

TABLE 1

Organic Compound Analytical Results

**Whiting Oil and Gas Corporation
Horsetail 07-0611H
Antelope Field - Weld County, Colorado**

Sample ID	Sample Depth (inches)	Date	Volatile Organic Compounds in Soil				TPH in Soil		Notes
			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	
CS-1	4 - 6	6/18/2014	< 0.002	0.0022	< 0.002	< 0.002	< 0.200	< 50	
CS-2	4 - 6	6/18/2014	< 0.002	0.0114	0.0041	0.0304	< 0.200	< 50	
CS-3	4 - 6	6/18/2014	< 0.002	0.0063	< 0.002	0.0147	< 0.200	< 50	
CS-4	4 - 6	6/23/2014	< 0.002	< 0.002	< 0.002	0.009	< 50	699	
CS-5	4 - 6	6/23/2014	0.003	0.02	< 0.002	0.003	< 50	< 50	
CS-6	4 - 6	6/23/2014	< 0.002	< 0.002	< 0.002	< 0.002	< 50	105	
HT-07-0611H	4 - 6	8/27/2014	< 0.002	< 0.002	< 0.002	< 0.002	< 50	< 50	Resample of CS-4
COGCC T 910-1			0.17	85	100	175	500	500	

COGCC - T 910-1: Colorado Oil and Gas Conservation Commission Table 910-1 concentration levels

mg/kg - milligrams per kilogram

TPH - Total Petroleum Hydrocarbons

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

< - Compound/Parameter was not detected above the laboratory reporting limit (RL)

August 29, 2014

Olsson Associates

James Hartsig

4690 Table Mountain Drive

Golden CO 80403

Project Name - Two Mile & Razor 27L

Project Number - [none]

Attached are your analytical results for Two Mile & Razor 27L received by Origins Laboratory, Inc. August 28, 2014. This project is associated with Origins project number X408248-01.

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
4690 Table Mountain Drive
Golden CO 80403

James Hartsig
Project Number: [none]
Project: Two Mile & Razor 27L

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TM-1	X408248-01	Soil	August 25, 2014 13:15	08/28/2014 17:10
HT-1610B	X408248-02	Soil	August 27, 2014 13:30	08/28/2014 17:10
HT-07-0611M	X408248-03	Soil	August 27, 2014 13:15	08/28/2014 17:10
RZ 27L	X408248-04	Soil	August 27, 2014 13:55	08/28/2014 17:10

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.

Noelle Doyle Mathis, President

Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X408248

Client: Olsson

Client Project ID: Two Mile & Razor 27L

Checklist Completed by: Jeff Smiriv

Shipped Via: H/D - Carrier
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 8/28/14

Airbill #: NA

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

Cooler Number/Temperature: 15.1 °C / _____ °C / _____ °C / _____ °C

Thermometer ID: 7062

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked ⁽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)			X	
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)

8/28/14
 Date/Time Reviewed

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

TM-1
 8/25/2014 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X408248-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4H28012	08/28/2014	08/28/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.0 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH) by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4H28003	08/28/2014	08/29/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	120 %	59-131			"	"	"	
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Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

HT-1610B

8/27/2014 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X408248-02 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4H28012	08/28/2014	08/28/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.9 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH) by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4H28003	08/28/2014	08/29/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	109 %	59-131			"	"	"	
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Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

HT-07-0611M
 8/27/2014 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X408248-03 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4H28012	08/28/2014	08/28/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.9 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH) by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4H28003	08/28/2014	08/29/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	106 %	59-131			"	"	"	
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Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

RZ 27L
 8/27/2014 1:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X408248-04 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4H28012	08/28/2014	08/28/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"	
Surrogate: Toluene-d8	99.9 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4H28003	08/28/2014	08/29/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	101 %	59-131			"	"	"	
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Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

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 4H28012 - EPA 5030 (soil)

Blank (4H28012-BLK1)

Prepared: 08/28/2014 Analyzed: 08/28/2014

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>65</i>		<i>ug/kg</i>	<i>62.5</i>	<i>104</i>	<i>70-130</i>				
<i>Surrogate: Toluene-d8</i>	<i>62</i>		<i>"</i>	<i>62.5</i>	<i>98.8</i>	<i>70-130</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>63</i>		<i>"</i>	<i>62.5</i>	<i>101</i>	<i>70-130</i>				

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

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 4H28012 - EPA 5030 (soil)

LCS (4H28012-BS1)

Prepared: 08/28/2014 Analyzed: 08/28/2014

Benzene	0.09	0.002	mg/kg	0.100		87.6	77.1-124			
Toluene	0.09	0.002	"	0.100		85.8	74.5-128			
Ethylbenzene	0.09	0.002	"	0.100		89.2	66.4-127			
m,p-Xylene	0.18	0.004	"	0.200		89.5	76.6-124			
o-Xylene	0.09	0.002	"	0.100		88.7	76.6-124			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>64</i>		<i>ug/kg</i>	<i>62.5</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>63</i>		<i>"</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>61</i>		<i>"</i>	<i>62.5</i>		<i>98.2</i>	<i>70-130</i>			

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

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 4H28012 - EPA 5030 (soil)

LCS Dup (4H28012-BSD1)

Prepared: 08/28/2014 Analyzed: 08/28/2014

Benzene	0.09	0.002	mg/kg	0.100		90.0	77.1-124	2.73	20	
Toluene	0.09	0.002	"	0.100		86.0	74.5-128	0.210	20	
Ethylbenzene	0.09	0.002	"	0.100		89.8	66.4-127	0.715	20	
m,p-Xylene	0.18	0.004	"	0.200		90.6	76.6-124	1.21	20	
o-Xylene	0.09	0.002	"	0.100		90.9	76.6-124	2.41	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>63</i>		<i>ug/kg</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>62</i>		<i>"</i>	<i>62.5</i>		<i>99.5</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>61</i>		<i>"</i>	<i>62.5</i>		<i>97.5</i>	<i>70-130</i>			

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hartsig
 Project Number: [none]
 Project: Two Mile & Razor 27L

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 8015M - 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 4H28003 - EPA 3580

Blank (4H28003-BLK1)

Prepared: 08/28/2014 Analyzed: 08/29/2014

Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
<i>Surrogate: o-Terphenyl</i>	<i>61</i>		<i>g</i>	<i>50.0</i>		<i>121</i>	<i>59-131</i>			<i>S-07</i>

LCS (4H28003-BS1)

Prepared: 08/28/2014 Analyzed: 08/28/2014

Gasoline (C6-C10)	1170	50.0	mg/kg	1000		117	59-133			
Diesel (C10-C28)	1170	50.0	"	1000		117	64-121			
<i>Surrogate: o-Terphenyl</i>	<i>58</i>		<i>g</i>	<i>50.0</i>		<i>116</i>	<i>59-131</i>			

Matrix Spike (4H28003-MS1)

Source: X408243-12

Prepared: 08/28/2014 Analyzed: 08/28/2014

Gasoline (C6-C10)	1150	50.0	mg/kg	1000	39.1	112	57-139			
Diesel (C10-C28)	1160	50.0	"	1000	ND	116	53-125			
<i>Surrogate: o-Terphenyl</i>	<i>57</i>		<i>g</i>	<i>50.0</i>		<i>114</i>	<i>59-131</i>			

Matrix Spike Dup (4H28003-MSD1)

Source: X408243-12

Prepared: 08/28/2014 Analyzed: 08/28/2014

Gasoline (C6-C10)	1120	50.0	mg/kg	1000	39.1	108	57-139	3.29	20	
Diesel (C10-C28)	1140	50.0	"	1000	ND	114	53-125	1.45	20	
<i>Surrogate: o-Terphenyl</i>	<i>57</i>		<i>g</i>	<i>50.0</i>		<i>114</i>	<i>59-131</i>			

Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

James Hartsig
Project Number: [none]
Project: Two Mile & Razor 27L

Notes and Definitions

S-07 High surrogate in sample, however sample is non-detect. High surrogate indicates result values are biased high.

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.

Noelle Doyle Mathis, President

June 25, 2014

Olsson Associates

James Hix

4690 Table Mountain Drive

Golden CO 80403

Project Name - Nelson 4A

Project Number - 013-2596

Attached are your analytical results for Nelson 4A received by Origins Laboratory, Inc. June 24, 2014. This project is associated with Origins project number X406283-01.

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
4690 Table Mountain Drive
Golden CO 80403

James Hix
Project Number: 013-2596
Project: Nelson 4A

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS-4	X406283-01	Soil	June 23, 2014 10:00	06/24/2014 13:45
CS-5	X406283-02	Soil	June 23, 2014 10:10	06/24/2014 13:45
CS-6	X406283-03	Soil	June 23, 2014 10:20	06/24/2014 13:45
HT-1	X406283-04	Soil	June 24, 2014 9:20	06/24/2014 13:45
WH-1	X406283-05	Soil	June 24, 2014 10:30	06/24/2014 13:45
N4-1	X406283-06	Soil	June 23, 2014 9:00	06/24/2014 13:45
N4-2	X406283-07	Soil	June 23, 2014 9:10	06/24/2014 13:45

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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

www.originslaboratory.com

page of

X406283

ORIGINS
 LABORATORY, INC

Client: OLSSON ASSOCIATES
 Address: 4690 TABLE MOUNTAIN DRIVE, SUITE 200, GOLDEN, CO 80403
 Telephone Number: 303-374-3139
 Email Address: j.hix@olssonassociates.com

Project Manager: JAMES HIX
 Project Name: NELSON 4A
 Project Number: 013-2596
 Samples Collected By: JAMES HARTSIG

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other	NO ₂ SO ₂	
CS-4	6-23-14	10:00	1						X			X	1
CS-5	6-23-14	10:10	1						X			X	2
CS-6	6-23-14	10:20	1						X			X	3
HT-1	6-24-14	9:20	1						X			X	4
WH-1	6-24-14	10:30	1						X			X	5
N4-1	6-23-14	9:00	1						X			X	6
N4-2	6-23-14	9:10	1						X			X	7
													8
													9
													10
Relinquished By: JAMES HARTSIG	Date: 6-24-14	Time: 13:45	Received By: [Signature]	Date: 6/24/14	Time: 13:45	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input checked="" type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/>	Standard <input type="checkbox"/>						

Date Results Needed

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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X406283 Client: OLSSON ASSOC.
 Client Project ID: NELSON 4A
 Checklist Completed by: MS Shipped Via: H/D
 Date/time completed: 6/24 1348 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: _____
 Matrix(s) Received: (Check all that apply): X Soil/Solid _____ Water _____ Other: _____
 Cooler Number/Temperature: _____ / 5.4 °C _____ / _____ °C (Describe)
 Thermometer ID: T002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	SOIL
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 analytes preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			X	SOIL
Additional Comments (if any): <u>Matt J. confirmed via verbal conversation with James Hix that GLO be analyzed by EOL</u>				

⁽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 be taken in the additional comments (above) and the case narrative.

Reviewed by: [Signature] (Project Manager)

072514 1523
 Date/Time Reviewed

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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

CS-4

6/23/2014 10:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406283-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4F24007	06/24/2014	06/24/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	0.009	0.002	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	128 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	103 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	99.2 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH) by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F24008	06/24/2014	06/24/2014	
Diesel (C10-C28)	699	50.0	"	"	"	"	"	

<i>Surrogate: o-Terphenyl</i>	93.2 %	59-131			"	"	"	
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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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

CS-5

6/23/2014 10:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406283-02 (Soil)

BTEX by EPA 8260C

Benzene	0.003	0.002	mg/kg	1	4F24007	06/24/2014	06/25/2014	
Toluene	0.02	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	0.003	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	115 %	70-130			"	"	"	
Surrogate: Toluene-d8	107 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH) by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F24008	06/24/2014	06/24/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	88.7 %	59-131			"	"	"	
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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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

CS-6

6/23/2014 10:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406283-03 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4F24007	06/24/2014	06/25/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	116 %	70-130			"	"	"	
Surrogate: Toluene-d8	107 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH) by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F24008	06/24/2014	06/24/2014	
Diesel (C10-C28)	105	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	86.1 %	59-131			"	"	"	
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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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

HT-1

6/24/2014 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406283-04 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4F24007	06/24/2014	06/25/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	117 %	70-130			"	"	"	
Surrogate: Toluene-d8	108 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.0 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH) by EPA 8015C

Gasoline (C6-C10)	ND	500	mg/kg	10	4F24008	06/24/2014	06/24/2014	
Diesel (C10-C28)	6630	500	"	"	"	"	"	

Surrogate: o-Terphenyl	107 %	59-131			"	"	"	
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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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

WH-1

6/24/2014 10:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406283-05 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4F24007	06/24/2014	06/25/2014	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.2 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F24008	06/24/2014	06/24/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	88.1 %	59-131			"	"	"	
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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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

N4-1
 6/23/2014 9:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406283-06 (Soil)

BTEX by EPA 8260C

Benzene	2.0	0.2	mg/kg	100	4F24007	06/24/2014	06/24/2014	
Toluene	18.4	0.5	"	250	"	"	06/25/2014	
Ethylbenzene	9.4	0.5	"	"	"	"	"	
Xylenes, total	67.6	0.5	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	98.8 %	70-130			"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	4400	50.0	mg/kg	1	4F24008	06/24/2014	06/24/2014	
Diesel (C10-C28)	1530	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	116 %	59-131			"	"	"	
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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
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

N4-2
 6/23/2014 9:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406283-07 (Soil)

BTEX by EPA 8260C

Benzene	3.4	0.5	mg/kg	250	4F24007	06/24/2014	06/25/2014	
Toluene	50.6	0.5	"	"	"	"	"	
Ethylbenzene	15.0	0.5	"	"	"	"	"	
Xylenes, total	89.6	0.5	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	98.9 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	109 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	102 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	7930	50.0	mg/kg	1	4F24008	06/24/2014	06/24/2014	
Diesel (C10-C28)	1640	50.0	"	"	"	"	"	

<i>Surrogate: o-Terphenyl</i>	110 %	59-131			"	"	"	
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Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

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 4F24007 - EPA 5030 (soil)

Blank (4F24007-BLK1)

Prepared: 06/24/2014 Analyzed: 06/24/2014

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>67</i>		<i>ug/kg</i>	<i>62.5</i>		<i>108</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>66</i>		<i>"</i>	<i>62.5</i>		<i>105</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>70</i>		<i>"</i>	<i>62.5</i>		<i>112</i>	<i>70-130</i>			

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

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 4F24007 - EPA 5030 (soil)

LCS (4F24007-BS1)

Prepared: 06/24/2014 Analyzed: 06/24/2014

Benzene	0.1	0.002	mg/kg	0.100	102	77.1-124				
Toluene	0.1	0.002	"	0.100	105	74.5-128				
Ethylbenzene	0.1	0.002	"	0.100	99.9	66.4-127				
m,p-Xylene	0.2	0.004	"	0.200	101	76.6-124				
o-Xylene	0.1	0.002	"	0.100	103	76.6-124				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>68</i>		<i>ug/kg</i>	<i>62.5</i>	<i>108</i>	<i>70-130</i>				
<i>Surrogate: Toluene-d8</i>	<i>64</i>		<i>"</i>	<i>62.5</i>	<i>102</i>	<i>70-130</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>64</i>		<i>"</i>	<i>62.5</i>	<i>102</i>	<i>70-130</i>				

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

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 4F24007 - EPA 5030 (soil)

Matrix Spike (4F24007-MS1)	Source: X406276-01			Prepared: 06/24/2014 Analyzed: 06/24/2014						
Benzene	0.09	0.002	mg/kg	0.100	ND	91.0	71.8-126			
Toluene	0.09	0.002	"	0.100	ND	91.3	65.1-130			
Ethylbenzene	0.09	0.002	"	0.100	ND	87.6	62.2-130			
m,p-Xylene	0.2	0.004	"	0.200	ND	87.7	46.5-137			
o-Xylene	0.09	0.002	"	0.100	ND	89.4	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

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 4F24007 - EPA 5030 (soil)

Matrix Spike Dup (4F24007-MSD1)	Source: X406276-01			Prepared: 06/24/2014 Analyzed: 06/24/2014						
Benzene	0.09	0.002	mg/kg	0.100	ND	93.2	71.8-126	2.39	11.3	
Toluene	0.1	0.002	"	0.100	ND	99.5	65.1-130	8.62	15.4	
Ethylbenzene	0.1	0.002	"	0.100	ND	96.7	62.2-130	9.79	19.6	
m,p-Xylene	0.2	0.004	"	0.200	ND	98.1	46.5-137	11.2	19.2	
o-Xylene	0.1	0.002	"	0.100	ND	97.3	54.2-134	8.47	17.9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>66</i>		<i>ug/kg</i>	<i>62.5</i>		<i>106</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>64</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>65</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>70-130</i>			

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Nelson 4A

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 8015M - 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 4F24008 - EPA 3580

Blank (4F24008-BLK1)

Prepared: 06/24/2014 Analyzed: 06/24/2014

Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
<i>Surrogate: o-Terphenyl</i>	45		g	50.0		89.5	59-131			

LCS (4F24008-BS1)

Prepared: 06/24/2014 Analyzed: 06/24/2014

Gasoline (C6-C10)	972	50.0	mg/kg	1000		97.2	59-133			
Diesel (C10-C28)	967	50.0	"	1000		96.7	64-121			
<i>Surrogate: o-Terphenyl</i>	47		g	50.0		93.5	59-131			

Matrix Spike (4F24008-MS1)

Source: X406276-01

Prepared: 06/24/2014 Analyzed: 06/24/2014

Gasoline (C6-C10)	1020	50.0	mg/kg	1000	ND	102	57-139			
Diesel (C10-C28)	998	50.0	"	1000	19.2	97.9	53-125			
<i>Surrogate: o-Terphenyl</i>	48		g	50.0		95.2	59-131			

Matrix Spike Dup (4F24008-MSD1)

Source: X406276-01

Prepared: 06/24/2014 Analyzed: 06/24/2014

Gasoline (C6-C10)	1040	50.0	mg/kg	1000	ND	104	57-139	2.30	20	
Diesel (C10-C28)	1070	50.0	"	1000	19.2	105	53-125	7.12	20	
<i>Surrogate: o-Terphenyl</i>	51		g	50.0		102	59-131			

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
4690 Table Mountain Drive
Golden CO 80403

James Hix
Project Number: 013-2596
Project: Nelson 4A

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.

Noelle Doyle Mathis, President

June 25, 2014

Olsson Associates

James Hix

4690 Table Mountain Drive

Golden CO 80403

Project Name - Horse Tail 07-06114

Project Number - 013-2596

Attached are your analytical results for Horse Tail 07-06114 received by Origins Laboratory, Inc. June 19, 2014. This project is associated with Origins project number X406233-01.

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
4690 Table Mountain Drive
Golden CO 80403

James Hix
Project Number: 013-2596
Project: Horse Tail 07-06114

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS-1	X406233-01	Soil	June 18, 2014 10:10	06/19/2014 10:45
CS-2	X406233-02	Soil	June 18, 2014 10:20	06/19/2014 10:45
CS-3	X406233-03	Soil	June 18, 2014 10:30	06/19/2014 10:45

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.

Noelle Doyle Mathis, President

Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X406233

Client: Olsson

Client Project ID: Horse Tail 07-06114

Checklist Completed by: Jeff Smith

Shipped Via: 171D

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

Date/time completed: 6/19/14 12:25

Airbill #: N/A

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

(Describe)

Cooler Number/Temperature: 15.2 °C 1 °C 1 °C 1 °C

Thermometer ID: T602

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked ⁽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 HNO3, HCl, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			X	
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.

James Hix
 Reviewed by (Project Manager)

6/23/14 1310
 Date/Time Reviewed

Origins Laboratory, Inc.



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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

CS-1

6/18/2014 10:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406233-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4F19011	06/19/2014	06/19/2014	
<i>Surrogate: o-Terphenyl</i>	<i>100 %</i>	<i>59-131</i>			<i>"</i>	<i>"</i>	<i>"</i>	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4F19010	06/19/2014	06/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	0.0022	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>	<i>70-130</i>			<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>	<i>70-130</i>			<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>	<i>70-130</i>			<i>"</i>	<i>"</i>	<i>"</i>	

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Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

CS-2

6/18/2014 10:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406233-02 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4F19011	06/19/2014	06/19/2014	
<i>Surrogate: o-Terphenyl</i>	82.2 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4F19010	06/19/2014	06/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	0.0114	0.0020	"	"	"	"	"	
Ethylbenzene	0.0041	0.0020	"	"	"	"	"	
Xylenes, total	0.0304	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	110 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	102 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	102 %	70-130			"	"	"	

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 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

CS-3

6/18/2014 10:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X406233-03 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4F19011	06/19/2014	06/19/2014	
<i>Surrogate: o-Terphenyl</i>	97.7 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4F19010	06/19/2014	06/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	0.0063	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	0.0147	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	104 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %	70-130			"	"	"	

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 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

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 4F19010 - EPA 5030 (soil)

Blank (4F19010-BLK1)

Prepared: 06/19/2014 Analyzed: 06/19/2014

Gasoline Range Hydrocarbons	ND	0.2	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>65.5</i>		<i>ug/kg</i>	<i>62.5</i>		<i>105</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>64.1</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>64.4</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>70-130</i>			

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Noelle Doyle Mathis, President

Olsson Associates
 4690 Table Mountain Drive
 Golden CO 80403

James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

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 4F19010 - EPA 5030 (soil)

LCS (4F19010-BS1)

Prepared: 06/19/2014 Analyzed: 06/19/2014

Benzene	0.09	0.002	mg/kg	0.100		94.6	77.1-124			
Toluene	0.1	0.002	"	0.100		96.5	74.5-128			
Ethylbenzene	0.1	0.002	"	0.100		107	66.4-127			
m,p-Xylene	0.2	0.004	"	0.200		107	76.6-124			
o-Xylene	0.1	0.002	"	0.100		105	76.6-124			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>61.6</i>		<i>ug/kg</i>	<i>62.5</i>		<i>98.6</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>64.2</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>63.4</i>		<i>"</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			

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James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

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 4F19010 - EPA 5030 (soil)

Matrix Spike (4F19010-MS1)	Source: X406233-01			Prepared: 06/19/2014 Analyzed: 06/19/2014						
Benzene	0.07	0.002	mg/kg	0.100	ND	69.9	71.8-126			J-02
Toluene	0.07	0.002	"	0.100	0.002	69.9	65.1-130			
Ethylbenzene	0.07	0.002	"	0.100	ND	67.6	62.2-130			
m,p-Xylene	0.1	0.004	"	0.200	0.001	68.9	46.5-137			
o-Xylene	0.07	0.002	"	0.100	0.002	69.5	54.2-134			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>68.1</i>		<i>ug/kg</i>	<i>62.5</i>		<i>109</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>63.2</i>		<i>"</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>62.3</i>		<i>"</i>	<i>62.5</i>		<i>99.7</i>	<i>70-130</i>			

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James Hix
 Project Number: 013-2596
 Project: Horse Tail 07-06114

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 4F19010 - EPA 5030 (soil)

Matrix Spike Dup (4F19010-MSD1)	Source: X406233-01			Prepared: 06/19/2014 Analyzed: 06/19/2014						
Benzene	0.07	0.002	mg/kg	0.100	ND	69.7	71.8-126	0.315	11.3	QM-07
Toluene	0.07	0.002	"	0.100	0.002	66.6	65.1-130	4.77	15.4	
Ethylbenzene	0.07	0.002	"	0.100	ND	65.9	62.2-130	2.64	19.6	
m,p-Xylene	0.1	0.004	"	0.200	0.001	68.0	46.5-137	1.35	19.2	
o-Xylene	0.07	0.002	"	0.100	0.002	66.2	54.2-134	4.73	17.9	
Surrogate: 1,2-Dichloroethane-d4	68.9		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	65.0		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	63.0		"	62.5		101	70-130			

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 Project: Horse Tail 07-06114

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 8015M - 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 4F19011 - EPA 3580

Blank (4F19011-BLK1)

Prepared: 06/19/2014 Analyzed: 06/19/2014

Diesel (C10-C28)	ND	50.0	mg/kg							
Surrogate: o-Terphenyl	46		g	50.0		92.4	59-131			

LCS (4F19011-BS1)

Prepared: 06/19/2014 Analyzed: 06/19/2014

Diesel (C10-C28)	1120	50.0	mg/kg	1000		112	64-121			
Surrogate: o-Terphenyl	54		g	50.0		109	59-131			

Matrix Spike (4F19011-MS1)

Source: X406225-02

Prepared: 06/19/2014 Analyzed: 06/19/2014

Diesel (C10-C28)	943	50.0	mg/kg	1000	19.7	92.3	53-125			
Surrogate: o-Terphenyl	46		g	50.0		91.4	59-131			

Matrix Spike Dup (4F19011-MSD1)

Source: X406225-02

Prepared: 06/19/2014 Analyzed: 06/19/2014

Diesel (C10-C28)	922	50.0	mg/kg	1000	19.7	90.2	53-125	2.28	20	
Surrogate: o-Terphenyl	44		g	50.0		88.8	59-131			

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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

James Hix
Project Number: 013-2596
Project: Horse Tail 07-06114

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- J-02 Reported value failed to meet established quality control criteria for the precision accuracy.
- 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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Noelle Doyle Mathis, President