



August 10, 2018

Apex Companies, LLC

Chandler Cole

4150 Darley Avenue, Suite 1

Boulder

CO 80305

Project Name - KMG - WCR Properties 41-5/Spaur 1-5 Tank Battery **Project Number - [none]**

Attached are your analytical results for KMG - WCR Properties 41-5/Spaur 1-5 Tank Battery received by Origins Laboratory, Inc. August 09, 2018. This project is associated with Origins project number Y808118-01.

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

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

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

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

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

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



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

Apex Companies, LLC

4150 Darley Avenue, Suite 1

Boulder CO 80305

Chandler Cole

Project Number: [none]

Project: KMG - WCR Properties 41-5/Spaur 1-5
Tank Battery

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Es02@10'	Y808118-01	Soil	August 9, 2018 14:35	08/09/2018 16:54

Origins Laboratory, Inc.



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Chandler Cole
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Tank Battery

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page 1 of 1

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Chandler Cole

WCR Properties 41-5/Spaur 1-5

WO# TBD Greg Hamilton

Caitlin Thomas

Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative			Matrix			Analysis			Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Alt Summa #	Other	GRTEX		DRO/RRO
ES02010	8/9/18	1435	1	✓					✓			✓	✓	1
														2
														3
														4
														5
														6
														7
														8
														9
														10

Relinquished By: *Caitlin Thomas* Date: 8/9/18 Time: 1523

Relinquished By: *[Signature]* Date: 8/9/18 Time: 1523

Received By: *[Signature]* Date: 8/9/18 Time: 1523

Received By: *[Signature]* Date: 8/9/18 Time: 1523

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

Date Results Needed Next day, 7am

12.3

Origins Laboratory, Inc.

Jefe Pellegrini

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Chandler Cole
Project Number: [none]
Project: KMG - WCR Properties 41-5/Spaur 1-5
Tank Battery

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 7808118

Client: Apex
Client Project ID: KMG - WCR Properties 41-5/3

Checklist Completed by: JG

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

Date/time completed: 8/9/2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 12.3 °C 1 °C 1 °C 1 °C

Thermometer ID: T003

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

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

[Signature]
Reviewed by (Project Manager)

8/9/18
Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
4150 Darley Avenue, Suite 1
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Chandler Cole
Project Number: [none]
Project: KMG - WCR Properties 41-5/Spaur 1-5
Tank Battery

Es02@10'

8/9/2018 2:35:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y808118-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	156	25.0	mg/kg	1	B8H0906	JTD	08/09/2018	08/09/2018	
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: o-Terphenyl 96.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	62.5	5.00	mg/kg	25	B8H0905	JTD	"	08/09/2018	
Benzene	0.140	0.050	"	"	"	JTD	"	"	
Toluene	ND	0.050	"	"	"	JTD	"	"	U
Ethylbenzene	0.309	0.050	"	"	"	JTD	"	"	
Xylenes, total	2.36	0.050	"	"	"	JTD	"	"	

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " " "
Surrogate: Toluene-d8 95.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.21		pH Units	1	B8H0907	JTD	08/09/2018	08/09/2018	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.130	0.00500	mmhos/cm	"	B8H0908	JTD	08/09/2018	08/09/2018	
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Chandler Cole
Project Number: [none]
Project: KMG - WCR Properties 41-5/Spaur 1-5
Tank Battery

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8H0905 - EPA 5030 (soil)										
Blank (B8H0905-BLK1)					Prepared: 08/09/2018 Analyzed: 08/09/2018					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8H0905 - EPA 5030 (soil)										
LCS (B8H0905-BS1)					Prepared: 08/09/2018 Analyzed: 08/09/2018					
Benzene	0.114	0.002	mg/kg	0.100		114	77.1-124			
Toluene	0.114	0.002	"	0.100		114	74.5-128			
Ethylbenzene	0.113	0.002	"	0.100		113	66.4-127			
m,p-Xylene	0.224	0.004	"	0.200		112	76.6-124			
o-Xylene	0.114	0.002	"	0.100		114	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.4	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8H0905 - EPA 5030 (soil)

Matrix Spike (B8H0905-MS1)		Source: Y808120-01			Prepared: 08/09/2018 Analyzed: 08/09/2018					
Benzene	0.105	0.002	mg/kg	0.100	ND	105	71.8-126			
Toluene	0.102	0.002	"	0.100	ND	102	65.1-130			
Ethylbenzene	0.104	0.002	"	0.100	ND	104	62.2-130			
m,p-Xylene	0.206	0.004	"	0.200	ND	103	46.5-137			
o-Xylene	0.103	0.002	"	0.100	ND	103	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		99.2	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.9	70-130			

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Project Number: [none]
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Tank Battery

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8H0905 - EPA 5030 (soil)

Matrix Spike Dup (B8H0905-MSD1)		Source: Y808120-01			Prepared: 08/09/2018 Analyzed: 08/09/2018					
Benzene	0.106	0.002	mg/kg	0.100	ND	106	71.8-126	1.08	11.3	
Toluene	0.107	0.002	"	0.100	ND	107	65.1-130	4.04	15.4	
Ethylbenzene	0.109	0.002	"	0.100	ND	109	62.2-130	3.92	19.6	
m,p-Xylene	0.217	0.004	"	0.200	ND	108	46.5-137	5.19	19.2	
o-Xylene	0.108	0.002	"	0.100	ND	108	54.2-134	4.48	17.9	
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		97.7	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8H0906 - EPA 3580

Blank (B8H0906-BLK1)

Prepared: 08/09/2018 Analyzed: 08/09/2018

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		77.2	59-131			

LCS (B8H0906-BS1)

Prepared: 08/09/2018 Analyzed: 08/09/2018

Diesel (C10-C28)	872	50.0	mg/kg	1000		87.2	64-121			
Residual Range Organics (C28-C40)	916	200	"	1000		91.6	58-124			
Surrogate: o-Terphenyl	45		"	50.0		90.6	59-131			

Matrix Spike (B8H0906-MS1)

Source: Y808120-01

Prepared: 08/09/2018 Analyzed: 08/09/2018

Diesel (C10-C28)	989	50.0	mg/kg	1000	ND	98.9	53-125			
Residual Range Organics (C28-C40)	1010	200	"	1000	15.9	99.8	47-133			
Surrogate: o-Terphenyl	50		"	50.0		101	59-131			

Matrix Spike Dup (B8H0906-MSD1)

Source: Y808120-01

Prepared: 08/09/2018 Analyzed: 08/09/2018

Diesel (C10-C28)	943	50.0	mg/kg	1000	ND	94.3	53-125	4.80	20	
Residual Range Organics (C28-C40)	973	200	"	1000	15.9	95.7	47-133	4.19	20	
Surrogate: o-Terphenyl	50		"	50.0		101	59-131			

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Project Number: [none]
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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 B8H0907 - NO PREP										
Duplicate (B8H0907-DUP1)		Source: Y808118-01			Prepared: 08/09/2018 Analyzed: 08/09/2018					
pH	7.92		pH Units		8.21			3.60	25	
Batch B8H0908 - NO PREP										
Blank (B8H0908-BLK1)		Prepared: 08/09/2018 Analyzed: 08/09/2018								
Specific Conductance (EC)	0.00370	0.00500	mmhos/cm							
Duplicate (B8H0908-DUP1)		Source: Y808118-01			Prepared: 08/09/2018 Analyzed: 08/09/2018					
Specific Conductance (EC)	0.130	0.00500	mmhos/cm		0.130			0.0767	25	

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Tank Battery

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.

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