

Attachment A

Laboratory Analytical Report



March 13, 2019

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - Norton 13N-29HZ

Project Number - [none]

Attached are your analytical results for KMG - Norton 13N-29HZ received by Origins Laboratory, Inc. January 15, 2019. This project is associated with Origins project number Y901175-04.

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: [none]

Project: KMG - Norton 13N-29HZ

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01@3	Y901175-04	Soil	January 15, 2019 13:42	01/15/2019 16:00
E01@3	Y901175-06	Soil	January 15, 2019 13:51	01/15/2019 16:00

Origins Laboratory, Inc.



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Maggie Graham
Project Number: [none]
Project: KMG - Norton 13N-29HZ

ORIGINS

LABORATORY, INC

www.originslaboratory.com

4901175

page 1 of 1

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

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: Northern 13N - 29 Hz
 Project Number: WO# 780 Greg Hamilton
 Samples Collected By: Andrew Bowyer
 Bill to Andarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Sampling Container #	Other	GRTEX	DRO/RRO	EC, pH		HOLD SAR
N01@3	1/15/14	13:33	1	X						X					HOLD	1
N02@3		13:36	1													2
N01@3		13:40	1													3
S01@3		13:42	1										X	X	X	4
S02@3		13:45	1										X	X	X	5
E01@3		13:51	1										X	X	X	6
																7
																8
																9
																10
Relinquished By: <u>Chris Graham</u>	Date: <u>1/15/14</u>	Time: <u>16:00</u>	Received By: <u>[Signature]</u>	Date: <u>1-15-14</u>	Time: <u>1:10</u>	Turnaround Time: <u>24 Hr</u> Same Day: <u>24 Hr</u> 48 Hr: <u>72 Hr</u> Standard: <u>Standard</u>										

Project name changed
 per the email from
 Caution on 3/13/14

Date Results Needed Next day, Tam

Origins Laboratory, Inc.

Jeff Pellipini

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

Maggie Graham
Project Number: [none]
Project: KMG - Norton 13N-29HZ

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 7901175

Client: Apex Co.

Client Project ID: KMG - Norton 13N

Checklist Completed by: Dan Lu

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

Date/time completed: 1-15-12

Airbill #: N/A

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

Cooler Number/Temperature: 1-2.5 °C / _____ °C / _____ °C / _____ °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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>N/A</u>
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) (pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by: [Signature] (Project Manager)

Date/Time Reviewed: 1-15-12

Origins Laboratory, Inc.

Jefe Pellegrini

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

Maggie Graham
Project Number: [none]
Project: KMG - Norton 13N-29HZ

S01@3
1/15/2019 1:42:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901175-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9A1502	KDK	01/15/2019	01/15/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl 85.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	1.15	0.200	mg/kg	1	B9A1501	KDK	01/15/2019	01/15/2019	
Benzene	0.003	0.002	"	"	"	KDK	"	"	
Toluene	ND	0.002	"	"	"	KDK	"	"	U
Ethylbenzene	0.004	0.002	"	"	"	KDK	"	"	
Xylenes, total	0.035	0.002	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4 99.3 % 70-130 " " "
Surrogate: Toluene-d8 98.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.9 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.24		pH Units	1	B9A1503	OLAB	01/15/2019	01/15/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0349	0.00500	mmhos/cm	"	B9A1504	OLAB	01/15/2019	"	
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Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: [none]
Project: KMG - Norton 13N-29HZ

E01@3
1/15/2019 1:51:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901175-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9A1502	KDK	01/15/2019	01/15/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl 79.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9A1501	KDK	01/15/2019	01/15/2019	U
Benzene	0.002	0.002	"	"	"	KDK	"	"	
Toluene	ND	0.002	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.002	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.002	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 103 % 70-130 " " "
Surrogate: Toluene-d8 97.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.12		pH Units	1	B9A1503	OLAB	01/15/2019	01/15/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0313	0.00500	mmhos/cm	"	B9A1504	OLAB	01/15/2019	"	
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Apex Companies, LLC
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Maggie Graham
Project Number: [none]
Project: KMG - Norton 13N-29HZ

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 B9A1501 - EPA 5030 (soil)										
Blank (B9A1501-BLK1)					Prepared: 01/15/2019 Analyzed: 01/15/2019					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.3	70-130			

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Maggie Graham
Project Number: [none]
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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 B9A1501 - EPA 5030 (soil)										
LCS (B9A1501-BS1)					Prepared: 01/15/2019 Analyzed: 01/15/2019					
Benzene	0.104	0.002	mg/kg	0.100		104	77.1-124			
Toluene	0.098	0.002	"	0.100		98.1	74.5-128			
Ethylbenzene	0.099	0.002	"	0.100		98.8	66.4-127			
m,p-Xylene	0.196	0.004	"	0.200		97.8	76.6-124			
o-Xylene	0.098	0.002	"	0.100		97.9	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.6	70-130			

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Maggie Graham
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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 B9A1501 - EPA 5030 (soil)

Matrix Spike (B9A1501-MS1)		Source: Y901158-02			Prepared: 01/15/2019 Analyzed: 01/15/2019					
Benzene	2.49	0.050	mg/kg	2.50	ND	99.6	71.8-126			
Toluene	2.35	0.050	"	2.50	ND	94.1	65.1-130			
Ethylbenzene	2.35	0.050	"	2.50	ND	93.9	62.2-130			
m,p-Xylene	4.68	0.100	"	5.00	0.026	93.1	46.5-137			
o-Xylene	2.35	0.050	"	2.50	0.008	94.0	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		94.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

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Maggie Graham
Project Number: [none]
Project: KMG - Norton 13N-29HZ

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 B9A1501 - EPA 5030 (soil)

Matrix Spike Dup (B9A1501-MSD1)		Source: Y901158-02			Prepared: 01/15/2019 Analyzed: 01/15/2019					
Benzene	2.48	0.050	mg/kg	2.50	ND	99.3	71.8-126	0.342	11.3	
Toluene	2.33	0.050	"	2.50	ND	93.3	65.1-130	0.833	15.4	
Ethylbenzene	2.35	0.050	"	2.50	ND	94.1	62.2-130	0.170	19.6	
m,p-Xylene	4.69	0.100	"	5.00	0.026	93.2	46.5-137	0.171	19.2	
o-Xylene	2.37	0.050	"	2.50	0.008	94.9	54.2-134	0.953	17.9	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		91.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control

Origins Laboratory, Inc.

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

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1502 - EPA 3550B

Blank (B9A1502-BLK1)

Prepared: 01/15/2019 Analyzed: 01/15/2019

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		78.1	59-131			

LCS (B9A1502-BS1)

Prepared: 01/15/2019 Analyzed: 01/15/2019

Diesel (C10-C28)	903	50.0	mg/kg	1000		90.3	64-121			
Residual Range Organics (C28-C40)	904	200	"	1000		90.4	58-124			
Surrogate: o-Terphenyl	45		"	50.0		90.9	59-131			

Matrix Spike (B9A1502-MS1)

Source: Y901158-02

Prepared: 01/15/2019 Analyzed: 01/15/2019

Diesel (C10-C28)	909	50.0	mg/kg	1000	ND	90.9	53-125			
Residual Range Organics (C28-C40)	873	200	"	1000	6.92	86.6	47-133			
Surrogate: o-Terphenyl	46		"	50.0		91.2	59-131			

Matrix Spike Dup (B9A1502-MSD1)

Source: Y901158-02

Prepared: 01/15/2019 Analyzed: 01/15/2019

Diesel (C10-C28)	867	50.0	mg/kg	1000	ND	86.7	53-125	4.68	20	
Residual Range Organics (C28-C40)	853	200	"	1000	6.92	84.6	47-133	2.33	20	
Surrogate: o-Terphenyl	44		"	50.0		87.7	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 B9A1503 - NO PREP										
Duplicate (B9A1503-DUP1)		Source: Y901167-02			Prepared: 01/15/2019 Analyzed: 01/15/2019					
pH	8.09		pH Units		8.59			6.00	25	
Batch B9A1504 - NO PREP										
Blank (B9A1504-BLK1)		Prepared: 01/15/2019 Analyzed: 01/15/2019								
Specific Conductance (EC)	0.00420	0.00500	mmhos/cm							
Duplicate (B9A1504-DUP1)		Source: Y901167-02			Prepared: 01/15/2019 Analyzed: 01/15/2019					
Specific Conductance (EC)	0.130	0.00500	mmhos/cm		0.128			1.63	25	

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Maggie Graham
Project Number: [none]
Project: KMG - Norton 13N-29HZ

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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