



Quandary Consultants

November 15, 2024

Mike Dinkel

2252 Emerson St.

Denver CO 80205

Project Name - KMG - Kiteley 3-27

Project Number - [none]

Attached are your analytical results for KMG - Kiteley 3-27 received by Origins Laboratory November 13, 2024. This project is associated with Origins project number E4K0343-01.

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 3-27

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
3-27-FL-B02@4'	E4K0343-01	Soil	November 13, 2024 8:48	11/13/2024 14:13
4-27-FL-B02@4'	E4K0343-02	Soil	November 13, 2024 8:49	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 3-27

ORIGINS WORK ORDER #
EYK0343

Client: Leao-McGee Dir & Eng Osborn LP
 Address: 501 N. Division St.
PATTENVILLE, CO 80661
 Project Manager: Mike Dinkel
 Project Name: Quandary 4-hg, 3-27
 Key: W=Water
GW=Groundwater
SW=Surface Water
WW=Waste Water
 Telephone Number: 303.691.7788 SAMPLES@QUANDARYCONSULTANTS.COM
 Email Address: MDINKEL@QUANDARYCONSULTANTS.COM
 Collected By: DA/R
 Invoice/Billing Info: Eric Mulderson
 S-Soil | SO=soil | G=Oil | A=Air | G=Gas | UNP=Unpres | HCl= Hydrochloric | HNO3=Nitric | H2SO4=Sulfuric | NaOH=Sodium Hydroxide | L=Liquid

#	Sample ID	Date Sampled	Time Sampled	# of Containers	Matrix	Preservative	Analysis		Comments
							Table	Blank	
1	3-27-12-89204	11/13/11	8:48	3	S	NA	X		
2	4-27-12-89204	↓	8:49	↓	↓	↓	X		
3									
4									
5									
6									
7									
8									
9									
10									

Relinquished By: [Signature] Date: 11/13/11 Time: 14:13
 Received By: [Signature] Date: 11/13/11 Time: 14:13
 Temp Received - 3 Received On Ice? Yes No

Origins Laboratory

Jefe Pellegrini

Jen Pellegrini For Jordan A. Bynon, Project Manager

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Quandary Consultants
 2252 Emerson St.
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Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 3-27

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

Sample Receipt Checklist

Origins Work Order: EQK0343 Client: Quandary
 Client Project ID: Kiteley 3-27

Checklist Completed by: US / Shipped Via: _____
 Date/time completed: 11/13/14 (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 / 32 °C _____ °C _____ °C (Describe) _____ °C

Thermometer ID: 1007

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 (Project Manager) AS

Date/Time Reviewed 11/14/14

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 3-27

3-27-FL-B02@4'

11/13/2024 8:48:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0343-01 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B4K1342	11/13/2024	11/14/2024	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	73.2 %		50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B4K1343	11/13/2024	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	106 %		70-130			"	"	"	
Surrogate: Toluene-d8	101 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.3 %		70-130			"	"	"	

Table 915 metals by EPA 6020B

Origins Laboratory



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Jen Pellegrini For Jordan A. Bynon, Project Manager

Quandary Consultants
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 Denver CO 80205

Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 3-27

3-27-FL-B02@4'

11/13/2024 8:48:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0343-01 (Soil)

Table 915 metals by EPA 6020B

Arsenic	3.65		0.247	mg/kg	10	B4K1341	11/13/2024	11/14/2024	
Barium	89.7		8.50	"	"	"	"	"	
Cadmium	0.213		0.0850	"	"	"	"	"	
Copper	11.6		8.50	"	"	"	"	"	
Lead	10.3		0.850	"	"	"	"	"	
Nickel	9.74		0.850	"	"	"	"	"	
Selenium	0.278		0.221	"	"	"	"	"	
Silver	ND		0.0850	"	"	"	"	"	U
Zinc	43.3		31.5	"	"	"	"	"	

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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Mike Dinkel
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 Project: KMG - Kiteley 3-27

4-27-FL-B02@4'

11/13/2024 8:49:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0343-02 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4K1342	11/13/2024	11/14/2024	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	81.7 %	50-150	"	"	"	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4K1343	11/13/2024	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	104 %	70-130	"	"	"	"	"	"
Surrogate: Toluene-d8	102 %	70-130	"	"	"	"	"	"
Surrogate: 4-Bromofluorobenzene	99.2 %	70-130	"	"	"	"	"	"

Table 915 metals by EPA 6020B

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 3-27

4-27-FL-B02@4'

11/13/2024 8:49:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0343-02 (Soil)

Table 915 metals by EPA 6020B

Arsenic	2.68		0.252	mg/kg	10	B4K1341	11/13/2024	11/14/2024	
Barium	51.6		8.69	"	"	"	"	"	
Cadmium	0.115		0.0869	"	"	"	"	"	
Copper	ND		8.69	"	"	"	"	"	U
Lead	6.83		0.869	"	"	"	"	"	
Nickel	6.59		0.869	"	"	"	"	"	
Selenium	0.283		0.226	"	"	"	"	"	
Silver	ND		0.0869	"	"	"	"	"	U
Zinc	35.1		32.2	"	"	"	"	"	

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 3-27

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 B4K1342 - EPA 3550B										
Blank (B4K1342-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	18		"	24.9		73.0	50-150			

Origins Laboratory



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Mike Dinkel
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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 B4K1342 - EPA 3550B

LCS (B4K1342-BS1)

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

Diesel (C10-C28)	904	50.0	mg/kg	1000		90.4	70-130			
Residual Range Organics (C28-C40)	938	200	"	1000		93.8	70-130			
Surrogate: o-Terphenyl	37		"	49.8		74.2	50-150			

Origins Laboratory



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 Denver CO 80205

Mike Dinkel
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 Project: KMG - Kiteley 3-27

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 B4K1342 - EPA 3550B										
Matrix Spike (B4K1342-MS1)			Source: E4K0343-01			Prepared: 11/13/2024 Analyzed: 11/14/2024				
Diesel (C10-C28)	802	50.0	mg/kg	1000	ND	80.2	70-130			
Residual Range Organics (C28-C40)	835	200	"	1000	ND	83.5	70-130			
Surrogate: o-Terphenyl	36		"	49.8		72.5	50-150			

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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 Denver CO 80205

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 Project: KMG - Kiteley 3-27

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 B4K1342 - EPA 3550B										
Matrix Spike Dup (B4K1342-MSD1)		Source: E4K0343-01			Prepared: 11/13/2024 Analyzed: 11/14/2024					
Diesel (C10-C28)	842	50.0	mg/kg	1000	ND	84.2	70-130	4.89	35	
Residual Range Organics (C28-C40)	879	200	"	1000	ND	87.9	70-130	5.16	35	
Surrogate: o-Terphenyl	34		"	49.8		69.1	50-150			

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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 B4K1343 - EPA 5030 (soil)

Blank (B4K1343-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	0.13		"	0.125	103		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	102		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	96.7		70-130			

Origins Laboratory



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 3-27

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 B4K1343 - EPA 5030 (soil)

LCS (B4K1343-BS1)

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

1,2,4-Trimethylbenzene	0.101	0.00200	mg/kg	0.100		101	70-130			
1,3,5-Trimethylbenzene	0.104	0.00200	"	0.100		104	70-130			
Benzene	0.0999	0.00200	"	0.100		99.9	70-130			
Ethylbenzene	0.0993	0.00200	"	0.100		99.3	70-130			
Naphthalene	0.0929	0.00380	"	0.100		92.9	70-130			
Toluene	0.0979	0.00200	"	0.100		97.9	70-130			
o-Xylene	0.0962	0.00200	"	0.100		96.2	70-130			
m,p-Xylene	0.202	0.00400	"	0.200		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.8	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 3-27

**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 B4K1343 - EPA 5030 (soil)

Matrix Spike (B4K1343-MS1)	Source: E4K0343-01			Prepared: 11/13/2024 Analyzed: 11/14/2024						
1,2,4-Trimethylbenzene	0.0947	0.00200	mg/kg	0.100	ND	94.7	70-130			
1,3,5-Trimethylbenzene	0.0967	0.00200	"	0.100	ND	96.7	70-130			
Benzene	0.0880	0.00200	"	0.100	ND	88.0	70-130			
Ethylbenzene	0.0945	0.00200	"	0.100	ND	94.5	70-130			
Naphthalene	0.0849	0.00380	"	0.100	ND	84.9	70-130			
Toluene	0.0906	0.00200	"	0.100	ND	90.6	70-130			
o-Xylene	0.0931	0.00200	"	0.100	ND	93.1	70-130			
m,p-Xylene	0.193	0.00400	"	0.200	ND	96.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.6	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

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Mike Dinkel
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 Project: KMG - Kiteley 3-27

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 B4K1343 - EPA 5030 (soil)

Matrix Spike Dup (B4K1343-MSD1)	Source: E4K0343-01			Prepared: 11/13/2024 Analyzed: 11/14/2024						
1,2,4-Trimethylbenzene	0.0893	0.00200	mg/kg	0.100	ND	89.3	70-130	5.89	20	
1,3,5-Trimethylbenzene	0.0900	0.00200	"	0.100	ND	90.0	70-130	7.22	20	
Benzene	0.0896	0.00200	"	0.100	ND	89.6	70-130	1.82	20	
Ethylbenzene	0.0903	0.00200	"	0.100	ND	90.3	70-130	4.48	20	
Naphthalene	0.0884	0.00380	"	0.100	ND	88.4	70-130	3.97	20	
Toluene	0.0906	0.00200	"	0.100	ND	90.6	70-130	0.0662	20	
o-Xylene	0.0891	0.00200	"	0.100	ND	89.1	70-130	4.35	20	
m,p-Xylene	0.184	0.00400	"	0.200	ND	92.1	70-130	4.73	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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Mike Dinkel
 Project Number: [none]
 Project: KMG - Kiteley 3-27

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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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 B4K1341 - EPA 3050B

Blank (B4K1341-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 (B4K1341-BS1)

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

Arsenic	5.60	0.290	mg/kg	5.00		112	80-120			
Barium	557	10.0	"	500		111	80-120			
Cadmium	5.90	0.100	"	5.00		118	80-120			
Copper	59.9	10.0	"	50.0		120	80-120			
Lead	5.57	1.00	"	5.00		111	80-120			
Nickel	5.84	1.00	"	5.00		117	80-120			
Selenium	5.53	0.260	"	5.00		111	80-120			
Silver	4.92	0.100	"	5.00		98.4	80-120			
Zinc	57.8	37.0	"	50.0		116	80-120			

Matrix Spike (B4K1341-MS1)

Source: E4K0340-01

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

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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 3-27

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 B4K1341 - EPA 3050B

Matrix Spike (B4K1341-MS1)	Source: E4K0340-01			Prepared: 11/13/2024 Analyzed: 11/14/2024						
Arsenic	9.06	0.260	mg/kg	4.48	4.25	107	75-125			
Barium	483	8.96	"	448	26.5	102	75-125			
Cadmium	4.92	0.0896	"	4.48	0.0320	109	75-125			
Copper	52.9	8.96	"	44.8	3.33	111	75-125			
Lead	12.8	0.896	"	4.48	7.68	114	75-125			
Nickel	12.6	0.896	"	4.48	7.70	109	75-125			
Selenium	4.77	0.233	"	4.48	0.196	102	75-125			
Silver	5.08	0.0896	"	4.48	0.0142	113	75-125			
Zinc	79.7	33.1	"	44.8	31.5	107	75-125			
Matrix Spike Dup (B4K1341-MSD1)	Source: E4K0340-01			Prepared: 11/13/2024 Analyzed: 11/14/2024						
Arsenic	9.35	0.281	mg/kg	4.84	4.25	105	75-125	3.20	20	
Barium	545	9.69	"	484	26.5	107	75-125	12.1	20	
Cadmium	5.59	0.0969	"	4.84	0.0320	115	75-125	12.8	20	
Copper	57.9	9.69	"	48.4	3.33	113	75-125	9.05	20	
Lead	13.2	0.969	"	4.84	7.68	115	75-125	3.59	20	
Nickel	13.1	0.969	"	4.84	7.70	112	75-125	3.99	20	
Selenium	5.35	0.252	"	4.84	0.196	106	75-125	11.4	20	
Silver	4.69	0.0969	"	4.84	0.0142	96.6	75-125	7.86	20	
Zinc	83.1	35.8	"	48.4	31.5	106	75-125	4.19	20	

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Denver CO 80205

Mike Dinkel
Project Number: [none]
Project: KMG - Kiteley 3-27

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 on a wet weight basis.

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