

December 13, 2019

Olsson Associates**Trent Watne****1525 Raleigh St, Suite 400****Denver****CO 80204****Project Name - N Colorado 44-13 9****Project Number - [none]**

Attached are your analytical results for N Colorado 44-13 9 received by Origins Laboratory, Inc. December 06, 2019. This project is associated with Origins project number Y912097-01.

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



Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13 9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Base1-6	Y912097-01	Soil	December 6, 2019 11:50	12/06/2019 16:02
SWNorth-6	Y912097-02	Soil	December 6, 2019 11:59	12/06/2019 16:02
Test Pit1-6	Y912097-03	Soil	December 6, 2019 13:15	12/06/2019 16:02
Test Pit2-7	Y912097-04	Soil	December 6, 2019 13:20	12/06/2019 16:02
Test Pit3-6	Y912097-05	Soil	December 6, 2019 13:40	12/06/2019 16:02

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

Chain of Custody

1912047

olsson

PROJECT NAME	N Colorado 44-13 9	PROJECT NUMBER	303-237-2072	DISPOSAL	By Lab	PAGE	1	of	1
COMPANY NAME	Olsson Associates	PHONE NUMBER	303-237-2072	LAB USE ONLY: Temperature upon receipt: 56 Custody seals in tact: Yes No N/A					
ADDRESS	1525 Raleigh St., Suite 400	CITY/STATE/ZIP	Denver, CO 80204	Turn Around Time (check)					
PROJECT MANAGER	Trent Watne	PM EMAIL	twatne@olsson.com	Standard					
SAMPLER	Trent Watne			72hr					
				48hr					
				24hr					
				Same Day					

DIRECT BILL CLIENT?	YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>	CLIENT COMPANY:	GWOC
SEND COPY OF ANALYTICAL TO CLIENT?	YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>	CLIENT NAME:	Jason Davidson
		CLIENT EMAIL:	jason@olsson.com
		CLIENT PROJECT #:	

Lab ID	Field ID	Matrix	Sample Date	Sample Time	Bottles	BTEX / GRO / DRO	SAR, EC, PH *	Naphthalene	Notes
Basel-6	Basel-6	Soil	12/6/19	11:50	2	X	X	X	* standard tunnel test
	SubNorth-6	Soil	12/6/19	11:59	1	X	X	X	
	SubSouth-6	Soil	12/6/19			X	X	X	
	SubEast-6	Soil	12/6/19			X	X	X	
	SubWest-6	Soil	12/6/19			X	X	X	
	Test Pit-1-6	Soil	12/6/19	13:15	1	X	X	X	
	Test Pit-2-7	Soil	12/6/19	13:20	1	X	X	X	
	Test Pit-3-6	Soil	12/6/19	13:40	1	X	X	X	

Comments:	email results to Jason Davidson GWOC - jason@olsson.com			
QC PACKAGE (check below)	x	LEVEL I (Standard QC)		
		LEVEL II (Std QC - forms)		
		LEVEL III (Std QC - forms + raw data)		

RELINQUISHED BY	PRINTED NAME	SIGNATURE	DATE	TIME
Kyle Peters	Kyle Peters	[Signature]	12/6/19	16:02
RELINQUISHED BY				
RELINQUISHED BY				
RELINQUISHED BY				

Origins Laboratory, Inc.

Jefe Pellegrini

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Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13 9

Origins Laboratory

F-012207-01-R1

Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4412097

Client: Olsson Associates

Client Project ID: N Colorado 44-13 9

Checklist Completed by: [Signature]

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12-6-19

Airbill #: N/A

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

(Describe)

Cooler Number/Temperature: 15.8 °C 1 °C 1 °C 1 °C

Thermometer ID: C1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pk
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

[Signature]
Reviewed by (Project Manager)

12/9/19
Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

Base1-6

12/6/2019 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912097-01 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0610	KDK	12/06/2019	12/06/2019	U
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Surrogate: o-Terphenyl	84.0 %	50-150			"	"	"		
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GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	9.85	5.00	mg/kg	25	B9L0609	KDK	12/06/2019	12/07/2019	
Benzene	ND	0.050	"	"	"	KDK	"	"	U
Toluene	ND	0.050	"	"	"	KDK	"	"	U
Ethylbenzene	0.068	0.050	"	"	"	KDK	"	"	
Xylenes, total	ND	0.050	"	"	"	KDK	"	"	U
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	85.9 %	70-130			"	"	12/06/2019		
Surrogate: Toluene-d8	97.7 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	92.9 %	70-130			"	"	"		

Metals (Saturated Paste Prep)

Calcium	3.30	me/L	1	[none]	12/09/2019	12/12/2019
Magnesium	0.80	"	"	"	"	"
Sodium	10.37	"	"	"	"	"

pH in Soil by EPA 9045D

Origins Laboratory, Inc.



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Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

Base1-6

12/6/2019 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912097-01 (Soil)

pH in Soil by EPA 9045D

pH	7.20		pH Units	1	B9L0607	OLAB	12/06/2019	12/06/2019
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SAR by 20B Saturated Paste

SAR	7.24			1	[none]		12/09/2019	12/12/2019
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.140	0.00500	mmhos/cm	1	B9L0608	KDK	12/06/2019	12/06/2019
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Origins Laboratory, Inc.



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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

SWNorth-6

12/6/2019 11:59:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912097-02 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0610	KDK	12/06/2019	12/06/2019	U
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Surrogate: o-Terphenyl	76.4 %	50-150			"	"	"		
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GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	179	5.00	mg/kg	25	B9L0609	KDK	12/06/2019	12/06/2019	
Benzene	0.945	0.050	"	"	"	KDK	"	"	
Toluene	52.5	0.498	"	250	"	ZZZ	"	12/09/2019	
Ethylbenzene	0.464	0.050	"	25	"	KDK	"	12/06/2019	
Xylenes, total	5.28	0.050	"	"	"	KDK	"	"	
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	87.3 %	70-130			"	"	"		
Surrogate: Toluene-d8	106 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	92.2 %	70-130			"	"	"		

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

Test Pit1-6

12/6/2019 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912097-03 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0610	KDK	12/06/2019	12/06/2019	U
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Surrogate: o-Terphenyl	82.0 %	50-150			"	"	"
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GRO/TVPH by EPA 8260D

Gasoline Range Hydrocarbons	78.6	5.00	mg/kg	25	B9L0609	ZZZ	12/06/2019	12/09/2019
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Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"
Surrogate: Toluene-d8	104 %	70-130			"	"	"

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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

Test Pit2-7

12/6/2019 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912097-04 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0610	KDK	12/06/2019	12/07/2019	U
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Surrogate: o-Terphenyl	85.2 %	50-150			"	"	"		
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GRO/TVPH by EPA 8260D

Gasoline Range Hydrocarbons	7.91	5.00	mg/kg	25	B9L0609	ZZZ	12/06/2019	12/09/2019	
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Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	97.3 %	70-130			"	"	"		
Surrogate: Toluene-d8	101 %	70-130			"	"	"		

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

Test Pit3-6

12/6/2019 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912097-05 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0610	KDK	12/06/2019	12/07/2019	U
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Surrogate: o-Terphenyl	70.7 %	50-150			"	"	"		
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GRO/TVPH by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9L0609	ZZZ	12/06/2019	12/09/2019	U
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Surrogate: 1,2-Dichloroethane-d4	98.8 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	98.6 %	70-130			"	"	"		
Surrogate: Toluene-d8	99.1 %	70-130			"	"	"		

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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 B9L0609 - EPA 5030 (soil)										
Blank (B9L0609-BLK1)					Prepared: 12/06/2019 Analyzed: 12/06/2019					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		82.9	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.2	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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 B9L0609 - EPA 5030 (soil)										
LCS (B9L0609-BS1)					Prepared: 12/06/2019 Analyzed: 12/06/2019					
Benzene	0.088	0.002	mg/kg	0.100		88.0	70-130			
Toluene	0.096	0.002	"	0.100		96.0	70-130			
Ethylbenzene	0.083	0.002	"	0.100		82.9	70-130			
m,p-Xylene	0.166	0.004	"	0.200		83.0	70-130			
o-Xylene	0.082	0.002	"	0.100		82.1	70-130			
Naphthalene	0.098	0.008	"	0.100		97.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		81.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.4	70-130			

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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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Batch B9L0609 - EPA 5030 (soil)

Matrix Spike (B9L0609-MS1)		Source: Y912096-01			Prepared: 12/06/2019 Analyzed: 12/06/2019					
Benzene	0.103	0.002	mg/kg	0.100	ND	103	70-130			
Toluene	0.101	0.002	"	0.100	0.002	99.2	70-130			
Ethylbenzene	0.101	0.002	"	0.100	0.004	97.2	70-130			
m,p-Xylene	0.196	0.004	"	0.200	ND	98.0	70-130			
o-Xylene	0.097	0.002	"	0.100	ND	97.3	70-130			
Naphthalene	0.111	0.008	"	0.100	0.017	94.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		80.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		92.1	70-130			

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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 B9L0609 - EPA 5030 (soil)										
Matrix Spike Dup (B9L0609-MSD1)										
					Source: Y912096-01					
										Prepared: 12/06/2019 Analyzed: 12/06/2019
Benzene	0.096	0.002	mg/kg	0.100	ND	95.6	70-130	7.86	20	
Toluene	0.092	0.002	"	0.100	0.002	90.0	70-130	9.48	20	
Ethylbenzene	0.090	0.002	"	0.100	0.004	86.4	70-130	11.3	20	
m,p-Xylene	0.176	0.004	"	0.200	ND	87.8	70-130	11.0	20	
o-Xylene	0.086	0.002	"	0.100	ND	86.0	70-130	12.3	20	
Naphthalene	0.106	0.008	"	0.100	0.017	88.8	70-130	5.01	20	
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		83.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		92.0	70-130			

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Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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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Batch B9L0610 - EPA 3580

Blank (B9L0610-BLK1)

Prepared: 12/06/2019 Analyzed: 12/06/2019

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	20		"	25.0		82.0	50-150			

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Olsson Associates
1525 Raleigh St, Suite 400
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Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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 B9L0610 - EPA 3580

LCS (B9L0610-BS1)

Prepared: 12/06/2019 Analyzed: 12/06/2019

Diesel (C10-C28)	999	50.0	mg/kg	1000		99.9	70-130			
Surrogate: o-Terphenyl	47		"	50.0		94.5	50-150			

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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 B9L0610 - EPA 3580

Matrix Spike (B9L0610-MS1)		Source: Y912099-01			Prepared: 12/06/2019 Analyzed: 12/06/2019					
Diesel (C10-C28)	1040	50.0	mg/kg	1000	ND	104	70-130			
Surrogate: o-Terphenyl	49		"	50.0		97.9	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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 B9L0610 - EPA 3580

Matrix Spike Dup (B9L0610-MSD1)		Source: Y912099-01			Prepared: 12/06/2019 Analyzed: 12/06/2019					
Diesel (C10-C28)	969	50.0	mg/kg	1000	ND	96.9	70-130	7.24	35	
Surrogate: o-Terphenyl	45		"	50.0		90.7	50-150			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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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Classical Chemistry Parameters - 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 B9L0607 - NO PREP

Duplicate (B9L0607-DUP1)		Source: Y912096-01			Prepared: 12/06/2019 Analyzed: 12/06/2019					
pH	7.89		pH Units		8.39			6.14	25	

Batch B9L0608 - NO PREP

Blank (B9L0608-BLK1)		Prepared: 12/06/2019 Analyzed: 12/06/2019								
Specific Conductance (EC)	0.00420	0.00500	mmhos/cm							
Duplicate (B9L0608-DUP1)		Source: Y912096-01			Prepared: 12/06/2019 Analyzed: 12/06/2019					
Specific Conductance (EC)	0.0696	0.00500	mmhos/cm		0.0710			1.99	25	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13 9

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported 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



December 10, 2019

Olsson Associates

Trent Watne

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - N Colorado 44-13

Project Number - [none]

Attached are your analytical results for N Colorado 44-13 received by Origins Laboratory, Inc. December 09, 2019. This project is associated with Origins project number Y912126-01.

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

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SouthSW-5	Y912126-01	Soil	December 9, 2019 14:30	12/09/2019 15:40
EastSW-5	Y912126-02	Soil	December 9, 2019 14:45	12/09/2019 15:40
WestSW-6	Y912126-03	Soil	December 9, 2019 11:30	12/09/2019 15:40
BaseWest-7	Y912126-04	Soil	December 9, 2019 10:02	12/09/2019 15:40
BaseEast-7	Y912126-05	Soil	December 9, 2019 14:40	12/09/2019 15:40

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: ✓ 912126

Client: Olsson Associates

Client Project ID: N. Colorado 44-13

Checklist Completed by: D. Watne

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12-9-19

Airbill #: na

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: _____ (Describe)

Cooler Number/Temperature: ✓ 1.7 °C ✓ °C ✓ °C ✓ °C

Thermometer ID: 403

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager)

12-9-19
Date/Time Reviewed

Origins Laboratory, Inc.

Jen 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.

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

SouthSW-5

12/9/2019 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912126-01 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B9L0906	ZZZ	12/09/2019	12/09/2019	U
Toluene	ND	0.0500	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.0500	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	97.8 %	70-130			"	"	"
Surrogate: Toluene-d8	98.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	97.0 %	70-130			"	"	"

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0907	TEM	12/09/2019	12/09/2019	U
Surrogate: o-Terphenyl	78.3 %	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

EastSW-5
12/9/2019 2:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y912126-02 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B9L0906	ZZZ	12/09/2019	12/09/2019	U
Toluene	ND	0.0500	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.0500	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	99.2 %	70-130			"	"	"
Surrogate: Toluene-d8	99.7 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.4 %	70-130			"	"	"

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0907	TEM	12/09/2019	12/09/2019	U
Surrogate: o-Terphenyl	69.2 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

WestSW-6

12/9/2019 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912126-03 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B9L0906	ZZZ	12/09/2019	12/09/2019	U
Toluene	ND	0.0500	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.0500	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	100 %	70-130			"	"	"
Surrogate: Toluene-d8	95.7 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	96.0 %	70-130			"	"	"

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0907	TEM	12/09/2019	12/09/2019	U
Surrogate: o-Terphenyl	73.1 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

BaseWest-7

12/9/2019 10:02:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912126-04 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B9L0906	ZZZ	12/09/2019	12/10/2019	U
Toluene	ND	0.0500	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.0500	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	118	50.0	"	250	"	ZZZ	"	12/09/2019	

Surrogate: 1,2-Dichloroethane-d4	90.4 %	70-130			"	"	12/10/2019
Surrogate: Toluene-d8	98.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	111 %	70-130			"	"	"

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0907	TEM	12/09/2019	12/09/2019	U
Surrogate: o-Terphenyl	71.0 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

BaseEast-7
12/9/2019 2:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y912126-05 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B9L0906	ZZZ	12/09/2019	12/10/2019	U
Toluene	ND	0.0500	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.0500	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	122	50.0	"	250	"	ZZZ	"	12/09/2019	

Surrogate: 1,2-Dichloroethane-d4	89.9 %	70-130			"	"	12/10/2019
Surrogate: Toluene-d8	98.3 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L0907	TEM	12/09/2019	12/09/2019	U
Surrogate: o-Terphenyl	70.8 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L0906 - EPA 5030 (soil)										
Blank (B9L0906-BLK1)					Prepared: 12/09/2019 Analyzed: 12/09/2019					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.4	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L0906 - EPA 5030 (soil)										
LCS (B9L0906-BS1)					Prepared: 12/09/2019 Analyzed: 12/09/2019					
Benzene	0.0924	0.00200	mg/kg	0.100		92.4	70-130			
Toluene	0.0929	0.00200	"	0.100		92.9	70-130			
Ethylbenzene	0.0915	0.00200	"	0.100		91.5	70-130			
m,p-Xylene	0.182	0.00400	"	0.200		91.2	70-130			
o-Xylene	0.0924	0.00200	"	0.100		92.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.6	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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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Batch B9L0906 - EPA 5030 (soil)

Matrix Spike (B9L0906-MS1)		Source: Y912108-01			Prepared: 12/09/2019 Analyzed: 12/09/2019					
Benzene	0.0916	0.00200	mg/kg	0.100	ND	91.6	70-130			
Toluene	0.0891	0.00200	"	0.100	ND	89.1	70-130			
Ethylbenzene	0.0821	0.00200	"	0.100	ND	82.1	70-130			
m,p-Xylene	0.166	0.00400	"	0.200	ND	82.9	70-130			
o-Xylene	0.0850	0.00200	"	0.100	ND	85.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		93.5	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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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Batch B9L0906 - EPA 5030 (soil)

Matrix Spike Dup (B9L0906-MSD1)		Source: Y912108-01			Prepared: 12/09/2019 Analyzed: 12/09/2019					
Benzene	0.0825	0.00200	mg/kg	0.100	ND	82.5	70-130	10.5	20	
Toluene	0.0802	0.00200	"	0.100	ND	80.2	70-130	10.5	20	
Ethylbenzene	0.0789	0.00200	"	0.100	ND	78.9	70-130	4.00	20	
m,p-Xylene	0.159	0.00400	"	0.200	ND	79.6	70-130	4.06	20	
o-Xylene	0.0797	0.00200	"	0.100	ND	79.7	70-130	6.39	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.5	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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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Batch B9L0907 - EPA 3580

Blank (B9L0907-BLK1)

Prepared: 12/09/2019 Analyzed: 12/09/2019

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	19		"	25.0		75.8	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L0907 - EPA 3580

LCS (B9L0907-BS1)

Prepared: 12/09/2019 Analyzed: 12/09/2019

Diesel (C10-C28)	1130	50.0	mg/kg	1000		113	70-130			
Surrogate: o-Terphenyl	52		"	50.0		104	50-150			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L0907 - EPA 3580

Matrix Spike (B9L0907-MS1)		Source: Y912105-01			Prepared: 12/09/2019 Analyzed: 12/09/2019					
Diesel (C10-C28)	1160	50.0	mg/kg	1000	ND	116	70-130			
Surrogate: o-Terphenyl	61		"	50.0		122	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L0907 - EPA 3580

Matrix Spike Dup (B9L0907-MSD1)		Source: Y912105-01			Prepared: 12/09/2019 Analyzed: 12/09/2019					
Diesel (C10-C28)	1120	50.0	mg/kg	1000	ND	112	70-130	3.28	35	
Surrogate: o-Terphenyl	55		"	50.0		109	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

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported 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



December 11, 2019

Olsson Associates

Trent Watne

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - N Colorado 44-13

Project Number - [none]

Attached are your analytical results for N Colorado 44-13 received by Origins Laboratory, Inc. December 10, 2019. This project is associated with Origins project number Y912153-01.

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

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
North Base-7	Y912153-01	Soil	December 10, 2019 15:17	12/10/2019 17:09

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

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

4912153

Chain of Custody

[illegible]

Origins Laboratory, Inc.

Jeff Pellgrini

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.

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4912153

Client: Olsson Associates

Client Project ID: N Colorado 44-13

Checklist Completed by: JRC

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12-10-19 17:23

Airbill #: NA

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

Cooler Number/Temperature: 1 / 10.8 °C _____ / _____ °C _____ / _____ °C _____ / _____ °C (Describe)

Thermometer ID: T603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date, time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) JRC

Date/Time Reviewed 12-10-19

Origins Laboratory, Inc.

Jen 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.

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

North Base-7
12/10/2019 3:17:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y912153-01 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B9L1004	KDK	12/10/2019	12/11/2019	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	0.565	0.0500	"	"	"	KDK	"	"	
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	34.7	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

86.7 % 70-130
102 % 70-130
93.4 % 70-130

" "
" "
" "

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	97.2	50.0	mg/kg	1	B9L1005	TEM	12/10/2019	12/10/2019	
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Surrogate: o-Terphenyl

79.8 % 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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L1004 - EPA 5030 (soil)										
Blank (B9L1004-BLK1)					Prepared: 12/10/2019 Analyzed: 12/10/2019					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		88.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.1	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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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Batch B9L1004 - EPA 5030 (soil)

LCS (B9L1004-BS1)

Prepared: 12/10/2019 Analyzed: 12/10/2019

Benzene	0.0982	0.00200	mg/kg	0.100		98.2	70-130			
Toluene	0.0964	0.00200	"	0.100		96.4	70-130			
Ethylbenzene	0.0951	0.00200	"	0.100		95.1	70-130			
m,p-Xylene	0.189	0.00400	"	0.200		94.3	70-130			
o-Xylene	0.0937	0.00200	"	0.100		93.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		82.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		90.4	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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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Batch B9L1004 - EPA 5030 (soil)

Matrix Spike (B9L1004-MS1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Benzene	0.103	0.00200	mg/kg	0.100	ND	103	70-130			
Toluene	0.0974	0.00200	"	0.100	ND	97.4	70-130			
Ethylbenzene	0.0949	0.00200	"	0.100	ND	94.9	70-130			
m,p-Xylene	0.190	0.00400	"	0.200	ND	95.0	70-130			
o-Xylene	0.0966	0.00200	"	0.100	ND	96.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		85.9	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		93.5	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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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Batch B9L1004 - EPA 5030 (soil)

Matrix Spike Dup (B9L1004-MSD1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Benzene	0.0940	0.00200	mg/kg	0.100	ND	94.0	70-130	9.33	20	
Toluene	0.0880	0.00200	"	0.100	ND	88.0	70-130	10.1	20	
Ethylbenzene	0.0861	0.00200	"	0.100	ND	86.1	70-130	9.81	20	
m,p-Xylene	0.171	0.00400	"	0.200	ND	85.5	70-130	10.5	20	
o-Xylene	0.0884	0.00200	"	0.100	ND	88.4	70-130	8.88	20	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		86.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		91.0	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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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Batch B9L1005 - EPA 3580

Blank (B9L1005-BLK1)

Prepared: 12/10/2019 Analyzed: 12/10/2019

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	21		"	25.0		83.1	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L1005 - EPA 3580

LCS (B9L1005-BS1)

Prepared: 12/10/2019 Analyzed: 12/10/2019

Diesel (C10-C28)	924	50.0	mg/kg	1000		92.4	70-130			
Surrogate: o-Terphenyl	49		"	50.0		97.3	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L1005 - EPA 3580

Matrix Spike (B9L1005-MS1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Diesel (C10-C28)	965	50.0	mg/kg	1000	ND	96.5	70-130			
Surrogate: o-Terphenyl	47		"	50.0		94.3	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13

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 B9L1005 - EPA 3580

Matrix Spike Dup (B9L1005-MSD1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Diesel (C10-C28)	1150	50.0	mg/kg	1000	ND	115	70-130	17.7	35	
Surrogate: o-Terphenyl	52		"	50.0		104	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

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported 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



December 10, 2019

Olsson Associates

Trent Watne

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - N Colorado 44-13 9

Project Number - [none]

Attached are your analytical results for N Colorado 44-13 9 received by Origins Laboratory, Inc. December 10, 2019. This project is associated with Origins project number Y912141-01.

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

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13 9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BaseGW2	Y912141-01	Water	December 10, 2019 10:00	12/10/2019 11:40

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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4912141

Client: Olsson Assoc

Client Project ID: N. Colorado 44-13 9

Checklist Completed by: JD

Shipped Via: HD

Date/time completed: 12/10/19

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: N4

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

Cooler Number/Temperature: 1 18.3 °C 1 °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 ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>sampled 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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>HCl</u>
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 12/10/19

Origins Laboratory, Inc.

[Signature]

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.

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

BaseGW2

12/10/2019 10:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912141-01 (Water)

BTEX by EPA 8260D

Benzene	ND	4.00	ug/L	4	B9L0514	ZZZ	12/10/2019	12/10/2019	U
Toluene	ND	4.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	15.6	4.00	"	"	"	ZZZ	"	"	
Xylenes, total	ND	4.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	110 %	70-130			"	"	"
Surrogate: Toluene-d8	103 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	94.1 %	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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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Batch B9L0514 - EPA 5030B (Water)

Blank (B9L0514-BLK1)

Prepared: 12/05/2019 Analyzed: 12/10/2019

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	73		"	62.5	116		70-130			
Surrogate: Toluene-d8	62		"	62.5	99.5		70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5	93.9		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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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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Batch B9L0514 - EPA 5030B (Water)

LCS (B9L0514-BS1)

Prepared: 12/05/2019 Analyzed: 12/10/2019

Benzene	42.1	1.00	ug/L	50.0		84.2	70-130			
Toluene	41.8	1.00	"	50.0		83.6	70-130			
Ethylbenzene	43.9	1.00	"	50.0		87.8	70-130			
m,p-Xylene	89.7	2.00	"	100		89.7	70-130			
o-Xylene	45.5	1.00	"	50.0		91.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	73		"	62.5		116	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	56		"	62.5		90.0	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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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Batch B9L0514 - EPA 5030B (Water)

Matrix Spike (B9L0514-MS1)		Source: Y912054-09			Prepared: 12/05/2019 Analyzed: 12/10/2019					
Benzene	48.2	1.00	ug/L	50.0	4.21	87.9	70-130			
Toluene	46.3	1.00	"	50.0	0.390	91.8	70-130			
Ethylbenzene	49.3	1.00	"	50.0	1.22	96.2	70-130			
m,p-Xylene	99.2	2.00	"	100	1.16	98.1	70-130			
o-Xylene	50.2	1.00	"	50.0	ND	100	70-130			
Surrogate: 1,2-Dichloroethane-d4	71		"	62.5		113	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.1	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: [none]
Project: N Colorado 44-13 9

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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Batch B9L0514 - EPA 5030B (Water)

Matrix Spike Dup (B9L0514-MSD1)		Source: Y912054-09			Prepared: 12/05/2019 Analyzed: 12/10/2019					
Benzene	48.2	1.00	ug/L	50.0	4.21	88.0	70-130	0.0207	20	
Toluene	46.2	1.00	"	50.0	0.390	91.6	70-130	0.238	20	
Ethylbenzene	48.3	1.00	"	50.0	1.22	94.2	70-130	2.05	20	
m,p-Xylene	97.4	2.00	"	100	1.16	96.3	70-130	1.83	20	
o-Xylene	49.1	1.00	"	50.0	ND	98.1	70-130	2.20	20	
Surrogate: 1,2-Dichloroethane-d4	71		"	62.5		114	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.7	70-130			

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Jen Pellegrini, Project Manager

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: [none]

Project: N Colorado 44-13 9

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported 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



December 11, 2019

Olsson Associates

Trent Watne

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - N Colorado 44-13 9

Project Number - 019-2454

Attached are your analytical results for N Colorado 44-13 9 received by Origins Laboratory, Inc. December 11, 2019. This project is associated with Origins project number Y912159-01.

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

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-2454

Project: N Colorado 44-13 9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NorthSW-5	Y912159-01	Soil	December 11, 2019 8:00	12/11/2019 09:25
BaseGW-2	Y912159-02	Water	December 11, 2019 7:45	12/11/2019 09:25

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

[illegible]

Origins Laboratory, Inc.

Jeff Pellgrini

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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

Origins Laboratory

F-012207-01-R1

Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4412159

Client: Olsson Associates

Client Project ID: N. Colorado 44-13-9

Checklist Completed by: Jim Lo

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12-11-12

Airbill #: NA

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

Cooler Number/Temperature: 16.0 °C 1 °C 1 °C 1 °C (Describe)

Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) Jim Lo

12-11-12
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

NorthSW-5

12/11/2019 8:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912159-01 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B9L1004	KDK	12/11/2019	12/11/2019	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	88.1 %	70-130			"	"	"
Surrogate: Toluene-d8	98.1 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	93.2 %	70-130			"	"	"

Diesel Range Organics (DRO/TEPH) by EPA 8015D

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9L1005	TEM	12/11/2019	12/11/2019	U
Surrogate: o-Terphenyl	72.5 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

BaseGW-2

12/11/2019 7:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912159-02 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B9L0904	ZZZ	12/11/2019	12/11/2019	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	38.8	1.00	"	"	"	ZZZ	"	"	
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	115 %	70-130			"	"	"
Surrogate: Toluene-d8	105 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	90.0 %	70-130			"	"	"

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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 B9L0904 - EPA 5030B (Water)										
Blank (B9L0904-BLK1)					Prepared: 12/09/2019 Analyzed: 12/11/2019					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	72		"	62.5		115	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.1	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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 B9L0904 - EPA 5030B (Water)										
LCS (B9L0904-BS1)					Prepared: 12/09/2019 Analyzed: 12/11/2019					
Benzene	56.0	1.00	ug/L	50.0		112	70-130			
Toluene	56.0	1.00	"	50.0		112	70-130			
Ethylbenzene	58.7	1.00	"	50.0		117	70-130			
m,p-Xylene	119	2.00	"	100		119	70-130			
o-Xylene	59.6	1.00	"	50.0		119	70-130			
Surrogate: 1,2-Dichloroethane-d4	75		"	62.5		121	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.8	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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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Batch B9L0904 - EPA 5030B (Water)

Matrix Spike (B9L0904-MS1)		Source: Y912107-41			Prepared: 12/09/2019 Analyzed: 12/11/2019					
Benzene	45.5	1.00	ug/L	50.0	ND	91.0	70-130			
Toluene	49.4	1.00	"	50.0	ND	98.9	70-130			
Ethylbenzene	49.5	1.00	"	50.0	ND	99.1	70-130			
m,p-Xylene	101	2.00	"	100	ND	101	70-130			
o-Xylene	52.8	1.00	"	50.0	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	75		"	62.5		120	70-130			
Surrogate: Toluene-d8	67		"	62.5		108	70-130			
Surrogate: 4-Bromofluorobenzene	56		"	62.5		89.4	70-130			

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Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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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Batch B9L0904 - EPA 5030B (Water)

Matrix Spike Dup (B9L0904-MSD1)		Source: Y912107-41			Prepared: 12/09/2019 Analyzed: 12/11/2019					
Benzene	45.1	1.00	ug/L	50.0	ND	90.2	70-130	0.905	20	
Toluene	49.2	1.00	"	50.0	ND	98.5	70-130	0.405	20	
Ethylbenzene	49.0	1.00	"	50.0	ND	98.0	70-130	1.14	20	
m,p-Xylene	99.8	2.00	"	100	ND	99.8	70-130	0.918	20	
o-Xylene	52.3	1.00	"	50.0	ND	105	70-130	0.951	20	
Surrogate: 1,2-Dichloroethane-d4	74		"	62.5		118	70-130			
Surrogate: Toluene-d8	67		"	62.5		108	70-130			
Surrogate: 4-Bromofluorobenzene	56		"	62.5		89.3	70-130			

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Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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 B9L1004 - EPA 5030 (soil)										
Blank (B9L1004-BLK1)					Prepared: 12/10/2019 Analyzed: 12/10/2019					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		88.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.1	70-130			

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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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Batch B9L1004 - EPA 5030 (soil)

LCS (B9L1004-BS1)

Prepared: 12/10/2019 Analyzed: 12/10/2019

Benzene	0.0982	0.00200	mg/kg	0.100		98.2	70-130			
Toluene	0.0964	0.00200	"	0.100		96.4	70-130			
Ethylbenzene	0.0951	0.00200	"	0.100		95.1	70-130			
m,p-Xylene	0.189	0.00400	"	0.200		94.3	70-130			
o-Xylene	0.0937	0.00200	"	0.100		93.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		82.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		90.4	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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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Batch B9L1004 - EPA 5030 (soil)

Matrix Spike (B9L1004-MS1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Benzene	0.103	0.00200	mg/kg	0.100	ND	103	70-130			
Toluene	0.0974	0.00200	"	0.100	ND	97.4	70-130			
Ethylbenzene	0.0949	0.00200	"	0.100	ND	94.9	70-130			
m,p-Xylene	0.190	0.00400	"	0.200	ND	95.0	70-130			
o-Xylene	0.0966	0.00200	"	0.100	ND	96.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		85.9	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		93.5	70-130			

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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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Batch B9L1004 - EPA 5030 (soil)

Matrix Spike Dup (B9L1004-MSD1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Benzene	0.0940	0.00200	mg/kg	0.100	ND	94.0	70-130	9.33	20	
Toluene	0.0880	0.00200	"	0.100	ND	88.0	70-130	10.1	20	
Ethylbenzene	0.0861	0.00200	"	0.100	ND	86.1	70-130	9.81	20	
m,p-Xylene	0.171	0.00400	"	0.200	ND	85.5	70-130	10.5	20	
o-Xylene	0.0884	0.00200	"	0.100	ND	88.4	70-130	8.88	20	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		86.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		91.0	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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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Batch B9L1005 - EPA 3580

Blank (B9L1005-BLK1)

Prepared: 12/10/2019 Analyzed: 12/10/2019

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	21		"	25.0		83.1	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

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2454
Project: N Colorado 44-13 9

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 B9L1005 - EPA 3580

LCS (B9L1005-BS1)

Prepared: 12/10/2019 Analyzed: 12/10/2019

Diesel (C10-C28)	924	50.0	mg/kg	1000		92.4	70-130			
Surrogate: o-Terphenyl	49		"	50.0		97.3	50-150			

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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 B9L1005 - EPA 3580

Matrix Spike (B9L1005-MS1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Diesel (C10-C28)	965	50.0	mg/kg	1000	ND	96.5	70-130			
Surrogate: o-Terphenyl	47		"	50.0		94.3	50-150			

Origins Laboratory, Inc.



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Denver CO 80204

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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 B9L1005 - EPA 3580

Matrix Spike Dup (B9L1005-MSD1)		Source: Y912137-05			Prepared: 12/10/2019 Analyzed: 12/10/2019					
Diesel (C10-C28)	1150	50.0	mg/kg	1000	ND	115	70-130	17.7	35	
Surrogate: o-Terphenyl	52		"	50.0		104	50-150			

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Olsson Associates

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Denver CO 80204

Trent Watne

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Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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