



Mr. Jason Davidson, P.G.  
Senior EHS Specialist  
Great Western Operating Company  
1001 17<sup>th</sup> Street, Suite 2000  
Denver, Colorado 80202

August 26, 2020

***Via Email***

**RE: Great Western Grein 1 Remediation Progress Report  
Colorado Oil and Gas Conservation Commission Project #15153**

Dear Mr. Davidson,

Great Western Operating Company (GWOC) retained Olsson to oversee onsite landfarm treatment of hydrocarbon-impacted soil at the Great Western Grein 1 facility (Site) located in an agricultural field in the northwest quarter of the northeast quarter of Section 5, Township 1 South, Range 66 West, of the Sixth Principal Meridian, at coordinates 39.996675 north latitude and -104.792573 west longitude. A Site location map is presented as **Figure 1** included as **Attachment A**.

#### **Site Background and Limited Subsurface Investigations**

Petroleum hydrocarbon-impacted soil from a historical flowline release of unknown volume was discovered during the removal of a partially buried produced water vault on March 20, 2019 as part of plugging and abandoning activities. The initial spill was reported to the Colorado Oil and Gas Conservation Commission (COGCC) on March 21, 2019 (Spill Release Point ID 463759). The produced water tank was removed and addressed under a separate Supplemental Form 27 (Remediation Project Number #13007). A limited subsurface investigation was conducted on March 20, 2019. Five test pits were excavated to eight feet below ground surface (bgs) to define the vertical and horizontal extent of potentially impacted soil. Groundwater was encountered at eight feet bgs, but no groundwater samples were collected during the limited subsurface investigation. GWOC submitted a Supplemental Form 27 (Document #402035439) to the COGCC which included details of the limited subsurface investigation and laboratory analytical results. Following the initial limited subsurface investigation, it was determined an additional site investigation was needed at the Site.

To further delineate the horizontal hydrocarbon impacts at the Site, a soil boring investigation was conducted on March 29, 2019. Seventeen soil borings were advanced to approximately 15 feet bgs, and samples from nine borings were submitted for laboratory analysis and analyzed for total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO). In addition, four soil borings were converted to monitoring wells. Monitoring well MW-1 was installed in the source area and MW-2, MW-3 and MW-4 surrounded the source area to the southeast, northwest, and north, respectively. GWOC submitted a Supplemental

Form 27 (Document #402047090) to the COGCC which included details of the soil boring investigation and laboratory analytical results.

### **Onsite Soil Treatment**

GWOC submitted a Supplemental Form 27 (Document #402369773) to the COGCC proposing the excavation and landfarming of approximately 500 cubic yards of hydrocarbon-impacted soil from approximately three feet to ten feet bgs. Between July 13 and July 15, 2020, Remington Technologies, LLC (Remington) excavated approximately 470 cubic yards of hydrocarbon-impacted soil for onsite landfarm treatment with chemical oxidizer. The soil from the excavation consisted of silty sand from ground surface to approximately eight feet bgs. A medium dense clay with high plasticity was encountered at eight feet bgs. Source removal by excavation was conducted based on the results of the soil boring investigation, visual and olfactory observations, field soil screening, and laboratory analysis. Hydrocarbon-impacted soil was observed from three feet bgs and extended to nine feet bgs on the east end of the excavation. As the excavation advanced to the west, the depth of the excavation gradually decreased to six feet bgs with an average depth of seven feet bgs. The excavation measured 60 feet by 35 feet at its longest and widest points.

Five excavation confirmation soil samples (one base and four sidewall) were collected and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), TPH-GRO and TPH-DRO. Concentrations of BTEX, TPH-GRO, and TPH-DRO were either not reported at or above laboratory detection limits or were reported below their respective Table 910-1 concentration levels. Confirmation soil sample depths and locations are illustrated on **Figure 2** included as **Attachment A**

Prior to the placement of hydrocarbon-impacted soil on the designated landfarm area, two background soil samples were collected and analyzed for BTEX, TPH-GRO, and TPH-DRO. Excavated soil was placed in approximately six-inch lifts and two composite confirmation samples were collected from each lift. Approximately 470 cubic yards of hydrocarbon-impacted soil were treated in four lifts and eight composite confirmation samples were collected and analyzed for BTEX, TPH-GRO, and TPH-DRO. Concentrations of BTEX, TPH-GRO, and TPH-DRO were either not reported at or above laboratory detection limits or were reported below their respective Table 910-1 concentration levels. Soil sampling analytical results are summarized on **Table 1** included as **Attachment B**.

Groundwater accumulated in the base of the excavation at seven feet bgs. On July 16, 2020, approximately 180 barrels of groundwater were removed from the base of the excavation and disposed of at the NGL Water Solutions DJ, LLC South Weld SWD1 Facility located in Brighton, Colorado. Copies of the disposal tickets are included as **Attachment C**. Following the dewatering of the excavation and to treat any remaining dissolved phase contamination, 4,200 pounds of Chemically Oxidized Granular Activated Carbon (COGAC™) were applied to the base of the excavation prior to backfill with the treated soil from the landfarm.

Following backfill of treated soil, two background confirmation soil samples were collected from the native soil beneath the landfarm and submitted for laboratory analysis of BTEX, TPH-GRO, and TPH-DRO. Concentrations of BTEX, TPH-GRO, and TPH-DRO were all reported either below laboratory reporting limits or below Table 910-1 concentrations levels. The background sample locations are illustrated on **Figure 2** included as **Attachment A**, and analytical results are summarized on **Table 1** which is included as **Attachment B**. Copies of the laboratory analytical reports are included as **Attachment D** and Remington's Soil Excavation and Treatment Report is included as **Attachment E**.

### **Groundwater Monitoring Well Installation and Sampling**

Groundwater at the Site has been sampled for BTEX analysis on a quarterly schedule since June 4, 2019. Sometime between June 4 and September 30, 2019 monitoring wells MW-1 and MW-3 were destroyed. Replacement monitoring wells MW-1R and MW-3R were installed on July 20, 2020. In addition, monitoring well MW-5 was installed to the southwest to further establish points of compliance. Following well development, the new monitoring wells were sampled and analyzed for BTEX on July 21, 2020. Monitoring wells MW-2 and MW-4 were sampled on June 23, 2020 as part of the scheduled quarterly sampling event. Concentrations of BTEX were reported below the laboratory reporting limit in the groundwater sample from each monitoring well. The well locations and analytical results are depicted on **Figure 3** included as **Attachment A**, and the groundwater analytical results are summarized on **Table 2** included as **Attachment B**. Based on revised survey elevation data and groundwater levels collected on July 21, 2020, groundwater at the Site flows to the northwest and is depicted on the Potentiometric Surface Diagram **Figure 4** included as **Attachment B**. Copies of the laboratory analytical reports from June 23, 2020 and July 21, 2020 are included as **Attachment D**. The boring logs for monitoring wells MW-1R, MW-3R and MW-5 are included as **Attachment F**.

Groundwater monitoring will continue until four consecutive quarters of analytical results below Table 910-1 concentration levels for BTEX are obtained. Monitoring wells will remain in place until project closure, at which time they will be abandoned in accordance with State standards.

Olsson appreciates the opportunity to assist GWOC to oversee onsite landfarm treatment of hydrocarbon-impacted soil and groundwater monitoring well installation and sampling services at the Grein 1 facility. Should you have any questions, please contact me at 303-237-2072 or at [twatne@olsson.com](mailto:twatne@olsson.com).

Sincerely,

**OLSSON**



**Trent Watne**  
*Senior Scientist*

Great Western Operating Company  
Great Western Grein #1  
Adams County, Colorado  
Olsson Project #019-0896

**Attachment A**

Figure 1 - Site Location Diagram

Figure 2 - Confirmation Soil Sample Locations and Analytical Summary Diagram

Figure 3 - Monitoring Well Locations and Analytical Summary Diagram

Figure 4 - Potentiometric Surface Diagram July 21, 2020

**Attachment B**

Table 1 - Confirmation Soil Sample Analytical Summary

Table 2 - Groundwater Analytical Summary

**Attachment C**

NGL Water Solutions DJ, LLC Disposal Tickets

**Attachment D**

Origins Laboratory Analytical Reports

**Attachment E**

Remington Technologies, LLC Soil Excavation and Treatment Report

**Attachment F**

Monitoring Well Boring Logs (MW-1R, MW-3R, MW-5)

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# ATTACHMENT A

## Figures

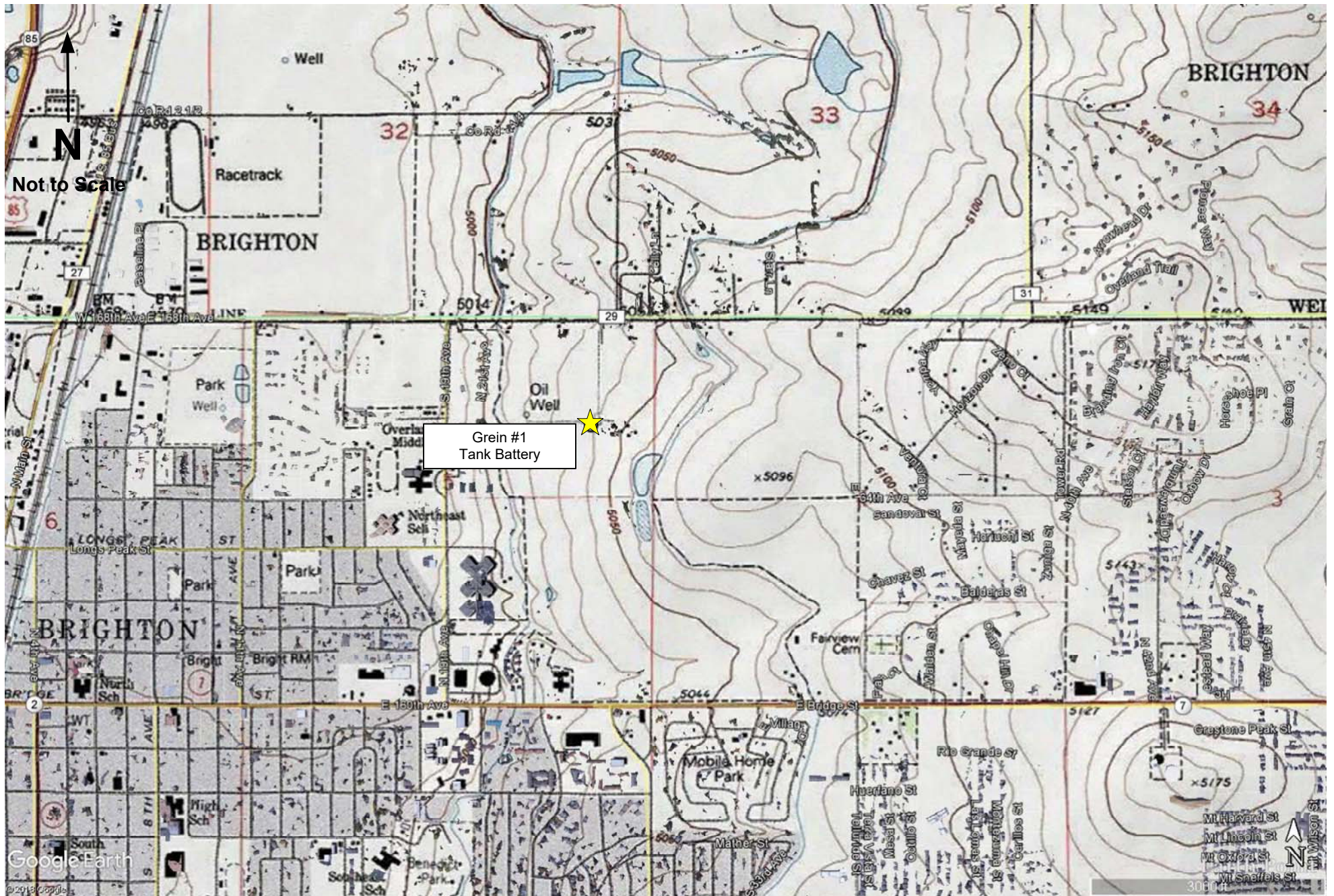
Figure 1 - Site Location Diagram

Figure 2 - Confirmation Soil Sample Locations and Analytical Summary Diagram

Figure 3 - Monitoring Well Locations and Analytical Summary Diagram

Figure 4 - Potentiometric Surface Diagram July 21, 2020





PROJECT NO: 019-

DRAWN BY: PTW

DATE: 03/19/19

Grein #1 Tank Battery  
Site Location Diagram  
NWNE S5 T1S R66W  
Adams County, Colorado

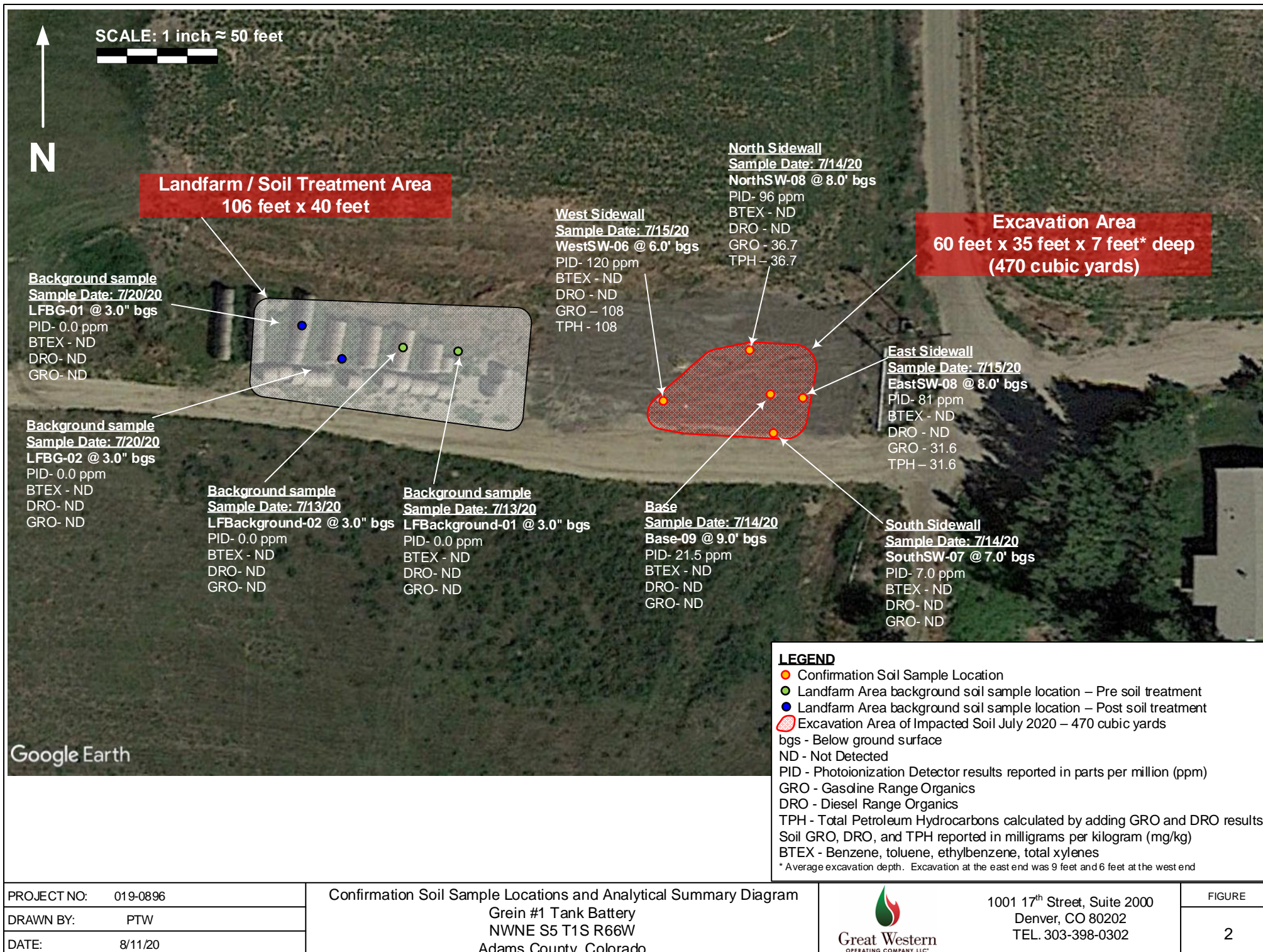
**olsson**

1525 Raleigh Street  
Suite 400  
Denver, CO 80204  
TEL 303-237-2072  
FAX 303-237-2659

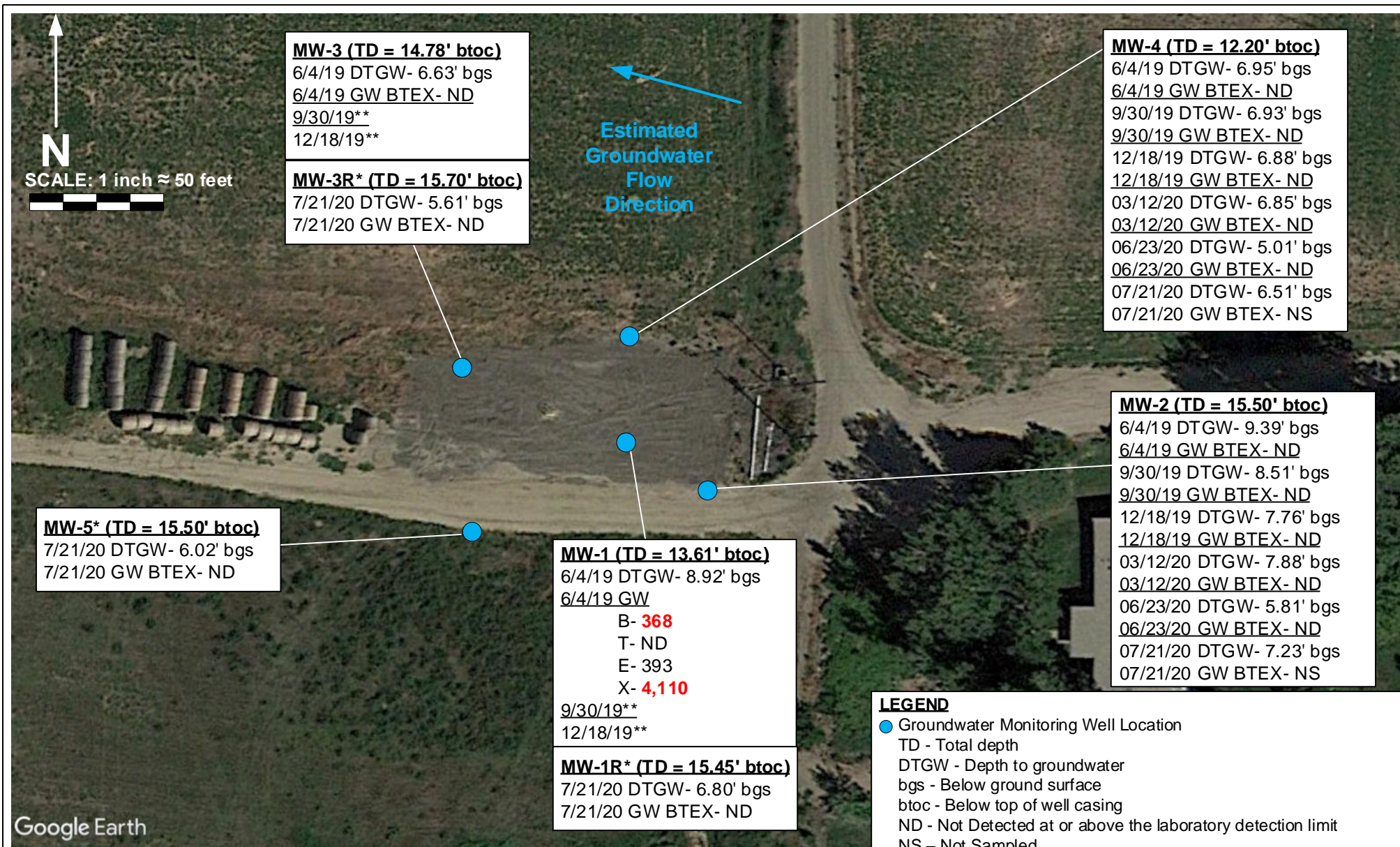
FIGURE

1









PROJECT NO: 019-0896

DRAWN BY: PTW

DATE: 8/12/20

# Groundwater Monitoring Well Locations and Analytical Summary Diagram

Grein #1 Tank Battery  
 NWNE S5 T1S R66W  
 Adams County, Colorado

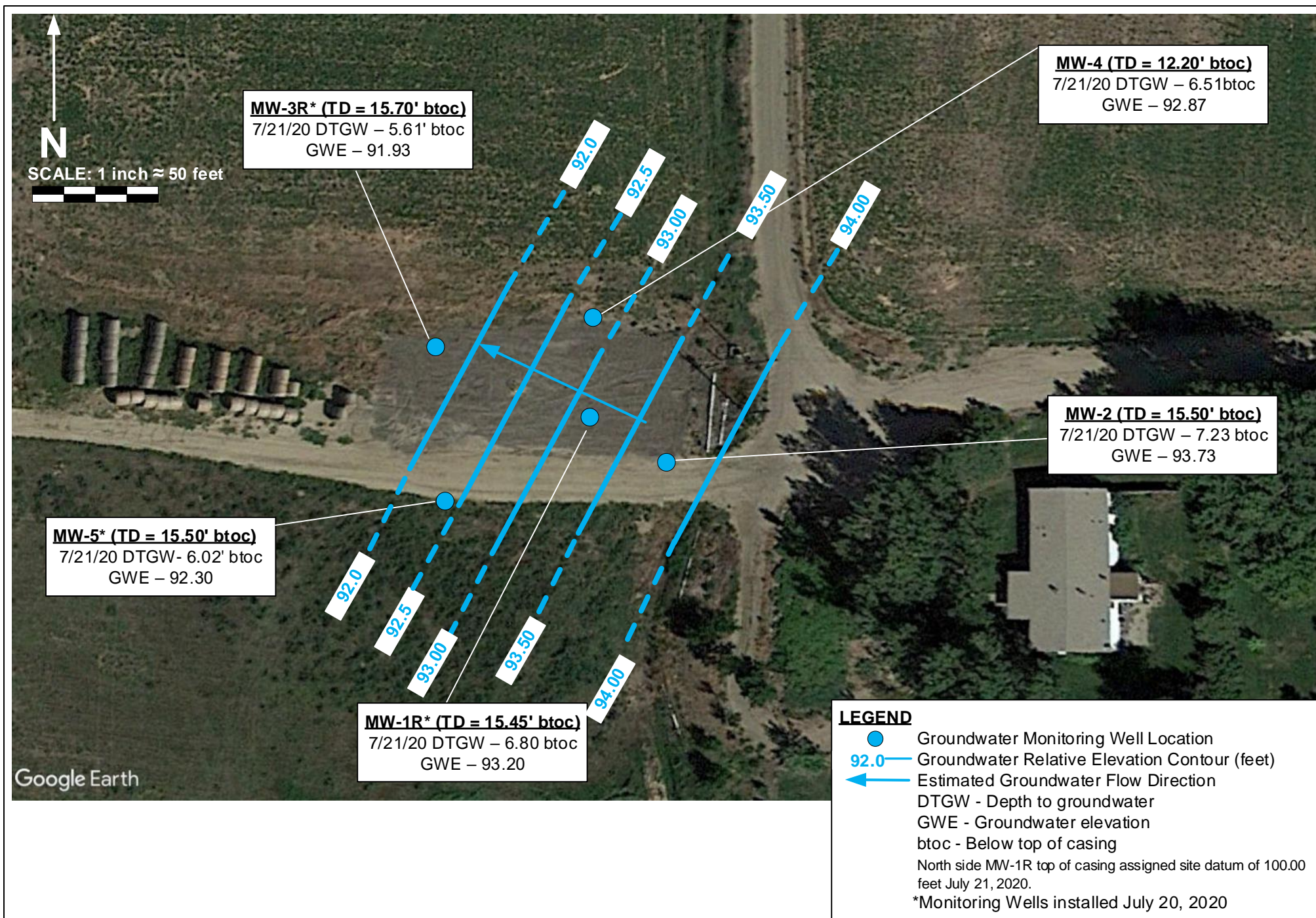


1001 17<sup>th</sup> Street, Suite 2000  
 Denver, CO 80202  
 TEL. 303-398-0302

FIGURE

3





PROJECT NO: 019-0896

DRAWN BY: PTW

DATE: 8/12/20

Potentiometric Surface Diagram July 21, 2020

Grein #1 Tank Battery  
NWNE S5 T1S R66W  
Adams County, Colorado



1001 17<sup>th</sup> Street, Suite 2000  
Denver, CO 80202  
TEL. 303-398-0302

FIGURE

4

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# ATTACHMENT B

## Tables

Table 1 – Confirmation Soil Sample Analytical Summary

Table 2 – Groundwater Analytical Summary



**Table 1**  
**Grein #1 Tank Pull**  
**Confirmation Soil Sample Analytical Summary**  
**July 13 through July 20, 2020**  
**Adams County, Colorado**

Sample Number	Sample Date	Sample Depth (in-bgs)	PID (ppm)	BTEX (mg/kg)				TPH (mg/kg)			Sample Location
				Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO (C6-C10 Range)	DRO (C10-C28 Range)	TPH=GRO+DRO	
*COGCC Table 910-1 Concentration Levels				0.17	85	100	175	500	500	500	
<b>Excavation Confirmation Samples</b>											
SouthSW-07	7/14/2020	84	7	ND	ND	ND	ND	ND	ND	ND	39.99663312, -104.79253724
Base-09	7/14/2020	108	21.5	ND	ND	ND	ND	ND	ND	ND	39.99667162, -104.79253462
NorthSW-08	7/14/2020	96	85	ND	ND	ND	ND	36.7	ND	36.7	39.99672420, -104.79256660
WestSW-06	7/15/2020	72	120	ND	ND	ND	ND	108	ND	108	39.99666721, -104.79269150
EastSW-08	7/15/2020	96	81	ND	ND	ND	ND	31.6	ND	31.6	39.99666945, -104.79249459
<b>Landfarm / Soil Treatment Confirmation Samples</b>											
LFBbackground-01	7/13/2020	3	0.0	ND	ND	ND	ND	ND	ND	ND	39.99670780, -104.79296185
LFBbackground-02	7/13/2020	3	0.0	ND	ND	ND	ND	ND	ND	ND	39.99671568, -104.79304857
LFift1-01	7/14/2020	3	75	ND	ND	ND	ND	45.4	ND	45.4	Landfarm composite sample
LFift1-02	7/14/2020	3	125	ND	ND	ND	ND	46.1	ND	46.1	Landfarm composite sample
LFift2-01	7/14/2020	3	136	NA	NA	NA	NA	45.2	ND	45.2	Landfarm composite sample
LFift2-02	7/14/2020	3	175	NA	NA	NA	NA	48.3	ND	48.3	Landfarm composite sample
LFift3-01	7/15/2020	3	173	ND	ND	ND	ND	235	58.8	294	Landfarm composite sample
LFift3-02	7/15/2020	3	126	ND	ND	ND	ND	274	74	348	Landfarm composite sample
LFift4-01	7/15/2020	3	85	ND	ND	ND	ND	124	55.9	180	Landfarm composite sample
LFift4-02	7/15/2020	3	77	ND	ND	ND	ND	122	ND	122	Landfarm composite sample
LFBG-01	7/20/2020	3	0.0	ND	ND	ND	ND	ND	ND	ND	39.99670799, -104.79313355
LFBG-02	7/20/2020	3	0.0	ND	ND	ND	ND	ND	ND	ND	39.99674330, -104.79319059
<b>Soil Boring Samples</b>											
MW5-07	7/20/2020	72	0.0	ND	ND	ND	ND	ND	ND	ND	39.99658066, -104.79276613

\*Colorado Oil and Gas Conservation Commission (COGCC), 900 Series, Exploration and Production Waste Management, Table 910-1, Concentration Levels, January 14, 2020

in-bgs - Inches below ground surface

mg/kg - Milligrams per kilogram

PID - Photo-ionization detector

ppm - Parts per million

BTEX - Benzene, toluene, ethylbenzene, total xylenes

TPH - Total petroleum hydrocarbons

GRO - Gasoline range organics

DRO - Diesel range organics

ND - Not detected above the laboratory reporting limit

NA - Not Analyzed

**Table 2**  
**Grein #1 Tank Battery**  
**Groundwater Depth and Analytical Summary**  
**Adams County, Colorado**

Well Number	Sample Date	Groundwater Depth (ft-btoc)	Total Depth (ft-btoc)	Groundwater Elevation (ft-btoc)	BTEX (µg/L)				Notes
					Benzene	Toluene	Ethylbenzene	Total Xylenes	
<b>COGCC Table 910-1 Concentration Levels</b>					<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
MW-1**	6/4/2019	8.92	13.61	92.93	<b>368</b>	ND	393	<b>4,110</b>	39.996673, -104.792547
MW-1R*	7/21/2020	6.80	15.45	93.20	ND	ND	ND	ND	39.996675, -104.792560
MW-2	6/4/2019	9.39	15.50	92.31	ND	ND	ND	ND	39.996617, -104.792462
	9/30/2019	8.51	15.50	93.19	ND	ND	ND	ND	39.996617, -104.792462
	12/18/2019	7.76	15.50	93.94	ND	ND	ND	ND	39.996617, -104.792462
	3/12/2020	7.88	15.50	93.82	ND	ND	ND	ND	39.996617, -104.792462
	6/23/2020	5.81	15.50	95.89	ND	ND	ND	ND	39.996617, -104.792462
	7/21/2020	7.23	15.50	93.73	NA	NA	NA	NA	39.996617, -104.792462
MW-3**	6/4/2019	6.63	14.78	93.97	ND	ND	ND	ND	39.996744, -104.792768
MW-3R***	7/21/2020	5.61	15.70	91.93	ND	ND	ND	ND	39.996749, -104.792776
MW-4	6/4/2019	6.95	12.20	93.05	ND	ND	ND	ND	39.996783, -104.792558
	9/30/2019	6.93	12.20	93.07	ND	ND	ND	ND	39.996783, -104.792558
	12/18/2019	6.88	12.20	93.12	ND	ND	ND	ND	39.996783, -104.792558
	3/12/2020	6.85	12.20	93.15	ND	ND	ND	ND	39.996783, -104.792558
	6/23/2020	5.01	12.20	94.99	ND	ND	ND	ND	39.996783, -104.792558
	7/21/2020	6.51	12.20	92.87	NA	NA	NA	NA	39.996783, -104.792558
MW-5***	7/21/2020	6.02	15.50	92.30	ND	ND	ND	ND	39.996580, -104.792766

COGCC, 900 Series, Exploration and Production Waste Management, Table 910-1, Concentration Levels, January 14, 2020

\*MW-1R top of casing assigned site datum of 100.00 feet for July 21, 2020 - Monitoring wells resurveyed 7/21/20

\*\*Monitoring Well was destroyed sometime between 6/5/19 (2Q2019) and 9/30/19 (3Q2019)

\*\*\*Monitoring wells (MW-1R, MW-3R, & MW-5) were installed 7/20/20

BTEX - Benzene, toluene, ethylbenzene, total xylenes

Ft-btoc - Feet below top of casing

µg/L - Micrograms per liter

**Bold** - Above COGCC Table 910-1 concentration levels

ND - Sample not reported above laboratory reporting limit

NA - Not Analyzed



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## ATTACHMENT C

### NGL Water Solutions DJ, LLC Water Disposal Tickets



Energy Partners LP

NGL WATER SOLUTIONS DJ, LLC  
3773 Cherry Creek N Dr  
Ste 1000  
Denver, CO, 80209  
303-815-1010

**07/16/2020 09:26 AM**

**Disposal Water Ticket**

Facility	South Weld SWD1
Lane No	
Pre-Approval Code	-
Confirmation Code	-
Day Manifest	-
Ticket Date	07/16/2020
Facility Ticket Number	SW1-5920
Transporter Ticket Number	3
PO Number	
Order Number	
Delivery Method	Truck
Trucking Company Name	ACME OILFIELD SERVICES LLC
Driver Name	GEORGE MEDRANO
Truck Number	201
Trailer Number	BOBTAIL
Operator Name	GREAT WESTERN OIL & GAS CO.
Well Name	GREIN 1
Well Number	
Tank Number	
Product	Produced
UOM	BBL
Qty	110

**Driver Notes:**

SUCK RAIN WATER OUT OF BIG CONTAINMENT

**Note:**





Energy Partners LP

NGL WATER SOLUTIONS DJ, LLC  
3773 Cherry Creek N Dr  
Ste 1000  
Denver, CO, 80209  
303-815-1010

07/16/2020 11:29 AM

Disposal Water Ticket

Facility	South Weld SWD1
Lane No	
Pre-Approval Code	-
Confirmation Code	-
Day Manifest	-
Ticket Date	07/16/2020
Facility Ticket Number	SW1-5933
Transporter Ticket Number	4
PO Number	
Order Number	
Delivery Method	Truck
Trucking Company Name	ACME OILFIELD SERVICES LLC
Driver Name	GEORGE MEDRANO
Truck Number	201
Trailer Number	BOBTAIL
Operator Name	GREAT WESTERN OIL & GAS CO.
Well Name	GREIN 1
Well Number	
Tank Number	
Product	Produced
UOM	BBL
Qty	70

Driver Notes:

70BBLs SUCK OUT OF BIG CONTAINMENT

Note:

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## ATTACHMENT D

### Origins Laboratory Analytical Reports





July 15, 2020

**Olsson Associates**

**Trent Watne**

**1525 Raleigh St, Suite 400**

**Denver**

**CO 80204**

**Project Name - Grein #1**

**Project Number - 019-0896**

Attached are your analytical results for Grein #1 received by Origins Laboratory, Inc. July 14, 2020. This project is associated with Origins project number Y007185-01.

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

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-0896

Project: Grein #1

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SouthSW-07	Y007185-01	Soil	July 14, 2020 8:15	07/14/2020 16:40
Base-09	Y007185-02	Soil	July 14, 2020 8:30	07/14/2020 16:40
LFlift1-01	Y007185-03	Soil	July 14, 2020 11:30	07/14/2020 16:40
LFlift1-02	Y007185-04	Soil	July 14, 2020 11:35	07/14/2020 16:40
LFlift2-01	Y007185-05	Soil	July 14, 2020 14:30	07/14/2020 16:40
LFlift2-02	Y007185-06	Soil	July 14, 2020 14:35	07/14/2020 16:40
NorthSW-08	Y007185-07	Soil	July 14, 2020 15:30	07/14/2020 16:40

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

007-185

Chain of Custody

PROJECT NAME: <u>Grein</u>		PROJECT NUMBER: <u>019-0896</u>	
COMPANY NAME: <u>Olsson Associates</u>		PHONE NUMBER: <u>303-237-2072</u>	
ADDRESS: <u>1525 Raleigh St., Suite 400</u>		CITY/STATE/ZIP: <u>Denver, CO 80204</u>	
PROJECT MANAGER: <u>Trent Watne</u>		PHONE: <u>303-237-2072</u>	
SAMPLER: <u>Trent Watne</u>			

DIRECT BILL CLIENT:		CLIENT COMPANY: <u>Grein</u>	
YES: <input type="checkbox"/>		CLIENT NAME: <u>Jason Davidson</u>	
NO: <input checked="" type="checkbox"/>		CLIENT EMAIL: <u>jdavidson@grein.com</u>	
SEND COPY OF ANALYTICAL TO CLIENT:		CLIENT PROJECT #:	
YES: <input checked="" type="checkbox"/>		NO: <input type="checkbox"/>	

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Time Around Time (check)	DISPOSAL	By Lab	PAGE	of
	<u>SouthSW-07</u>	<u>Soil</u>	<u>7/14/20</u>	<u>2015</u>	<u>1</u>	<u>17hr</u>	<u>LAB USE ONLY:</u>			
	<u>Boys-09</u>	<u>Soil</u>	<u>7/14/20</u>	<u>0530</u>	<u>1</u>	<u>17hr</u>	Temperature upon receipt:			
	<u>LF11F11-02</u>	<u>Soil</u>	<u>7/14/20</u>	<u>1130</u>	<u>1</u>	<u>17hr</u>	Custody seals in lab: Yes No NA			
	<u>LF11F11-02</u>	<u>Soil</u>	<u>7/14/20</u>	<u>1105</u>	<u>1</u>	<u>17hr</u>				
	<u>LF11F12-02</u>	<u>Soil</u>	<u>7/14/20</u>	<u>1430</u>	<u>1</u>	<u>17hr</u>				
	<u>LF11F12-02</u>	<u>Soil</u>	<u>7/14/20</u>	<u>1435</u>	<u>1</u>	<u>17hr</u>				
	<u>LF11F12-02</u>	<u>Soil</u>	<u>7/14/20</u>	<u>1530</u>	<u>1</u>	<u>17hr</u>				
	<u>NorthSW-08</u>	<u>Soil</u>	<u>7/14/20</u>	<u>1530</u>	<u>1</u>	<u>17hr</u>				

RECEIVED BY	PRINTED NAME	SIGNATURE	DATE	TIME
BY <u>Jason Davidson</u>	<u>Jason Davidson</u>	<u>[Signature]</u>	<u>7/14/20</u>	<u>1640</u>
RECEIVED BY				
BY				
RECEIVED BY				
BY				

Q3 PACKAGE (Hazardous)	
X <input checked="" type="checkbox"/> LEVEL 1 (Sw/Soil/GC)	
LEVEL 2 (Sw/GC - 10ml)	
LEVEL 3 (Sw/GC - 10ml)	
LEVEL 4 (Sw/GC - 10ml)	

Comments:

Origins Laboratory, Inc.

*Jen 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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

Origins Laboratory

Sample Receipt Checklist

Origins Work Order: Y007185

Client: Olsson

Client Project ID: Grein

Checklist Completed by: JG

Date/Time completed: 7/14/2020

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

Airbill #: N/A

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

Cooler Number/Temperature: 1 17.8 °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 <sup>(1)</sup> ?				
Is there ice present (document if blue ice is used)				<u>Same Day</u>
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)				
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)				
Were all samples received intact <sup>(1)</sup> ?				
Was adequate sample volume provided <sup>(1)</sup> ?				
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?				
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?				
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?				
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?				
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?				
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.				
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 subcooled 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 <sub>2</sub> +NaOH)				
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) [Signature]

Date/Time Reviewed 7/14/20

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**SouthSW-07**  
**7/14/2020 8:15:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y007185-01 (Soil)**

**BTEX/TVPH by EPA 8260D**

Benzene	ND	0.0500	mg/kg	25	B0G1409	KDK	07/14/2020	07/14/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	93.7 %	70-130	"	"	"
Surrogate: Toluene-d8	99.5 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	98.6 %	70-130	"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1410	KDK	07/14/2020	07/14/2020	U
Surrogate: o-Terphenyl	64.0 %	50-150			"		"	"	

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: 019-0896  
Project: Grein #1

## Base-09

7/14/2020 8:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007185-02 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1409	KDK	07/14/2020	07/14/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	92.9 %	70-130			"	"	"
Surrogate: Toluene-d8	97.9 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1410	KDK	07/14/2020	07/14/2020	U
Surrogate: o-Terphenyl	62.1 %	50-150			"	"	"		

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: 019-0896  
Project: Grein #1

## LFliift1-01

7/14/2020 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007185-03 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1409	KDK	07/14/2020	07/14/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	45.4	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.2 %	70-130			"	"	"
Surrogate: Toluene-d8	99.8 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	99.4 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1410	KDK	07/14/2020	07/14/2020	U
Surrogate: o-Terphenyl	61.0 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

## LF11-02

7/14/2020 11:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007185-04 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1409	KDK	07/14/2020	07/14/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	46.1	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	94.6 %	70-130	"	"	"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	97.9 %	70-130	"	"	"	"	"	"	

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

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0G1410	KDK	07/14/2020	07/14/2020	U
Surrogate: o-Terphenyl	57.7 %	50-150	"	"	"	"	"	"	

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

## LFliift2-01

7/14/2020 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007185-05 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1409	KDK	07/14/2020	07/14/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	45.2	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.2 %	70-130			"	"	"
Surrogate: Toluene-d8	100 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.2 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0G1410	KDK	07/14/2020	07/14/2020	U
Surrogate: o-Terphenyl	65.9 %	50-150			"	"	"		

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

## LF1ift2-02

7/14/2020 2:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007185-06 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1409	KDK	07/14/2020	07/14/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	48.3	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.9 %	70-130	"	"	"	"	"	"	
Surrogate: Toluene-d8	100 %	70-130	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	99.0 %	70-130	"	"	"	"	"	"	

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

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0G1410	KDK	07/14/2020	07/14/2020	U
Surrogate: o-Terphenyl	66.7 %	50-150	"	"	"	"	"	"	

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**NorthSW-08**  
**7/14/2020 3:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y007185-07 (Soil)**

**BTEX/TVPH by EPA 8260D**

Benzene	ND	0.0500	mg/kg	25	B0G1409	KDK	07/14/2020	07/14/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	<b>36.7</b>	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.3 %	70-130			"	"	"
Surrogate: Toluene-d8	99.3 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	95.4 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	25.0	mg/kg	1	B0G1410	KDK	07/14/2020	07/14/2020	U
Surrogate: o-Terphenyl	62.2 %	50-150			"	"	"		

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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1409 - EPA 5030 (soil)</b>										
<b>Blank (B0G1409-BLK1)</b>					Prepared: 07/14/2020 Analyzed: 07/14/2020					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		94.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.7	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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1409 - EPA 5030 (soil)</b>										
<b>LCS (B0G1409-BS1)</b>					Prepared: 07/14/2020 Analyzed: 07/14/2020					
Benzene	0.0803	0.00200	mg/kg	0.100		80.3	70-130			
Toluene	0.0957	0.00200	"	0.100		95.7	70-130			
Ethylbenzene	0.0899	0.00200	"	0.100		89.9	70-130			
m,p-Xylene	0.182	0.00400	"	0.200		91.1	70-130			
o-Xylene	0.0845	0.00200	"	0.100		84.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		88.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	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: 019-0896  
Project: Grein #1

**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 B0G1409 - EPA 5030 (soil)**

Matrix Spike (B0G1409-MS1)		Source: Y007185-01			Prepared: 07/14/2020 Analyzed: 07/14/2020					
Benzene	0.0883	0.00200	mg/kg	0.100	ND	88.3	70-130			
Toluene	0.104	0.00200	"	0.100	ND	104	70-130			
Ethylbenzene	0.0993	0.00200	"	0.100	ND	99.3	70-130			
m,p-Xylene	0.202	0.00400	"	0.200	ND	101	70-130			
o-Xylene	0.0906	0.00200	"	0.100	ND	90.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		88.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.4	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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1409 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B0G1409-MSD1)</b>		<b>Source: Y007185-01</b>			Prepared: 07/14/2020 Analyzed: 07/14/2020					
Benzene	0.0829	0.00200	mg/kg	0.100	ND	82.9	70-130	6.28	20	
Toluene	0.0983	0.00200	"	0.100	ND	98.3	70-130	5.36	20	
Ethylbenzene	0.0942	0.00200	"	0.100	ND	94.2	70-130	5.23	20	
m,p-Xylene	0.193	0.00400	"	0.200	ND	96.6	70-130	4.32	20	
o-Xylene	0.0875	0.00200	"	0.100	ND	87.5	70-130	3.50	20	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		88.3	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.7	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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1410 - EPA 3550B

Blank (B0G1410-BLK1)

Prepared: 07/14/2020 Analyzed: 07/14/2020

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	17		"	25.0		66.2	50-150			

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: 019-0896  
Project: Grein #1

## 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 B0G1410 - EPA 3550B

### LCS (B0G1410-BS1)

Prepared: 07/14/2020 Analyzed: 07/14/2020

Diesel (C10-C28)	933	50.0	mg/kg	1000		93.3	70-130			
Surrogate: o-Terphenyl	41		"	50.0		82.2	50-150			

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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 B0G1410 - EPA 3550B

Matrix Spike (B0G1410-MS1)		Source: Y007185-01			Prepared: 07/14/2020 Analyzed: 07/14/2020					
Diesel (C10-C28)	954	50.0	mg/kg	1000	ND	95.4	70-130			
Surrogate: o-Terphenyl	40		"	50.0		79.1	50-150			

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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 B0G1410 - EPA 3550B

Matrix Spike Dup (B0G1410-MSD1)		Source: Y007185-01			Prepared: 07/14/2020 Analyzed: 07/14/2020					
Diesel (C10-C28)	955	50.0	mg/kg	1000	ND	95.5	70-130	0.0991	35	
Surrogate: o-Terphenyl	37		"	50.0		73.7	50-150			

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: 019-0896

Project: Grein #1

### 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.*

Jen Pellegrini, Project Manager





July 20, 2020

**Olsson Associates**

**Trent Watne**

**1525 Raleigh St, Suite 400**

**Denver**

**CO 80204**

**Project Name - Grein #1**

**Project Number - 019-0896**

Attached are your analytical results for Grein #1 received by Origins Laboratory, Inc. July 14, 2020. This project is associated with Origins project number Y007189-01.

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

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-0896

Project: Grein #1

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LFBBackground-01	Y007189-01	Soil	July 13, 2020 11:30	07/14/2020 16:40
LFBBackground-02	Y007189-02	Soil	July 13, 2020 11:35	07/14/2020 16:40

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.*

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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Origins Laboratory, Inc.

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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: Y007189

Client: Olsson

Client Project ID: Green

Checklist Completed by: JG

Date/time completed: 7/15/2020

Shipped Via: HD

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

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 17.8 °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 <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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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) Jm

7-14-20  
Date/Time Reviewed

Origins Laboratory, Inc.

*Jordan A. Merrill*

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**LFBckground-01**  
**7/13/2020 11:30:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y007189-01 (Soil)**

**BTEX/TVPH by EPA 8260D**

Benzene	ND	0.0500	mg/kg	25	B0G1504	KDK	07/15/2020	07/15/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	93.4 %	70-130	"	"	"
Surrogate: Toluene-d8	101 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130	"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1505	TEM	07/15/2020	07/17/2020	U
Surrogate: o-Terphenyl	53.4 %	50-150			"		"	"	

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**LFBckground-02**  
**7/13/2020 11:35:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y007189-02 (Soil)**

**BTEX/TVPH by EPA 8260D**

Benzene	ND	0.0500	mg/kg	25	B0G1504	KDK	07/15/2020	07/16/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	5.00	"	"	"	KDK	"	07/16/2020	U

Surrogate: 1,2-Dichloroethane-d4	92.4 %	70-130			"	"	07/16/2020
Surrogate: Toluene-d8	99.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1505	TEM	07/15/2020	07/16/2020	U
Surrogate: o-Terphenyl	53.0 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1504 - EPA 5030 (soil)</b>										
<b>Blank (B0G1504-BLK1)</b>					Prepared: 07/15/2020 Analyzed: 07/15/2020					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.0	70-130			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1504 - EPA 5030 (soil)**

**LCS (B0G1504-BS1)**

Prepared: 07/15/2020 Analyzed: 07/15/2020

Benzene	0.0901	0.00200	mg/kg	0.100		90.1	70-130			
Toluene	0.107	0.00200	"	0.100		107	70-130			
Ethylbenzene	0.100	0.00200	"	0.100		100	70-130			
m,p-Xylene	0.206	0.00400	"	0.200		103	70-130			
o-Xylene	0.0932	0.00200	"	0.100		93.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		89.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.3	70-130			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1504 - EPA 5030 (soil)**

Matrix Spike (B0G1504-MS1)		Source: Y007189-01			Prepared: 07/15/2020 Analyzed: 07/15/2020					
Benzene	0.0921	0.00200	mg/kg	0.100	ND	92.1	70-130			
Toluene	0.109	0.00200	"	0.100	ND	109	70-130			
Ethylbenzene	0.104	0.00200	"	0.100	ND	104	70-130			
m,p-Xylene	0.212	0.00400	"	0.200	ND	106	70-130			
o-Xylene	0.0956	0.00200	"	0.100	ND	95.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1504 - EPA 5030 (soil)**

Matrix Spike Dup (B0G1504-MSD1)		Source: Y007189-01			Prepared: 07/15/2020 Analyzed: 07/15/2020					
Benzene	0.0803	0.00200	mg/kg	0.100	ND	80.3	70-130	13.7	20	
Toluene	0.0935	0.00200	"	0.100	ND	93.5	70-130	15.6	20	
Ethylbenzene	0.0845	0.00200	"	0.100	ND	84.5	70-130	20.3	20	QR-03
m,p-Xylene	0.174	0.00400	"	0.200	ND	86.9	70-130	20.0	20	
o-Xylene	0.0804	0.00200	"	0.100	ND	80.4	70-130	17.3	20	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		90.2	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.2	70-130			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1505 - EPA 3550B

Blank (B0G1505-BLK1)

Prepared: 07/15/2020 Analyzed: 07/16/2020

Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	28		"	50.0		56.4	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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 B0G1505 - EPA 3550B

LCS (B0G1505-BS1)

Prepared: 07/15/2020 Analyzed: 07/16/2020

Diesel (C10-C28)	939	50.0	mg/kg	1000		93.9	70-130			
Surrogate: o-Terphenyl	41		"	50.0		81.3	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1505 - EPA 3550B

Matrix Spike (B0G1505-MS1)		Source: Y007189-01			Prepared: 07/15/2020 Analyzed: 07/16/2020					
Diesel (C10-C28)	990	50.0	mg/kg	1000	ND	99.0	70-130			
Surrogate: o-Terphenyl	39		"	50.0		77.4	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1505 - EPA 3550B

Matrix Spike Dup (B0G1505-MSD1)		Source: Y007189-01			Prepared: 07/15/2020 Analyzed: 07/16/2020					
Diesel (C10-C28)	937	50.0	mg/kg	1000	ND	93.7	70-130	5.44	35	
Surrogate: o-Terphenyl	35		"	50.0		70.6	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

### 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.

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.*



July 16, 2020

**Olsson Associates**

**Trent Watne**

**1525 Raleigh St, Suite 400**

**Denver**

**CO 80204**

**Project Name - Grein #1**

**Project Number - 019-0896**

Attached are your analytical results for Grein #1 received by Origins Laboratory, Inc. July 15, 2020. This project is associated with Origins project number Y007202-01.

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

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-0896

Project: Grein #1

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WestSW-06	Y007202-01	Soil	July 15, 2020 15:00	07/15/2020 16:40
LF1ift3-01	Y007202-02	Soil	July 15, 2020 15:30	07/15/2020 16:40
LF1ift3-02	Y007202-03	Soil	July 15, 2020 15:35	07/15/2020 16:40

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1



Chain of Custody

0007202

PROJECT NAME <i>Grein</i>	PROJECT NUMBER <i>019-0896</i>	DISPOSAL	By Lab	PAGE 1 of 1
COMPANY NAME Olsson Associates	PHONE NUMBER 303-237-2072	LAB USE ONLY:		
ADDRESS 1525 Raleigh St, Suite 400	CITY/STATE/ZIP Denver, CO 80204	Temperature upon receipt: <i>5.1</i>		
PROJECT MANAGER Trent Watne	PH. EMAIL <a href="mailto:trent@olsson.com">trent@olsson.com</a>	Cooling seals in tact: Yes No NA		
SAMPLER Trent Watne				

DIRECT BILL CLIENT?	YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>	CLIENT COMPANY <i>GWOL</i>	CLIENT NAME <i>Jason Dan-020</i>	
SEND COPY OF ANALYTICAL TO CLIENT?	YES: <input checked="" type="checkbox"/> NO: <input type="checkbox"/>	CLIENT EMAIL	CLIENT PROJECT #	

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles
<i>48402-02</i>	<i>50.1</i>	<i>7/15/10</i>	<i>1445</i>	<i>1375</i>	<i>0.0</i>
<i>60555-06</i>	<i>50.1</i>	<i>7/15/10</i>	<i>1500</i>	<i>1375</i>	<i>0.0</i>
<i>611173-01</i>	<i>50.1</i>	<i>7/15/10</i>	<i>1530</i>	<i>1375</i>	<i>0.0</i>
<i>611173-02</i>	<i>50.1</i>	<i>7/15/10</i>	<i>1535</i>	<i>1375</i>	<i>0.0</i>

RECEIVED BY	PRINTED NAME	SIGNATURE	DATE	TIME
<i>Jason Grein</i>	<i>Jason Grein</i>	<i>[Signature]</i>	<i>7/15/10</i>	<i>1637</i>
<i>Jason Grein</i>	<i>Jason Grein</i>	<i>[Signature]</i>	<i>7/15/10</i>	<i>1640</i>

Origins Laboratory, Inc.

*Jen 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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y007202 Client: Olsson  
Client Project ID: Grein

Checklist Completed by: JG Shipped Via: HD  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/Time completed: 7/15/2020 Airbill #: N/A

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

Cooler Number/Temperature: 1 5.1 °C 1 °C 1 °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 <sup>(1)</sup> ?	<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 <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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> / pH >10 for samples preserved with Na <sub>2</sub> CO <sub>3</sub> /NaOH, ZnAc <sub>2</sub> /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) [Signature] Date/Time Reviewed 7/15/20

Origins Laboratory, Inc.

*Jefe Pellegrini*

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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

## WestSW-06

7/15/2020 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007202-01 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1504	KDK	07/15/2020	07/15/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	108	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.0 %	70-130			"	"	"
Surrogate: Toluene-d8	99.2 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1512	TEM	07/15/2020	07/16/2020	U
Surrogate: o-Terphenyl	62.2 %	50-150			"	"	"		

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

## LFliift3-01

7/15/2020 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007202-02 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1504	KDK	07/15/2020	07/15/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	235	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	91.9 %	70-130	"	"	"	"	"	"	
Surrogate: Toluene-d8	99.5 %	70-130	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	97.1 %	70-130	"	"	"	"	"	"	

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

Diesel (C10-C28)	58.8	50.0	mg/kg	1	B0G1512	TEM	07/15/2020	07/16/2020	
Surrogate: o-Terphenyl	61.8 %	50-150	"	"	"	"	"	"	

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

LF1ift3-02  
7/15/2020 3:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y007202-03 (Soil)

**BTEX/TVPH by EPA 8260D**

Benzene	ND	0.0500	mg/kg	25	B0G1504	KDK	07/15/2020	07/15/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	274	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	91.6 %	70-130	"	"	"
Surrogate: Toluene-d8	101 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	70-130	"	"	"

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

Diesel (C10-C28)	73.5	50.0	mg/kg	1	B0G1512	TEM	07/15/2020	07/16/2020
Surrogate: o-Terphenyl	60.3 %	50-150			"	"	"	

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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1504 - EPA 5030 (soil)</b>										
<b>Blank (B0G1504-BLK1)</b>					Prepared: 07/15/2020 Analyzed: 07/15/2020					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.0	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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1504 - EPA 5030 (soil)</b>										
<b>LCS (B0G1504-BS1)</b>					Prepared: 07/15/2020 Analyzed: 07/15/2020					
Benzene	0.0901	0.00200	mg/kg	0.100		90.1	70-130			
Toluene	0.107	0.00200	"	0.100		107	70-130			
Ethylbenzene	0.100	0.00200	"	0.100		100	70-130			
m,p-Xylene	0.206	0.00400	"	0.200		103	70-130			
o-Xylene	0.0932	0.00200	"	0.100		93.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		89.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.3	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: 019-0896  
Project: Grein #1

**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 B0G1504 - EPA 5030 (soil)**

Matrix Spike (B0G1504-MS1)		Source: Y007189-01			Prepared: 07/15/2020 Analyzed: 07/15/2020					
Benzene	0.0921	0.00200	mg/kg	0.100	ND	92.1	70-130			
Toluene	0.109	0.00200	"	0.100	ND	109	70-130			
Ethylbenzene	0.104	0.00200	"	0.100	ND	104	70-130			
m,p-Xylene	0.212	0.00400	"	0.200	ND	106	70-130			
o-Xylene	0.0956	0.00200	"	0.100	ND	95.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1504 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B0G1504-MSD1)</b>		<b>Source: Y007189-01</b>			Prepared: 07/15/2020 Analyzed: 07/15/2020					
Benzene	0.0803	0.00200	mg/kg	0.100	ND	80.3	70-130	13.7	20	
Toluene	0.0935	0.00200	"	0.100	ND	93.5	70-130	15.6	20	
Ethylbenzene	0.0845	0.00200	"	0.100	ND	84.5	70-130	20.3	20	QR-03
m,p-Xylene	0.174	0.00400	"	0.200	ND	86.9	70-130	20.0	20	
o-Xylene	0.0804	0.00200	"	0.100	ND	80.4	70-130	17.3	20	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		90.2	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.2	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: 019-0896  
Project: Grein #1

**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 B0G1512 - EPA 3550B

Blank (B0G1512-BLK1)

Prepared: 07/15/2020 Analyzed: 07/15/2020

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	13		"	25.0		52.4	50-150			

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: 019-0896  
Project: Grein #1

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B0G1512 - EPA 3550B

LCS (B0G1512-BS1)

Prepared: 07/15/2020 Analyzed: 07/15/2020

Diesel (C10-C28)	918	50.0	mg/kg	1000		91.8	70-130			
Surrogate: o-Terphenyl	32		"	50.0		63.1	50-150			

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: 019-0896  
Project: Grein #1

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 B0G1512 - EPA 3550B

Matrix Spike (B0G1512-MS1)		Source: Y007187-01			Prepared: 07/15/2020 Analyzed: 07/15/2020					
Diesel (C10-C28)	1160	50.0	mg/kg	1000	254	90.3	70-130			
Surrogate: o-Terphenyl	36		"	50.0		72.7	50-150			

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: 019-0896  
Project: Grein #1

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 B0G1512 - EPA 3550B

Matrix Spike Dup (B0G1512-MSD1)		Source: Y007187-01			Prepared: 07/15/2020 Analyzed: 07/15/2020					
Diesel (C10-C28)	1160	50.0	mg/kg	1000	254	90.6	70-130	0.261	35	
Surrogate: o-Terphenyl	31		"	50.0		61.9	50-150			

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: 019-0896

Project: Grein #1

### 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.

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



July 17, 2020

**Olsson Associates**

**Trent Watne**

**1525 Raleigh St, Suite 400**

**Denver**

**CO 80204**

**Project Name - Grein #1**

**Project Number - 019-0896**

Attached are your analytical results for Grein #1 received by Origins Laboratory, Inc. July 16, 2020. This project is associated with Origins project number Y007223-01.

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

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-0896

Project: Grein #1

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EasSW 08	Y007223-01	Soil	July 15, 2020 8:30	07/16/2020 13:30
LFift4-01	Y007223-02	Soil	July 15, 2020 12:30	07/16/2020 13:30
LFift4-02	Y007223-03	Soil	July 15, 2020 12:35	07/16/2020 13:30

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

[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  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

Origins Laboratory

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

Origins Work Order: Y007223 Sample Receipt Checklist

Client: Olsson  
Client Project ID: Grein

Checklist Completed by: AG KDK  
Date/Time Completed: 07/16/2020  
Shipped Via: HD  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Airbill #: N/A

Matrix(s) Received: (Check all that apply): ☒ Solid/Solid ☐ Water ☐ Other: \_\_\_\_\_  
Cooler Number/Temperature: 1 8.6 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C  
Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 5°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> / (pH >10 for samples preserved with Na <sub>2</sub> CO <sub>3</sub> +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) [Signature] Date/Time Reviewed 7/16/20

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

## EasSW 08

7/15/2020 8:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007223-01 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1610	KDK	07/16/2020	07/16/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	31.6	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	91.4 %	70-130			"	"	"
Surrogate: Toluene-d8	100 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	97.0 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1611	TEM	07/16/2020	07/16/2020	U
Surrogate: o-Terphenyl	61.1 %	50-150			"	"	"		

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: 019-0896  
Project: Grein #1

## LFliift4-01

7/15/2020 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007223-02 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1610	KDK	07/16/2020	07/16/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	124	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	92.8 %	70-130	"	"	"	"	"	"	
Surrogate: Toluene-d8	100 %	70-130	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130	"	"	"	"	"	"	

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

Diesel (C10-C28)	55.9	50.0	mg/kg	1	B0G1611	TEM	07/16/2020	07/16/2020	
Surrogate: o-Terphenyl	62.4 %	50-150	"	"	"	"	"	"	

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: 019-0896  
Project: Grein #1

## LFliift4-02

7/15/2020 12:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007223-03 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0G1610	KDK	07/16/2020	07/16/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	122	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	91.7 %	70-130			"	"	"
Surrogate: Toluene-d8	98.3 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G1611	TEM	07/16/2020	07/16/2020	U
Surrogate: o-Terphenyl	59.0 %	50-150			"	"	"		

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1610 - EPA 5030 (soil)</b>										
<b>Blank (B0G1610-BLK1)</b>					Prepared: 07/16/2020 Analyzed: 07/16/2020					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1610 - EPA 5030 (soil)</b>										
<b>LCS (B0G1610-BS1)</b>					Prepared: 07/16/2020 Analyzed: 07/16/2020					
Benzene	0.0895	0.00200	mg/kg	0.100		89.5	70-130			
Toluene	0.108	0.00200	"	0.100		108	70-130			
Ethylbenzene	0.0959	0.00200	"	0.100		95.9	70-130			
m,p-Xylene	0.199	0.00400	"	0.200		99.6	70-130			
o-Xylene	0.0952	0.00200	"	0.100		95.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		91.7	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager



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Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1610 - EPA 5030 (soil)**

Matrix Spike (B0G1610-MS1)		Source: Y007211-01			Prepared: 07/16/2020 Analyzed: 07/16/2020					
Benzene	0.0869	0.00200	mg/kg	0.100	ND	86.9	70-130			
Toluene	0.103	0.00200	"	0.100	ND	103	70-130			
Ethylbenzene	0.0927	0.00200	"	0.100	ND	92.7	70-130			
m,p-Xylene	0.190	0.00400	"	0.200	ND	95.1	70-130			
o-Xylene	0.0897	0.00200	"	0.100	ND	89.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.2	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G1610 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B0G1610-MSD1)</b>		<b>Source: Y007211-01</b>			Prepared: 07/16/2020 Analyzed: 07/16/2020					
Benzene	0.0707	0.00200	mg/kg	0.100	ND	70.7	70-130	20.5	20	QR-03
Toluene	0.0822	0.00200	"	0.100	ND	82.2	70-130	22.6	20	QR-03
Ethylbenzene	0.0759	0.00200	"	0.100	ND	75.9	70-130	20.0	20	
m,p-Xylene	0.155	0.00400	"	0.200	ND	77.5	70-130	20.5	20	QR-03
o-Xylene	0.0734	0.00200	"	0.100	ND	73.4	70-130	20.0	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.7	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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G1611 - EPA 3550B

Blank (B0G1611-BLK1)

Prepared: 07/16/2020 Analyzed: 07/16/2020

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	13		"	25.0		53.1	50-150			

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: 019-0896  
Project: Grein #1

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 B0G1611 - EPA 3550B

LCS (B0G1611-BS1)

Prepared: 07/16/2020 Analyzed: 07/16/2020

Diesel (C10-C28)	901	50.0	mg/kg	1000		90.1	70-130			
Surrogate: o-Terphenyl	34		"	50.0		68.4	50-150			

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: 019-0896  
Project: Grein #1

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 B0G1611 - EPA 3550B

Matrix Spike (B0G1611-MS1)		Source: Y007212-01			Prepared: 07/16/2020 Analyzed: 07/16/2020					
Diesel (C10-C28)	900	50.0	mg/kg	1000	ND	90.0	70-130			
Surrogate: o-Terphenyl	31		"	50.0		62.9	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
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Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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 B0G1611 - EPA 3550B

Matrix Spike Dup (B0G1611-MSD1)		Source: Y007212-01			Prepared: 07/16/2020 Analyzed: 07/16/2020					
Diesel (C10-C28)	887	50.0	mg/kg	1000	ND	88.7	70-130	1.36	35	
Surrogate: o-Terphenyl	33		"	50.0		66.7	50-150			

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: 019-0896

Project: Grein #1

### 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.

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



July 28, 2020

**Olsson Associates**

**Trent Watne**

**1525 Raleigh St, Suite 400**

**Denver**

**CO 80204**

**Project Name - Grein #1**

**Project Number - 019-0896**

Attached are your analytical results for Grein #1 received by Origins Laboratory, Inc. July 22, 2020. This project is associated with Origins project number Y007292-01.

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

1525 Raleigh St, Suite 400

Denver CO 80204

Trent Watne

Project Number: 019-0896

Project: Grein #1

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-5-07	Y007292-01	Soil	July 20, 2020 10:30	07/22/2020 11:15
BG-01	Y007292-02	Soil	July 20, 2020 11:00	07/22/2020 11:15
BG-02	Y007292-03	Soil	July 20, 2020 11:05	07/22/2020 11:15
MW-1R	Y007292-04	Water	July 21, 2020 16:30	07/22/2020 11:15
MW-3R	Y007292-05	Water	July 21, 2020 15:45	07/22/2020 11:15
MW-5	Y007292-06	Water	July 21, 2020 15:00	07/22/2020 11:15

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

olsson

Chain of Custody

Y007292

PROJECT NAME	Grain	PROJECT NUMBER	019-0386
COMPANY NAME	Olsson	PHONE NUMBER	303-237-2072
ADDRESS	1525 Raleigh St., Suite 400	CITY/STATE/ZIP	Denver, CO 80204
PROJECT MANAGER	Trent Walne	PM EMAIL	twalne@olsson.com
SAMPLER	Trent Walne		

DIRECT BILL CLIENT?	YES: <input type="checkbox"/>	NO: <input type="checkbox"/>	CLIENT COMPANY:	GWOC
SEND COPY OF ANALYTICAL TO CLIENT?	YES: <input type="checkbox"/>	NO: <input type="checkbox"/>	CLIENT NAME:	Jason Davidson
			CLIENT EMAIL:	jdavidson@gnp.com
			CLIENT PROJECT #:	

Lab ID	Field ID	Matrix	Sample Date	Sample Time	Sample # Bottles
MW5-07		SOIL	7/20/2020	1030	1 X
BG-01		SOIL	7/20/2020	1100	1 X
BG-02		SOIL	7/20/2020	1105	1 X
MW-1R		GW	7/21/2020	1630	3 X
MW-3R		GW	7/21/2020	1545	3 X
MW-5		GW	7/21/2020	1500	3 X

Turn Around Time (check)	Standard	72hr	48hr	24hr	Same Day
X					

Comments:		QC PACKAGE (check below)	
		X	LEVEL I (Standard OC)
			LEVEL II (SU OC + Temp)
			LEVEL IV (SU OC + Temp + raw data)

DISPOSAL	By Lab	PAGE	1	of	1
LAB USE ONLY:					
Temperature upon receipt:	26				
Custody seals in tact:	Yes No N/A				

RELINQUISHED BY	PRINTED NAME	SIGNATURE	DATE	TIME
	Trent Walne	<i>Trent Walne</i>	7/20/2020	1115
RECEIVED BY				
RELINQUISHED BY	Kanya Kanyin	<i>Kanya Kanyin</i>	07/22/2020	1115
RECEIVED BY				
RELINQUISHED BY				

Origins Laboratory, Inc.

Jeff Pellipini

*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

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

Origins Laboratory

## Sample Receipt Checklist

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

Origins Work Order: Y007292

Client: Olsson

Client Project ID: Grein

Checklist Completed by: JKK

Date/time completed: 07/22/2020

Shipped Via: HD

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

Airbill #: N/A

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid

☒ Water

☐ Other:

Cooler Number/Temperature: 1 / 12.6 °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 <sup>(1)</sup> ?				
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)				
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)				
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> ?				
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 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)				
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) Jm

7-23-20  
Date/Time Reviewed

Origins Laboratory, Inc.

*Jen Pellegrini*

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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

## MW-5-07

7/20/2020 10:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007292-01 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.00200	mg/kg	1	B0G2205	KDK	07/22/2020	07/22/2020	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.00200	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.3 %	70-130			"	"	"
Surrogate: Toluene-d8	101 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G2302	KDK	07/23/2020	07/23/2020	U
Surrogate: o-Terphenyl	66.1 %	50-150			"	"	"		

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: 019-0896  
Project: Grein #1

## BG-01

7/20/2020 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007292-02 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.00200	mg/kg	1	B0G2205	KDK	07/22/2020	07/22/2020	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.00200	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"
Surrogate: Toluene-d8	102 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G2302	KDK	07/23/2020	07/23/2020	U
Surrogate: o-Terphenyl	58.0 %	50-150			"	"	"		

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: 019-0896  
Project: Grein #1

## BG-02

7/20/2020 11:05:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007292-03 (Soil)

### BTEX/TVPH by EPA 8260D

Benzene	ND	0.00200	mg/kg	1	B0G2205	KDK	07/22/2020	07/22/2020	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.00200	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"
Surrogate: Toluene-d8	102 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0G2302	KDK	07/23/2020	07/23/2020	U
Surrogate: o-Terphenyl	60.4 %	50-150			"	"	"		

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: 019-0896  
Project: Grein #1

## MW-1R

7/21/2020 4:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007292-04 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0G2202	ZZZ	07/22/2020	07/23/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	100 %	70-130	"	"	"
Surrogate: Toluene-d8	103 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	97.1 %	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: 019-0896  
Project: Grein #1

## MW-3R

7/21/2020 3:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007292-05 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0G2202	ZZZ	07/22/2020	07/23/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130	"	"	"
Surrogate: Toluene-d8	98.5 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	98.8 %	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: 019-0896  
Project: Grein #1

## MW-5

7/21/2020 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y007292-06 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0G2202	ZZZ	07/22/2020	07/23/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.8 %	70-130	"	"	"
Surrogate: Toluene-d8	95.5 %	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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G2202 - EPA 5030B (Water)</b>										
<b>Blank (B0G2202-BLK1)</b>					Prepared: 07/22/2020 Analyzed: 07/23/2020					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.7	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G2202 - EPA 5030B (Water)</b>										
<b>LCS (B0G2202-BS1)</b>					Prepared: 07/22/2020 Analyzed: 07/24/2020					
Benzene	53.9	1.00	ug/L	50.0		108	70-130			
Toluene	61.8	1.00	"	50.0		124	70-130			
Ethylbenzene	54.7	1.00	"	50.0		109	70-130			
m,p-Xylene	114	2.00	"	100		114	70-130			
o-Xylene	56.4	1.00	"	50.0		113	70-130			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.1	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	70-130			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G2202 - EPA 5030B (Water)**

Matrix Spike (B0G2202-MS1)		Source: Y007286-21			Prepared: 07/22/2020 Analyzed: 07/24/2020					
Benzene	56.9	1.00	ug/L	50.0	ND	114	70-130			
Toluene	62.2	1.00	"	50.0	ND	124	70-130			
Ethylbenzene	55.4	1.00	"	50.0	ND	111	70-130			
m,p-Xylene	114	2.00	"	100	ND	114	70-130			
o-Xylene	55.6	1.00	"	50.0	ND	111	70-130			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.5	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	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: 019-0896  
Project: Grein #1

**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 B0G2202 - EPA 5030B (Water)**

Matrix Spike Dup (B0G2202-MSD1)		Source: Y007286-21			Prepared: 07/22/2020 Analyzed: 07/24/2020					
Benzene	56.2	1.00	ug/L	50.0	ND	112	70-130	1.20	20	
Toluene	61.4	1.00	"	50.0	ND	123	70-130	1.34	20	
Ethylbenzene	53.7	1.00	"	50.0	ND	107	70-130	3.26	20	
m,p-Xylene	113	2.00	"	100	ND	113	70-130	0.760	20	
o-Xylene	54.1	1.00	"	50.0	ND	108	70-130	2.64	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		93.8	70-130			
Surrogate: Toluene-d8	63		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		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: 019-0896  
Project: Grein #1

**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
<b>Batch B0G2205 - EPA 5030 (soil)</b>										
<b>Blank (B0G2205-BLK1)</b>					Prepared: 07/22/2020 Analyzed: 07/22/2020					
Benzene	ND	0.00200	mg/kg							U
Toluene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.0	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	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: 019-0896  
Project: Grein #1

**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 B0G2205 - EPA 5030 (soil)

**LCS (B0G2205-BS1)**

Prepared: 07/22/2020 Analyzed: 07/22/2020

Benzene	0.0498	0.00200	mg/kg	0.0500		99.6	70-130			
Toluene	0.0512	0.00200	"	0.0500		102	70-130			
Ethylbenzene	0.0544	0.00200	"	0.0500		109	70-130			
m,p-Xylene	0.112	0.00400	"	0.100		112	70-130			
o-Xylene	0.0553	0.00200	"	0.0500		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		94.3	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G2205 - EPA 5030 (soil)**

Matrix Spike (B0G2205-MS1)		Source: Y007287-03			Prepared: 07/22/2020 Analyzed: 07/22/2020					
Benzene	0.0500	0.00200	mg/kg	0.0500	0.00120	97.5	70-130			
Toluene	0.0493	0.00200	"	0.0500	ND	98.6	70-130			
Ethylbenzene	0.0503	0.00200	"	0.0500	ND	101	70-130			
m,p-Xylene	0.104	0.00400	"	0.100	ND	104	70-130			
o-Xylene	0.0509	0.00200	"	0.0500	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.4	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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Olsson Associates  
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Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G2205 - EPA 5030 (soil)**

Matrix Spike Dup (B0G2205-MSD1)		Source: Y007287-03			Prepared: 07/22/2020 Analyzed: 07/22/2020					
Benzene	0.0482	0.00200	mg/kg	0.0500	0.00120	94.0	70-130	3.63	20	
Toluene	0.0475	0.00200	"	0.0500	ND	94.9	70-130	3.84	20	
Ethylbenzene	0.0487	0.00200	"	0.0500	ND	97.4	70-130	3.23	20	
m,p-Xylene	0.100	0.00400	"	0.100	ND	100	70-130	3.22	20	
o-Xylene	0.0495	0.00200	"	0.0500	ND	99.1	70-130	2.75	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

**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 B0G2302 - EPA 3550B

Blank (B0G2302-BLK1)

Prepared: 07/23/2020 Analyzed: 07/23/2020

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	20		"	25.0		80.2	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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 B0G2302 - EPA 3550B

LCS (B0G2302-BS1)

Prepared: 07/23/2020 Analyzed: 07/23/2020

Diesel (C10-C28)	940	50.0	mg/kg	1000		94.0	70-130			
Surrogate: o-Terphenyl	41		"	50.0		81.4	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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 B0G2302 - EPA 3550B

Matrix Spike (B0G2302-MS1)		Source: Y007306-01			Prepared: 07/23/2020 Analyzed: 07/23/2020					
Diesel (C10-C28)	747	50.0	mg/kg	1000	30.6	71.6	70-130			
Surrogate: o-Terphenyl	37		"	50.0		73.8	50-150			

Origins Laboratory, Inc.



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Olsson Associates  
1525 Raleigh St, Suite 400  
Denver CO 80204

Trent Watne  
Project Number: 019-0896  
Project: Grein #1

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 B0G2302 - EPA 3550B

Matrix Spike Dup (B0G2302-MSD1)		Source: Y007306-01			Prepared: 07/23/2020 Analyzed: 07/23/2020					
Diesel (C10-C28)	800	50.0	mg/kg	1000	30.6	76.9	70-130	6.84	35	
Surrogate: o-Terphenyl	38		"	50.0		75.5	50-150			

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: 019-0896

Project: Grein #1

### 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

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## ATTACHMENT E

### Remington Technologies, LLC Grein #1 Soil Excavation and Treatment Report



Soil and Groundwater Remediation  
8100 Arkins Court  
Loveland, CO 80538  
(970) 278-1646

Trent Watne  
Olsson Associates  
1525 Raleigh Street, Suite 400  
Denver, Colorado 80204

July 31, 2020

**RE: Soil Excavation and Treatment Report  
Grein #1 Tank Battery  
39.996684, -104.792604  
Brighton, CO  
Adams County, Colorado**

Dear Mr. Watne,

Remington Technologies, LLC (Remington) submits this Soil Excavation and Treatment Report to Olsson Associates (Olsson) for the above-referenced site. From July 13 to July 20, 2019, Remington, under the direction of Olsson Associates, conducted soil excavation and treatment of petroleum impacted soil and monitoring well installation at the Grein #1 Tank Battery.

#### **Soil Excavation and Treatment Activities**

The excavation area was dug to an average depth of 7 feet below ground surface (bgs). Excavated impacted soil was stocked piled and then spread 6 to 8 inches thick in the laydown area for chemical oxidant treatment. Once treated, the soil was field screened using PID, and confirmation samples were collected for laboratory testing by Olsson field personnel. Approximately 470 cubic yards of impacted soil was excavated and treated at the site.

#### **Excavation, Amendment Application and Backfill**

After excavating all impacted soil, 4,200 pounds of COGAC™ remedial material was applied to the bottom of the excavation prior to any treated soil being backfilled into the

excavation. After the COGAC™ remedial material was placed, treated soil was placed back into the excavation and wheel rolled using the loader.

**Monitoring Well Installation**

Upon completion of the excavation backfilling, three 2-inch diameter monitoring wells were installed using a Geoprobe 4722 DT rig. Each monitoring well was installed using 6 ¼-inch outside diameter (OD) hollow-stem augers. Each monitoring well was installed with 10 feet of 0.010 slot screen and 5 feet of blank riser for a total depth of 15 feet. Protective well covers were installed at each well location and concreted in place. Soil was field screened from auger cuttings by Olsson field representative.

**Site Cleanup and Demobilization**

Upon completion of the backfilling to surface, the following activities were completed:

- Surface was graded
- Debris and materials removed from the site
- Equipment demobilized

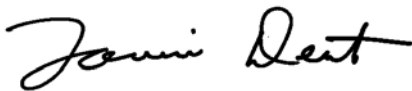
**Summary**

In summary, Remington completed the following activities.

- Excavated and treated approximately 470 cubic yards of petroleum impacted soil
- Applied 4,200 pounds of COGAC™ remedial material to the excavation
- Installed three 2-inch diameter monitoring wells.

Sincerely,

**Remington Technologies, LLC**



Lonnie Dent  
Vice President



Jesse Taylor, CPG, PG  
President

---

# ATTACHMENT F

## Monitoring Well Boring Logs

MW-1R, MW-3R, MW-5





## BORING LOG / WELL CONSTRUCTION DIAGRAM: MW-1R

(Page 1 of 1)

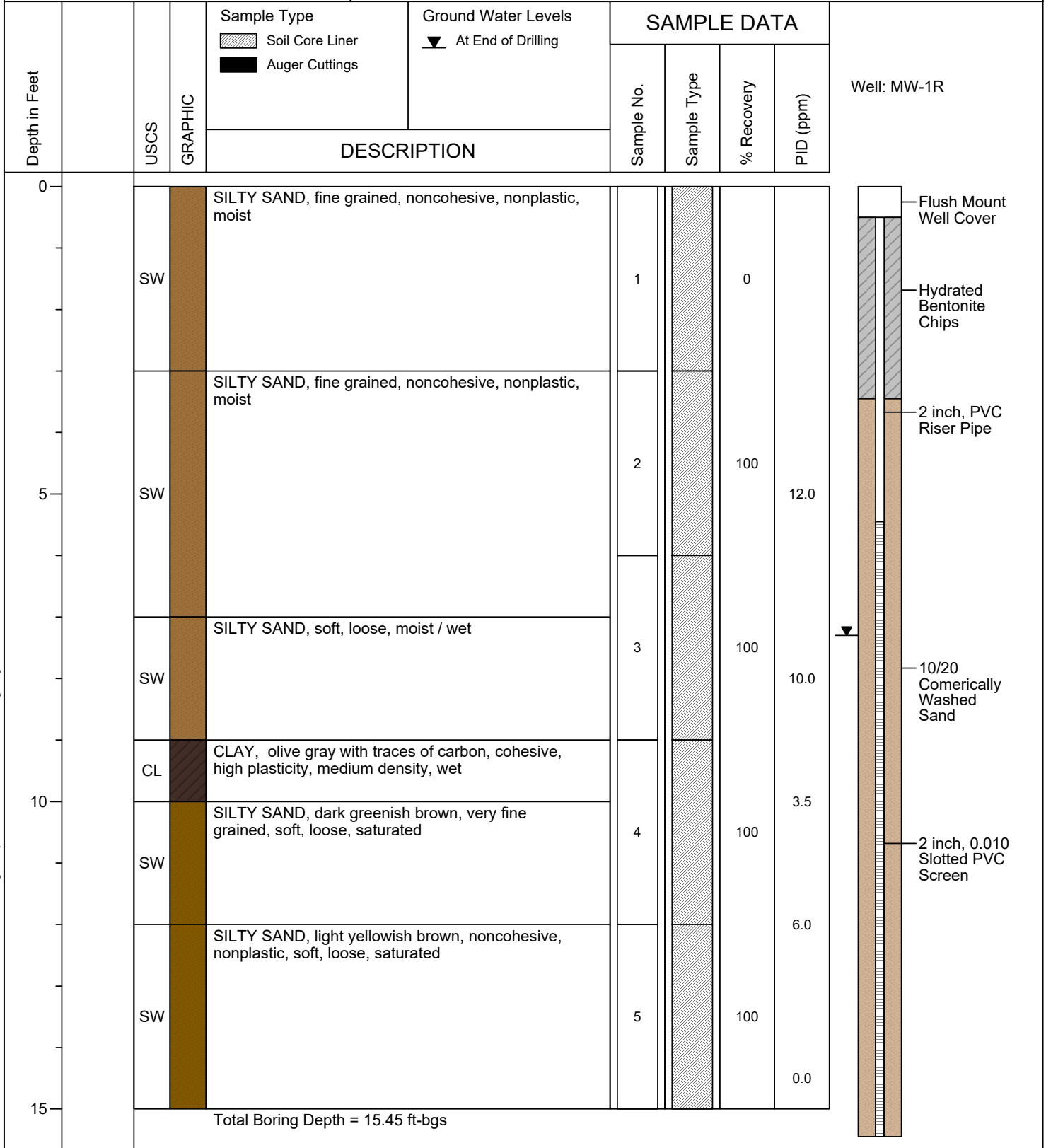
Great Western Operating Company, LLC  
Grein #1 Tank Battery  
Adams County, Colorado

COGCC Remediation Project # 15153

Olsson Project # 019-0896

Date Started : 7/20/20  
Date Completed : 7/20/20  
Drilling Contractor : Remington Technologies  
Drilling Method : Hollow Stem Auger  
Sampling Method : Dual Core

Logged By : Trent Watne  
Hole Diameter : 3.0 in.  
Depth to Product : NA  
Depth to Water : 6.80  
Total Boring Depth : 15.45 ft.





## BORING LOG / WELL CONSTRUCTION DIAGRAM: MW-3R

(Page 1 of 1)

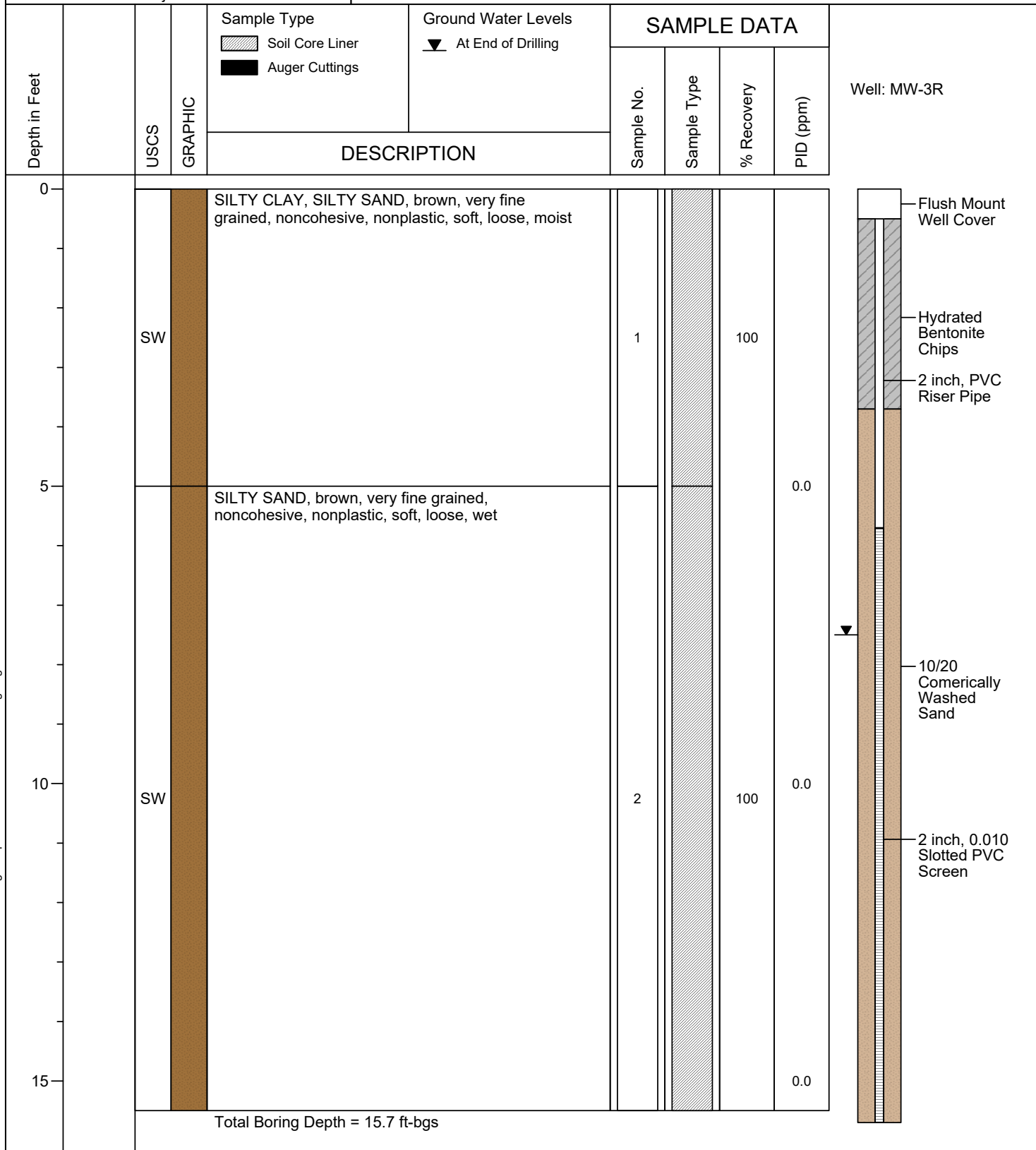
Great Western Operating Company, LLC  
Grein #1 Tank Battery  
Adams County, Colorado

COGCC Remediation Project # 15153

Olsson Project # 019-0896

Date Started : 7/20/20  
Date Completed : 7/20/20  
Drilling Contractor : Remington Technologies  
Drilling Method : Hollow Stem Auger  
Sampling Method : Dual Core

Logged By : Trent Watne  
Hole Diameter : 3.0 in.  
Depth to Product : NA  
Depth to Water : 7.0  
Total Boring Depth : 15.70





## BORING LOG / WELL CONSTRUCTION DIAGRAM: MW-5

(Page 1 of 1)

Great Western Operating Company, LLC  
Grein #1 Tank Battery  
Adams County, Colorado

COGCC Remediation Project # 15153

Olsson Project # 019-0896

Date Started : 7/20/20  
Date Completed : 7/20/20  
Drilling Contractor : Remington Technologies  
Drilling Method : Hollow Stem Auger  
Sampling Method : Dual Core

Logged By : Trent Watne  
Hole Diameter : 3.0 in.  
Depth to Product : NA  
Depth to Water : 6.90  
Total Boring Depth : 15.50

