y002155-05	Soil	February 12, 2020 12:20	02/12/2020 15:37
S03@15'	Y002155-06	Soil	February 12, 2020 12:25	02/12/2020 15:37

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.*

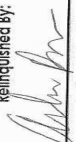
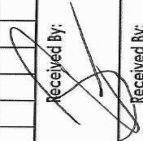
Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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: HSR Bangs 9-17A  
Project Number: WO# 2151040 Greg Hamilton  
Samples Collected By: Andrew Boushner  
Bill to Anadarko

Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa	Other	GRTEX	DRO/RRO	Naphthalene	EC, pH, SAR	
W04@15	2/12/20	1200	1						X			X	X	1		
E04@15		1205	1									X	X	2		
B04@19		1210	2									X	X	3		
B05@19		1215	2									X	X	4		
E05@15		1220	1									X	X	5		
S03@15		1225	1									X	X	6		
														7		
														8		
														9		
														10		
Relinquished By: 	Date: 2/12/20		Time: 1537	Received By: 	Date: 2/12/20	Time: 1537	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:										

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<i>[Signature]</i>	2/12/20	1537	<i>[Signature]</i>	2/12/20	1537	Some 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: Next day, 7am

5.20

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: 2151040  
Project: KMG - HSR Bangs 9-17A

Origins Laboratory

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

### Sample Receipt Checklist

Origins Work Order: YCOZ155

Client: Apex

Client Project ID: HSR Bangs 9-17A

Checklist Completed by: JG

Shipped Via: HD

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

Date/time completed: 2/12/2020

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 5.2 °C \_\_\_\_\_ / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) (pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

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: 2151040  
Project: KMG - HSR Bangs 9-17A

N04@15'

2/12/2020 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y002155-01 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B1207	TEM	02/12/2020	02/12/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 67.7 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B1206	KDK	02/12/2020	02/12/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
Surrogate: Toluene-d8 98.0 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 97.9 % 70-130 " " "

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

E04@15'

2/12/2020 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y002155-02 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B1207	TEM	02/12/2020	02/12/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 67.2 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B1206	KDK	02/12/2020	02/12/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
Surrogate: Toluene-d8 96.5 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 98.2 % 70-130 " " "

Origins Laboratory, Inc.



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Apex Companies, LLC

4150 Darley Avenue, Suite 1

Boulder CO 80305

Maggie Graham

Project Number: 2151040

Project: KMG - HSR Bangs 9-17A

B04@19'

2/12/2020 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y002155-03 (Soil)

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B1207	TEM	02/12/2020	02/12/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 74.5 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B1206	KDK	02/12/2020	02/12/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 108 % 70-130 " " "  
Surrogate: Toluene-d8 97.4 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 96.5 % 70-130 " " "

**Metals (Saturated Paste Prep)**

Calcium	5.65	me/L	1	[none]	02/13/2020	02/17/2020
Magnesium	6.00	"	"	"	"	"
Sodium	10.72	"	"	"	"	"

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**B04@19'**

**2/12/2020 12:10:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y002155-03 (Soil)**

**pH in Soil by EPA 9045D**

pH	8.03	pH Units	1	B0B1209	DJL	02/12/2020	02/12/2020
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**SAR by 20B Saturated Paste**

SAR	4.44		1	[none]		02/13/2020	02/17/2020
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.213	0.00500	mmhos/cm	1	B0B1210	TEM	02/12/2020	02/12/2020
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Origins Laboratory, Inc.



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Apex Companies, LLC

4150 Darley Avenue, Suite 1

Boulder CO 80305

Maggie Graham

Project Number: 2151040

Project: KMG - HSR Bangs 9-17A

B05@19'

2/12/2020 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y002155-04 (Soil)

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B1207	TEM	02/12/2020	02/12/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 62.2 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B1206	KDK	02/12/2020	02/12/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
 Surrogate: Toluene-d8 97.4 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 98.1 % 70-130 " " "

**Metals (Saturated Paste Prep)**

Calcium	11.51	me/L	1	[none]	02/13/2020	02/17/2020
Magnesium	10.87	"	"	"	"	"
Sodium	8.15	"	"	"	"	"

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

B05@19'

2/12/2020 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y002155-04 (Soil)

pH in Soil by EPA 9045D

pH	8.14		pH Units	1	B0B1209	DJL	02/12/2020	02/12/2020	
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SAR by 20B Saturated Paste

SAR	2.44			1	[none]		02/13/2020	02/17/2020	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.204	0.00502	mmhos/cm	1	B0B1210	TEM	02/12/2020	02/12/2020	
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Origins Laboratory, Inc.



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Apex Companies, LLC

4150 Darley Avenue, Suite 1

Boulder CO 80305

Maggie Graham

Project Number: 2151040

Project: KMG - HSR Bangs 9-17A

E05@15'

2/12/2020 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y002155-05 (Soil)

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B1207	TEM	02/12/2020	02/12/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 75.9 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0B1206	KDK	02/12/2020	02/12/2020	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
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
 Surrogate: Toluene-d8 97.7 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 97.7 % 70-130 " " "

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

S03@15'

2/12/2020 12:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y002155-06 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0B1207	TEM	02/12/2020	02/12/2020	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl 63.2 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	ND	10.0	mg/kg	50	B0B1206	KDK	02/12/2020	02/12/2020	U
Benzene	ND	0.100	"	"	"	KDK	"	"	U
Toluene	ND	0.100	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.100	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.100	"	"	"	KDK	"	"	U
Naphthalene	ND	0.400	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "  
Surrogate: Toluene-d8 97.7 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 97.7 % 70-130 " " "

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B1206 - EPA 5030 (soil)</b>										
<b>Blank (B0B1206-BLK1)</b>					Prepared: 02/12/2020 Analyzed: 02/12/2020					
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
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		111	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.4	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B1206 - EPA 5030 (soil)</b>										
<b>LCS (B0B1206-BS1)</b>					Prepared: 02/12/2020 Analyzed: 02/12/2020					
Benzene	0.092	0.002	mg/kg	0.100		92.4	70-130			
Toluene	0.094	0.002	"	0.100		94.3	70-130			
Ethylbenzene	0.095	0.002	"	0.100		95.0	70-130			
m,p-Xylene	0.195	0.004	"	0.200		97.6	70-130			
o-Xylene	0.095	0.002	"	0.100		95.4	70-130			
Naphthalene	0.089	0.008	"	0.100		88.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.4	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B1206 - EPA 5030 (soil)</b>										
<b>Matrix Spike (B0B1206-MS1)</b>		<b>Source: Y002149-01</b>			Prepared: 02/12/2020 Analyzed: 02/12/2020					
Benzene	0.101	0.002	mg/kg	0.100	ND	101	70-130			
Toluene	0.103	0.002	"	0.100	ND	103	70-130			
Ethylbenzene	0.105	0.002	"	0.100	ND	105	70-130			
m,p-Xylene	0.214	0.004	"	0.200	ND	107	70-130			
o-Xylene	0.102	0.002	"	0.100	ND	102	70-130			
Naphthalene	0.087	0.008	"	0.100	0.032	54.9	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.9	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B1206 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B0B1206-MSD1)</b>	<b>Source: Y002149-01</b>				Prepared: 02/12/2020 Analyzed: 02/12/2020					
Benzene	0.095	0.002	mg/kg	0.100	ND	95.2	70-130	5.87	20	
Toluene	0.097	0.002	"	0.100	ND	97.0	70-130	5.73	20	
Ethylbenzene	0.099	0.002	"	0.100	ND	99.2	70-130	5.85	20	
m,p-Xylene	0.203	0.004	"	0.200	ND	102	70-130	5.31	20	
o-Xylene	0.098	0.002	"	0.100	ND	98.0	70-130	4.45	20	
Naphthalene	0.092	0.008	"	0.100	0.032	59.5	70-130	5.22	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.3	70-130			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B0B1207 - EPA 3580</b>										
<b>Blank (B0B1207-BLK1)</b>					Prepared: 02/12/2020 Analyzed: 02/12/2020					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	18		"	25.0		70.2	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Extractable Petroleum Hydrocarbons by 8015D - Quality Control  
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B0B1207 - EPA 3580										
LCS (B0B1207-BS1)					Prepared: 02/12/2020 Analyzed: 02/12/2020					
Diesel (C10-C28)	746	50.0	mg/kg	1000		74.6	70-130			
Residual Range Organics (C28-C40)	744	200	"	1000		74.4	70-130			
Surrogate: o-Terphenyl	44		"	50.0		88.4	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

Extractable Petroleum Hydrocarbons by 8015D - 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 B0B1207 - EPA 3580

Matrix Spike (B0B1207-MS1)		Source: Y002149-01			Prepared: 02/12/2020 Analyzed: 02/12/2020					
Diesel (C10-C28)	768	50.0	mg/kg	1000	ND	76.8	70-130			
Residual Range Organics (C28-C40)	744	200	"	1000	ND	74.4	70-130			
Surrogate: o-Terphenyl	40		"	50.0		79.6	50-150			

Origins Laboratory, Inc.



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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

**Extractable Petroleum Hydrocarbons by 8015D - 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 B0B1207 - EPA 3580

Matrix Spike Dup (B0B1207-MSD1)		Source: Y002149-01			Prepared: 02/12/2020 Analyzed: 02/12/2020					
Diesel (C10-C28)	792	50.0	mg/kg	1000	ND	79.2	70-130	3.07	35	
Residual Range Organics (C28-C40)	784	200	"	1000	ND	78.4	70-130	5.18	35	
Surrogate: o-Terphenyl	40		"	50.0		80.1	50-150			

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

Maggie Graham  
Project Number: 2151040  
Project: KMG - HSR Bangs 9-17A

## Extractable Petroleum Hydrocarbons by 8015D - 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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## Classical Chemistry Parameters - 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 B0B1209 - NO PREP

<b>Duplicate (B0B1209-DUP1)</b>		<b>Source: Y002153-04</b>			Prepared: 02/12/2020 Analyzed: 02/12/2020					
pH	8.00		pH Units		7.83			2.15	25	

#### Batch B0B1210 - NO PREP

<b>Blank (B0B1210-BLK1)</b>		Prepared: 02/12/2020 Analyzed: 02/12/2020								
Specific Conductance (EC)	0.00420	0.00500	mmhos/cm							
<b>Duplicate (B0B1210-DUP1)</b>		<b>Source: Y002153-04</b>			Prepared: 02/12/2020 Analyzed: 02/12/2020					
Specific Conductance (EC)	0.232	0.00505	mmhos/cm		0.181			24.6	25	

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### 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.

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