



March 04, 2022

CDH Consulting  
Jim Short  
9446 Clermont St  
Thornton CO 80229

**Project Name - Keystone 3-7 Treater**

**Project Number - [none]**

Attached are your analytical results for Keystone 3-7 Treater received by Origins Laboratory, Inc. February 15, 2022. This project is associated with Origins project number Y202359-01.

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



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

CDH Consulting  
9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BS01	Y202359-01	Soil	February 15, 2022 12:15	02/15/2022 15:20
BS02	Y202359-02	Soil	February 15, 2022 11:15	02/15/2022 15:20
FS01	Y202359-03	Soil	February 15, 2022 11:25	02/15/2022 15:20
FS02	Y202359-04	Soil	February 15, 2022 11:35	02/15/2022 15:20
FS03	Y202359-05	Soil	February 15, 2022 11:45	02/15/2022 15:20
FS04	Y202359-06	Soil	February 15, 2022 12:40	02/15/2022 15:20
FS05	Y202359-07	Soil	February 15, 2022 12:50	02/15/2022 15:20
FS06	Y202359-08	Soil	February 15, 2022 12:00	02/15/2022 15:20
FS07	Y202359-09	Soil	February 15, 2022 12:30	02/15/2022 15:20
FS08	Y202359-10	Soil	February 15, 2022 12:10	02/15/2022 15:20
FS09	Y202359-11	Soil	February 15, 2022 11:50	02/15/2022 15:20
FS10	Y202359-12	Soil	February 15, 2022 12:20	02/15/2022 15:20

Origins Laboratory, Inc.



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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

# ORIGINS

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7022359

page 1 of 2

Client: CDH CONSULTING, LLC  
Address: THORNTON, CO  
Telephone Number: 303-941-1996  
Email Address: jshort@cdhconsult.com

Project Manager: JIM SHORT  
Project Name: KEYSTONE 3-7 TREATUR  
Project Number: -  
Samples Collected By: JIM SHORT

Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #			Other
BS 01	2-15-22	12:15	2	X					X			SR2/EC 1800-1/1H ARSENIC	1
BS 02	2-15-22	11:15	2	X					X			SR2/EC 1800-1/1H ARSENIC	2
FS 01	2-15-22	11:25	2	X					X			SR2/EC 1800-1/1H ARSENIC	3
FS 02	2-15-22	11:35	2	X					X			SR2/EC 1800-1/1H ARSENIC	4
FS 03	2-15-22	11:45	2	X					X			SR2/EC 1800-1/1H ARSENIC	5
FS 04	2-15-22	12:40	2	X					X			SR2/EC 1800-1/1H ARSENIC	6
FS 05	2-15-22	12:50	2	X					X			SR2/EC 1800-1/1H ARSENIC	7
FS 06	2-15-22	12:00	2	X					X			SR2/EC 1800-1/1H ARSENIC	8
FS 07	2-15-22	12:30	2	X					X			SR2/EC 1800-1/1H ARSENIC	9
FS 08	2-15-22	12:10	2	X					X			SR2/EC 1800-1/1H ARSENIC	10
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:				
Relinquished By:	2-15-22	15:20	RT	2-15-22	15:20	RT	2-15-22	15:20	24 Hr				

Date Results Needed

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*Jim Short*

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**ORIGINS**  
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702359

page 2 of 2

Client: CDH CONSULTING, LLC  
Address: THORNTON, CO  
Telephone Number: 303-941-1946  
Email Address: jshort@cdhconsult.com

Project Manager: JIM SHORT  
Project Name: KEYSTONE 3-7 TREATER  
Project Number: -  
Samples Collected By: JIM SHORT

Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #			Other
FS01	2-15-22	11:50	2	X				X				COGEC TABLE 9.15	1
FS10	2-15-22	12:00	2	X				X				↓	2
													3
													4
													5
													6
													7
													8
													9
													10

  

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
Jim Short	2-15-22	15:10	OKH	2/15/22	15:10	Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>

Date Results Needed

11.1.22

Origins Laboratory, Inc.

*Jim Short*

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9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

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

**Sample Receipt Checklist**

Origins Work Order: V202359 Client: CDH  
Client Project ID: Keystone 3-7

Checklist Completed by: SG Shipped Via: HS  
Date/time completed: 2/16/22 (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, 16.3 °C 1 °C 1 °C (Describe) \_\_\_\_\_  
Thermometer ID: T003

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"/>		<u>Same Day</u>
Is there ice present (document if blue ice is used)	<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"/>		
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"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<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"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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"/>	
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)			<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) Jim Date/Time Reviewed 2-17-22

Origins Laboratory, Inc.

*Jordan A. Merrill*

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**BS01****2/15/2022 12:15:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.  
Y202359-01 (Soil)****Boron (DTPA Sorbitol)**

Boron	0.236	0.0983	mg/L	1	B2B1614	02/16/2022	02/17/2022
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**Metals by Saturated Paste by EPA 6010**

Calcium	3.74	0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

**pH in Soil by 9045D**

pH	7.93	pH Units	1	B2B1632	02/16/2022	02/17/2022
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**SAR by 20B Saturated Paste**

SAR	0.115	SAR	1	B2B1629	02/16/2022	02/17/2022
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.433	0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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**Total Metals by 6020B**

Arsenic	1.72	0.0855	0.25	mg/Kg	5	L600576	02/21/2022	02/21/2022
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Project Number: [none]  
Project: Keystone 3-7 Treater

**BS02****2/15/2022 11:15:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y202359-02 (Soil)****Boron (DTPA Sorbitol)**

Boron	0.375	0.0988	mg/L	1	B2B1614	02/16/2022	02/17/2022
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**Metals by Saturated Paste by EPA 6010**

Calcium	2.26	0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

**pH in Soil by 9045D**

pH	7.91		pH Units	1	B2B1632	02/16/2022	02/17/2022
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**SAR by 20B Saturated Paste**

SAR	0.138		SAR	1	B2B1629	02/16/2022	02/17/2022
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.349	0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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**Total Metals by 6020B**

Arsenic	2.15	0.0855	0.25	mg/Kg	5	L600576	02/21/2022	02/21/2022
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Project Number: [none]  
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## FS01

2/15/2022 11:25:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-03 (Soil)

### Boron (DTPA Sorbitol)

Boron	ND	1.00	mg/L	10	B2B1614	02/16/2022	02/17/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	80.0 %	50-150	"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	"	"	"
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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS01

2/15/2022 11:25:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-03 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	110 %	70-130	B2B19 04	02/19/2022	02/20/2022
Surrogate: 4-Bromofluorobenzene	103 %	70-130	"	"	"

### Metals by Saturated Paste by EPA 6010

Calcium	46.5	0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022
Magnesium	12.1	0.823	"	"	"	"	"
Sodium	38.9	0.435	"	"	"	"	"

### PAH by 8270D SIM

1-Methylnaphthalene	0.000422	0.000364	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022	J
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS01

2/15/2022 11:25:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-03 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	52.4 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	65.4 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	49.7 %		29-110			"	"	"

### pH in Soil by 9045D

pH	7.25			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	7.19			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	10.1		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	2.04	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS01

2/15/2022 11:25:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-03 (Soil)

### Total Metals by 6020B

Barium	115	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.211	0.0259	0.25	"	"	"	"	"	J
Copper	7.93	0.0806	0.25	"	"	"	"	"	
Lead	9.99	0.031	0.25	"	"	"	"	"	
Nickel	8.3	0.0633	0.25	"	"	"	"	"	
Selenium	0.147	0.103	0.25	"	"	"	"	"	JB
Silver	0.0318	0.0067	0.25	"	"	"	"	"	J
Zinc	36.1	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	0.488	1	mg/Kg	2	L601157	02/15/2022	02/23/2022	
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS02

2/15/2022 11:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-04 (Soil)

### Boron (DTPA Sorbitol)

Boron	0.0986	0.0986	mg/L	1	B2B1614	02/16/2022	02/17/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	79.6 %	50-150	"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	"	"	"
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CDH Consulting  
9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS02

2/15/2022 11:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-04 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	109 %		70-130			B2B19 04	02/19/2022	02/20/2022	
Surrogate: 4-Bromofluorobenzene	104 %		70-130			"	"	"	

### Metals by Saturated Paste by EPA 6010

Calcium	3.03		0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022	
Magnesium	0.905		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022	
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS02

2/15/2022 11:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-04 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	55 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	67.3 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	51.7 %		29-110			"	"	"

### pH in Soil by 9045D

pH	7.79			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.270			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.463		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	1.31	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS02

2/15/2022 11:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-04 (Soil)

### Total Metals by 6020B

Barium	69.4	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.164	0.0259	0.25	"	"	"	"	"	J
Copper	4.74	0.0806	0.25	"	"	"	"	"	
Lead	6.71	0.031	0.25	"	"	"	"	"	
Nickel	5.03	0.0633	0.25	"	"	"	"	"	
Selenium	ND	0.103	0.25	"	"	"	"	"	
Silver	0.018	0.0067	0.25	"	"	"	"	"	J
Zinc	23	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	1.22	2.5	mg/Kg	5	L601158	02/15/2022	02/23/2022	
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Origins Laboratory, Inc.



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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS03

2/15/2022 11:45:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-05 (Soil)

### Boron (DTPA Sorbitol)

Boron	0.259	0.0998	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	76.6 %	50-150	"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	"	"	"
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS03

2/15/2022 11:45:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-05 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	109 %		70-130			B2B19 04	02/19/2022	02/20/2022	
Surrogate: 4-Bromofluorobenzene	103 %		70-130			"	"	"	

### Metals by Saturated Paste by EPA 6010

Calcium	1.76	0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022	
Magnesium	0.905	0.823	"	"	"	"	"	
Sodium	0.635	0.435	"	"	"	"	"	

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022	
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS03

2/15/2022 11:45:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-05 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	52.6 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	68.8 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	51.4 %		29-110			"	"	"

### pH in Soil by 9045D

pH	8.01			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.550			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.325		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	2.2	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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Origins Laboratory, Inc.



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9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS03

2/15/2022 11:45:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-05 (Soil)

### Total Metals by 6020B

Barium	107	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.12	0.0259	0.25	"	"	"	"	"	J
Copper	6.74	0.0806	0.25	"	"	"	"	"	
Lead	6.76	0.031	0.25	"	"	"	"	"	
Nickel	7.13	0.0633	0.25	"	"	"	"	"	
Selenium	0.114	0.103	0.25	"	"	"	"	"	JB
Silver	0.0314	0.0067	0.25	"	"	"	"	"	J
Zinc	23.4	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L601158	02/15/2022	02/23/2022	
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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS04

2/15/2022 12:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-06 (Soil)

### Boron (DTPA Sorbitol)

Boron	0.219	0.0995	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	81.0 %	50-150	"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	108 %	70-130	"	"	"
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS04

2/15/2022 12:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-06 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	108 %		70-130			B2B19 04	02/19/2022	02/20/2022	
Surrogate: 4-Bromofluorobenzene	103 %		70-130			"	"	"	

### Metals by Saturated Paste by EPA 6010

Calcium	3.14		0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022	
Magnesium	0.979		0.823	"	"	"	"	"	
Sodium	1.14		0.435	"	"	"	"	"	

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022	
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS04

2/15/2022 12:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-06 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	52.9 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	66.7 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	50.2 %		29-110			"	"	"

### pH in Soil by 9045D

pH	7.87			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.797			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.550		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	2.18	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS04

2/15/2022 12:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-06 (Soil)

### Total Metals by 6020B

Barium	140	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.158	0.0259	0.25	"	"	"	"	"	J
Copper	6.92	0.0806	0.25	"	"	"	"	"	
Lead	8.01	0.031	0.25	"	"	"	"	"	
Nickel	7.38	0.0633	0.25	"	"	"	"	"	
Selenium	ND	0.103	0.25	"	"	"	"	"	
Silver	0.0289	0.0067	0.25	"	"	"	"	"	J
Zinc	29.3	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	1.22	2.5	mg/Kg	5	L601158	02/15/2022	02/23/2022	
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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS05

2/15/2022 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-07 (Soil)

### Boron (DTPA Sorbitol)

Boron	0.198	0.0988	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	81.8 %	50-150			"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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			"	"	"
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9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS05

2/15/2022 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-07 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	109 %		70-130			B2B19 04	02/19/2022	02/20/2022	
Surrogate: 4-Bromofluorobenzene	104 %		70-130			"	"	"	

### Metals by Saturated Paste by EPA 6010

Calcium	3.02		0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022	
Magnesium	1.05		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022	
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS05

2/15/2022 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-07 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600756	02/21/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	52.6 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	69.7 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	51.4 %	29-110	"	"	"

### pH in Soil by 9045D

pH	7.97	pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.286	SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.490	0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	1.81	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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Origins Laboratory, Inc.



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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS05

2/15/2022 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-07 (Soil)

### Total Metals by 6020B

Barium	119	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.139	0.0259	0.25	"	"	"	"	"	J
Copper	5.95	0.0806	0.25	"	"	"	"	"	
Lead	6.2	0.031	0.25	"	"	"	"	"	
Nickel	5.72	0.0633	0.25	"	"	"	"	"	
Selenium	0.107	0.103	0.25	"	"	"	"	"	JB
Silver	0.0219	0.0067	0.25	"	"	"	"	"	J
Zinc	24.6	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L601158	02/15/2022	02/23/2022	
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Thornton CO 80229

Jim Short  
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Project: Keystone 3-7 Treater

## FS06

2/15/2022 12:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-08 (Soil)

### Boron (DTPA Sorbitol)

Boron	0.437	0.0994	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	82.7 %	50-150	"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	108 %	70-130	"	"	"
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS06

2/15/2022 12:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-08 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	110 %	70-130	B2B19 04	02/19/2022	02/20/2022
Surrogate: 4-Bromofluorobenzene	105 %	70-130	"	"	"

### Metals by Saturated Paste by EPA 6010

Calcium	4.40	0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

### PAH by 8270D SIM

1-Methylnaphthalene	0.0055	0.000364	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
2-Methylnaphthalene	0.00536	0.000645	0.00067	"	"	"	"	"
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	0.00115	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	0.00118	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"
Chrysene	0.00116	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"
Fluoranthene	0.000598	0.000394	0.00067	"	"	"	"	"
Fluorene	0.00102	0.000286	0.00067	"	"	"	"	"

J

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS06

2/15/2022 12:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-08 (Soil)

### PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
Naphthalene	0.00121	0.000484	0.00067	"	"	"	"	"
Pyrene	0.00106	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	51.5 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	46.1 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	47.3 %		29-110			"	"	"

### pH in Soil by 9045D

pH	7.78			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.161			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.608		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	2.36	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
Barium	134	0.042	0.25	"	"	"	"	"

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Jim Short  
Project Number: [none]  
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## FS06

2/15/2022 12:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-08 (Soil)

### Total Metals by 6020B

Cadmium	0.267	0.0259	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Copper	10.2	0.0806	0.25	"	"	"	"	"	
Lead	11.5	0.031	0.25	"	"	"	"	"	
Nickel	10.5	0.0633	0.25	"	"	"	"	"	
Selenium	ND	0.103	0.25	"	"	"	"	"	
Silver	0.0456	0.0067	0.25	"	"	"	"	"	J
Zinc	45.7	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	1.27	2.6	mg/Kg	5	L601158	02/15/2022	02/23/2022	
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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

FS07

2/15/2022 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y202359-09 (Soil)

## Boron (DTPA Sorbitol)

Boron	0.199	0.0997	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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## DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	77.9 %	50-150	"	"	"
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## GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	"	"	"
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS07

2/15/2022 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-09 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	110 %	70-130	B2B19 04	02/19/2022	02/20/2022
Surrogate: 4-Bromofluorobenzene	103 %	70-130	"	"	"

### Metals by Saturated Paste by EPA 6010

Calcium	1.40	0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"
Chrysene	ND	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS07

2/15/2022 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-09 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	57.7 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	61 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	53.2 %		29-110			"	"	"

### pH in Soil by 9045D

pH	8.32			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.226			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.227		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 7196A

Chromium, Hexavalent	ND	0.247	0.508	mg/Kg	1	L601158	02/15/2022	02/23/2022
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

FS07

2/15/2022 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.  
Y202359-09 (Soil)

## Total Metals by 6020B

Arsenic	2.77	0.0855	0.25	mg/Kg	5	L601435	02/24/2022	02/28/2022	
Barium	98.7	0.042	0.25	"	"	"	"	"	
Cadmium	0.123	0.0259	0.25	"	"	"	"	"	J
Copper	5.39	0.0806	0.25	"	"	"	"	"	
Lead	5.76	0.031	0.25	"	"	"	"	"	
Nickel	5.9	0.0633	0.25	"	"	"	"	"	
Selenium	0.26	0.103	0.25	"	"	"	"	"	
Silver	0.0194	0.0067	0.25	"	"	"	"	"	J
Zinc	21	0.534	2.5	"	"	"	"	"	

Origins Laboratory, Inc.



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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

FS08

2/15/2022 12:10:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y202359-10 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.439	0.0998	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	80.3 %	50-150	"	"	"
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	"	"	"
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS08

2/15/2022 12:10:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-10 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	110 %		70-130			B2B19 04	02/19/2022	02/20/2022
Surrogate: 4-Bromofluorobenzene	104 %		70-130			"	"	"

### Metals by Saturated Paste by EPA 6010

Calcium	3.57		0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022
Magnesium	ND		0.823	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	0.000677	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	0.000704	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"
Chrysene	ND	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS08

2/15/2022 12:10:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-10 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	54.9 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	59.5 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	50 %		29-110			"	"	"

### pH in Soil by 9045D

pH	7.98			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.145			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.469		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	1.68	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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Origins Laboratory, Inc.



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9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

FS08

2/15/2022 12:10:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y202359-10 (Soil)**

**Total Metals by 6020B**

Barium	75.8	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.127	0.0259	0.25	"	"	"	"	"	J
Copper	5.55	0.0806	0.25	"	"	"	"	"	
Lead	6.27	0.031	0.25	"	"	"	"	"	
Nickel	5.51	0.0633	0.25	"	"	"	"	"	
Selenium	0.207	0.103	0.25	"	"	"	"	"	JB
Silver	0.0226	0.0067	0.25	"	"	"	"	"	J
Zinc	24	0.534	2.5	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	1.24	2.55	mg/Kg	5	L601158	02/15/2022	02/23/2022	
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9446 Clermont St  
Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS09

2/15/2022 11:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-11 (Soil)

### Boron (DTPA Sorbitol)

Boron	0.415	0.0987	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	86.3 %	50-150	"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	107 %	70-130	"	"	"
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Project Number: [none]  
Project: Keystone 3-7 Treater

## FS09

2/15/2022 11:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-11 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	110 %		70-130			B2B19 04	02/19/2022	02/20/2022
Surrogate: 4-Bromofluorobenzene	104 %		70-130			"	"	"

### Metals by Saturated Paste by EPA 6010

Calcium	3.87		0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022
Magnesium	ND		0.823	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"
Chrysene	ND	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS09

2/15/2022 11:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-11 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	55.5 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	59.5 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	51.2 %		29-110			"	"	"

### pH in Soil by 9045D

pH	8.03			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.0491			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.570		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	1.94	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS09

2/15/2022 11:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-11 (Soil)

### Total Metals by 6020B

Barium	91.3	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.145	0.0259	0.25	"	"	"	"	"	J
Copper	6.14	0.0806	0.25	"	"	"	"	"	
Lead	6.78	0.031	0.25	"	"	"	"	"	
Nickel	6.22	0.0633	0.25	"	"	"	"	"	
Selenium	0.184	0.103	0.25	"	"	"	"	"	JB
Silver	0.0289	0.0067	0.25	"	"	"	"	"	J
Zinc	25.4	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	0.488	1	mg/Kg	2	L601158	02/15/2022	02/23/2022	
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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS10

2/15/2022 12:20:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-12 (Soil)

### Boron (DTPA Sorbitol)

Boron	0.197	0.0987	mg/L	1	B2B1702	02/17/2022	02/18/2022	
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### DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2B1706	02/17/2022	02/19/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	77.5 %	50-150	"	"	"
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### GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2B1904	02/19/2022	02/20/2022	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	"	"	"
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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS10

2/15/2022 12:20:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y202359-12 (Soil)

### GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	110 %		70-130			B2B19 04	02/19/2022	02/20/2022	
Surrogate: 4-Bromofluorobenzene	103 %		70-130			"	"	"	

### Metals by Saturated Paste by EPA 6010

Calcium	7.72		0.499	meq/L	10	[CALC]	02/16/2022	02/17/2022	
Magnesium	4.33		0.823	"	"	"	"	"	
Sodium	1.00		0.435	"	"	"	"	"	

### PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022	
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## FS10

2/15/2022 12:20:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-12 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L600895	02/22/2022	02/22/2022
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	55.4 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	59.9 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	50.9 %		29-110			"	"	"

### pH in Soil by 9045D

pH	7.77			pH Units	1	B2B1632	02/16/2022	02/17/2022
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### SAR by 20B Saturated Paste

SAR	0.408			SAR	1	B2B1629	02/16/2022	02/17/2022
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.43		0.00500	mmhos/cm	1	B2B1631	02/16/2022	02/17/2022
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### Total Metals by 6020B

Arsenic	1.87	0.0855	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022
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Project: Keystone 3-7 Treater

## FS10

2/15/2022 12:20:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc. Y202359-12 (Soil)

### Total Metals by 6020B

Barium	84.9	0.042	0.25	mg/Kg	5	L600754	02/18/2022	02/22/2022	
Cadmium	0.0892	0.0259	0.25	"	"	"	"	"	J
Copper	4.65	0.0806	0.25	"	"	"	"	"	
Lead	5.34	0.031	0.25	"	"	"	"	"	
Nickel	5.73	0.0633	0.25	"	"	"	"	"	
Selenium	0.25	0.103	0.25	"	"	"	"	"	
Silver	0.0233	0.0067	0.25	"	"	"	"	"	J
Zinc	19.3	0.534	2.5	"	"	"	"	"	

### Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L601158	02/15/2022	02/23/2022	
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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## 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 B2B1706 - EPA 3550B										
Blank (B2B1706-BLK1)					Prepared: 02/17/2022 Analyzed: 02/19/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	21		"	24.9		86.4	50-150			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## 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
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Batch B2B1706 - EPA 3550B

### LCS (B2B1706-BS1)

Prepared: 02/17/2022 Analyzed: 02/19/2022

Diesel (C10-C28)	1030	50.0	mg/kg	1000		103	70-130			
Residual Range Organics (C28-C40)	960	200	"	1000		96.0	70-130			
Surrogate: o-Terphenyl	44		"	49.8		88.0	50-150			

Origins Laboratory, Inc.



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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

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
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Batch B2B1706 - EPA 3550B

Matrix Spike (B2B1706-MS1)		Source: Y202359-03			Prepared: 02/17/2022 Analyzed: 02/19/2022					
Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	70-130			
Residual Range Organics (C28-C40)	946	200	"	1000	ND	94.6	70-130			
Surrogate: o-Terphenyl	41		"	49.8		82.1	50-150			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## 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 B2B1706 - EPA 3550B										
Matrix Spike Dup (B2B1706-MSD1)		Source: Y202359-03			Prepared: 02/17/2022 Analyzed: 02/19/2022					
Diesel (C10-C28)	964	50.0	mg/kg	1000	ND	96.4	70-130	6.28	35	
Residual Range Organics (C28-C40)	895	200	"	1000	ND	89.5	70-130	5.53	35	
Surrogate: o-Terphenyl	40		"	49.8		80.2	50-150			

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## 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
<b>Batch B2B1904 - EPA 5030 (soil)</b>										
<b>Blank (B2B1904-BLK1)</b>					Prepared: 02/19/2022 Analyzed: 02/20/2022					
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	0.14		"	0.125	108		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	102		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	97.9		70-130			

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**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 B2B1904 - EPA 5030 (soil)</b>										
<b>LCS (B2B1904-BS1)</b>					Prepared: 02/19/2022 Analyzed: 02/20/2022					
1,2,4-Trimethylbenzene	0.129	0.00200	mg/kg	0.100		129	70-130			
1,3,5-Trimethylbenzene	0.130	0.00200	"	0.100		130	70-130			
Benzene	0.110	0.00200	"	0.100		110	70-130			
Ethylbenzene	0.125	0.00200	"	0.100		125	70-130			
Naphthalene	0.130	0.0100	"	0.100		130	70-130			
Toluene	0.118	0.00200	"	0.100		118	70-130			
o-Xylene	0.127	0.00200	"	0.100		127	70-130			
m,p-Xylene	0.247	0.00400	"	0.200		124	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.3	70-130			

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**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 B2B1904 - EPA 5030 (soil)</b>										
<b>Matrix Spike (B2B1904-MS1)</b>		<b>Source: Y202348-01</b>			Prepared: 02/19/2022 Analyzed: 02/20/2022					
1,2,4-Trimethylbenzene	0.105	0.00200	mg/kg	0.100	0.00162	103	70-130			
1,3,5-Trimethylbenzene	0.102	0.00200	"	0.100	0.000720	101	70-130			
Benzene	0.0876	0.00200	"	0.100	ND	87.6	70-130			
Ethylbenzene	0.106	0.00200	"	0.100	ND	106	70-130			
Naphthalene	0.0986	0.0100	"	0.100	0.000580	98.1	70-130			
Toluene	0.0942	0.00200	"	0.100	0.000640	93.6	70-130			
o-Xylene	0.107	0.00200	"	0.100	0.000480	106	70-130			
m,p-Xylene	0.210	0.00400	"	0.200	0.00134	104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		111	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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Thornton CO 80229

Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**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 B2B1904 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B2B1904-MSD1)</b>		<b>Source: Y202348-01</b>			Prepared: 02/19/2022 Analyzed: 02/20/2022					
1,2,4-Trimethylbenzene	0.0739	0.00200	mg/kg	0.100	0.00162	72.3	70-130	34.5	20	QM-07
1,3,5-Trimethylbenzene	0.0716	0.00200	"	0.100	0.000720	70.8	70-130	35.0	20	QM-07
Benzene	0.0717	0.00200	"	0.100	ND	71.7	70-130	20.0	20	
Ethylbenzene	0.0788	0.00200	"	0.100	ND	78.8	70-130	29.0	20	QM-07
Naphthalene	0.0674	0.0100	"	0.100	0.000580	66.8	70-130	37.6	20	QM-07
Toluene	0.0741	0.00200	"	0.100	0.000640	73.5	70-130	23.9	20	QM-07
o-Xylene	0.0793	0.00200	"	0.100	0.000480	78.9	70-130	29.4	20	QM-07
m,p-Xylene	0.156	0.00400	"	0.200	0.00134	77.4	70-130	29.5	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		114	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## 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
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## Saturated Paste - Quality Control

### Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B2B1631 - NO PREP

##### Blank (B2B1631-BLK1)

Prepared: 02/16/2022 Analyzed: 02/17/2022

Specific Conductance (EC) 0.000800 0.00500 mmhos/cm

##### Duplicate (B2B1631-DUP1)

Source: Y202338-02

Prepared: 02/16/2022 Analyzed: 02/17/2022

Specific Conductance (EC) 0.230 0.00500 mmhos/cm 0.227 1.09 25

#### Batch B2B1632 - NO PREP

##### Duplicate (B2B1632-DUP1)

Source: Y202338-02

Prepared: 02/16/2022 Analyzed: 02/17/2022

pH 7.83 pH Units 7.94 1.40 25

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Project Number: [none]  
Project: Keystone 3-7 Treater

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L600895 - 3550B**

MSD (L 96851-MSD-L600895)		Source: 96851			Prepared: 02/22/2022 Analyzed: 02/22/2022					
Chrysene	0.0951	0.000624	mg/Kg	0.164	96851	57.9	30-130	1.1	30	
Dibenz(a,h)anthracene	0.0769	0.000614	"	0.164	96851	46.8	30-130	20.2	30	
Fluoranthene	0.102	0.000394	"	0.164	96851	62.1	30-130	0	30	
Fluorene	0.0925	0.000286	"	0.164	96851	56.4	30-130	4.3	30	
Naphthalene	0.0834	0.000484	"	0.164	96851	50.8	30-130	2.6	30	
Pyrene	0.0992	0.000643	"	0.164	96851	60.4	30-130	0.5	30	
Benzo(a)pyrene	0.106	0.000468	"	0.164	96851	64.6	30-130	1.8	30	
Indeno(1,2,3-cd)pyrene	0.0698	0.000627	"	0.164	96851	42.5	30-130	16.1	30	
1-Methylnaphthalene	0.085	0.000364	"	0.164	96851	51.8	30-130	0.8	30	
Benzo(a)anthracene	0.0982	0.000493	"	0.164	96851	59.8	30-130	1	30	
Anthracene	0.0943	0.000334	"	0.164	96851	57.5	30-130	0.4	30	
Acenaphthene	0.0891	0.000304	"	0.164	96851	54.3	30-130	1.3	30	
2-Methylnaphthalene	0.0852	0.000645	"	0.164	96851	51.9	30-130	0.7	30	
Benzo(k)fluoranthene	0.0888	0.000437	"	0.164	96851	54.1	30-130	2	30	
Benzo(b)fluoranthene	0.0842	0.000585	"	0.164	96851	51.3	30-130	4.1	30	
Surrogate: Nitrobenzene-d5	45.5		"	0.329	182	45.5	29-110			
Surrogate: 4-Terphenyl-d14	55.6		"	0.329	196	55.6	33-122			
Surrogate: 2-Fluorobiphenyl	50.1		"	0.329	183	50.1	33-115			

MS (L 96851-MS-L600895)		Source: 96851			Prepared: 02/22/2022 Analyzed: 02/22/2022					
Dibenz(a,h)anthracene	0.0942	0.000614	mg/Kg	0.166	96851	56.7	30-130			
Fluoranthene	0.102	0.000394	"	0.166	96851	61.4	30-130			
Fluorene	0.0966	0.000286	"	0.166	96851	58.1	30-130			
Indeno(1,2,3-cd)pyrene	0.0821	0.000627	"	0.166	96851	49.4	30-130			
Chrysene	0.0962	0.000624	"	0.166	96851	57.9	30-130			
Naphthalene	0.0856	0.000484	"	0.166	96851	51.5	30-130			
Benzo(k)fluoranthene	0.0906	0.000437	"	0.166	96851	54.5	30-130			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L600895 - 3550B**

MS (L 96851-MS-L600895)		Source: 96851			Prepared: 02/22/2022 Analyzed: 02/22/2022					
Benzo(b)fluoranthene	0.0878	0.000585	mg/Kg	0.166	96851	52.8	30-130			
Benzo(a)pyrene	0.108	0.000468	"	0.166	96851	65	30-130			
Benzo(a)anthracene	0.0992	0.000493	"	0.166	96851	59.7	30-130			
2-Methylnaphthalene	0.0858	0.000645	"	0.166	96851	51.6	30-130			
1-Methylnaphthalene	0.0857	0.000364	"	0.166	96851	51.6	30-130			
Pyrene	0.0997	0.000643	"	0.166	96851	60	30-130			
Anthracene	0.0947	0.000334	"	0.166	96851	57	30-130			
Acenaphthene	0.0903	0.000304	"	0.166	96851	54.3	30-130			
Surrogate: Nitrobenzene-d5	50.3		"	0.332	182	50.3	29-110			
Surrogate: 4-Terphenyl-d14	61.4		"	0.332	196	61.4	33-122			
Surrogate: 2-Fluorobiphenyl	54.8		"	0.332	183	54.8	33-115			

LCS (LCS-L600895)		Prepared: 02/22/2022 Analyzed: 02/22/2022								
Dibenz(a,h)anthracene	0.0906	0.000614	mg/Kg	0.167		54.2	30-130			
Acenaphthene	0.089	0.000304	"	0.167		53.2	30-130			
Anthracene	0.0917	0.000334	"	0.167		54.9	30-130			
Benzo(a)anthracene	0.0978	0.000493	"	0.167		58.5	30-130			
Benzo(a)pyrene	0.105	0.000468	"	0.167		62.8	30-130			
Benzo(b)fluoranthene	0.0898	0.000585	"	0.167		53.7	30-130			
Chrysene	0.0948	0.000624	"	0.167		56.7	30-130			
1-Methylnaphthalene	0.0831	0.000364	"	0.167		49.7	30-130			
Fluoranthene	0.101	0.000394	"	0.167		60.4	30-130			
Fluorene	0.0923	0.000286	"	0.167		55.2	30-130			
Indeno(1,2,3-cd)pyrene	0.0796	0.000627	"	0.167		47.6	30-130			
Naphthalene	0.0825	0.000484	"	0.167		49.4	30-130			
Pyrene	0.0997	0.000643	"	0.167		59.7	30-130			
Benzo(k)fluoranthene	0.0877	0.000437	"	0.167		52.5	30-130			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L600895 - 3550B</b>										
<b>LCS (LCS-L600895)</b>					Prepared: 02/22/2022 Analyzed: 02/22/2022					
2-Methylnaphthalene	0.0833	0.000645	mg/Kg	0.167		49.8	30-130			
Surrogate: 4-Terphenyl-d14	64.5		"	0.333	64.5		33-122			
Surrogate: 2-Fluorobiphenyl	59.7		"	0.333	59.7		33-115			
Surrogate: Nitrobenzene-d5	53.4		"	0.333	53.4		29-110			
<b>LRB (LRB-L600895)</b>					Prepared: 02/22/2022 Analyzed: 02/22/2022					
Fluorene	ND	0.00067	mg/Kg				-			
Pyrene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	51.9		"	0.333	51.9		29-110			
Surrogate: 2-Fluorobiphenyl	57.6		"	0.333	57.6		33-115			
Surrogate: 4-Terphenyl-d14	58.5		"	0.333	58.5		33-122			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L600756 - 3550B**

MSD (L 96085-MSD-L600756)		Source: 96085			Prepared: 02/21/2022 Analyzed: 02/22/2022					
Chrysene	0.106	0.000624	mg/Kg	0.167	96085	63.4	30-130	6.3	30	
2-Methylnaphthalene	0.0926	0.000645	"	0.167	0.00171	54.4	30-130	9.6	30	
Dibenz(a,h)anthracene	0.0944	0.000614	"	0.167	96085	56.5	30-130	3.9	30	
Acenaphthene	0.0989	0.000304	"	0.167	0.00032	59.2	30-130	6.9	30	
Anthracene	0.105	0.000334	"	0.167	96085	62.8	30-130	6.4	30	
Benzo(a)anthracene	0.106	0.000493	"	0.167	96085	63.4	30-130	9	30	
Benzo(a)pyrene	0.111	0.000468	"	0.167	0.000932	65.9	30-130	8.6	30	
Benzo(b)fluoranthene	0.0988	0.000585	"	0.167	0.00101	58.5	30-130	9.8	30	
Benzo(k)fluoranthene	0.0869	0.000437	"	0.167	96085	52	30-130	9.6	30	
1-Methylnaphthalene	0.0918	0.000364	"	0.167	0.00114	54.2	30-130	9.5	30	
Fluoranthene	0.115	0.000394	"	0.167	0.000774	68.3	30-130	5.9	30	
Fluorene	0.104	0.000286	"	0.167	0.000578	62.2	30-130	7.4	30	
Indeno(1,2,3-cd)pyrene	0.0827	0.000627	"	0.167	96085	49.5	30-130	5.2	30	
Naphthalene	0.0884	0.000484	"	0.167	96085	52.9	30-130	9	30	
Pyrene	0.11	0.000643	"	0.167	0.00144	65	30-130	10.3	30	
Surrogate: 4-Terphenyl-d14	71.1		"	0.333	204	71.1	33-122			
Surrogate: Nitrobenzene-d5	59.1		"	0.333	172	59.1	29-110			
Surrogate: 2-Fluorobiphenyl	66		"	0.333	192	66	33-115			

MS (L 96085-MS-L600756)		Source: 96085			Prepared: 02/21/2022 Analyzed: 02/22/2022					
2-Methylnaphthalene	0.102	0.000645	mg/Kg	0.166	0.00171	60.4	30-130			
Pyrene	0.122	0.000643	"	0.166	0.00144	72.6	30-130			
Benzo(k)fluoranthene	0.0957	0.000437	"	0.166	96085	57.6	30-130			
Benzo(b)fluoranthene	0.109	0.000585	"	0.166	0.00101	65	30-130			
Benzo(a)pyrene	0.121	0.000468	"	0.166	0.000932	72.3	30-130			
Benzo(a)anthracene	0.116	0.000493	"	0.166	96085	69.8	30-130			
Anthracene	0.112	0.000334	"	0.166	96085	67.4	30-130			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L600756 - 3550B**

MS (L 96085-MS-L600756)		Source: 96085			Prepared: 02/21/2022 Analyzed: 02/22/2022					
Naphthalene	0.0968	0.000484	mg/Kg	0.166	96085	58.3	30-130			
Chrysene	0.113	0.000624	"	0.166	96085	68	30-130			
1-Methylnaphthalene	0.101	0.000364	"	0.166	0.00114	60.1	30-130			
Acenaphthene	0.106	0.000304	"	0.166	0.00032	63.8	30-130			
Fluorene	0.112	0.000286	"	0.166	0.000578	67.4	30-130			
Fluoranthene	0.122	0.000394	"	0.166	0.000774	73	30-130			
Dibenz(a,h)anthracene	0.0982	0.000614	"	0.166	96085	59.1	30-130			
Indeno(1,2,3-cd)pyrene	0.0872	0.000627	"	0.166	96085	52.5	30-130			
Surrogate: Nitrobenzene-d5	50.3		"	0.332	172	50.3	29-110			
Surrogate: 4-Terphenyl-d14	62.3		"	0.332	204	62.3	33-122			
Surrogate: 2-Fluorobiphenyl	55.4		"	0.332	192	55.4	33-115			

LCS (LCS-L600756)		Prepared: 02/21/2022 Analyzed: 02/22/2022								
Fluoranthene	0.104	0.000394	mg/Kg	0.167		62.2	30-130			
Anthracene	0.097	0.000334	"	0.167		58	30-130			
Benzo(a)anthracene	0.104	0.000493	"	0.167		62.2	30-130			
Pyrene	0.104	0.000643	"	0.167		62.2	30-130			
Naphthalene	0.0855	0.000484	"	0.167		51.1	30-130			
Benzo(a)pyrene	0.108	0.000468	"	0.167		64.6	30-130			
Fluorene	0.0974	0.000286	"	0.167		58.3	30-130			
Chrysene	0.0998	0.000624	"	0.167		59.7	30-130			
Benzo(k)fluoranthene	0.0908	0.000437	"	0.167		54.3	30-130			
Benzo(b)fluoranthene	0.0945	0.000585	"	0.167		56.5	30-130			
1-Methylnaphthalene	0.0872	0.000364	"	0.167		52.2	30-130			
2-Methylnaphthalene	0.087	0.000645	"	0.167		52	30-130			
Dibenz(a,h)anthracene	0.0941	0.000614	"	0.167		56.3	30-130			
Indeno(1,2,3-cd)pyrene	0.0829	0.000627	"	0.167		49.6	30-130			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L600756 - 3550B**

**LCS (LCS-L600756)**

Prepared: 02/21/2022 Analyzed: 02/22/2022

Acenaphthene	0.0928	0.000304	mg/Kg	0.167		55.5	30-130			
Surrogate: Nitrobenzene-d5	52.8		"	0.333		52.8	29-110			
Surrogate: 4-Terphenyl-d14	61.8		"	0.333		61.8	33-122			
Surrogate: 2-Fluorobiphenyl	57.3		"	0.333		57.3	33-115			

**LRB (LRB-L600756)**

Prepared: 02/21/2022 Analyzed: 02/22/2022

Benzo(b)fluoranthene	ND	0.00067	mg/Kg				-			
Fluorene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	51.6		"	0.333		51.6	29-110			
Surrogate: 2-Fluorobiphenyl	56.1		"	0.333		56.1	33-115			
Surrogate: 4-Terphenyl-d14	59.1		"	0.333		59.1	33-122			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

**Total Metals by 6020B - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L600754 - 3050B**

<b>MSD (L 96068-MSD-L600754)</b>		<b>Source: 96068</b>			Prepared: 02/18/2022 Analyzed: 02/22/2022					
Silver	1.94	0.0067	mg/Kg	0.484	1.09	176	75-125	9.1	80	*
Arsenic	10.3	0.0855	"	2.42	6.4	161	75-125	14.1	80	*
Zinc	428	2.14	"	24.2	358	289	75-125	6.5	80	*
Selenium	2.82	0.103	"	4.84	96068	58	75-125	2.1	80	*
Nickel	9.4	0.0633	"	2.42	7.21	90	75-125	0.5	80	
Lead	115	0.031	"	2.42	82.3	NR	75-125	15.3	80	*
Copper	97.6	0.322	"	2.42	72.5	NR	75-125	20.8	80	*
Cadmium	3.38	0.0259	"	0.484	2.34	215	75-125	10.5	80	*
Barium	142	0.042	"	4.84	115	558	75-125	17.6	80	*
<b>MS (L 96068-MS-L600754)</b>		<b>Source: 96068</b>			Prepared: 02/18/2022 Analyzed: 02/22/2022					
Lead	98.6	0.031	mg/Kg	2.49	82.3	656	75-125			*
Zinc	401	2.14	"	24.9	358	173	75-125			*
Silver	1.77	0.0067	"	0.497	1.09	137	75-125			*
Arsenic	8.94	0.0855	"	2.49	6.4	102	75-125			
Nickel	9.35	0.0633	"	2.49	7.21	86	75-125			
Copper	79.2	0.322	"	2.49	72.5	270	75-125			*
Cadmium	3.04	0.0259	"	0.497	2.34	141	75-125			*
Barium	119	0.042	"	4.97	115	80	75-125			
Selenium	2.76	0.103	"	4.97	96068	56	75-125			*
<b>LCS (LCS-L600754)</b>		Prepared: 02/18/2022 Analyzed: 02/22/2022								
Cadmium	0.506	0.0259	mg/Kg	0.5		101	80-120			
Selenium	5.08	0.103	"	5		102	80-120			
Nickel	2.32	0.0633	"	2.5		93	80-120			
Lead	2.42	0.031	"	2.5		97	80-120			
Copper	2.2	0.0806	"	2.5		88	80-120			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## Total Metals by 6020B - Quality Control Waypoint Analytical, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch L600754 - 3050B

#### LCS (LCS-L600754)

Prepared: 02/18/2022 Analyzed: 02/22/2022

Arsenic	2.58	0.0855	mg/Kg	2.5		103	80-120			
Silver	0.499	0.0067	"	0.5		100	80-120			
Zinc	23.2	0.534	"	25		93	80-120			
Barium	4.96	0.042	"	5		99	80-120			

#### LRB (LRB-L600754)

Prepared: 02/18/2022 Analyzed: 02/22/2022

Cadmium	ND	0.25	mg/Kg				-			
Barium	0.264	0.25	"				-			*
Zinc	ND	2.5	"				-			
Copper	0.0856	0.25	"				-			J
Lead	0.0383	0.25	"				-			J
Nickel	ND	0.25	"				-			
Selenium	ND	0.25	"				-			
Silver	ND	0.25	"				-			
Arsenic	ND	0.25	"				-			

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**Total Metals by 7196A - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L601158 -</b>										
<b>DUP (L 96048-DUP)</b>	<b>Source: Y202359-04</b>				Prepared: Analyzed: 02/23/2022					
Chromium, Hexavalent	ND	1.22	mg/Kg		96048	-		0	20	
<b>MS (L 96048-MS)</b>	<b>Source: Y202359-04</b>				Prepared: Analyzed: 02/23/2022					
Chromium, Hexavalent	7.45	1.22	mg/Kg	8.01	96048	93	75-125			
<b>LCS (LCS)</b>	Prepared: Analyzed: 02/23/2022									
Chromium, Hexavalent	7.65	0.244	mg/Kg	8		96	75-125			

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**Total Metals by 6020B - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L601435 - 3050B**

MSD (L 97520-MSD-L601435)		Source: 97520			Prepared: 02/24/2022 Analyzed: 02/28/2022					
Barium	34.3	0.042	mg/Kg	4.61	32.7	35	75-125	16.5	80	*
Silver	0.468	0.0067	"	0.461	0.0286	102	75-125	9.5	80	
Selenium	3.82	0.103	"	4.61	0.246	83	75-125	4.3	80	
Nickel	7.83	0.0633	"	2.3	6.39	62	75-125	6.4	80	*
Lead	10.8	0.031	"	2.3	7.41	147	75-125	0.9	80	*
Cadmium	0.487	0.0259	"	0.461	0.0728	106	75-125	6.7	80	
Arsenic	3.16	0.0855	"	2.3	0.943	96	75-125	9.6	80	
Zinc	43.4	0.534	"	23	20.7	99	75-125	3.1	80	
Copper	9.57	0.0806	"	2.3	6.69	125	75-125	7.4	80	

MS (L 97520-MS-L601435)		Source: 97520			Prepared: 02/24/2022 Analyzed: 02/28/2022					
Zinc	44.8	0.534	mg/Kg	24.4	20.7	99	75-125			
Silver	0.515	0.0067	"	0.488	0.0286	105	75-125			
Selenium	3.99	0.103	"	4.88	0.246	82	75-125			
Nickel	8.35	0.0633	"	2.44	6.39	80	75-125			
Lead	10.7	0.031	"	2.44	7.41	135	75-125			*
Copper	8.88	0.0806	"	2.44	6.69	90	75-125			
Cadmium	0.521	0.0259	"	0.488	0.0728	107	75-125			
Arsenic	2.87	0.0855	"	2.44	0.943	79	75-125			
Barium	40.5	0.042	"	4.88	32.7	160	75-125			*

LCS (LCS-L601435)		Prepared: 02/24/2022 Analyzed: 02/28/2022								
Arsenic	2.51	0.0855	mg/Kg	2.5		100	80-120			
Selenium	5.22	0.103	"	5		104	80-120			
Silver	0.528	0.0067	"	0.5		106	80-120			
Zinc	25.9	0.534	"	25		104	80-120			
Nickel	2.47	0.0633	"	2.5		99	80-120			

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## Total Metals by 6020B - Quality Control Waypoint Analytical, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch L601435 - 3050B

#### LCS (LCS-L601435)

Prepared: 02/24/2022 Analyzed: 02/28/2022

Lead	2.47	0.031	mg/Kg	2.5		99	80-120			
Copper	2.65	0.0806	"	2.5		106	80-120			
Barium	4.72	0.042	"	5		94	80-120			
Cadmium	0.488	0.0259	"	0.5		98	80-120			

#### LRB (LRB-L601435)

Prepared: 02/24/2022 Analyzed: 02/28/2022

Selenium	ND	0.25	mg/Kg				-			
Arsenic	ND	0.25	"				-			
Lead	ND	0.25	"				-			
Silver	ND	0.25	"				-			
Barium	0.0538	0.25	"				-			J
Cadmium	ND	0.25	"				-			
Copper	ND	0.25	"				-			
Nickel	ND	0.25	"				-			
Zinc	ND	2.5	"				-			

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## Total Metals by 6020B - Quality Control Waypoint Analytical, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L600576 - 3050B</b>										
<b>MSD (L 96209-MSD-L600576)</b>	<b>Source: 96209</b>				Prepared: 02/21/2022 Analyzed: 02/21/2022					
Arsenic	3.54	0.0855	mg/Kg	2.45	1.74	73	75-125	11	80	*
<b>MS (L 96209-MS-L600576)</b>	<b>Source: 96209</b>				Prepared: 02/21/2022 Analyzed: 02/21/2022					
Arsenic	3.17	0.0855	mg/Kg	2.43	1.74	59	75-125			*
<b>LCS (LCS-L600576)</b>					Prepared: 02/21/2022 Analyzed: 02/21/2022					
Arsenic	2.23	0.0855	mg/Kg	2.5		89	80-120			
<b>LRB (LRB-L600576)</b>					Prepared: 02/21/2022 Analyzed: 02/21/2022					
Arsenic	ND	0.25	mg/Kg				-			

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Project Number: [none]  
Project: Keystone 3-7 Treater

## Total Metals by 7196A - Quality Control Waypoint Analytical, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L601157 -</b>										
<b>DUP (L 95667-DUP)</b>	<b>Source: 95667</b>				Prepared: Analyzed: 02/23/2022					
Chromium, Hexavalent	ND	0.253	mg/Kg		95667	-		0	20	
<b>MS (L 95667-MS)</b>	<b>Source: 95667</b>				Prepared: Analyzed: 02/23/2022					
Chromium, Hexavalent	5.21	0.249	mg/Kg	8.18	95667	64	75-125			*
<b>LRB (LRB)</b>					Prepared: Analyzed: 02/23/2022					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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Jim Short  
Project Number: [none]  
Project: Keystone 3-7 Treater

## 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.

JB [Undefined]

J Estimated Value. Analyte below reported quantitation limit.

\* QC Failure

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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