



**Quandary Consultants**

**November 15, 2024**

**Mike Dinkel**

**2252 Emerson St.**

**Denver CO 80205**

**Project Name - KMG - Kiteley 5-27**

**Project Number - [none]**

Attached are your analytical results for KMG - Kiteley 5-27 received by Origins Laboratory November 13, 2024. This project is associated with Origins project number E4K0341-01.

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 5-27

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5-27-FL-B02@4'	E4K0341-01	Soil	November 13, 2024 0:00	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 5-27

Client: Levo-Migale Oil & Gas Division, LP  
 Address: 501 N. Division St.  
RATTENVILLE CO 80651  
 Project Manager: Mike Dinkel  
 Project Name: KMG - Kiteley 5-27  
 Project Number: 11/13/24  
 Key: W=Water  
GW=Groundwater  
SW=Surface Water  
WW=Waste Water  
L=Liquid  
 Telephone Number: 785.691.7788  
 Email Address: SALES@ORIGINSLABORATORY.COM  
 Invoice/Billing Info: EX-Miles  
 Collected By: PL/K  
 s-Sol | SO=Solid | O=Oil | A=Air | G=Gas | UNP=Unknown | HCl=Hydrochloric | HNO3=Nitric | H2SO4=Sulfuric | NaOH=Sodium hydroxide

#	Sample ID	Date	Time	# of Containers	Matrix	Preservative	Analysis		Comments
							Organics	Inorganics	
1	S-11-24-0104	11/13/24	08:47	3	S	NA	X		
2	S-11-24-0204	11/13/24	10:55	4	GW	NA	X		
3									
4									
5									
6									
7									
8									
9									
10									

Relinquished By: [Signature] Date: 11/13/24 Time: 14:5  
 Received By: [Signature] Date: 11/13/24 Time: 14:13  
 Temp Received: 3.2 Received On Ice?  Yes  No

Origins Laboratory

*Jefe Pellegrini*

Jen Pellegrini For Jordan A. Bynon, Project Manager

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Project Number: [none]  
Project: KMG - Kiteley 5-27

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: E9K0341

Client: Quandary  
Client Project ID: Kiteley 5-27

Checklist Completed by: VS1  
Date/time completed: 11/13/12

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: 1007

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> ?	/			
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 <sup>(1)</sup> ?	/			
Was adequate sample volume provided <sup>(1)</sup> ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		/		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	/			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	/			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>		/		
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 Na <sub>2</sub> O <sub>2</sub> +NaOH, ZnAc+NaOH)	/			NC
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 in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) AS

11/14/12  
Date/Time Reviewed

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 5-27

**5-27-FL-B02@4'**  
**11/13/2024 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4K0341-01 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	26.4	25.0	mg/kg	1	B4K1338	11/13/2024	11/14/2024	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	75.5 %	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	78.1 %	70-130			"	"	"
Surrogate: Toluene-d8	96.2 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	81.6 %	70-130			"	"	"

**Table 915 metals by EPA 6020B**

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 5-27

5-27-FL-B02@4'  
 11/13/2024 12:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4K0341-01 (Soil)**

**Table 915 metals by EPA 6020B**

Arsenic	2.24	0.243	mg/kg	10	B4K1344	11/13/2024	11/14/2024	
Barium	69.8	8.38	"	"	"	"	"	
Cadmium	0.143	0.0838	"	"	"	"	"	
Copper	9.29	8.38	"	"	"	"	"	
Lead	8.79	0.838	"	"	"	"	"	
Nickel	6.72	0.838	"	"	"	"	"	
Selenium	0.260	0.218	"	"	"	"	"	
Silver	ND	0.0838	"	"	"	"	"	U
Zinc	31.6	31.0	"	"	"	"	"	

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 5-27

**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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**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			

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## 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			

Origins Laboratory



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Project: KMG - Kiteley 5-27

**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)**

<b>Matrix Spike Dup (B4K1337-MSD1)</b>	<b>Source: E4K0340-01</b>		<b>Prepared: 11/13/2024 Analyzed: 11/14/2024</b>							
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			

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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 Project Number: [none]  
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**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
<b>Batch B4K1338 - EPA 3550B</b>										
<b>Blank (B4K1338-BLK1)</b>										
					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 5-27

**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			

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Mike Dinkel  
 Project Number: [none]  
 Project: KMG - Kiteley 5-27

**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
<b>Batch B4K1338 - EPA 3550B</b>										
<b>Matrix Spike (B4K1338-MS1)</b>		<b>Source: E4K0340-01</b>			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			

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Mike Dinkel  
Project Number: [none]  
Project: KMG - Kiteley 5-27

**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
<b>Batch B4K1338 - EPA 3550B</b>										
<b>Matrix Spike Dup (B4K1338-MSD1)</b>		<b>Source: E4K0340-01</b>			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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**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 B4K1344 - EPA 3050B**

**Blank (B4K1344-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 (B4K1344-BS1)**

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

Arsenic	5.44	0.290	mg/kg	5.00		109	80-120
Barium	578	10.0	"	500		116	80-120
Cadmium	5.59	0.100	"	5.00		112	80-120
Copper	54.6	10.0	"	50.0		109	80-120
Lead	5.36	1.00	"	5.00		107	80-120
Nickel	5.27	1.00	"	5.00		105	80-120
Selenium	5.65	0.260	"	5.00		113	80-120
Silver	6.00	0.100	"	5.00		120	80-120
Zinc	52.0	37.0	"	50.0		104	80-120

**Matrix Spike (B4K1344-MS1)**

**Source: E4K0351-05**

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

Origins Laboratory



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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 B4K1344 - EPA 3050B**

<b>Matrix Spike (B4K1344-MS1)</b>	<b>Source: E4K0351-05</b>			<b>Prepared: 11/13/2024 Analyzed: 11/14/2024</b>						
Arsenic	7.16	0.281	mg/kg	4.84	3.77	70.2	75-125			QM-07
Barium	668	9.68	"	484	116	114	75-125			
Cadmium	5.35	0.0968	"	4.84	0.150	107	75-125			
Copper	59.3	9.68	"	48.4	10.5	101	75-125			
Lead	12.4	0.968	"	4.84	8.83	72.7	75-125			QM-07
Nickel	10.2	0.968	"	4.84	6.97	66.6	75-125			QM-07
Selenium	5.55	0.252	"	4.84	0.150	112	75-125			
Silver	5.70	0.0968	"	4.84	0.0385	117	75-125			
Zinc	92.2	35.8	"	48.4	34.9	118	75-125			

<b>Matrix Spike Dup (B4K1344-MSD1)</b>	<b>Source: E4K0351-05</b>			<b>Prepared: 11/13/2024 Analyzed: 11/14/2024</b>						
Arsenic	7.18	0.277	mg/kg	4.77	3.77	71.7	75-125	0.250	20	QM-07
Barium	638	9.54	"	477	116	110	75-125	4.62	20	
Cadmium	5.34	0.0954	"	4.77	0.150	109	75-125	0.188	20	
Copper	57.9	9.54	"	47.7	10.5	99.3	75-125	2.46	20	
Lead	12.6	0.954	"	4.77	8.83	78.2	75-125	1.68	20	
Nickel	10.5	0.954	"	4.77	6.97	73.8	75-125	2.84	20	QM-07
Selenium	5.03	0.248	"	4.77	0.150	102	75-125	9.93	20	
Silver	5.58	0.0954	"	4.77	0.0385	116	75-125	1.98	20	
Zinc	78.8	35.3	"	47.7	34.9	92.1	75-125	15.7	20	

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

*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.*

Quandary Consultants  
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Denver CO 80205

Mike Dinkel  
Project Number: [none]  
Project: KMG - Kiteley 5-27

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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 on a wet weight basis.

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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