

November 06, 2018

**Olsson Associates**

**James Hix**

**1525 Raleigh St, Suite 400**

**Denver CO 80204**

**Project Name - GWOG - Colorado State #2**

**Project Number - 018-**

Attached are your analytical results for GWOG - Colorado State #2 received by Origins Laboratory, Inc. October 29, 2018. This project is associated with Origins project number Y810429-01.

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

James Hix  
Project Number: 018-  
Project: GWOG - Colorado State #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS8@1.0ft NW	Y810429-01	Soil	October 29, 2018 13:03	10/29/2018 15:40
SS9@0-0.2ft NE	Y810429-02	Soil	October 29, 2018 13:15	10/29/2018 15:40

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager



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Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: YS10429 Client: Olsson Assoc.  
 Client Project ID: Raleigh - Colorado State #2  
 Checklist Completed by: Dan La Shipped Via: HD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Date/time completed: 10-29-12 Airbill #: NP  
 Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_  
 Cooler Number/Temperature: 1 / 10.6 °C 1 / \_\_\_\_\_ °C 1 / \_\_\_\_\_ °C (Describe)  
 Thermometer ID: 1005

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"/>		Sampled same Day
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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			<input checked="" 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) JHP Date/Time Reviewed 10/30/12

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**SS8@1.0ft NW**  
**10/29/2018 1:03:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**AAL, Inc.**  
**Y810429-01 (Soil)**

**Metals (Saturated Paste Prep)**

Calcium	7.34		me/L	1	'[none]'		11/01/2018	11/05/2018	
Magnesium	3.66		"	"	"		"	"	
Sodium	213.57		"	"	"		"	"	

**pH in Soil by EPA 9045D**

pH	8.44		pH Units	1	B8J3003	OLAB	10/30/2018	10/30/2018	
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**SAR by 20B Saturated Paste**

SAR	91.07			1	'[none]'		11/01/2018	11/05/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	1.42	0.00500	mmhos/cm	1	B8J3004	OLAB	10/30/2018	10/30/2018	
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**SS9@0-0.2ft NE**  
**10/29/2018 1:15:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**AAL, Inc.**  
**Y810429-02 (Soil)**

**Metals (Saturated Paste Prep)**

Calcium	0.71		me/L	1	'[none]'		11/01/2018	11/05/2018	
Magnesium	0.80		"	"	"		"	"	
Sodium	1.97		"	"	"		"	"	

**pH in Soil by EPA 9045D**

pH	8.43		pH Units	1	B8J3003	OLAB	10/30/2018	10/30/2018	
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**SAR by 20B Saturated Paste**

SAR	2.27			1	'[none]'		11/01/2018	11/05/2018	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0307	0.00500	mmhos/cm	1	B8J3004	OLAB	10/30/2018	10/30/2018	
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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
<b>Batch B8J3003 - NO PREP</b>										
<b>Duplicate (B8J3003-DUP1)</b>		<b>Source: Y810428-01</b>			Prepared: 10/30/2018 Analyzed: 10/30/2018					
pH	7.17		pH Units		7.35			2.48	25	
<b>Batch B8J3004 - NO PREP</b>										
<b>Blank (B8J3004-BLK1)</b>					Prepared: 10/30/2018 Analyzed: 10/30/2018					
Specific Conductance (EC)	0.00280	0.00500	mmhos/cm							
<b>Duplicate (B8J3004-DUP1)</b>		<b>Source: Y810428-01</b>			Prepared: 10/30/2018 Analyzed: 10/30/2018					
Specific Conductance (EC)	0.0383	0.00501	mmhos/cm		0.0360			6.19	25	

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### 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.

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Jen Pellegrini, Project Manager