



March 16, 2018

**Olsson Associates**

**Jason Davidson**

**4690 Table Mountain Drive**

**Golden**

**CO 80403**

**Project Name - GWOC Kraus Albin #22-20**

**Project Number - 018-0459**

Attached are your analytical results for GWOC Kraus Albin #22-20 received by Origins Laboratory, Inc. March 09, 2018. This project is associated with Origins project number Y803184-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



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

Olsson Associates  
4690 Table Mountain Drive  
Golden CO 80403

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01-17	Y803184-01	Soil	March 8, 2018 10:35	03/09/2018 13:45
SB02-18	Y803184-02	Soil	March 8, 2018 11:15	03/09/2018 13:45
SB03-24	Y803184-03	Soil	March 8, 2018 11:45	03/09/2018 13:45
SB04-22	Y803184-04	Soil	March 8, 2018 12:20	03/09/2018 13:45
SB05-21	Y803184-05	Soil	March 8, 2018 12:45	03/09/2018 13:45
SB06-21	Y803184-06	Soil	March 8, 2018 13:00	03/09/2018 13:45
SB07-17.5	Y803184-07	Soil	March 8, 2018 13:40	03/09/2018 13:45
SB08-21	Y803184-08	Soil	March 8, 2018 14:25	03/09/2018 13:45
SB09-20	Y803184-09	Soil	March 8, 2018 14:30	03/09/2018 13:45
SB10-22	Y803184-10	Soil	March 8, 2018 15:10	03/09/2018 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.*

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

[illegible]

Origins Laboratory, Inc.

Jeff Pellgrini

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

Olsson Associates  
4690 Table Mountain Drive  
Golden CO 80403

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

Origins Laboratory

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

### Sample Receipt Checklist

Origins Work Order: Y903184

Client: Olsson + Associates

Client Project ID: GWOC Kraus Albin #22-20

Checklist Completed by: JA

Shipped Via: HD

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

Date/time completed: 3/12/18

Airbill #: N/A

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

(Describe)

Cooler Number/Temperature: 1 / 2.9 °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C

Thermometer ID: T003

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

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

Reviewed by (Project Manager) JP

Date/Time Reviewed 3/13/18

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  
4690 Table Mountain Drive  
Golden CO 80403

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB01-17

3/8/2018 10:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
Y803184-01 (Soil)

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

Gasoline (C6-C10)	1070	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	
Diesel (C10-C28)	937	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	88.0 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB02-18

3/8/2018 11:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
Y803184-02 (Soil)

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

Gasoline (C6-C10)	81.7	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	
Diesel (C10-C28)	241	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	97.5 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB03-24

3/8/2018 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y803184-03 (Soil)**

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

Gasoline (C6-C10)	1290	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	
Diesel (C10-C28)	929	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	119 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB04-22

3/8/2018 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y803184-04 (Soil)**

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	79.8 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB05-21

3/8/2018 12:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
Y803184-05 (Soil)

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	80.4 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB06-21

3/8/2018 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y803184-06 (Soil)**

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	82.8 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB07-17.5

3/8/2018 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
Y803184-07 (Soil)

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	82.9 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB08-21

3/8/2018 2:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y803184-08 (Soil)**

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

Gasoline (C6-C10)	8730	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018
Diesel (C10-C28)	5490	50.0	"	"	"	"	"
Surrogate: o-Terphenyl	97.0 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB09-20

3/8/2018 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y803184-09 (Soil)**

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	84.5 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

SB10-22

3/8/2018 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y803184-10 (Soil)**

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

Gasoline (C6-C10)	792	50.0	mg/kg	1	B8C1407	03/14/2018	03/15/2018
Diesel (C10-C28)	703	50.0	"	"	"	"	"
Surrogate: o-Terphenyl	111 %	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

## 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
<b>Batch B8C1407 - EPA 3550B</b>										
<b>Blank (B8C1407-BLK1)</b>					Prepared: 03/14/2018 Analyzed: 03/14/2018					
Gasoline (C6-C10)	ND	50.0	mg/kg							U
Diesel (C10-C28)	ND	50.0	"							U
Surrogate: o-Terphenyl	46		"	50.0		91.3	59-131			
<b>Blank (B8C1407-BLK2)</b>					Prepared: 03/14/2018 Analyzed: 03/14/2018					
Gasoline (C6-C10)	ND	50.0	mg/kg							U
Diesel (C10-C28)	ND	50.0	"							U
Surrogate: o-Terphenyl	45		"	50.0		90.8	59-131			
<b>LCS (B8C1407-BS1)</b>					Prepared: 03/14/2018 Analyzed: 03/14/2018					
Gasoline (C6-C10)	847	50.0	mg/kg	1000		84.7	59-133			
Diesel (C10-C28)	1190	50.0	"	1000		119	64-121			
Surrogate: o-Terphenyl	52		"	50.0		103	59-131			
<b>LCS (B8C1407-BS2)</b>					Prepared: 03/14/2018 Analyzed: 03/15/2018					
Gasoline (C6-C10)	693	50.0	mg/kg	1000		69.3	59-133			
Diesel (C10-C28)	1130	50.0	"	1000		113	64-121			
Surrogate: o-Terphenyl	49		"	50.0		98.4	59-131			
<b>Matrix Spike (B8C1407-MS1)</b>					<b>Source: Y803189-01</b>		Prepared: 03/14/2018 Analyzed: 03/14/2018			
Gasoline (C6-C10)	896	50.0	mg/kg	1000	ND	89.6	57-139			
Diesel (C10-C28)	1230	50.0	"	1000	20.9	121	53-125			
Surrogate: o-Terphenyl	52		"	50.0		105	59-131			
<b>Matrix Spike (B8C1407-MS2)</b>					<b>Source: Y803189-02</b>		Prepared: 03/14/2018 Analyzed: 03/14/2018			
Gasoline (C6-C10)	851	50.0	mg/kg	1000	ND	85.1	57-139			
Diesel (C10-C28)	1190	50.0	"	1000	27.2	117	53-125			
Surrogate: o-Terphenyl	52		"	50.0		103	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

## 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
<b>Batch B8C1407 - EPA 3550B</b>										
<b>Matrix Spike (B8C1407-MS2)</b>		<b>Source: Y803189-02</b>			Prepared: 03/14/2018 Analyzed: 03/14/2018					
<b>Matrix Spike Dup (B8C1407-MSD1)</b>		<b>Source: Y803189-01</b>			Prepared: 03/14/2018 Analyzed: 03/14/2018					
Gasoline (C6-C10)	843	50.0	mg/kg	1000	ND	84.3	57-139	6.17	20	
Diesel (C10-C28)	1170	50.0	"	1000	20.9	115	53-125	5.01	20	
Surrogate: o-Terphenyl	49		"	50.0		98.3	59-131			
<b>Matrix Spike Dup (B8C1407-MSD2)</b>		<b>Source: Y803189-02</b>			Prepared: 03/14/2018 Analyzed: 03/14/2018					
Gasoline (C6-C10)	848	50.0	mg/kg	1000	ND	84.8	57-139	0.337	20	
Diesel (C10-C28)	1150	50.0	"	1000	27.2	112	53-125	3.69	20	
Surrogate: o-Terphenyl	51		"	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

Jason Davidson  
Project Number: 018-0459  
Project: GWOC Kraus Albin #22-20

### Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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