



Ensolum

January 13, 2025

Jeremy Espinoza

11049 W 44th Avenue, Suite 103

Wheat Ridge CO 80033

**Project Name - KMG - Berig UPRR 42-351  
Wellhead**

**Project Number - [none]**

Attached are your analytical results for KMG - Berig UPRR 42-351 Wellhead received by Origins Laboratory December 12, 2024. This project is associated with Origins project number E4L0499-01.

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



Ensolum  
11049 W 44th Avenue, Suite 103  
Wheat Ridge CO 80033

Jeremy Espinoza  
Project Number: [none]  
Project: KMG - Berig UPRR 42-351 Wellhead

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	E4L0499-01	Water	December 12, 2024 10:44	12/12/2024 14:12
MW02	E4L0499-02	Water	December 12, 2024 11:10	12/12/2024 14:12
MW03	E4L0499-03	Water	December 12, 2024 11:25	12/12/2024 14:12
MW04	E4L0499-04	Water	December 12, 2024 12:15	12/12/2024 14:12
MW05	E4L0499-05	Water	December 12, 2024 12:00	12/12/2024 14:12
MW06	E4L0499-06	Water	December 12, 2024 11:40	12/12/2024 14:12
MW07	E4L0499-07	Water	December 12, 2024 12:32	12/12/2024 14:12

Origins Laboratory



Jen Pellegrini, Project Manager

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11049 W 44th Avenue, Suite 103  
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Jeremy Espinoza  
Project Number: [none]  
Project: KMG - Berig UPRR 42-351 Wellhead

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

**Sample Receipt Checklist**

Origins Work Order: E410499 Client: ENSOLUM  
Client Project ID: Berig

Checklist Completed by: APD Shipped Via: HO  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Date/time completed: 12/12/12 Airbill #: N/A

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1607 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: 7007

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> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<u>SD</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input checked="" type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
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 HNO3, HCl, H2SO4) / (pH > 10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
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 to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) AP

12/16/12  
Date/Time Reviewed

Origins Laboratory

*Jefe Pellegrini*

Jen Pellegrini, Project Manager

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Ensolum  
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 Wheat Ridge CO 80033

Jeremy Espinoza  
 Project Number: [none]  
 Project: KMG - Berig UPRR 42-351 Wellhead

**MW01**

**12/12/2024 10:44:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4L0499-01 (Water)**

**Anions by IC 300.0**

Chloride	128		31.2	mg/L	125	B4L1606	12/16/2024	12/17/2024	
Sulfate	140		31.2	"	"	"	"	"	

**BTEX+N+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		2.00	ug/L	1	B4L1368	12/13/2024	12/15/2024	Ua
1,3,5-Trimethylbenzene	ND		2.00	"	"	"	"	"	Ua
Benzene	ND		1.00	"	"	"	"	"	Ua
Ethylbenzene	ND		1.00	"	"	"	"	"	Ua
Naphthalene	ND		2.00	"	"	"	"	"	Ua
Toluene	ND		1.00	"	"	"	"	"	Ua
Xylenes, total	ND		1.00	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	100 %		70-130			"	"	"	
Surrogate: Toluene-d8	102 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	89.3 %		70-130			"	"	"	

**TDS by SM2540C**

Total Dissolved Solids	658	2.64	11.1	mg/L	1	2724027	12/12/2024	12/19/2024	
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Jen Pellegrini, Project Manager

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**MW02**  
**12/12/2024 11:10:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4L0499-02 (Water)**

**Anions by IC 300.0**

Chloride	140		31.2	mg/L	125	B4L1606	12/16/2024	12/17/2024	
Sulfate	157		31.2	"	"	"	"	"	

**BTEX+N+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		2.00	ug/L	1	B4L1368	12/13/2024	12/15/2024	Ua
1,3,5-Trimethylbenzene	ND		2.00	"	"	"	"	"	Ua
Benzene	ND		1.00	"	"	"	"	"	Ua
Ethylbenzene	ND		1.00	"	"	"	"	"	Ua
Naphthalene	ND		2.00	"	"	"	"	"	Ua
Toluene	ND		1.00	"	"	"	"	"	Ua
Xylenes, total	ND		1.00	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	104 %		70-130			"	"	"	
Surrogate: Toluene-d8	105 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	85.4 %		70-130			"	"	"	

**TDS by SM2540C**

Total Dissolved Solids	900	2.64	11.1	mg/L	1	2724027	12/12/2024	12/19/2024	
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**MW03**

**12/12/2024 11:25:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4L0499-03 (Water)**

**Anions by IC 300.0**

Chloride	130		31.2	mg/L	125	B4L1606	12/16/2024	12/17/2024	
Sulfate	164		31.2	"	"	"	"	"	

**BTEX+N+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		2.00	ug/L	1	B4L1368	12/13/2024	12/15/2024	Ua
1,3,5-Trimethylbenzene	ND		2.00	"	"	"	"	"	Ua
Benzene	ND		1.00	"	"	"	"	"	Ua
Ethylbenzene	ND		1.00	"	"	"	"	"	Ua
Naphthalene	ND		2.00	"	"	"	"	"	Ua
Toluene	ND		1.00	"	"	"	"	"	Ua
Xylenes, total	ND		1.00	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	102 %		70-130			"	"	"	
Surrogate: Toluene-d8	101 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	88.6 %		70-130			"	"	"	

**TDS by SM2540C**

Total Dissolved Solids	729	2.38	10.0	mg/L	1	2724027	12/12/2024	12/19/2024	
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**MW04**

**12/12/2024 12:15:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4L0499-04 (Water)**

**Anions by IC 300.0**

Chloride	143		31.2	mg/L	125	B4L1606	12/16/2024	12/17/2024	
Sulfate	156		31.2	"	"	"	"	"	

**BTEX+N+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		2.00	ug/L	1	B4L1368	12/13/2024	12/15/2024	Ua
1,3,5-Trimethylbenzene	ND		2.00	"	"	"	"	"	Ua
Benzene	ND		1.00	"	"	"	"	"	Ua
Ethylbenzene	ND		1.00	"	"	"	"	"	Ua
Naphthalene	ND		2.00	"	"	"	"	"	Ua
Toluene	ND		1.00	"	"	"	"	"	Ua
Xylenes, total	ND		1.00	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	103 %		70-130			"	"	"	
Surrogate: Toluene-d8	105 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	87.2 %		70-130			"	"	"	

**TDS by SM2540C**

Total Dissolved Solids	750	5.95	25.0	mg/L	1	2724027	12/12/2024	12/19/2024	
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**MW05**

**12/12/2024 12:00:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4L0499-05 (Water)**

**Anions by IC 300.0**

Chloride	213		31.2	mg/L	125	B4L1606	12/16/2024	12/17/2024	
Sulfate	183		31.2	"	"	"	"	"	

**BTEX+N+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		2.00	ug/L	1	B4L1368	12/13/2024	12/15/2024	Ua
1,3,5-Trimethylbenzene	ND		2.00	"	"	"	"	"	Ua
Benzene	ND		1.00	"	"	"	"	"	Ua
Ethylbenzene	ND		1.00	"	"	"	"	"	Ua
Naphthalene	ND		2.00	"	"	"	"	"	Ua
Toluene	ND		1.00	"	"	"	"	"	Ua
Xylenes, total	ND		1.00	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	106 %		70-130			"	"	"	
Surrogate: Toluene-d8	102 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	86.2 %		70-130			"	"	"	

**TDS by SM2540C**

Total Dissolved Solids	1110	2.38	10.0	mg/L	1	2724027	12/12/2024	12/19/2024	
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**MW06**

**12/12/2024 11:40:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4L0499-06 (Water)**

**Anions by IC 300.0**

Chloride	147		31.2	mg/L	125	B4L1606	12/16/2024	12/17/2024	
Sulfate	133		31.2	"	"	"	"	"	

**BTEX+N+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		2.00	ug/L	1	B4L1368	12/13/2024	12/15/2024	Ua
1,3,5-Trimethylbenzene	ND		2.00	"	"	"	"	"	Ua
Benzene	ND		1.00	"	"	"	"	"	Ua
Ethylbenzene	ND		1.00	"	"	"	"	"	Ua
Naphthalene	ND		2.00	"	"	"	"	"	Ua
Toluene	ND		1.00	"	"	"	"	"	Ua
Xylenes, total	ND		1.00	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	107 %		70-130			"	"	"	
Surrogate: Toluene-d8	104 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	84.2 %		70-130			"	"	"	

**TDS by SM2540C**

Total Dissolved Solids	855	2.45	10.3	mg/L	1	2724027	12/12/2024	12/19/2024	
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 Project Number: [none]  
 Project: KMG - Berig UPRR 42-351 Wellhead

**MW07**

**12/12/2024 12:32:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory**  
**E4L0499-07 (Water)**

**Anions by IC 300.0**

Chloride	135		31.2	mg/L	125	B4L1606	12/16/2024	12/17/2024	
Sulfate	160		31.2	"	"	"	"	"	

**BTEX+N+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		2.00	ug/L	1	B4L1368	12/13/2024	12/15/2024	Ua
1,3,5-Trimethylbenzene	ND		2.00	"	"	"	"	"	Ua
Benzene	ND		1.00	"	"	"	"	"	Ua
Ethylbenzene	ND		1.00	"	"	"	"	"	Ua
Naphthalene	ND		2.00	"	"	"	"	"	Ua
Toluene	ND		1.00	"	"	"	"	"	Ua
Xylenes, total	ND		1.00	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	106 %		70-130			"	"	"	
Surrogate: Toluene-d8	102 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	87.7 %		70-130			"	"	"	

**TDS by SM2540C**

Total Dissolved Solids	738	2.38	10.0	mg/L	1	2724027	12/12/2024	12/19/2024	
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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 B4L1368 - EPA 5030B (Water)**

**Blank (B4L1368-BLK1)**

Prepared: 12/13/2024 Analyzed: 12/15/2024

1,2,4-Trimethylbenzene	ND	2.00	ug/L							Ua
1,3,5-Trimethylbenzene	ND	2.00	"							Ua
Benzene	ND	1.00	"							Ua
Ethylbenzene	ND	1.00	"							Ua
Naphthalene	ND	2.00	"							Ua
Toluene	ND	1.00	"							Ua
Xylenes, total	ND	1.00	"							Ua
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	103		70-130			
Surrogate: Toluene-d8	65		"	62.5	104		70-130			
Surrogate: 4-Bromofluorobenzene	53		"	62.5	84.8		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 B4L1368 - EPA 5030B (Water)**

**LCS (B4L1368-BS1)**

Prepared: 12/13/2024 Analyzed: 12/15/2024

1,2,4-Trimethylbenzene	49.1	2.00	ug/L	50.0		98.2	70-130			
1,3,5-Trimethylbenzene	49.8	2.00	"	50.0		99.7	70-130			
Benzene	42.6	1.00	"	50.0		85.2	70-130			
Ethylbenzene	53.6	1.00	"	50.0		107	70-130			
m,p-Xylene	108	2.00	"	100		108	70-130			
Naphthalene	45.5	2.00	"	50.0		91.0	70-130			
o-Xylene	52.6	1.00	"	50.0		105	70-130			
Toluene	48.7	1.00	"	50.0		97.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.7	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 B4L1368 - EPA 5030B (Water)**

Matrix Spike (B4L1368-MS1)	Source: E4L0472-01			Prepared: 12/13/2024 Analyzed: 12/15/2024						
1,2,4-Trimethylbenzene	61.0	2.00	ug/L	50.0	ND	122	70-130			
1,3,5-Trimethylbenzene	63.4	2.00	"	50.0	ND	127	70-130			
Benzene	59.6	1.00	"	50.0	ND	119	70-130			
Ethylbenzene	69.4	1.00	"	50.0	ND	139	70-130			QM-07
m,p-Xylene	139	2.00	"	100	ND	139	70-130			QM-07
Naphthalene	48.6	2.00	"	50.0	0.330	96.5	70-130			
o-Xylene	66.9	1.00	"	50.0	ND	134	70-130			QM-07
Toluene	64.3	1.00	"	50.0	ND	129	70-130			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		92.4	70-130			

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 Wheat Ridge CO 80033

Jeremy Espinoza  
 Project Number: [none]  
 Project: KMG - Berig UPRR 42-351 Wellhead

**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 B4L1368 - EPA 5030B (Water)</b>										
<b>Matrix Spike Dup (B4L1368-MSD1)</b>			<b>Source: E4L0472-01</b>			Prepared: 12/13/2024 Analyzed: 12/15/2024				
1,2,4-Trimethylbenzene	54.1	2.00	ug/L	50.0	ND	108	70-130	12.0	20	
1,3,5-Trimethylbenzene	55.6	2.00	"	50.0	ND	111	70-130	13.0	20	
Benzene	52.4	1.00	"	50.0	ND	105	70-130	13.0	20	
Ethylbenzene	61.6	1.00	"	50.0	ND	123	70-130	11.9	20	
m,p-Xylene	125	2.00	"	100	ND	125	70-130	10.7	20	
Naphthalene	54.8	2.00	"	50.0	0.330	109	70-130	12.0	20	
o-Xylene	62.0	1.00	"	50.0	ND	124	70-130	7.56	20	
Toluene	58.6	1.00	"	50.0	ND	117	70-130	9.31	20	
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	70-130			
Surrogate: Toluene-d8	66		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	55		"	62.5		87.8	70-130			

Origins Laboratory



Jen Pellegrini, Project Manager

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Ensolum  
11049 W 44th Avenue, Suite 103  
Wheat Ridge CO 80033

Jeremy Espinoza  
Project Number: [none]  
Project: KMG - Berig UPRR 42-351 Wellhead

**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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**Classical Chemistry Parameters - 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 B4L1606 - Filter .45um non acidified**

**Blank (B4L1606-BLK1)**

Prepared: 12/16/2024 Analyzed: 12/17/2024

Chloride	ND	0.250	mg/L							Ua
Sulfate	ND	0.250	"							Ua

**LCS (B4L1606-BS1)**

Prepared: 12/16/2024 Analyzed: 12/17/2024

Chloride	3.93	0.250	mg/L	4.00		98.4	90-110			
Sulfate	3.87	0.250	"	4.00		96.8	90-110			

**Matrix Spike (B4L1606-MS1)**

**Source: E4L0495-06**

Prepared: 12/16/2024 Analyzed: 12/17/2024

Chloride	621		mg/L	500	118	101	90-110			
Sulfate	704		"	500	200	101	90-110			

**Matrix Spike Dup (B4L1606-MSD1)**

**Source: E4L0495-06**

Prepared: 12/16/2024 Analyzed: 12/17/2024

Chloride	624		mg/L	500	118	101	90-110	0.524	5	
Sulfate	704		"	500	200	101	90-110	0.00178	5	

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**TDS by SM2540C - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2724027 -</b>										
<b>BLANK (1205956438-BLK)</b>					Prepared: Analyzed: 12/19/2024					
Total Dissolved Solids	ND	10.0	mg/L				-			U
<b>LCS (1205956439-BKS)</b>					Prepared: Analyzed: 12/19/2024					
Total Dissolved Solids	304	10.0	mg/L	300		101	95-105			
<b>DUP (1205956440 D)</b>					Source: 701145001 Prepared: Analyzed: 12/19/2024					
Total Dissolved Solids	1260	10.0	mg/L		1270		0-5	0.237	5	H
<b>DUP (1205956441 D)</b>					Source: E4L0499-04 Prepared: Analyzed: 12/19/2024					
Total Dissolved Solids	703	25.0	mg/L		750		0-5	6.54	5	

Origins Laboratory



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**Notes and Definitions**

Ua Sample is Non-Detect.

U Result not detected above the detection limit

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

H Holding time exceeded

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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