

December 20, 2018

Olsson Associates

Jason Davidson

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - Carlson 33-18 Tank Pull

Project Number - [none]

Attached are your analytical results for Carlson 33-18 Tank Pull received by Origins Laboratory, Inc. December 11, 2018. This project is associated with Origins project number Y812163-01.

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

Jason Davidson
Project Number: [none]
Project: Carlson 33-18 Tank Pull

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Carlson base @ 4	Y812163-01	Soil	December 11, 2018 9:30	12/11/2018 15:40
Carlson SWNorth @ 4	Y812163-02	Soil	December 11, 2018 9:35	12/11/2018 15:40
Carlson SWEast @ 4	Y812163-03	Soil	December 11, 2018 9:40	12/11/2018 15:40
Carlson SWSouth @ 4	Y812163-04	Soil	December 11, 2018 9:45	12/11/2018 15:40
Carlson SWWest @ 4	Y812163-05	Soil	December 11, 2018 9:50	12/11/2018 15:40

Per the phone call with Trent, GRO and DRO were added to all samples.

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Chain of Custody



4612163

PROJECT NAME: Carlson 33-18 Tank Pull		PROJECT NUMBER:	DISPOSAL:	By Lab:	PAGE:	1	of	1
COMPANY NAME: Olsson Associates		PHONE NUMBER:	LAB USE ONLY: Temperature upon receipt: <u>46</u>					
ADDRESS: 1525 Raleigh St., Suite 400		CITY/STATE/ZIP:	Custody seals in tact: Yes No N/A					
PROJECT MANAGER: Jason Davidson		PII EMAIL: jason.davidson@olsson.com	Turn Around Time (check): <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 72hr <input type="checkbox"/> 48hr <input type="checkbox"/> 24hr <input type="checkbox"/> Same Day					
SAMPLER: Tank Waste								
DIRECT BILL CLIENT: YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>		CLIENT COMPANY:						
SEND COPY OF ANALYTICAL TO CLIENT: YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>		CLIENT NAME:						
		CLIENT EMAIL:						
		CLIENT PROJECT #:						
Lab ID	Field ID	Matrix	Sample Date	Sample Time	Sample # Bottles	Notes:		
	Carlsonwaste04	Soil	12/11/18	0930	1	✓		
	Carlsonwaste04	Soil	12/11/18	0935	1	✓		
	Carlsonwaste04	Soil	12/11/18	0940	1	✓		
	Carlsonwaste04	Soil	12/11/18	0945	1	✓		
	Carlsonwaste04	Soil	12/11/18	0950	1	✓		
12/11/18								

RELINQUISHED BY	PRINTED NAME	SIGNATURE	DATE	TIME
Jason Waste	Jason Waste	<i>[Signature]</i>	12/11/18	1540
Jason Davidson	Jason Davidson	<i>[Signature]</i>	12/11/18	1540

Comments:

QC PACKAGE (check below)

LEVEL II (Standard OC)

LEVEL III (Std OC + forms)

LEVEL IV (Std OC + forms + raw data)

Origins Laboratory, Inc.

Jen Pellegrini

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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y812163 Client: Olsson Assoc.
 Client Project ID: Carlson 33-18 Tank Pull
 Checklist Completed by: Dan Lee Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Date/time completed: 12-12-18 Airbill #: 121
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 4.6 °C 1 / _____ °C 1 / _____ °C 1 / _____ °C (Describe)
 Thermometer ID: 6003

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.

[Signature]
 Reviewed by (Project Manager)

12/13/18
 Date/Time/Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Carlson base @ 4
12/11/2018 9:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y812163-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B8L1802	KDK	12/18/2018	12/18/2018	U
Surrogate: o-Terphenyl	81.2 %	59-131			"	"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8L1303	KDK	12/13/2018	12/14/2018	U
Benzene	ND	0.002	"	"	"	KDK	"	"	U
Toluene	ND	0.002	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.002	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.002	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	112 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.0 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	95.3 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Carlson SWNorth @ 4
12/11/2018 9:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y812163-02 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B8L1802	KDK	12/18/2018	12/18/2018	U
Surrogate: o-Terphenyl	80.8 %	59-131			"	"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8L1303	KDK	12/13/2018	12/14/2018	U
Benzene	ND	0.002	"	"	"	KDK	"	"	U
Toluene	ND	0.002	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.002	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.002	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	114 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	94.9 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	94.5 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Carlson SWEast @ 4
12/11/2018 9:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y812163-03 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B8L1802	KDK	12/18/2018	12/18/2018	U
Surrogate: o-Terphenyl	80.9 %	59-131			"	"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8L1303	JTD	12/13/2018	12/17/2018	U
Benzene	ND	0.002	"	"	"	JTD	"	"	U
Toluene	ND	0.002	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.002	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.002	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	108 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	93.2 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	93.6 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Carlson SWSouth @ 4
12/11/2018 9:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y812163-04 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B8L1802	KDK	12/18/2018	12/18/2018	U
Surrogate: o-Terphenyl	78.9 %	59-131			"	"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8L1303	KDK	12/13/2018	12/14/2018	U
Benzene	ND	0.002	"	"	"	KDK	"	"	U
Toluene	0.002	0.002	"	"	"	KDK	"	"	
Ethylbenzene	ND	0.002	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.002	"	"	"	KDK	"	"	U
Surrogate: 1,2-Dichloroethane-d4	113 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	95.2 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	96.2 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Carlson SWWest @ 4
12/11/2018 9:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y812163-05 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B8L1802	KDK	12/18/2018	12/18/2018	U
Surrogate: o-Terphenyl	79.0 %	59-131			"	"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.900	0.200	mg/kg	1	B8L1303	KDK	12/13/2018	12/14/2018	
Benzene	ND	0.002	"	"	"	KDK	"	"	U
Toluene	0.007	0.002	"	"	"	KDK	"	"	
Ethylbenzene	0.004	0.002	"	"	"	KDK	"	"	
Xylenes, total	0.041	0.002	"	"	"	KDK	"	"	
Surrogate: 1,2-Dichloroethane-d4	113 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	95.0 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	96.1 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L1303 - EPA 5030 (soil)										
Blank (B8L1303-BLK1)										
					Prepared: 12/13/2018 Analyzed: 12/14/2018					
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
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		112	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.3	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8L1303 - EPA 5030 (soil)

LCS (B8L1303-BS1)

Prepared: 12/13/2018 Analyzed: 12/14/2018

Benzene	0.123	0.002	mg/kg	0.100		123	77.1-124			
Toluene	0.111	0.002	"	0.100		111	74.5-128			
Ethylbenzene	0.108	0.002	"	0.100		108	66.4-127			
m,p-Xylene	0.223	0.004	"	0.200		111	76.6-124			
o-Xylene	0.105	0.002	"	0.100		105	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8L1303 - EPA 5030 (soil)

Matrix Spike (B8L1303-MS1)	Source: Y812163-01			Prepared: 12/13/2018 Analyzed: 12/14/2018						
Benzene	0.112	0.002	mg/kg	0.100	ND	112	71.8-126			
Toluene	0.100	0.002	"	0.100	0.001	99.1	65.1-130			
Ethylbenzene	0.096	0.002	"	0.100	0.0007	94.9	62.2-130			
m,p-Xylene	0.196	0.004	"	0.200	0.002	96.8	46.5-137			
o-Xylene	0.094	0.002	"	0.100	0.001	92.8	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		108	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B8L1303 - EPA 5030 (soil)

Matrix Spike Dup (B8L1303-MSD1)	Source: Y812163-01			Prepared: 12/13/2018 Analyzed: 12/14/2018						
Benzene	0.111	0.002	mg/kg	0.100	ND	111	71.8-126	0.377	11.3	
Toluene	0.099	0.002	"	0.100	0.001	98.2	65.1-130	0.883	15.4	
Ethylbenzene	0.094	0.002	"	0.100	0.0007	93.7	62.2-130	1.26	19.6	
m,p-Xylene	0.194	0.004	"	0.200	0.002	95.7	46.5-137	1.14	19.2	
o-Xylene	0.094	0.002	"	0.100	0.001	92.4	54.2-134	0.468	17.9	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		110	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: [none]
 Project: Carlson 33-18 Tank Pull

Volatile Organic Compounds by GC/MS SW846 8260C - 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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Extractable Petroleum Hydrocarbons by 8015C - 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 B8L1802 - EPA 3550B

Blank (B8L1802-BLK1)

Prepared: 12/18/2018 Analyzed: 12/18/2018

Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	41		"	50.0		81.2	59-131			

LCS (B8L1802-BS1)

Prepared: 12/18/2018 Analyzed: 12/18/2018

Diesel (C10-C28)	1140	50.0	mg/kg	1000		114	64-121			
Surrogate: o-Terphenyl	55		"	50.0		110	59-131			

Matrix Spike (B8L1802-MS1)

Source: Y812163-01

Prepared: 12/18/2018 Analyzed: 12/18/2018

Diesel (C10-C28)	1200	50.0	mg/kg	1000	ND	120	53-125			
Surrogate: o-Terphenyl	56		"	50.0		112	59-131			

Matrix Spike Dup (B8L1802-MSD1)

Source: Y812163-01

Prepared: 12/18/2018 Analyzed: 12/18/2018

Diesel (C10-C28)	1150	50.0	mg/kg	1000	ND	115	53-125	4.37	20	
Surrogate: o-Terphenyl	56		"	50.0		112	59-131			

Origins Laboratory, Inc.



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Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Jason Davidson
Project Number: [none]
Project: Carlson 33-18 Tank Pull

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.



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Jen Pellegrini, Project Manager

January 08, 2019

Olsson Associates

Jason Davidson

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - Carlson 33-18 Tank Pull

Project Number - 018-3608

Attached are your analytical results for Carlson 33-18 Tank Pull received by Origins Laboratory, Inc. January 04, 2019. This project is associated with Origins project number Y901037-01.

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.

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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

Jason Davidson
Project Number: 018-3608
Project: Carlson 33-18 Tank Pull

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CarlsonSWSouth@4	Y901037-01	Soil	January 3, 2019 12:50	01/04/2019 09:20

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: 018-3608
 Project: Carlson 33-18 Tank Pull

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 7901037

Client: Olsson Assoc.

Client Project ID: Carlson 33-18 Tank Pull

Checklist Completed by: Don Lee

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

Date/time completed: 1-4-19

Airbill #: NA

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

Cooler Number/Temperature: / 7.0 °C / _____ °C / _____ °C / _____ °C

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"/>			
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.

DL
 Reviewed by (Project Manager)

1/7/19
 Date/Time Reviewed

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.

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Jason Davidson
Project Number: 018-3608
Project: Carlson 33-18 Tank Pull

CarlsonSWSouth@4
1/3/2019 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901037-01 (Soil)

pH in Soil by EPA 9045D

pH	8.49		pH Units	1	B9A0404	OLAB	01/04/2019	01/04/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0702	0.00500	mmhos/cm	"	B9A0405	OLAB	01/04/2019	"	
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Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: 018-3608
 Project: Carlson 33-18 Tank Pull

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9A0404 - NO PREP										
Duplicate (B9A0404-DUP1)		Source: Y901028-01			Prepared: 01/04/2019 Analyzed: 01/04/2019					
pH	7.35		pH Units		7.35			0.00	25	
Batch B9A0405 - NO PREP										
Blank (B9A0405-BLK1)		Prepared: 01/04/2019 Analyzed: 01/04/2019								
Specific Conductance (EC)	0.00420	0.00500	mmhos/cm							
Duplicate (B9A0405-DUP1)		Source: Y901028-01			Prepared: 01/04/2019 Analyzed: 01/04/2019					
Specific Conductance (EC)	0.137	0.00505	mmhos/cm		0.137			0.00	25	

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.

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Jason Davidson
Project Number: 018-3608
Project: Carlson 33-18 Tank Pull

Notes and Definitions

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

January 14, 2019

Olsson Associates

Jason Davidson

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - Carlson 33-18 Tank Pull

Project Number - 018-3608

Attached are your analytical results for Carlson 33-18 Tank Pull received by Origins Laboratory, Inc. January 04, 2019. This project is associated with Origins project number Y901037-01.

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

Jason Davidson
Project Number: 018-3608
Project: Carlson 33-18 Tank Pull

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CarlsonSWSouth@4	Y901037-01	Soil	January 3, 2019 12:50	01/04/2019 09:20

Per the phone call from Trent on 01-08-19, the SAR was taken off hold for Carlsonsouth@4.

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

Jason Davidson
 Project Number: 018-3608
 Project: Carlson 33-18 Tank Pull

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 7901037

Client: Olsson Assoc.

Client Project ID: Carlson 33-18 Tank Pull

Checklist Completed by: Don Lee

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

Date/time completed: 1-4-19

Airbill #: NA

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

Cooler Number/Temperature: / 7.0 °C / _____ °C / _____ °C / _____ °C

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"/>			
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) [Signature]

Date/Time Reviewed 1/7/19

Origins Laboratory, Inc.

Jefe Pellegrini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: 018-3608
 Project: Carlson 33-18 Tank Pull

CarlsonSWSouth@4
1/3/2019 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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AAL, Inc.
Y901037-01 (Soil)

Metals (Saturated Paste Prep)

Calcium	2.49		me/L	1	'[none]'		01/09/2019	01/11/2019	
Magnesium	1.29		"	"	"		"	"	
Sodium	0.93		"	"	"		"	"	

pH in Soil by EPA 9045D

pH	8.49		pH Units	1	B9A0404	OLAB	01/04/2019	01/04/2019	
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SAR by 20B Saturated Paste

SAR	0.68			1	'[none]'		01/09/2019	01/11/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0702	0.00500	mmhos/cm	1	B9A0405	OLAB	01/04/2019	01/04/2019	
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Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

Jason Davidson
 Project Number: 018-3608
 Project: Carlson 33-18 Tank Pull

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9A0404 - NO PREP										
Duplicate (B9A0404-DUP1)		Source: Y901028-01			Prepared: 01/04/2019 Analyzed: 01/04/2019					
pH	7.35		pH Units		7.35			0.00	25	
Batch B9A0405 - NO PREP										
Blank (B9A0405-BLK1)		Prepared: 01/04/2019 Analyzed: 01/04/2019								
Specific Conductance (EC)	0.00420	0.00500	mmhos/cm							
Duplicate (B9A0405-DUP1)		Source: Y901028-01			Prepared: 01/04/2019 Analyzed: 01/04/2019					
Specific Conductance (EC)	0.137	0.00505	mmhos/cm		0.137			0.00	25	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Jason Davidson
Project Number: 018-3608
Project: Carlson 33-18 Tank Pull

Notes and Definitions

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.



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Jen Pellegrini, Project Manager