



Quandary Consultants

November 15, 2024

Mike Dinkel

2252 Emerson St.

Denver

CO

80205

Project Name - KMG - Kiteley 21-27

Project Number - [none]

Attached are your analytical results for KMG - Kiteley 21-27 received by Origins Laboratory November 13, 2024. This project is associated with Origins project number E4K0345-01.

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
303.433.1322
projectmanager@originslab.com



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

Quandary Consultants
2252 Emerson St.
Denver CO 80205

Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
21-27-FL-B02@4'	E4K0345-01	Soil	November 13, 2024 8:52	11/13/2024 14:13

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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Quandary Consultants
2252 Emerson St.
Denver CO 80205

Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: F4K034S

Client: Quandary
Client Project ID: Kiteley 21-27

Checklist Completed by: JS /
Date/time completed: 11/13/24

Shipped Via: _____
(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, 3.2 °C / _____ °C / _____ °C (Describe) °C

Thermometer ID: T007

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

11/14/24
Date/Time Reviewed

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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Quandary Consultants
2252 Emerson St.
Denver CO 80205

Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

21-27-FL-B02@4'
11/13/2024 8:52:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0345-01 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B4K1338	11/13/2024	11/14/2024	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	71.5 %		50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B4K1337	"	11/14/2024	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	79.1 %		70-130			"	"	"	
Surrogate: Toluene-d8	95.9 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	81.4 %		70-130			"	"	"	

Table 915 metals by EPA 6020B

Origins Laboratory



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Jen Pellegrini For Jordan A. Bynon, Project Manager

Quandary Consultants
2252 Emerson St.
Denver CO 80205

Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

21-27-FL-B02@4'

11/13/2024 8:52:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0345-01 (Soil)

Table 915 metals by EPA 6020B

Arsenic	3.10		0.253	mg/kg	10	B4K1345	11/13/2024	11/14/2024	
Barium	95.9		8.73	"	"	"	"	"	
Cadmium	0.167		0.0873	"	"	"	"	"	
Copper	13.0		8.73	"	"	"	"	"	
Lead	10.1		0.873	"	"	"	"	"	
Nickel	8.64		0.873	"	"	"	"	"	
Selenium	0.297		0.227	"	"	"	"	"	
Silver	ND		0.0873	"	"	"	"	"	U
Zinc	90.3		32.3	"	"	"	"	"	

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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2252 Emerson St.
Denver CO 80205

Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K1337 - EPA 5030 (soil)

Blank (B4K1337-BLK1)

Prepared: 11/13/2024 Analyzed: 11/14/2024

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.093		"	0.125	74.8		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	96.8		70-130			
Surrogate: 4-Bromofluorobenzene	0.10		"	0.125	82.8		70-130			

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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 Denver CO 80205

Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 21-27

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K1337 - EPA 5030 (soil)

LCS (B4K1337-BS1)

Prepared: 11/13/2024 Analyzed: 11/14/2024

1,2,4-Trimethylbenzene	0.112	0.00200	mg/kg	0.100		112	70-130			
1,3,5-Trimethylbenzene	0.114	0.00200	"	0.100		114	70-130			
Benzene	0.111	0.00200	"	0.100		111	70-130			
Ethylbenzene	0.107	0.00200	"	0.100		107	70-130			
Naphthalene	0.106	0.00380	"	0.100		106	70-130			
Toluene	0.109	0.00200	"	0.100		109	70-130			
o-Xylene	0.107	0.00200	"	0.100		107	70-130			
m,p-Xylene	0.229	0.00400	"	0.200		114	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.091		"	0.125		72.9	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.5	70-130			

Origins Laboratory



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Jen Pellegrini For Jordan A. Bynon, Project Manager

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Denver CO 80205

Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K1337 - EPA 5030 (soil)

Matrix Spike (B4K1337-MS1)	Source: E4K0340-01			Prepared: 11/13/2024 Analyzed: 11/14/2024						
1,2,4-Trimethylbenzene	0.104	0.00200	mg/kg	0.100	ND	104	70-130			
1,3,5-Trimethylbenzene	0.105	0.00200	"	0.100	ND	105	70-130			
Benzene	0.112	0.00200	"	0.100	0.00678	106	70-130			
Ethylbenzene	0.0984	0.00200	"	0.100	ND	98.4	70-130			
Naphthalene	0.101	0.00380	"	0.100	ND	101	70-130			
Toluene	0.104	0.00200	"	0.100	0.00374	101	70-130			
o-Xylene	0.0993	0.00200	"	0.100	ND	99.3	70-130			
m,p-Xylene	0.213	0.00400	"	0.200	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.093		"	0.125		74.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		93.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.5	70-130			

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Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K1337 - EPA 5030 (soil)

Matrix Spike Dup (B4K1337-MSD1)	Source: E4K0340-01		Prepared: 11/13/2024 Analyzed: 11/14/2024							
1,2,4-Trimethylbenzene	0.106	0.00200	mg/kg	0.100	ND	106	70-130	2.38	20	
1,3,5-Trimethylbenzene	0.107	0.00200	"	0.100	ND	107	70-130	1.73	20	
Benzene	0.114	0.00200	"	0.100	0.00678	107	70-130	1.13	20	
Ethylbenzene	0.100	0.00200	"	0.100	ND	100	70-130	1.65	20	
Naphthalene	0.107	0.00380	"	0.100	ND	107	70-130	5.46	20	
Toluene	0.105	0.00200	"	0.100	0.00374	101	70-130	0.668	20	
o-Xylene	0.101	0.00200	"	0.100	ND	101	70-130	1.32	20	
m,p-Xylene	0.216	0.00400	"	0.200	ND	108	70-130	1.72	20	
Surrogate: 1,2-Dichloroethane-d4	0.093		"	0.125		74.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.3	70-130			

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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 Denver CO 80205

Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 21-27

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4K1338 - EPA 3550B										
Blank (B4K1338-BLK1)										
					Prepared: 11/13/2024 Analyzed: 11/14/2024					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	19		"	24.9		76.4	50-150			

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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 Denver CO 80205

Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 21-27

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K1338 - EPA 3550B

LCS (B4K1338-BS1)

Prepared: 11/13/2024 Analyzed: 11/14/2024

Diesel (C10-C28)	934	50.0	mg/kg	1000		93.4	70-130			
Residual Range Organics (C28-C40)	969	200	"	1000		96.9	70-130			
Surrogate: o-Terphenyl	49		"	49.8		98.9	50-150			

Origins Laboratory



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 Denver CO 80205

Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 21-27

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4K1338 - EPA 3550B										
Matrix Spike (B4K1338-MS1)		Source: E4K0340-01			Prepared: 11/13/2024 Analyzed: 11/14/2024					
Diesel (C10-C28)	930	50.0	mg/kg	1000	ND	93.0	70-130			
Residual Range Organics (C28-C40)	977	200	"	1000	ND	97.7	70-130			
Surrogate: o-Terphenyl	47		"	49.8		95.4	50-150			

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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 Denver CO 80205

Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 21-27

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4K1338 - EPA 3550B										
Matrix Spike Dup (B4K1338-MSD1)			Source: E4K0340-01			Prepared: 11/13/2024 Analyzed: 11/14/2024				
Diesel (C10-C28)	987	50.0	mg/kg	1000	ND	98.7	70-130	5.90	35	
Residual Range Organics (C28-C40)	1060	200	"	1000	ND	106	70-130	8.39	35	
Surrogate: o-Terphenyl	52		"	49.8		104	50-150			

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 Project: KMG - Kiteley 21-27

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K1345 - EPA 3050B

Blank (B4K1345-BLK1)

Prepared: 11/13/2024 Analyzed: 11/14/2024

Arsenic	ND	0.290	mg/kg							U
Barium	ND	10.0	"							U
Cadmium	ND	0.100	"							U
Copper	ND	10.0	"							U
Lead	ND	1.00	"							U
Nickel	ND	1.00	"							U
Selenium	ND	0.260	"							U
Silver	ND	0.100	"							U
Zinc	ND	37.0	"							U

LCS (B4K1345-BS1)

Prepared: 11/13/2024 Analyzed: 11/14/2024

Arsenic	5.26	0.290	mg/kg	5.00		105	80-120			
Barium	565	10.0	"	500		113	80-120			
Cadmium	5.31	0.100	"	5.00		106	80-120			
Copper	53.3	10.0	"	50.0		107	80-120			
Lead	5.20	1.00	"	5.00		104	80-120			
Nickel	5.42	1.00	"	5.00		108	80-120			
Selenium	5.55	0.260	"	5.00		111	80-120			
Silver	5.68	0.100	"	5.00		114	80-120			
Zinc	52.6	37.0	"	50.0		105	80-120			

Matrix Spike (B4K1345-MS1)

Source: E4K0346-03

Prepared: 11/13/2024 Analyzed: 11/14/2024

Origins Laboratory



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Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 21-27

Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K1345 - EPA 3050B

Matrix Spike (B4K1345-MS1)		Source: E4K0346-03			Prepared: 11/13/2024 Analyzed: 11/14/2024					
Arsenic	9.71	0.279	mg/kg	4.81	4.28	113	75-125			
Barium	637	9.62	"	481	90.1	114	75-125			
Cadmium	5.60	0.0962	"	4.81	0.198	112	75-125			
Copper	60.9	9.62	"	48.1	10.4	105	75-125			
Lead	14.7	0.962	"	4.81	9.05	117	75-125			
Nickel	15.3	0.962	"	4.81	9.16	127	75-125			QM-07
Selenium	5.43	0.250	"	4.81	0.291	107	75-125			
Silver	5.77	0.0962	"	4.81	0.0327	119	75-125			
Zinc	107	35.6	"	48.1	52.1	114	75-125			

Matrix Spike Dup (B4K1345-MSD1)		Source: E4K0346-03			Prepared: 11/13/2024 Analyzed: 11/14/2024					
Arsenic	8.87	0.269	mg/kg	4.63	4.28	99.1	75-125	9.06	20	
Barium	599	9.26	"	463	90.1	110	75-125	6.09	20	
Cadmium	4.97	0.0926	"	4.63	0.198	103	75-125	12.1	20	
Copper	56.0	9.26	"	46.3	10.4	98.4	75-125	8.45	20	
Lead	14.0	0.926	"	4.63	9.05	108	75-125	4.41	20	
Nickel	13.9	0.926	"	4.63	9.16	103	75-125	9.40	20	
Selenium	5.19	0.241	"	4.63	0.291	106	75-125	4.47	20	
Silver	5.14	0.0926	"	4.63	0.0327	110	75-125	11.5	20	
Zinc	99.1	34.3	"	46.3	52.1	101	75-125	7.39	20	

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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2252 Emerson St.
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Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 21-27

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 on a wet weight basis.

Origins Laboratory



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