

October 08, 2021

**Chaco Energy**

**Matt Nelson**

**455 Sherman St**

**Denver**

**CO 80203**

**Project Name - Eggleston**

**Project Number - [none]**

Attached are your analytical results for Eggleston received by Origins Laboratory, Inc. September 23, 2021. This project is associated with Origins project number Y109499-01.

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, Inc.  
303.433.1322  
o-squad@oelabinc.com



Chaco Energy  
455 Sherman St  
Denver CO 80203

Matt Nelson  
Project Number: [none]  
Project: Eggleston

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E1-6	Y109499-01	Water	September 22, 2021 12:30	09/23/2021 10:15

Origins Laboratory, Inc.



*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.*

Jen Pellegrini, Project Manager



Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

Origins Laboratory

Sample Receipt Checklist

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

Origins Work Order: Y109499

Client: Chaco  
 Client Project ID: Eggleston

Checklist Completed by: jm  
 Date/time completed: 9-23-21

Shipped Via: HD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A

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

Cooler Number/Temperature: 120 °C /    °C /    °C (Describe) °C

Thermometer ID: T603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 5°C <sup>(1)</sup> ?		X		
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	X			
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X	X		NO <sub>2</sub> /NO <sub>3</sub> NO TESTS/client HTD
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		X		
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 NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	X			HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> not checked
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: jm (Project Manager)

Date/Time Reviewed: 9-23-21

Origins Laboratory, Inc.

*Jefe Pellegrini*

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.

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**E1-6**

**9/22/2021 12:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

**GEL Laboratories, LLC**  
**Y109499-01 (Water)**

**Alkalinity by SM 2320B**

Alkalinity, Total as CaCO <sub>3</sub>	1190	4.00	mg/L	1	2178603	RXB5	09/22/2021	10/01/2021	
Bicarbonate alkalinity (CaCO <sub>3</sub> )	1190	4.00	"	"	"	RXB5	"	"	
Carbonate alkalinity (CaCO <sub>3</sub> )	ND	4.00	"	"	"	RXB5	"	"	U

**Anions by IC 300.0**

Chloride	278	6.25	mg/L	25	B112314	JMA	09/23/2021	09/23/2021	
Fluoride	7.04	1.00	"	10	"	JMA	"	09/23/2021	
Bromide	2.14	1.00	"	"	"	JMA	"	"	
Sulfate	ND	2.50	"	"	"	JMA	"	"	
Nitrate	ND	1.00	"	"	"	JMA	"	"	
Nitrite	ND	1.00	"	"	"	JMA	"	"	

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	2.96	2.50	mg/L	1	B112425	KDK	09/24/2021	09/29/2021	
Residual Range Organics (C28-C40)	ND	5.00	"	"	"	KDK	"	"	Ua

Surrogate: *o*-Terphenyl 139 % 50-150 " " "

**GBTEX + Naphthalene by EPA 8260D**

Gasoline Range Hydrocarbons	3800	1000	ug/L	10	B112408	KDK	09/24/2021	09/30/2021	
Benzene	9.96	4.00	"	4	"	KDK	"	09/30/2021	

Origins Laboratory, Inc.



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.

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**E1-6**

**9/22/2021 12:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

**Origins Laboratory, Inc.  
 Y109499-01 (Water)**

**GBTEX + Naphthalene by EPA 8260D**

Toluene	21.6	10.0	ug/L	10	B112408	KDK	09/24/2021	09/30/2021	
Ethylbenzene	19.8	10.0	"	"	"	KDK	"	"	
Xylenes, total	226	4.00	"	4	"	KDK	"	"	
Naphthalene	ND	28.0	"	"	"	KDK	"	09/30/2021	Ua
Napthalenes - Total	ND	28.0	"	"	"	KDK	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	91.0 %	70-130			"	"		09/30/2021	
Surrogate: Toluene-d8	101 %	70-130			"	"		"	
Surrogate: 4-Bromofluorobenzene	99.7 %	70-130			"	"		"	

**pH in Water by EPA 9040C**

pH	7.57		pH Units	1	B112319	JSM	09/23/2021	09/24/2021	
----	------	--	----------	---	---------	-----	------------	------------	--

**Radium 226 by EPA 903.1**

Radium-226	0.979	1.00	pCi/L	1	2178728	LXP1	09/22/2021	10/06/2021	
------------	-------	------	-------	---	---------	------	------------	------------	--

**Radium 228 by EPA 904.0**

Radium-228	4.86	3.00	pCi/L	1	2178727	JXC9	"	10/06/2021	
------------	------	------	-------	---	---------	------	---	------------	--

**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	483	5.00	uS/cm	1	B112320	JSM	09/23/2021	09/24/2021	
---------------------------	-----	------	-------	---	---------	-----	------------	------------	--

Origins Laboratory, Inc.



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.

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**E1-6**

**9/22/2021 12:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y109499-01 (Water)**

**Total Dissolved Solids by 2540C**

Total Dissolved Solids	1780	5.00	mg/L	"	B112502	SCL	09/25/2021	09/27/2021	
------------------------	------	------	------	---	---------	-----	------------	------------	--

**Total Metals by EPA 200.8**

Barium	0.190	0.00400	mg/L	1	2178547	BAJ	09/28/2021	09/29/2021	
Boron	2.00	0.300	"	20	"	BAJ	"	09/30/2021	
Calcium	1.53	0.200	"	1	"	BAJ	"	09/29/2021	
Iron	0.190	0.100	"	"	"	BAJ	"	"	
Magnesium	0.208	0.0300	"	"	"	BAJ	"	"	
Manganese	0.00883	0.00500	"	"	"	BAJ	"	"	
Potassium	5.24	0.300	"	"	"	BAJ	"	"	
Selenium	ND	0.00500	"	"	"	BAJ	"	"	U
Sodium	765	5.00	"	20	"	BAJ	"	"	
Strontium	0.108	0.0100	"	1	"	BAJ	"	"	

**Total Phosphorus by EPA 365.4**

Phosphorus, Total as P	0.146	0.0500	mg/L	1	2180792	KLP1	10/01/2021	10/04/2021	
------------------------	-------	--------	------	---	---------	------	------------	------------	--

**Total Suspended Solids by 2540D**

Total Suspended Solids	ND	5.00	mg/L	1	B112503	SCL	09/25/2021	09/27/2021	
------------------------	----	------	------	---	---------	-----	------------	------------	--

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B112408 - EPA 5030B (Water)**

**Blank (B112408-BLK1)**

Prepared: 09/24/2021 Analyzed: 09/29/2021

Gasoline Range Hydrocarbons	ND	100	ug/L							Ua
Benzene	ND	1.00	"							Ua
Toluene	ND	1.00	"							Ua
Ethylbenzene	ND	1.00	"							Ua
Xylenes, total	ND	1.00	"							Ua
Naphthalene	ND	7.00	"							Ua
Naphthalenes - Total	ND	7.00	"							Ua
Surrogate: 1,2-Dichloroethane-d4	56		"	62.5	89.1		70-130			
Surrogate: Toluene-d8	66		"	62.5	105		70-130			
Surrogate: 4-Bromofluorobenzene	69		"	62.5	110		70-130			

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B112408 - EPA 5030B (Water)**

**LCS (B112408-BS1)**

Prepared: 09/24/2021 Analyzed: 09/29/2021

Benzene	26.7	1.00	ug/L	25.0		107	70-130			
Toluene	30.4	1.00	"	25.0		122	70-130			
Ethylbenzene	30.8	1.00	"	25.0		123	70-130			
m,p-Xylene	62.0	2.00	"	50.0		124	70-130			
o-Xylene	29.5	1.00	"	25.0		118	70-130			
Naphthalene	24.6	7.00	"	25.0		98.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	55		"	62.5		88.7	70-130			
Surrogate: Toluene-d8	66		"	62.5		106	70-130			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		110	70-130			

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B112408 - EPA 5030B (Water)**

<b>Matrix Spike (B112408-MS1)</b>	<b>Source: Y109528-02</b>			<b>Prepared: 09/24/2021 Analyzed: 09/29/2021</b>						
Benzene	18.9	1.00	ug/L	25.0	75.6	70-130				
Toluene	19.0	1.00	"	25.0	76.0	70-130				
Ethylbenzene	20.5	1.00	"	25.0	81.9	70-130				
m,p-Xylene	40.5	2.00	"	50.0	80.9	70-130				
o-Xylene	20.7	1.00	"	25.0	82.6	70-130				
Naphthalene	21.2	7.00	"	25.0	84.7	70-130				
Surrogate: 1,2-Dichloroethane-d4	55		"	62.5	88.0	70-130				
Surrogate: Toluene-d8	66		"	62.5	106	70-130				
Surrogate: 4-Bromofluorobenzene	68		"	62.5	108	70-130				

Origins Laboratory, Inc.



*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.*

Jen Pellegrini, Project Manager

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B112408 - EPA 5030B (Water)**

Matrix Spike Dup (B112408-MSD1)	Source: Y109528-02			Prepared: 09/24/2021 Analyzed: 09/29/2021						
Benzene	26.9	1.00	ug/L	25.0	107	70-130	34.8	20	QR-03	
Toluene	28.7	1.00	"	25.0	115	70-130	40.7	20	QR-03	
Ethylbenzene	33.6	1.00	"	25.0	134	70-130	48.5	20	QM-07, QR-03	
m,p-Xylene	64.2	2.00	"	50.0	128	70-130	45.3	20	QR-03	
o-Xylene	29.8	1.00	"	25.0	119	70-130	36.1	20	QR-03	
Naphthalene	18.4	7.00	"	25.0	73.6	70-130	14.1	20		
Surrogate: 1,2-Dichloroethane-d4	46		"	62.5	73.1	70-130				
Surrogate: Toluene-d8	70		"	62.5	112	70-130				
Surrogate: 4-Bromofluorobenzene	69		"	62.5	110	70-130				

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B112425 - EPA 3511 Mod.</b>										
<b>Blank (B112425-BLK1)</b>										
					Prepared: 09/24/2021 Analyzed: 09/29/2021					
Diesel (C10-C28)	ND	2.50	mg/L							Ua
Residual Range Organics (C28-C40)	ND	5.00	"							Ua
Surrogate: o-Terphenyl	3.3		"	5.00		65.9	50-150			

Origins Laboratory, Inc.



*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.*

Jen Pellegrini, Project Manager

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control  
 Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B112425 - EPA 3511 Mod.**

**LCS (B112425-BS1)**

Prepared: 09/24/2021 Analyzed: 09/29/2021

Diesel (C10-C28)	143	2.50	mg/L	117		122	70-130			
Residual Range Organics (C28-C40)	108	5.00	"	117		92.3	70-130			
Surrogate: o-Terphenyl	3.0		"	5.00		60.3	50-150			

Origins Laboratory, Inc.



*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.*

Jen Pellegrini, Project Manager

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch B112425 - EPA 3511 Mod.**

**LCS Dup (B112425-BSD1)**

Prepared: 09/24/2021 Analyzed: 09/29/2021

Diesel (C10-C28)	141	2.50	mg/L	117		121	70-130	1.41	20	
Residual Range Organics (C28-C40)	111	5.00	"	117		95.5	70-130	3.45	20	
Surrogate: o-Terphenyl	6.6		"	5.00		131	50-150			

Origins Laboratory, Inc.



*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.*

Jen Pellegrini, Project Manager

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**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 B1I2314 - Filter .45um non acidified**

**Blank (B1I2314-BLK1)**

Prepared: 09/23/2021 Analyzed: 09/23/2021

Chloride	ND	0.250	mg/L							
Fluoride	ND	0.100	"							
Bromide	ND	0.100	"							
Sulfate	ND	0.250	"							
Nitrate	0.172	0.100	"							
Nitrite	ND	0.100	"							

**LCS (B1I2314-BS1)**

Prepared: 09/23/2021 Analyzed: 09/23/2021

Chloride	3.87	0.250	mg/L	4.00		96.8	90-110			
Fluoride	3.99	0.100	"	4.00		99.7	90-110			
Bromide	3.92	0.100	"	4.00		98.0	90-110			
Sulfate	3.84	0.250	"	4.00		95.9	90-110			
Nitrate	3.98	0.100	"	4.00		99.5	90-110			
Nitrite	3.83	0.100	"	4.00		95.7	90-110			

**Matrix Spike (B1I2314-MS1)**

Source: Y109493-01

Prepared: 09/23/2021 Analyzed: 09/23/2021

Chloride	896		mg/L	500	408	97.5	80-120			
Fluoride	504		"	500	0.572	101	80-120			
Bromide	490		"	500	3.41	97.4	80-120			
Sulfate	496		"	500	18.3	95.5	80-120			
Nitrate	491		"	500	0.0385	98.2	80-120			
Nitrite	473		"	500	0.00	94.6	80-120			

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**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 B112314 - Filter .45um non acidified**

**Matrix Spike Dup (B112314-MSD1)**

**Source: Y109493-01**

Prepared: 09/23/2021 Analyzed: 09/23/2021

Chloride	897		mg/L	500	408	97.7	80-120	0.134	20	
Fluoride	508		"	500	0.572	101	80-120	0.667	20	
Bromide	496		"	500	3.41	98.4	80-120	1.03	20	
Sulfate	500		"	500	18.3	96.3	80-120	0.774	20	
Nitrate	494		"	500	0.0385	98.8	80-120	0.596	20	
Nitrite	476		"	500	0.00	95.1	80-120	0.506	20	

**Batch B112319 - NO PREP**

**Duplicate (B112319-DUP1)**

**Source: Y109493-01**

Prepared: 09/23/2021 Analyzed: 09/24/2021

pH	7.94		pH Units		7.83			1.40	200	
----	------	--	----------	--	------	--	--	------	-----	--

**Batch B112320 - NO PREP**

**Blank (B112320-BLK1)**

Prepared: 09/23/2021 Analyzed: 09/24/2021

Specific Conductance (EC)	0.617	5.00	uS/cm							
---------------------------	-------	------	-------	--	--	--	--	--	--	--

**Duplicate (B112320-DUP1)**

**Source: Y109493-01**

Prepared: 09/23/2021 Analyzed: 09/24/2021

Specific Conductance (EC)	356	5.00	uS/cm		355			0.206	10	
---------------------------	-----	------	-------	--	-----	--	--	-------	----	--

**Batch B112502 - NO PREP**

**Blank (B112502-BLK1)**

Prepared: 09/25/2021 Analyzed: 09/27/2021

Total Dissolved Solids	6.00	5.00	mg/L							
------------------------	------	------	------	--	--	--	--	--	--	--

Origins Laboratory, Inc.



*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.*

Jen Pellegrini, Project Manager

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B112502 - NO PREP</b>										
<b>LCS (B112502-BS1)</b>					Prepared: 09/25/2021 Analyzed: 09/27/2021					
Total Dissolved Solids	1020	5.00	mg/L	1000		102	85-115			
<b>Duplicate (B112502-DUP1)</b>		<b>Source: Y109491-21</b>			Prepared: 09/25/2021 Analyzed: 09/27/2021					
Total Dissolved Solids	2380	5.00	mg/L		2500			4.95	20	
<b>Batch B112503 - NO PREP</b>										
<b>Blank (B112503-BLK1)</b>					Prepared: 09/25/2021 Analyzed: 09/27/2021					
Total Suspended Solids	ND	5.00	mg/L							
<b>LCS (B112503-BS1)</b>					Prepared: 09/25/2021 Analyzed: 09/27/2021					
Total Suspended Solids	91.0	5.00	mg/L	100		91.0	85-115			
<b>Duplicate (B112503-DUP1)</b>		<b>Source: Y109499-01</b>			Prepared: 09/25/2021 Analyzed: 09/27/2021					
Total Suspended Solids	5.00	5.00	mg/L		ND				20	

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Alkalinity by SM 2320B - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2178603 -</b>										
<b>LCS (1204918388-BKS)</b>					Prepared: Analyzed: 10/01/2021					
Alkalinity, Total as CaCO3	102	4.00	mg/L	100		102	90-110			
<b>DUP (1204922228 D)</b>					Source: 557310002 Prepared: Analyzed: 10/01/2021					
Alkalinity, Total as CaCO3	314	4.00	mg/L		302		0-20	3.9	20	
Bicarbonate alkalinity (CaCO3)	314	4.00	"		302		0-20	3.9	20	
Carbonate alkalinity (CaCO3)	ND	4.00	"		<1.45		0-20	0	20	U
<b>MS (1204922229 S)</b>					Source: 557310002 Prepared: Analyzed: 10/01/2021					
Alkalinity, Total as CaCO3	418	4.00	mg/L	100	302	116	80-120			

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Radium 226 by EPA 903.1 - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2178728 -</b>										
<b>BLANK (1204918726-BLK)</b>					Prepared: Analyzed: 10/06/2021					
Radium-226	0.268	1.00	pCi/L				-			U
<b>DUP (1204918727 D)</b>					Source: 556842001 Prepared: Analyzed: 10/06/2021					
Radium-226	0.467	1.00	pCi/L		0.837		0-20	56.8	20	
<b>MS (1204918728 S)</b>					Source: 556842001 Prepared: Analyzed: 10/06/2021					
Radium-226	252	1.00	pCi/L	264	0.837	95.2	75-125			
<b>LCS (1204918729-BKS)</b>					Prepared: Analyzed: 10/06/2021					
Radium-226	26.3	1.00	pCi/L	26.9		97.5	75-125			

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Radium 228 by EPA 904.0 - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2178727 -</b>										
<b>BLANK (1204918723-BLK)</b>					Prepared: Analyzed: 10/06/2021					
Radium-228	1.98	3.00	pCi/L				-			U
<b>DUP (1204918724 D)</b>		<b>Source: Y109499-01</b>			Prepared: Analyzed: 10/06/2021					
Radium-228	1.49	3.00	pCi/L		4.86		0-20	106	20	U
<b>LCS (1204918725-BKS)</b>					Prepared: Analyzed: 10/06/2021					
Radium-228	43.6	3.00	pCi/L	50.6		86.1	75-125			

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Total Metals by EPA 200.8 - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 2178547 - EPA 200.2**

**BLANK (1204918265-BLK)**

Prepared: 09/28/2021 Analyzed: 09/29/2021

Selenium	ND	0.00500	mg/L				-			U
Sodium	ND	0.250	"				-			U
Manganese	ND	0.00500	"				-			U
Barium	ND	0.00400	"				-			U
Magnesium	ND	0.0300	"				-			U
Iron	ND	0.100	"				-			U
Potassium	ND	0.300	"				-			U
Boron	ND	0.0150	"				-			U
Strontium	ND	0.0100	"				-			U
Calcium	ND	0.200	"				-			U

**LCS (1204918266-BKS)**

Prepared: 09/28/2021 Analyzed: 09/30/2021

Boron	0.0996	0.0150	mg/L	0.100		99.6	85-115			
Calcium	1.99	0.200	"	2.00		99.7	85-115			
Iron	1.90	0.100	"	2.00		94.9	85-115			
Magnesium	2.10	0.0300	"	2.00		105	85-115			
Manganese	0.0476	0.00500	"	0.0500		95.2	85-115			
Potassium	1.93	0.300	"	2.00		96.5	85-115			
Selenium	0.0502	0.00500	"	0.0500		100	85-115			
Sodium	2.05	0.250	"	2.00		102	85-115			
Strontium	0.0504	0.0100	"	0.0500		101	85-115			
Barium	0.0503	0.00400	"	0.0500		101	85-115			

**DUP (1204918267 D)**

Source: Y109499-01

Prepared: 09/28/2021 Analyzed: 09/29/2021

Magnesium	0.213	0.0300	mg/L		0.208		0-20	1.92	20	
Strontium	0.109	0.0100	"		0.108		0-20	1.06	20	
Sodium	733	5.00	"		765		0-20	4.3	20	

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Total Metals by EPA 200.8 - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 2178547 - EPA 200.2**

<b>DUP (1204918267 D)</b>		<b>Source: Y109499-01</b>			<b>Prepared: 09/28/2021 Analyzed: 09/29/2021</b>					
Potassium	5.29	0.300	mg/L		5.24		0-20	0.944	20	
Manganese	0.0108	0.00500	"		0.00883		0-20	20.2	20	
Barium	0.192	0.00400	"		0.190		0-20	0.973	20	
Iron	0.192	0.100	"		0.190		0-20	1.19	20	
Calcium	1.53	0.200	"		1.53		0-20	0.134	20	
Boron	1.95	0.300	"		2.00		0-20	2.54	20	
Selenium	ND	0.00500	"		<0.00200		0-20	81	20	U
<b>MS (1204918268 S)</b>		<b>Source: Y109499-01</b>			<b>Prepared: 09/28/2021 Analyzed: 09/29/2021</b>					
Calcium	3.33	0.200	mg/L	2.00	1.53	90	75-125			
Strontium	0.156	0.0100	"	0.0500	0.108	94.6	75-125			
Sodium	698	5.00	"	2.00	765	0	75-125			
Selenium	0.0415	0.00500	"	0.0500	<0.00200	82.2	75-125			
Potassium	6.89	0.300	"	2.00	5.24	82.3	75-125			
Manganese	0.0519	0.00500	"	0.0500	0.00883	86.1	75-125			
Iron	1.90	0.100	"	2.00	0.190	85.3	75-125			
Boron	2.02	0.300	"	0.100	2.00	0	75-125			
Barium	0.227	0.00400	"	0.0500	0.190	73.7	75-125			
Magnesium	2.07	0.0300	"	2.00	0.208	93.2	75-125			

Origins Laboratory, Inc.



*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.*

Chaco Energy  
 455 Sherman St  
 Denver CO 80203

Matt Nelson  
 Project Number: [none]  
 Project: Eggleston

**Total Phosphorus by EPA 365.4 - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 2180792 - EPA 365.4 Prep**

<b>DUP (1204922797 D)</b>		<b>Source: 556466001</b>								Prepared: 10/01/2021 Analyzed: 10/04/2021
Phosphorus, Total as P	0.852	0.200	mg/L		0.876		0-36	2.78	36	
<b>MS (1204922798 S)</b>		<b>Source: 556466001</b>								Prepared: 10/01/2021 Analyzed: 10/04/2021
Phosphorus, Total as P	4.28	0.200	mg/L	4.00	0.876	85.1	66-140			
<b>MSD (1204922801 SD)</b>		<b>Source: 556466001</b>								Prepared: 10/01/2021 Analyzed: 10/04/2021
Phosphorus, Total as P	4.44	0.200	mg/L	4.00	0.876	89.1	66-140	3.67	20	

Origins Laboratory, Inc.



*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.*

Chaco Energy  
455 Sherman St  
Denver CO 80203

Matt Nelson  
Project Number: [none]  
Project: Eggleston

---

### Notes and Definitions

Ua Sample is Non-Detect.

U Result not detected above the detection limit

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

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

J Greater than the detection limit but less than the reporting limit

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.



*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.*

---

Jen Pellegrini, Project Manager