



October 29, 2019

Olsson Associates

Trent Watne

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - Hicks 7 23

Project Number - 019-2422

Attached are your analytical results for Hicks 7 23 received by Origins Laboratory, Inc. October 22, 2019. This project is associated with Origins project number Y910327-01.

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
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Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-2422

Project: Hicks 7 23

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WestSW1-4	Y910327-01	Soil	October 22, 2019 10:40	10/22/2019 14:35
Base1-4	Y910327-02	Soil	October 22, 2019 10:45	10/22/2019 14:35

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Trent Watne
Project Number: 019-2422
Project: Hicks 7 23

[illegible]

Origins Laboratory, Inc.

Jeff Pellgrini

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Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-2422

Project: Hicks 7 23

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y910327

Client: Olsson

Client Project ID: Hicks 7 23

Checklist Completed by: SG

Shipped Via: HB

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

Date/time completed: 10/22/19

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 9.6 °C / °C / °C / °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>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) SG

Date/Time Reviewed 10/23/19

Origins Laboratory, Inc.

Jefe Pellegrini

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Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2422
Project: Hicks 7 23

WestSW1-4
10/22/2019 10:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y910327-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9J2205	KDK	10/22/2019	10/23/2019	U
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Surrogate: o-Terphenyl	99.6 %	50-150			"	"	"		
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GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9J2204	KDK	10/22/2019	10/23/2019	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
Naphthalene	ND	0.008	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	110 %	70-130			"	"	"		
Surrogate: Toluene-d8	98.8 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	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: 019-2422
Project: Hicks 7 23

Base1-4

10/22/2019 10:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y910327-02 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9J2205	KDK	10/22/2019	10/23/2019	U
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Surrogate: o-Terphenyl	74.1 %	50-150			"	"	"		
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GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9J2204	KDK	10/22/2019	10/23/2019	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
Naphthalene	ND	0.008	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	112 %	70-130			"	"	"		
Surrogate: Toluene-d8	104 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	106 %	70-130			"	"	"		

Metals (Saturated Paste Prep)

Calcium	2.51	me/L	1	[none]		10/23/2019	10/28/2019
Magnesium	2.11	"	"	"		"	"
Sodium	2.16	"	"	"		"	"

pH in Soil by EPA 9045D

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Trent Watne
Project Number: 019-2422
Project: Hicks 7 23

Base1-4

10/22/2019 10:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y910327-02 (Soil)

pH in Soil by EPA 9045D

pH	8.51		pH Units	1	B9J2209	TEM	10/22/2019	10/22/2019	
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SAR by 20B Saturated Paste

SAR	1.42			1	[none]		10/23/2019	10/28/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.119	0.00500	mmhos/cm	1	B9J2210	TEM	10/22/2019	10/22/2019	
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Denver CO 80204

Trent Watne
Project Number: 019-2422
Project: Hicks 7 23

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 B9J2204 - EPA 5030 (soil)										
Blank (B9J2204-BLK1)					Prepared: 10/22/2019 Analyzed: 10/22/2019					
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	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

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Trent Watne
Project Number: 019-2422
Project: Hicks 7 23

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 B9J2204 - EPA 5030 (soil)										
LCS (B9J2204-BS1)					Prepared: 10/22/2019 Analyzed: 10/22/2019					
Benzene	0.099	0.002	mg/kg	0.100		98.6	70-130			
Toluene	0.097	0.002	"	0.100		97.0	70-130			
Ethylbenzene	0.096	0.002	"	0.100		96.1	70-130			
m,p-Xylene	0.181	0.004	"	0.200		90.4	70-130			
o-Xylene	0.090	0.002	"	0.100		90.2	70-130			
Naphthalene	0.102	0.008	"	0.100		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		110	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.1	70-130			

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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 B9J2204 - EPA 5030 (soil)										
Matrix Spike (B9J2204-MS1)		Source: Y910317-01			Prepared: 10/22/2019 Analyzed: 10/22/2019					
Benzene	0.118	0.002	mg/kg	0.100	ND	118	70-130			
Toluene	0.116	0.002	"	0.100	ND	116	70-130			
Ethylbenzene	0.125	0.002	"	0.100	0.002	123	70-130			
m,p-Xylene	0.238	0.004	"	0.200	0.004	117	70-130			
o-Xylene	0.122	0.002	"	0.100	0.004	118	70-130			
Naphthalene	0.136	0.008	"	0.100	0.003	133	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		112	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

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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 B9J2204 - EPA 5030 (soil)										
Matrix Spike Dup (B9J2204-MSD1)										
					Source: Y910317-01					
										Prepared: 10/22/2019 Analyzed: 10/22/2019
Benzene	0.105	0.002	mg/kg	0.100	ND	105	70-130	11.2	20	
Toluene	0.096	0.002	"	0.100	ND	95.6	70-130	19.6	20	
Ethylbenzene	0.096	0.002	"	0.100	0.002	93.4	70-130	26.6	20	QR-03
m,p-Xylene	0.172	0.004	"	0.200	0.004	84.0	70-130	32.6	20	QR-03
o-Xylene	0.090	0.002	"	0.100	0.004	85.9	70-130	30.1	20	QR-03
Naphthalene	0.087	0.008	"	0.100	0.003	83.8	70-130	44.1	20	QR-03
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		109	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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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 B9J2205 - EPA 3580

Blank (B9J2205-BLK1)

Prepared: 10/22/2019 Analyzed: 10/22/2019

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	21		"	25.0		84.2	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 B9J2205 - EPA 3580

LCS (B9J2205-BS1)

Prepared: 10/22/2019 Analyzed: 10/22/2019

Diesel (C10-C28)	1120	50.0	mg/kg	1000		112	70-130			
Surrogate: o-Terphenyl	60		"	50.0		120	50-150			

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Jen Pellegrini, Project Manager

Olsson Associates
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Denver CO 80204

Trent Watne
Project Number: 019-2422
Project: Hicks 7 23

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 B9J2205 - EPA 3580

Matrix Spike (B9J2205-MS1)		Source: Y910321-01			Prepared: 10/22/2019 Analyzed: 10/22/2019					
Diesel (C10-C28)	935	50.0	mg/kg	1000	18.4	91.7	70-130			
Surrogate: o-Terphenyl	46		"	50.0		92.2	50-150			

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Project Number: 019-2422
Project: Hicks 7 23

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 B9J2205 - EPA 3580

Matrix Spike Dup (B9J2205-MSD1)		Source: Y910321-01			Prepared: 10/22/2019 Analyzed: 10/22/2019					
Diesel (C10-C28)	1080	50.0	mg/kg	1000	18.4	106	70-130	14.0	35	
Surrogate: o-Terphenyl	54		"	50.0		107	50-150			

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Trent Watne
Project Number: 019-2422
Project: Hicks 7 23

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 B9J2209 - NO PREP

Duplicate (B9J2209-DUP1)		Source: Y910327-02			Prepared: 10/22/2019 Analyzed: 10/22/2019					
pH	8.45		pH Units		8.51			0.708	25	

Batch B9J2210 - NO PREP

Blank (B9J2210-BLK1)		Prepared: 10/22/2019 Analyzed: 10/22/2019								
Specific Conductance (EC)	0.00400	0.00500	mmhos/cm							
Duplicate (B9J2210-DUP1)		Source: Y910327-02			Prepared: 10/22/2019 Analyzed: 10/22/2019					
Specific Conductance (EC)	0.121	0.00502	mmhos/cm		0.119			1.83	25	

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Jen Pellegrini, Project Manager

Olsson Associates

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-2422

Project: Hicks 7 23

Notes and Definitions

U Sample is Non-Detect.

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

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

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