



December 10, 2017

Mr. Scot A. Donato
Great Western Operating Company, LLC
1801 Broadway, Suite 500
Denver, Colorado 80202

**RE: Closure Request: Confirmation Soil Sampling
Simpson FD 16-339HN Production Facility Surface Release
COGCC Spill/Release Point ID #451445
Weld County, Colorado - Olsson Project #017-2172**

Dear Mr. Donato,

Great Western Operating Company, LLC (GWOC) retained Olsson Associates (Olsson) to perform confirmation soil sampling at the Simpson FD 16-339HN Production Facility (Site) following initial cleanup of a July 18, 2017 drilling mud release that occurred approximately 35 feet south and 90 feet east of the Simpson FD 16-339HN wellhead. Olsson collected confirmation soil samples to assess petroleum hydrocarbon impacts potentially caused by the release. Olsson submitted the samples for laboratory analysis and compared the laboratory results to the Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 concentrations levels.

This letter summarizes the project activities and analytical results, and serves as the Closure Request for the July 18, 2017 release associated with COGCC Spill/Release Point ID #451445. A copy of the initial with supplemental Form 19 Spill/Release Report (Document #401345048), dated July 20, 2017, is included in Attachment A.

Site Location and Description

The Site is an active well pad and production facility located west of County Road 21 and south of County Road 70, in Weld County, Colorado. The Site is located on vacant land, north of a residential subdivision in the southeast quarter of the northeast quarter of Section 15, Township 6 North, Range 67 West of the 6th Principle Meridian. The ground surface in the vicinity of the Site slopes to the south / southwest. The nearest surface water is an unnamed pond, located approximately 625 feet to the west (topographically up-gradient). According to records at the Colorado Division of Water Resources, the nearest irrigation groundwater well is located 890 feet to the west (topographically cross-gradient). Based on a review of permitted water wells in the area, depth to groundwater is approximately 15 feet below ground surface (bgs). The nearest residential structure is located approximately 540 feet to the south (topographically down-gradient). Figure 1 illustrates the general location of the Site.

Release Description and Initial Response – July 18, 2017

During mud transfer down the mud tank perimeter channel, the gate was not removed, causing the channel to fill and overflow. Mud ran down the outside of the mud tank and approximately 2.5 barrels (bbls) of oil based mud (OBM) was released onto the ground. The area was

estimated to be approximately 540 square feet (ft²) at the northwest corner of the mud tank. EcoSponge™, a densified cellulose fiber used to solidify and stabilize drill cuttings, was used to soak up the 2.5 bbls of OBM. The EcoSponge™ was scraped up and mixed off in a three-sided bin for offsite disposal at a commercial facility.

Olsson conducted soil sampling activities and the required release reporting in accordance with the COGCC 900 Series Rules. During this project, Olsson followed sampling procedures, equipment decontamination methods, and chain-of-custody procedures in accordance with U.S. Environmental Protection Agency (EPA) guidelines and COGCC 900 Series Rules.

Confirmation Soil Sampling Activities – August 28, 2017

Olsson visited the Site on August 28, 2017, following drill rig departure and completion activities and observed the area where the release occurred, southeast of the Simpson FD 16-339HN wellhead. With the exception of de-minimis surface soil staining, stained soil related to the release was not observed.

Olsson collected four confirmation soil samples (SFD-1 through SFD-4) from the release area, southeast of the Simpson FD 16-339HN wellhead, for field screening and laboratory analysis. The sample locations were recorded on a Trimble GeoExplorer 2008 series handheld global positioning system (Trimble) and are depicted on Figure 2. All soil samples were collected from the ground surface to approximately six inches below ground surface (bgs) and consisted of slightly moist, gravelly road base. The samples were placed into laboratory supplied glass jars, sealed, labeled, and placed into a cooler with ice. Olsson personnel did not observe hydrocarbon odors or staining in the soil from any of the sample locations.

The field soil screening consisted of placing a representative portion of each soil sample into a new, re-sealable, plastic bag, allowing the bag contents to equilibrate to the ambient air temperature, and volatile organic compounds to desorb from the soil. The air intake nozzle of a Mini Rae 3000 photo-ionization detector (PID) was introduced into the individual sample bags to measure the volatile organic vapors in the bags in parts per million (ppm). The soil sample PID field screening readings ranged from 1.3 ppm to 51.6 ppm and are included on Table 1.

Soil Analytical Methods and Results – August 28, 2017

On the day of collection, Olsson personnel hand delivered the four soil samples to Origins Laboratory, Inc. (Origins) in Denver, Colorado for analysis. Origins analyzed each soil sample for benzene, toluene, ethylbenzene, total xylene (BTEX) and total petroleum hydrocarbons (TPH) - gasoline-range organics (GRO) by EPA Method 8260C and TPH - diesel-range organics (DRO) by EPA Method 8015C. The soil analytical results are illustrated on Figure 2 and included on Table 1. A copy of the laboratory report is included in Attachment B.

The laboratory reported that concentrations of BTEX and TPH-GRO were not detected at or above laboratory reporting limits in the four confirmation soil samples. The laboratory reported concentrations of TPH-DRO in soil samples SFD-1 (113 milligrams per kilogram (mg/kg)), SFD-3 (162 mg/kg), and SFD-4 (466 mg/kg), but these concentrations were below the COGCC Table 910-1 TPH-DRO concentration level of 500 mg/kg. Origins reported TPH-DRO concentrations above the COGCC Table 910-1 concentration level in soil sample SFD-2 (622 mg/kg).

In accordance with COGCC requirements, TPH-GRO and TPH-DRO values were added together to obtain the TPH concentration. Concentrations of TPH were reported below the COGCC Table 910-1 concentration level of 500 mg/kg in soil samples SFD-1 (113 mg/kg), SFD-3 (162 mg/kg), and SFD-4 (466 mg/kg). TPH concentrations were reported above the COGCC Table 910-1 concentration level in soil sample SFD-2 (622 mg/kg).

Two supplemental Form 19 Spill/Release Reports were submitted to the COGCC. The first was submitted on October 4, 2017 (document number 401420338), requesting that confirmation/closure soil sampling be postponed until fracking operations were complete. The second was submitted on October 12, 2017 (document number 401427124), requesting that confirmation/closure soil sampling be postponed until workover operations were complete. Both Form 19 reports were approved by the COGCC and copies are included in Attachment A.

Confirmation/Closure Soil Sampling Activities – November 21, 2017

The vertical extent of impact following the July 18, 2017 surface release was not defined in the vicinity of soil sample SFD-2 during initial confirmation soil sampling activities and hydrocarbon impacted soil remained at the Site. Consequently, GWOC directed the excavation and removal of additional soils. Olsson returned to the Site on November 21, 2017 to re-sample the soil in the northeast corner of the release area. The Trimble was used to locate the initial sample location, SFD-2. ATP Oilfield Services, LLC utilized a John Deere 410G backhoe to excavate 7 feet wide by 6 feet long by 1 foot deep around the sample location. Approximately 1.5 cubic yards (yd³) of soil was excavated and disposed of at Waste Management's North Weld Landfill in Ault, Colorado.

One confirmation/closure soil re-sample (SFD-2R) was collected from the excavation for field screening and laboratory analysis of TPH-DRO. The sample was collected directly below the initial SFD-2 sample location in native brown, moist, sandy clay from 12 inches to 14 inches bgs and placed into a laboratory supplied glass jar, sealed, labeled, and placed into a cooler with ice. No soil staining or hydrocarbon odors were observed.

Field soil screening consisted of the same methods described above. The PID headspace reading was 0.0 ppm and is included on Table 1.

Confirmation/Closure Soil Analytical Methods and Results – November 21, 2017

On the day of collection, Olsson personnel hand delivered the samples to Origins. The confirmation/closure soil sample was submitted to Origins for analysis of TPH-DRO by the same method described above. The soil analytical results are illustrated on Figure 2 and included on Table 1. A copy of the laboratory report is included in Attachment B.

Origins reported that TPH-DRO concentrations were not detected at or above laboratory reporting limits in the confirmation/closure soil sample, SFD-2R, collected on November 21, 2017.

Conclusions

Olsson conducted soil sampling activities at the Simpson FD 16-339HN Production Facility between August 28, 2017 and November 21, 2017. The intent of the project was to collect confirmation/closure soil samples to assess the successful removal of petroleum hydrocarbon

impacted soils, following a surface release of OBM, and compare BTEX and TPH concentrations with the COGCC Table 910-1 concentrations levels to confirm that impacted soil had been excavated, removed, and disposed of.

Olsson recommends that GWOC request closure from COGCC for the release at this Site based on the following:

- No sensitive receptors were identified within 500 feet of the Site.
- Approximately 1.5 yd³ of impacted soil was excavated and disposed of at the Waste Management's North Weld County Landfill.
- BTEX and TPH-GRO concentrations were not detected at or above laboratory reporting limits in the four confirmation/closure soil samples collected on August 28, 2017.
- TPH concentrations were reported below the COGCC Table 910-1 concentration level in soil samples SFD-1 (113 mg/kg), SFD-3 (162 mg/kg), and SFD-4 (466 mg/kg), collected on August 28, 2017.
- Concentrations of TPH-DRO were reported above the COGCC Table 910-1 concentration level in soil sample SFD-2 (602 mg/kg), collected on August 28, 2017.
- Following additional excavation, impacted soil removal, and disposal, Olsson collected confirmation soil sample, SFD-2R, on November 21, 2017. SFD-2R was collected directly below the initial SFD-2 sample location. TPH-DRO concentrations were not detected at or above laboratory reporting limit in soil sample SFD-2R.
- Groundwater was not encountered during this project.

Olsson Associates appreciates the opportunity to assist GWOC on this project. If you have any questions or require further information, please call us at 303-237-2072.

Sincerely,

Olsson Associates, Inc.



Jason E. Davidson, PG
Senior Geologist



James W. Hix, PG
Senior Geologist

TABLE

Table 1
Simpson FD 16-339HN Production Facility Surface Release
Soil Analytical Summary
August and November 2017
Weld 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	
SFD-1	8/28/2017	0-6	1.3	<0.002	<0.002	<0.002	<0.002	<0.200	113	113	40.48823744, -104.87370087
SFD-2	8/28/2017	0-6	12.2	<0.002	<0.002	<0.002	<0.002	<0.200	602	602	40.48825615, -104.87372101
SFD-3	8/28/2017	0-6	51.6	<0.002	<0.002	<0.002	<0.002	<0.200	162	162	40.48823607, -104.87376387
SFD-4	8/28/2017	0-6	24.7	<0.002	<0.002	<0.002	<0.002	<0.200	466	466	40.48825574, -104.87380125
SFD-2R	11/21/2017	12-14	0.0	NA	NA	NA	NA	NA	<50.0	<50.0	40.48825615, -104.87372101

*Colorado Oil and Gas Conservation Commission (COGCC), 900 Series, Exploration and Production Waste Management, Table 910-1, Concentration Levels, January 30, 2015

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

GRO - Gasoline range organics

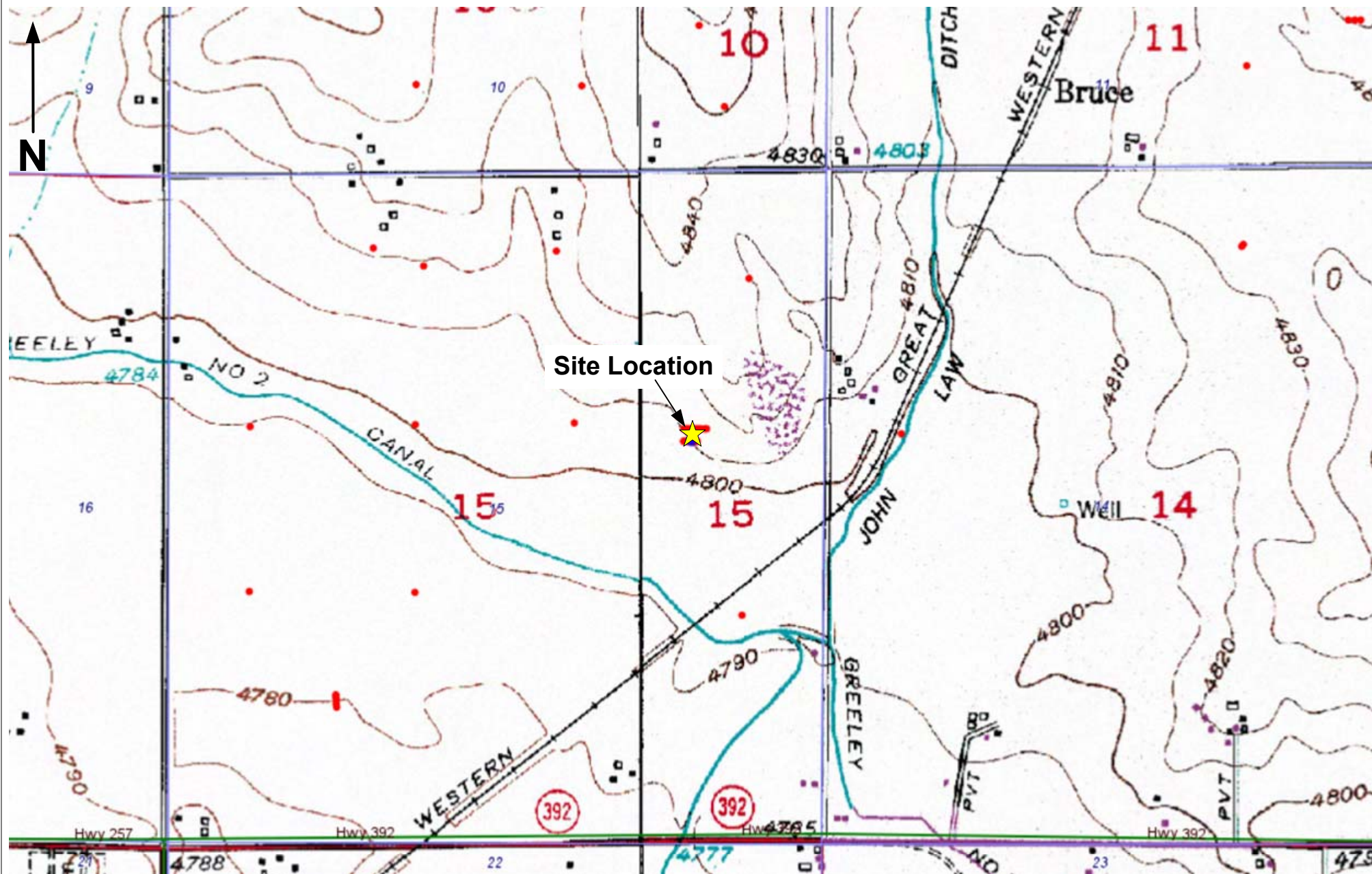
DRO - Diesel range organics

TPH - Total petroleum hydrocarbons

NA - Not analyzed

Bold - Above COGCC Table 910-1 concentration level

FIGURES



PROJECT NO: 017-1748

DRAWN BY: JED

DATE: 10/5/2017

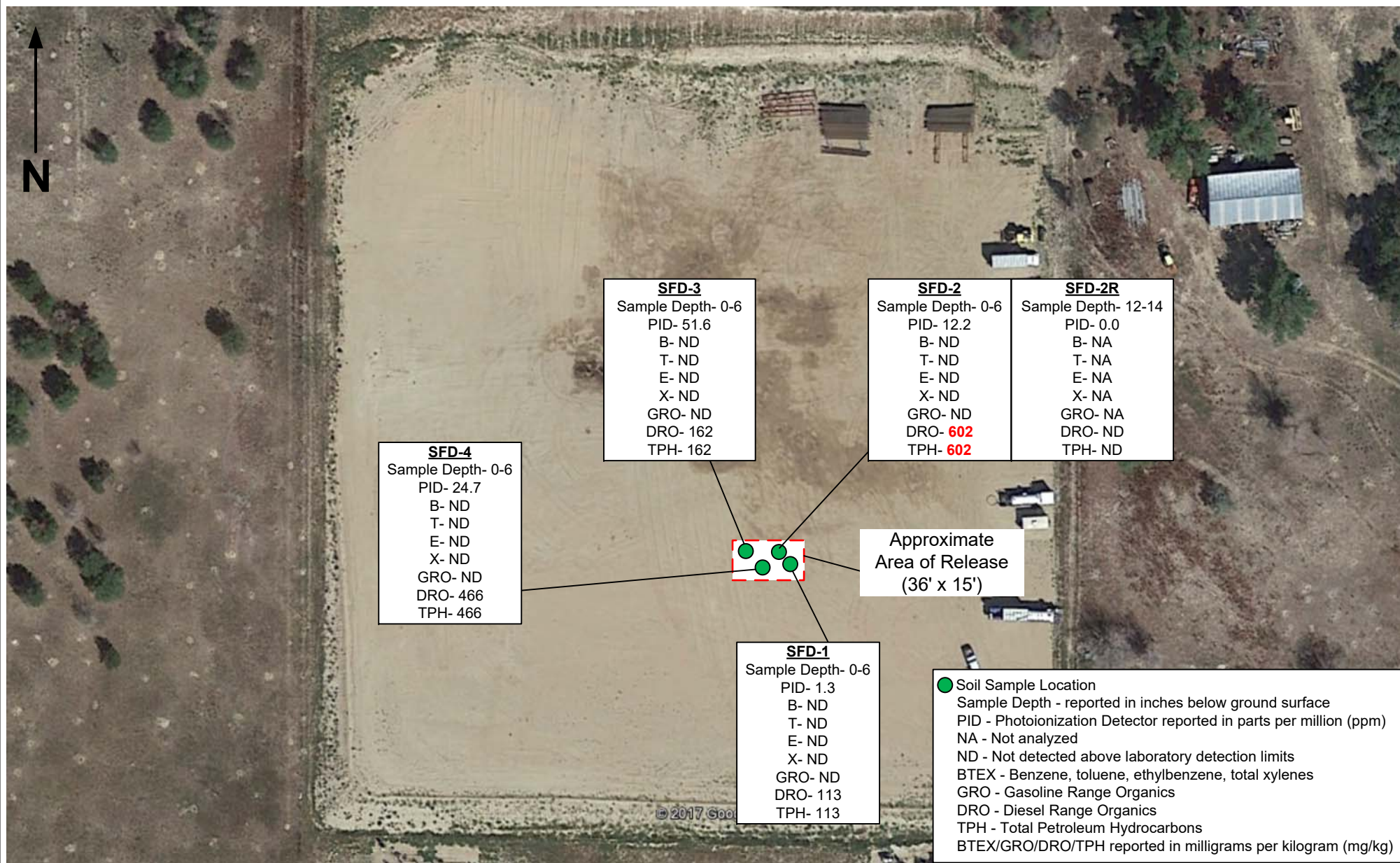
General Location Map
Simpson FD 16-339HN Production Facility
SENE S15 T6N R67W
Weld County, Colorado

OLSSON
ASSOCIATES

4690 Table Mountain Drive
Suite 200
Golden, CO 80403
TEL 303-237-2072
FAX 303-237-2659

FIGURE

1



PROJECT NO: 017-2902

DRAWN BY: JED

DATE: 12/04/2017

Sample Location and Analytical Results Map
Simpson FD 16-339HN Production Facility
SENE S15 T6N R67W
Weld County, Colorado

OLSSON
ASSOCIATES

4690 Table Mountain Drive
Suite 200
Golden, CO 80403
TEL 303-237-2072
FAX 303-237-2659

FIGURE

2

**ATTACHMENT A
COGCC INITIAL WITH
SUPPLEMENTAL FORM 19
AND TWO SUPPLEMENTAL FORM 19s**

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

401345048

Date Received:

07/20/2017

Spill report taken by:

ALLISON, RICK

Spill/Release Point ID:

451445

SPILL/RELEASE REPORT (INITIAL /w SUPPLEMENTAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Refer to COGCC Rule 906.b. for reporting requirements of spills or releases of E&P Waste or produced fluids. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

OPERATOR INFORMATION

Name of Operator: GREAT WESTERN OPERATING COMPANY LLC	Operator No: 10110	Phone Numbers Phone: (303) 398-0537 Mobile: () Email: sdonato@gwogco.com
Address: 1801 BROADWAY #500		
City: DENVER	State: CO Zip: 80202	
Contact Person: Scot Donato		

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 401345048

Initial Report Date: 07/18/2017 Date of Discovery: 07/18/2017 Spill Type: Recent Spill

Spill/Release Point Location:

Location of Spill/Release: QTRQTR SENE SEC 15 TWP 6N RNG 67W MERIDIAN 6

Latitude: 40.488236 Longitude: -104.873962

Municipality (if within municipal boundaries): County: WELD

Reference Location:

Facility Type: WELL ☐ Facility/Location ID No ☐
☐ No Existing Facility or Location ID No.
☒ Well API No. (Only if the reference facility is well) 05-123-44220

Fluid(s) Spilled/Released (please answer Yes/No):

Was one (1) barrel or more spilled outside of berms or secondary containment? Yes
Secondary containment, including walls & floor regardless of construction material, must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.

Were Five (5) barrels or more spilled? No

Estimated Total Spill Volume: use same ranges as others for values

Estimated Oil Spill Volume(bbl): >=1 and <5 Estimated Condensate Spill Volume(bbl): 0

Estimated Flow Back Fluid Spill Volume(bbl): 0 Estimated Produced Water Spill Volume(bbl): 0

Estimated Other E&P Waste Spill Volume(bbl): 0 Estimated Drilling Fluid Spill Volume(bbl): 0

Specify: 2.5 bbls of OBM released onto ground

Land Use:

Current Land Use: OTHER Other(Specify): Pasture

Weather Condition: Clear and 80 degrees F

Surface Owner: FEE Other(Specify): Larry Simpson

Check if impacted or threatened by spill/Release (please answer Yes/No to all that apply):

Waters of the State ☐ Residence/Occupied Structure ☐ Livestock ☐ Public Byway ☐ Surface Water Supply Area ☐

As defined in COGCC 100-Series Rules

Describe what is known about the spill/release event (what happened -- including how it was stopped, contained, and recovered):

During mud transfer down the mud tank perimeter channel, the gate was not removed causing the channel to fill and overflow. Mud ran down the outside of the mud tank and approximately 2.5 bbls of OBM were released onto the ground. EcoSponge was used to soak up the 2.5 bbls of OBM. The EcoSponge was scraped up and mixed off in a three-sided bin for offsite disposal.

List Agencies and Other Parties Notified:

OTHER NOTIFICATIONS

Date	Agency/Party	Contact	Phone	Response
7/18/2017	Landowner	Larry Simpson	970-689-0259	Verbal by Great Western 7/18/17 at 10:15
7/18/2017	COGCC	Rick Allison	970-623-0850	Verbal- Left voicemail 7/18/17 at 11:35
7/18/2017	Weld County	Tom Parko	--	Email- tparko@co.weld.co.us
7/18/2017	Weld County	Roy Rudisill	--	Email- rrudisill@weldgov.com
7/18/2017	Weld County	Troy Swain	--	Email- tswain@weldgov.com
7/18/2017	Weld County	Gracie Marquez	--	Email- gmarquez@weldgov.com
7/18/2017	Weld County	Jay McDonald	--	Email- jmcDonald@weldgov.com

SPILL/RELEASE DETAIL REPORTS

#1	Supplemental Report Date: 07/18/2017		
FLUIDS	BBL's SPILLED	BBL's RECOVERED	Unknown
OIL	2	2	<input type="checkbox"/>
CONDENSATE	0	0	<input type="checkbox"/>
PRODUCED WATER	0	0	<input type="checkbox"/>
DRILLING FLUID	0	0	<input type="checkbox"/>
FLOW BACK FLUID	0	0	<input type="checkbox"/>
OTHER E&P WASTE	0	0	<input type="checkbox"/>
specify: _____			
Was spill/release completely contained within berms or secondary containment? <u>NO</u> Was an Emergency Pit constructed? <u>NO</u>			
<i>Secondary containment, including walls & floor regardless of construction material, must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.</i>			
A Form 15 Pit Report shall be submitted within 30 calendar days after the construction of an emergency pit			
Impacted Media (Check all that apply) <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Dry Drainage Feature			
Surface Area Impacted: Length of Impact (feet): 36		Width of Impact (feet): 15	
Depth of Impact (feet BGS): 0		Depth of Impact (inches BGS): _____	
How was extent determined?			
The extent of impact has yet to be determined.			
Soil/Geology Description:			
Kim loam, 1 to 3 percent slopes			
Depth to Groundwater (feet BGS) 20		Number Water Wells within 1/2 mile radius: 8	

If less than 1 mile, distance in feet to nearest	Water Well	891	None	<input type="checkbox"/>	Surface Water	625	None	<input type="checkbox"/>
	Wetlands		None	<input checked="" type="checkbox"/>	Springs		None	<input checked="" type="checkbox"/>
	Livestock		None	<input checked="" type="checkbox"/>	Occupied Building	540	None	<input type="checkbox"/>

Additional Spill Details Not Provided Above:

The area surrounding the mud tank has not yet been assessed.

REQUEST FOR CLOSURE

Spill/Release Reports should be closed when impacts have been remediated or when further investigation and corrective actions will take place under an approved Form 27.

Basis for Closure: ☐ Corrective Actions Completed (documentation attached)

☐ Work proceeding under an approved Form 27

Form 27 Remediation Project No: _____

OPERATOR COMMENTS:

Additional assessment and confirmation sampling of the soil in the vicinity of the mud tank cannot occur until the drilling equipment has departed the site. It is anticipated that confirmation soil sampling activities will ensue, as is necessary to meet COGCC standards, before the end of August 2017. The additional soil sampling activities will be documented on a follow-up Form 19 Supplemental.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: _____ Print Name: Jason Davidson

Title: Senior Geologist Date: 07/20/2017 Email: jdavidson@olssonassociates.com

COA Type

Description

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Attachment Check List

Att Doc Num

Name

401345048	SPILL/RELEASE REPORT(I/S)
401345466	TOPOGRAPHIC MAP
401345505	AERIAL PHOTOGRAPH
401348915	FORM 19 SUBMITTED

Total Attach: 4 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

401420338

Date Received:

10/04/2017

Spill report taken by:

ALLISON, RICK

Spill/Release Point ID:

451445

SPILL/RELEASE REPORT (SUPPLEMENTAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Refer to COGCC Rule 906.b. for reporting requirements of spills or releases of E&P Waste or produced fluids. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

OPERATOR INFORMATION

Name of Operator: GREAT WESTERN OPERATING COMPANY LLC	Operator No: 10110	Phone Numbers Phone: (303) 398-0537 Mobile: () Email: sdonato@gwogco.com
Address: 1801 BROADWAY #500		
City: DENVER	State: CO Zip: 80202	
Contact Person: Scot Donato		

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 401345048

Initial Report Date: 07/18/2017 Date of Discovery: 07/18/2017 Spill Type: Recent Spill

Spill/Release Point Location:

Location of Spill/Release: QTRQTR SENE SEC 15 TWP 6N RNG 67W MERIDIAN 6

Latitude: 40.488236 Longitude: -104.873962

Municipality (if within municipal boundaries): County: WELD

Reference Location:

Facility Type: WELL ☐ Facility/Location ID No ☐
☐ No Existing Facility or Location ID No.
☒ Well API No. (Only if the reference facility is well) 05-123-44220

Fluid(s) Spilled/Released (please answer Yes/No):

Was one (1) barrel or more spilled outside of berms or secondary containment? Yes
Secondary containment, including walls & floor regardless of construction material, must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.

Were Five (5) barrels or more spilled? No

Estimated Total Spill Volume: use same ranges as others for values

Estimated Oil Spill Volume(bbl): >=1 and <5 Estimated Condensate Spill Volume(bbl): 0

Estimated Flow Back Fluid Spill Volume(bbl): 0 Estimated Produced Water Spill Volume(bbl): 0

Estimated Other E&P Waste Spill Volume(bbl): 0 Estimated Drilling Fluid Spill Volume(bbl): 0

Specify: 2.5 bbls of OBM released onto ground

Land Use:

Current Land Use: OTHER Other(Specify): Pasture

Weather Condition: Clear and 80 degrees F

Surface Owner: FEE Other(Specify): Larry Simpson

Check if impacted or threatened by spill/Release (please answer Yes/No to all that apply):

Waters of the State ☐ Residence/Occupied Structure ☐ Livestock ☐ Public Byway ☐ Surface Water Supply Area ☐

As defined in COGCC 100-Series Rules

Describe what is known about the spill/release event (what happened -- including how it was stopped, contained, and recovered):

During mud transfer down the mud tank perimeter channel, the gate was not removed causing the channel to fill and overflow. Mud ran down the outside of the mud tank and approximately 2.5 bbls of OBM were released onto the ground. EcoSponge was used to soak up the 2.5 bbls of OBM. The EcoSponge was scraped up and mixed off in a three-sided bin for offsite disposal.

List Agencies and Other Parties Notified:

OTHER NOTIFICATIONS

<u>Date</u>	<u>Agency/Party</u>	<u>Contact</u>	<u>Phone</u>	<u>Response</u>
7/18/2017	Landowner	Larry Simpson	970-689-0259	Verbal by Great Western 7/18/17 at 10:15
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7/18/2017	Weld County	Troy Swain	--	Email- tswain@weldgov.com
7/18/2017	Weld County	Gracie Marquez	--	Email- gmarquez@weldgov.com
7/18/2017	Weld County	Jay McDonald	--	Email- jmcDonald@weldgov.com

REQUEST FOR CLOSURE

Spill/Release Reports should be closed when impacts have been remediated or when further investigation and corrective actions will take place under an approved Form 27.

Basis for Closure: ☐ Corrective Actions Completed (documentation attached)

☐ Work proceeding under an approved Form 27

Form 27 Remediation Project No: _____

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Additional assessment and confirmation sampling of the soil in the vicinity of the mud tank cannot occur until the fracking equipment has departed the site. It is anticipated that confirmation soil sampling activities will ensue, as is necessary to meet COGCC standards, before the end of October 2017. The additional soil sampling activities will be documented on a follow-up Form 19 Supplemental.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: _____ Print Name: Jason Davidson

Title: Senior Geologist Date: 10/04/2017 Email: jdavidson@olssonassociates.com

COA Type

Description

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Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
401420338	SPILL/RELEASE REPORT(SUPPLEMENTAL)
401425877	FORM 19 SUBMITTED

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
 Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

401427124

Date Received:

10/12/2017

Spill report taken by:

ALLISON, RICK

Spill/Release Point ID:

451445

SPILL/RELEASE REPORT (SUPPLEMENTAL)

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Name of Operator: <u>GREAT WESTERN OPERATING COMPANY LLC</u>	Operator No: <u>10110</u>	Phone Numbers Phone: <u>(303)</u> Mobile: <u>(398) 0537</u> Email: <u>sdonato@gwogco.com</u>
Address: <u>1801 BROADWAY #500</u>		
City: <u>DENVER</u>	State: <u>CO</u> Zip: <u>80202</u>	
Contact Person: <u>Scot Donato</u>		

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 401345048

Initial Report Date: 07/18/2017 Date of Discovery: 07/18/2017 Spill Type: Recent Spill

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Reference Location:

Facility Type: WELL ☐ Facility/Location ID No. _____
☐ No Existing Facility or Location ID No.
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Land Use:

Current Land Use: OTHER Other(Specify): PastureWeather Condition: Clear and 80 degrees FSurface Owner: FEE Other(Specify): Larry Simpson

Check if impacted or threatened by spill/Release (please answer Yes/No to all that apply):

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As defined in COGCC 100-Series Rules

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During mud transfer down the mud tank perimeter channel, the gate was not removed causing the channel to fill and overflow. Mud ran down the outside of the mud tank and approximately 2.5 bbls of OBM were released onto the ground. EcoSponge was used to soak up the 2.5 bbls of OBM. The EcoSponge was scraped up and mixed off in a three-sided bin for offsite disposal.

List Agencies and Other Parties Notified:

OTHER NOTIFICATIONS

<u>Date</u>	<u>Agency/Party</u>	<u>Contact</u>	<u>Phone</u>	<u>Response</u>
7/18/2017	Landowner	Larry Simpson	970-689-0259	Verbal by Great Western 7/18/17 at 10:15
7/18/2017	COGCC	Rick Allison	970-623-0850	Verbal- Left voicemail 7/18/17 at 11:35
7/18/2017	Weld County	Tom Parko	--	Email- tparko@co.weld.co.us
7/18/2017	Weld County	Roy Rudisill	--	Email- rrudisill@weldgov.com
7/18/2017	Weld County	Troy Swain	--	Email- tswain@weldgov.com
7/18/2017	Weld County	Gracie Marquez	--	Email- gmarquez@weldgov.com
7/18/2017	Weld County	Jay McDonald	--	Email- jmcDonald@weldgov.com

REQUEST FOR CLOSURE

Spill/Release Reports should be closed when impacts have been remediated or when further investigation and corrective actions will take place under an approved Form 27.

Basis for Closure: ☐ Corrective Actions Completed (documentation attached)

☐ Work proceeding under an approved Form 27

Form 27 Remediation Project No: _____

OPERATOR COMMENTS:

Additional assessment and confirmation sampling of the soil in the vicinity of the mud tank cannot occur until the workover equipment has departed the site. It is anticipated that confirmation soil sampling activities will ensue, as in necessary to meet COGCC standards, before the end of November 2017. The additional soil sampling activities will be documented on a follow-up Form 19 Supplemental.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: _____ Print Name: Jason Davidson

Title: Senior Geologist Date: 10/12/2017 Email: jdavidson@olssonassociates.com

COA Type

Description

--	--

Attachment Check List

Att Doc Num

Name

401427124	SPILL/RELEASE REPORT(SUPPLEMENTAL)
401431354	FORM 19 SUBMITTED

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)

ATTACHMENT B
SOIL CONFIRMATION SAMPLES
LABORATORY REPORTS



September 05, 2017

Olsson Associates

Jason Davidson

4690 Table Mountain Drive

Golden

CO 80403

Project Name - Simpson FD 16-339HN Release

Project Number - 017-2172

Attached are your analytical results for Simpson FD 16-339HN Release received by Origins Laboratory, Inc. August 28, 2017. This project is associated with Origins project number Y708368-01.

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

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

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

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

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

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



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

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SFD-1	Y708368-01	Soil	August 28, 2017 9:30	08/28/2017 17:18
SFD-2	Y708368-02	Soil	August 28, 2017 9:34	08/28/2017 17:18
SFD-3	Y708368-03	Soil	August 28, 2017 9:40	08/28/2017 17:18
SFD-4	Y708368-04	Soil	August 28, 2017 9:41	08/28/2017 17:18

Origins Laboratory, Inc.



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

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

www.originslaboratory.com page 1 of 1

ORIGINS LABORATORY, INC 178348

Client: Olsson Associates
Address: 4690 Table Mountain Dr., Ste. 200
Golden, CO 80403
Telephone Number: 303-237-2072
Email Address: j.davidson@olssonassociates.com

Project Manager: Jason Davidson
Project Name: Simpson FD 16-339HN Release
Project Number: 017-2172
Samples Collected By: j.davidson@olssonassociates.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other		
SFD-1	8/28/17	9:30	2						X			BTEX/GRO (8260), DRO (8015)	1
SFD-2		9:34											2
SFD-3		9:40											3
SFD-4		9:41											4
													5
													6
													7
													8
													9
													10
Relinquished By: <i>Jason Davidson</i>	Date: 8/28/17	Time: 11:18											Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>
Relinquished By: <i>Jason Davidson</i>	Date: 8/28/17	Time: 17:18											

Date Results Needed 1-1

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

Origins Laboratory, Inc.

Jefe Pellegrini

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

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4708368
4768351
90

Client: Olsson Assoc.
Client Project ID: Simpson FD

Checklist Completed by: D. L.
Date/time completed: 6-29-12 12:45 1405

Shipped Via: 4D
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Airbill #: NA

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

Cooler Number/Temperature: 1 1.7 °C 1 °C 1 °C 1 °C

Thermometer ID: T003

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

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

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 6-29-12 1405

Origins Laboratory, Inc.

Jefe Pellegrini

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

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

SFD-1

8/28/2017 9:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y708368-01 (Soil)

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

Diesel (C10-C28)	113	50.0	mg/kg	1	B7H3003	08/30/2017	08/31/2017
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Surrogate: o-Terphenyl	97.1 %	59-131			"	"	"
------------------------	--------	--------	--	--	---	---	---

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7H3002	08/30/2017	08/30/2017	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	110 %	70-130			"	"	"
Surrogate: Toluene-d8	99.7 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	90.4 %	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.

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

SFD-2

8/28/2017 9:34:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y708368-02 (Soil)

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

Diesel (C10-C28)	602	50.0	mg/kg	1	B7H3003	08/30/2017	08/31/2017
------------------	-----	------	-------	---	---------	------------	------------

Surrogate: o-Terphenyl	127 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7H3002	08/30/2017	08/30/2017	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	109 %	70-130			"	"	"
Surrogate: Toluene-d8	99.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	90.9 %	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.

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

SFD-3

8/28/2017 9:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y708368-03 (Soil)

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

Diesel (C10-C28)	162	50.0	mg/kg	1	B7H3003	08/30/2017	08/31/2017
------------------	-----	------	-------	---	---------	------------	------------

Surrogate: o-Terphenyl	74.9 %	59-131			"	"	"
------------------------	--------	--------	--	--	---	---	---

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.219	0.200	mg/kg	1	B7H3002	08/30/2017	08/30/2017	
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	109 %	70-130			"	"	"
Surrogate: Toluene-d8	101 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	91.9 %	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.

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

SFD-4

8/28/2017 9:41:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y708368-04 (Soil)

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

Diesel (C10-C28)	466	50.0	mg/kg	1	B7H3003	08/30/2017	08/31/2017
------------------	-----	------	-------	---	---------	------------	------------

Surrogate: o-Terphenyl	119 %	59-131			"	"	"
------------------------	-------	--------	--	--	---	---	---

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7H3002	08/30/2017	08/30/2017	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	110 %	70-130			"	"	"
Surrogate: Toluene-d8	100 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	91.3 %	70-130			"	"	"

Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7H3002 - EPA 5030 (soil)										
Blank (B7H3002-BLK1)					Prepared: 08/30/2017 Analyzed: 08/30/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		98.5	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.7	70-130			

Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7H3002 - EPA 5030 (soil)										
Blank (B7H3002-BLK2)					Prepared: 08/30/2017 Analyzed: 08/30/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.8	70-130			

Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7H3002 - EPA 5030 (soil)										
LCS (B7H3002-BS1)					Prepared: 08/30/2017 Analyzed: 08/30/2017					
Benzene	0.101	0.002	mg/kg	0.100		101	77.1-124			
Toluene	0.100	0.002	"	0.100		99.7	74.5-128			
Ethylbenzene	0.097	0.002	"	0.100		96.8	66.4-127			
m,p-Xylene	0.191	0.004	"	0.200		95.7	76.6-124			
o-Xylene	0.097	0.002	"	0.100		96.5	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.1	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.5	70-130			

Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7H3002 - EPA 5030 (soil)										
LCS (B7H3002-BS2)					Prepared: 08/30/2017 Analyzed: 08/30/2017					
Benzene	0.102	0.002	mg/kg	0.100		102	77.1-124			
Toluene	0.100	0.002	"	0.100		99.9	74.5-128			
Ethylbenzene	0.096	0.002	"	0.100		95.8	66.4-127			
m,p-Xylene	0.189	0.004	"	0.200		94.3	76.6-124			
o-Xylene	0.097	0.002	"	0.100		97.2	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		96.8	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.5	70-130			

Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B7H3002 - EPA 5030 (soil)

Matrix Spike (B7H3002-MS1)		Source: Y708346-01			Prepared: 08/30/2017 Analyzed: 08/30/2017					
Benzene	0.109	0.002	mg/kg	0.100	ND	109	71.8-126			
Toluene	0.104	0.002	"	0.100	ND	104	65.1-130			
Ethylbenzene	0.098	0.002	"	0.100	ND	97.6	62.2-130			
m,p-Xylene	0.196	0.004	"	0.200	ND	97.8	46.5-137			
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.7	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.

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B7H3002 - EPA 5030 (soil)

Matrix Spike (B7H3002-MS2)		Source: Y708346-02			Prepared: 08/30/2017 Analyzed: 08/30/2017					
Benzene	0.105	0.002	mg/kg	0.100	ND	105	71.8-126			
Toluene	0.102	0.002	"	0.100	ND	102	65.1-130			
Ethylbenzene	0.096	0.002	"	0.100	ND	95.5	62.2-130			
m,p-Xylene	0.190	0.004	"	0.200	ND	95.2	46.5-137			
o-Xylene	0.098	0.002	"	0.100	ND	97.7	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.8	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.

Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B7H3002 - EPA 5030 (soil)

Matrix Spike Dup (B7H3002-MSD1)		Source: Y708346-01			Prepared: 08/30/2017 Analyzed: 08/30/2017					
Benzene	0.099	0.002	mg/kg	0.100	ND	98.6	71.8-126	9.60	11.3	
Toluene	0.095	0.002	"	0.100	ND	94.8	65.1-130	9.07	15.4	
Ethylbenzene	0.089	0.002	"	0.100	ND	89.4	62.2-130	8.71	19.6	
m,p-Xylene	0.178	0.004	"	0.200	ND	89.2	46.5-137	9.22	19.2	
o-Xylene	0.092	0.002	"	0.100	ND	92.4	54.2-134	8.82	17.9	
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.9	70-130			

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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7H3002 - EPA 5030 (soil)										
Matrix Spike Dup (B7H3002-MSD2)		Source: Y708346-02			Prepared: 08/30/2017 Analyzed: 08/30/2017					
Benzene	0.099	0.002	mg/kg	0.100	ND	99.2	71.8-126	5.85	11.3	
Toluene	0.096	0.002	"	0.100	ND	95.9	65.1-130	5.71	15.4	
Ethylbenzene	0.089	0.002	"	0.100	ND	89.5	62.2-130	6.55	19.6	
m,p-Xylene	0.180	0.004	"	0.200	ND	90.0	46.5-137	5.65	19.2	
o-Xylene	0.092	0.002	"	0.100	ND	91.5	54.2-134	6.53	17.9	
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		98.8	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.1	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.5	70-130			

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Jason Davidson
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Project: Simpson FD 16-339HN Release

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - 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 B7H3003 - EPA 3550B

Blank (B7H3003-BLK1)				Prepared: 08/30/2017 Analyzed: 08/31/2017						
Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	49		"	50.0		97.8	59-131			
Blank (B7H3003-BLK2)				Prepared: 08/30/2017 Analyzed: 08/30/2017						
Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	43		"	50.0		86.7	59-131			
LCS (B7H3003-BS1)				Prepared: 08/30/2017 Analyzed: 08/31/2017						
Diesel (C10-C28)	812	50.0	mg/kg	1000		81.2	64-121			
Surrogate: o-Terphenyl	38		"	50.0		76.2	59-131			
LCS (B7H3003-BS2)				Prepared: 08/30/2017 Analyzed: 08/31/2017						
Diesel (C10-C28)	704	50.0	mg/kg	1000		70.4	64-121			
Surrogate: o-Terphenyl	44		"	50.0		88.7	59-131			
Matrix Spike (B7H3003-MS1)				Source: Y708346-05		Prepared: 08/30/2017 Analyzed: 08/31/2017				
Diesel (C10-C28)	1550	50.0	mg/kg	1000	766	77.9	53-125			
Surrogate: o-Terphenyl	38		"	50.0		76.8	59-131			
Matrix Spike (B7H3003-MS2)				Source: Y708346-06		Prepared: 08/30/2017 Analyzed: 08/31/2017				
Diesel (C10-C28)	1130	50.0	mg/kg	1000	352	77.6	53-125			
Surrogate: o-Terphenyl	56		"	50.0		111	59-131			

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Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Extractable Petroleum Hydrocarbons by 8015C - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7H3003 - EPA 3550B										
Matrix Spike Dup (B7H3003-MSD1)			Source: Y708346-05		Prepared: 08/30/2017 Analyzed: 08/31/2017					
Diesel (C10-C28)	2660	50.0	mg/kg	1000	766	189	53-125	52.8	20	QM-07, QR-03
Surrogate: o-Terphenyl	63		"	50.0		127	59-131			
Matrix Spike Dup (B7H3003-MSD2)			Source: Y708346-06		Prepared: 08/30/2017 Analyzed: 08/30/2017					
Diesel (C10-C28)	1260	50.0	mg/kg	1000	352	91.0	53-125	11.2	20	
Surrogate: o-Terphenyl	49		"	50.0		98.9	59-131			

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Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Notes and Definitions

U Sample is Non-Detect.

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

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

December 01, 2017

Olsson Associates**Jason Davidson****4690 Table Mountain Drive****Golden CO 80403****Project Name - Simpson FD 16-339HN Release****Project Number - 017-2172**

Attached are your analytical results for Simpson FD 16-339HN Release received by Origins Laboratory, Inc. November 21, 2017. This project is associated with Origins project number Y711344-01.

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

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

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

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

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

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



Olsson Associates

4690 Table Mountain Drive

Golden CO 80403

Jason Davidson

Project Number: 017-2172

Project: Simpson FD 16-339HN Release

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SFD-2R	Y711344-01	Soil	November 21, 2017 10:55	11/21/2017 11:55

Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

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page 1 of 1


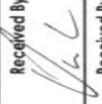

4711344

ORIGINS
LABORATORY, INC

Client: Olsson Associates
Address: 4690 Table Mountain Dr., Ste. 200
Telephone Number: 303-237-2072
Email Address: jidavidson@olssonassociates.com

Project Manager: Jason Davidson
Project Name: Simpson FD 16-339HN Release
Project Number: 017-2172
Samples Collected By: jidavidson@olssonassociates.com

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative						Matrix				Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other				
SFD-2R	11/14/17	10:55	1	1					X				DRO (8015)	1	Sample Instructions Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>
														2	
														3	
														4	
														5	
														6	
														7	
														8	
														9	
														10	
Relinquished By: 	Date: 11/14/17	Time: 11:55		Received By: 	Date: 11-17-17	Time: 11:55					Date: 11-17-17	Time: 11:55			
Relinquished By: 	Date:	Time:		Received By:	Date:	Time:					Date:	Time:			

Data Available Standard

Origins Laboratory, Inc.

Jefe Pellegrini

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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4711344

Client: Olsson Assoc.

Client Project ID: Simpson FD

Checklist Completed by: JAG

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

Date/time completed: 11/22/17

Airbill #: NA

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

Cooler Number/Temperature: 1 / 5-8 °C / _____ °C / _____ °C / _____ °C

Thermometer ID: TC03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	/			
Is there ice present (document if blue ice is used)	/			
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 ⁽¹⁾ ?	/			
Was adequate sample volume provided ⁽¹⁾ ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<u>JAG</u>	/		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	/			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	/			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	/			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	/			
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 ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			/	
Additional Comments (if any):				

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

Reviewed by (Project Manager) JAG

Date/Time Reviewed 11/22/17

Origins Laboratory, Inc.

Jefe Pellegrini

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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

SFD-2R

11/21/2017 10:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y711344-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B7K2803	11/28/2017	11/29/2017	U
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Surrogate: o-Terphenyl	75.5 %	59-131			"	"	"	
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Origins Laboratory, Inc.



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Olsson Associates
4690 Table Mountain Drive
Golden CO 80403

Jason Davidson
Project Number: 017-2172
Project: Simpson FD 16-339HN Release

Extractable Petroleum Hydrocarbons by 8015C - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7K2803 - EPA 3550B										
Blank (B7K2803-BLK1)					Prepared: 11/28/2017 Analyzed: 11/29/2017					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	41		"	50.0		81.0	59-131			
Blank (B7K2803-BLK2)					Prepared: 11/28/2017 Analyzed: 11/30/2017					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	46		"	50.0		91.6	59-131			
LCS (B7K2803-BS1)					Prepared: 11/28/2017 Analyzed: 11/29/2017					
Diesel (C10-C28)	1000	50.0	mg/kg	1000		100	64-121			
Surrogate: o-Terphenyl	52		"	50.0		104	59-131			
LCS (B7K2803-BS2)					Prepared: 11/28/2017 Analyzed: 11/30/2017					
Diesel (C10-C28)	958	50.0	mg/kg	1000		95.8	64-121			
Surrogate: o-Terphenyl	50		"	50.0		100	59-131			
Matrix Spike (B7K2803-MS1)					Source: Y711344-01		Prepared: 11/28/2017 Analyzed: 11/29/2017			
Diesel (C10-C28)	938	50.0	mg/kg	1000	ND	93.8	53-125			
Surrogate: o-Terphenyl	48		"	50.0		96.4	59-131			
Matrix Spike (B7K2803-MS2)					Source: Y711345-01		Prepared: 11/28/2017 Analyzed: 11/30/2017			
Diesel (C10-C28)	945	50.0	mg/kg	1000	ND	94.5	53-125			
Surrogate: o-Terphenyl	54		"	50.0		107	59-131			
Matrix Spike Dup (B7K2803-MSD1)					Source: Y711344-01		Prepared: 11/28/2017 Analyzed: 11/29/2017			
Diesel (C10-C28)	880	50.0	mg/kg	1000	ND	88.0	53-125	6.46	20	
Surrogate: o-Terphenyl	50		"	50.0		101	59-131			
Matrix Spike Dup (B7K2803-MSD2)					Source: Y711345-01		Prepared: 11/28/2017 Analyzed: 11/30/2017			

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Project: Simpson FD 16-339HN Release

Extractable Petroleum Hydrocarbons by 8015C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B7K2803 - EPA 3550B

Matrix Spike Dup (B7K2803-MSD2)		Source: Y711345-01			Prepared: 11/28/2017 Analyzed: 11/30/2017					
Diesel (C10-C28)	969	50.0	mg/kg	1000	ND	96.9	53-125	2.50	20	
Surrogate: o-Terphenyl	50		"	50.0		99.7	59-131			

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Golden CO 80403

Jason Davidson
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Project: Simpson FD 16-339HN Release

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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