



January 09, 2020

Olsson Associates

Trent Watne

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - Dunham 41-5 Flowline Release

Project Number - 019-2448

Attached are your analytical results for Dunham 41-5 Flowline Release received by Origins Laboratory, Inc. January 08, 2020. This project is associated with Origins project number Y001093-01.

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: 019-2448

Project: Dunham 41-5 Flowline Release

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NSW-5	Y001093-01	Soil	January 8, 2020 16:10	01/08/2020 18:03
ESW-4.5	Y001093-02	Soil	January 8, 2020 16:25	01/08/2020 18:03
WSW-5	Y001093-03	Soil	January 8, 2020 16:20	01/08/2020 18:03
SSW-5	Y001093-04	Soil	January 8, 2020 16:15	01/08/2020 18:03
Base-7	Y001093-05	Soil	January 8, 2020 16:30	01/08/2020 18:03

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: 019-2448
Project: Dunham 41-5 Flowline Release

7001093

Chain of Custody

olsson

PROJECT NAME Dunham 41-5 Flowline Release	PROJECT NUMBER 019-2448	LAB USE ONLY: Temperature upon receipt: 28 Custody seals in tact: Yes No N/A	DISPOSAL By Lab	PAGE 1 of 1
COMPANY NAME Olsson	PHONE NUMBER 303-237-2072	Turn Around Time (check) Standard 72hr 48hr 24hr Same Day		
ADDRESS 1525 Raleigh St, Suite 400	CITY/STATE/ZIP Denver, CO			
PROJECT MANAGER Trent Watne	PM EMAIL twatne@olsson.com			
SAMPLER Mitchell Clark				

DIRECT BILL CLIENT? YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>	CLIENT COMPANY: GWOC
SEND COPY OF ANALYTICAL TO CLIENT? YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>	CLIENT NAME: GWOC
	CLIENT EMAIL: GWOC
	CLIENT PROJECT #: GWOC

Lab ID	Field ID	Matrix	Sample Date	Sample Time	Bottles	Notes
MSW-5		Soil	1/8/20	1610	1	X
ESW-45		Soil	1/8/20	1625	1	X
WSW-5		Soil	1/8/20	1620	1	X
SSW-5		Soil	1/8/20	1615	1	X
BSC-7		Soil	1/8/20	1620	1	X

RELINQUISHED BY	PRINTED NAME	SIGNATURE	DATE	TIME
RECEIVED BY	Mitchell Clark	[Signature]	1/8/20	1803
RELINQUISHED BY	Jason Garvin	[Signature]	1/8/20	1803
RECEIVED BY				
RELINQUISHED BY				

Comments:	QC PACKAGE (check below)
	<input checked="" type="checkbox"/> LEVEL I (Standard OC)
	<input type="checkbox"/> LEVEL II (Std OC - forms)
	<input type="checkbox"/> LEVEL IV (Std OC - forms + raw data)

- Some Dry for BTX on TH Samples

- No results on EC/PH/SAC samples

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: 019-2448

Project: Dunham 41-5 Flowline Release

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y001093

Client: Olsson

Client Project ID: Dunham 41-5

Checklist Completed by: JG

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

Date/time completed: 1/8/2020

Airbill #: N/A

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

Cooler Number/Temperature: 1/2.8 °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 ⁽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 type="checkbox"/>	<input checked="" 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)

Date/Time Reviewed 1/8/20

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.

Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2448
Project: Dunham 41-5 Flowline Release

NSW-5

1/8/2020 4:10:00PM

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

Origins Laboratory, Inc. Y001093-01 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0A0801	KDK	01/08/2020	01/08/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	0.584	0.0500	"	"	"	KDK	"	"	
Xylenes, total	2.64	0.0500	"	"	"	KDK	"	"	
Gasoline Range Hydrocarbons	250	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"
Surrogate: Toluene-d8	104 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	99.8 %	70-130			"	"	"

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

Diesel (C10-C28)	253	50.0	mg/kg	1	B0A0802	KDK	01/08/2020	01/09/2020
Surrogate: o-Terphenyl	96.0 %	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: 019-2448
Project: Dunham 41-5 Flowline Release

ESW-4.5

1/8/2020 4:25:00PM

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

Origins Laboratory, Inc. Y001093-02 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	ND	0.0500	mg/kg	25	B0A0801	KDK	01/08/2020	01/08/2020	U
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.0500	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.0500	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	10.6	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"	"
Surrogate: Toluene-d8	97.2 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	99.8 %	70-130			"	"	"

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0A0802	KDK	01/08/2020	01/09/2020	U
Surrogate: o-Terphenyl	83.9 %	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: 019-2448
Project: Dunham 41-5 Flowline Release

WSW-5

1/8/2020 4:20:00PM

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

Origins Laboratory, Inc. Y001093-03 (Soil)

BTEX/TVPH by EPA 8260D

Benzene	0.122	0.0500	mg/kg	25	B0A0801	KDK	01/08/2020	01/08/2020	
Toluene	ND	0.0500	"	"	"	KDK	"	"	U
Ethylbenzene	0.228	0.0500	"	"	"	KDK	"	"	
Xylenes, total	1.63	0.0500	"	"	"	KDK	"	"	
Gasoline Range Hydrocarbons	29.4	5.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.8 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	95.8 %	70-130			"	"	"	"	

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0A0802	KDK	01/08/2020	01/09/2020	U
Surrogate: o-Terphenyl	86.9 %	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.

Jen Pellegrini, Project Manager

Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

Trent Watne
Project Number: 019-2448
Project: Dunham 41-5 Flowline Release

SSW-5

1/8/2020 4:15:00PM

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

Origins Laboratory, Inc. Y001093-04 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0A0802	KDK	01/08/2020	01/09/2020	U
------------------	----	------	-------	---	---------	-----	------------	------------	---

Surrogate: o-Terphenyl	89.9 %	50-150			"	"	"		
------------------------	--------	--------	--	--	---	---	---	--	--

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0A0801	KDK	01/08/2020	01/08/2020	U
Benzene	ND	0.050	"	"	"	KDK	"	"	U
Toluene	ND	0.050	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.050	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.050	"	"	"	KDK	"	"	U
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"		
Surrogate: Toluene-d8	97.7 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	100 %	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: 019-2448
Project: Dunham 41-5 Flowline Release

Base-7

1/8/2020 4:30:00PM

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

Origins Laboratory, Inc. Y001093-05 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B0A0807	KDK	01/08/2020	01/09/2020	U
------------------	----	------	-------	---	---------	-----	------------	------------	---

Surrogate: o-Terphenyl	80.4 %	50-150			"	"	"		
------------------------	--------	--------	--	--	---	---	---	--	--

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B0A0801	KDK	01/08/2020	01/08/2020	U
Benzene	ND	0.050	"	"	"	KDK	"	"	U
Toluene	ND	0.050	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.050	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.050	"	"	"	KDK	"	"	U
Naphthalene	ND	0.200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"		
Surrogate: Toluene-d8	99.3 %	70-130			"	"	"		
Surrogate: 4-Bromofluorobenzene	99.6 %	70-130			"	"	"		

pH in Soil by EPA 9045D

pH	7.76	pH Units	1	B0A0803	DJL	01/08/2020	01/08/2020		
----	------	----------	---	---------	-----	------------	------------	--	--

Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.155	0.00500	mmhos/cm	"	B0A0804	DJL	01/08/2020	01/08/2020	
---------------------------	-------	---------	----------	---	---------	-----	------------	------------	--

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: 019-2448
Project: Dunham 41-5 Flowline Release

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

Batch B0A0801 - EPA 5030 (soil)

Blank (B0A0801-BLK1)

Prepared: 01/08/2020 Analyzed: 01/08/2020

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.00200	"							U
Benzene	ND	0.002	"							U
Toluene	ND	0.00200	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.00200	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.00200	"							U
Xylenes, total	ND	0.002	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	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: 019-2448
Project: Dunham 41-5 Flowline Release

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

Batch B0A0801 - EPA 5030 (soil)

LCS (B0A0801-BS1)

Prepared: 01/08/2020 Analyzed: 01/08/2020

Benzene	0.0906	0.00200	mg/kg	0.100		90.6	70-130			
Benzene	0.091	0.002	"	0.100		90.6	70-130			
Toluene	0.101	0.00200	"	0.100		101	70-130			
Toluene	0.101	0.002	"	0.100		101	70-130			
Ethylbenzene	0.0949	0.00200	"	0.100		94.9	70-130			
m,p-Xylene	0.189	0.00400	"	0.200		94.7	70-130			
Ethylbenzene	0.095	0.002	"	0.100		94.9	70-130			
o-Xylene	0.0920	0.00200	"	0.100		92.0	70-130			
m,p-Xylene	0.189	0.004	"	0.200		94.7	70-130			
o-Xylene	0.092	0.002	"	0.100		92.0	70-130			
Naphthalene	0.100	0.008	"	0.100		99.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		109	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		106	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.0	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: 019-2448
Project: Dunham 41-5 Flowline Release

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

Batch B0A0801 - EPA 5030 (soil)

Matrix Spike (B0A0801-MS1)		Source: Y001067-01			Prepared: 01/08/2020 Analyzed: 01/08/2020					
Benzene	0.0977	0.00200	mg/kg	0.100	ND	97.7	70-130			
Toluene	0.102	0.00200	"	0.100	ND	102	70-130			
Benzene	0.098	0.002	"	0.100	ND	97.7	70-130			
Toluene	0.102	0.002	"	0.100	ND	102	70-130			
Ethylbenzene	0.0976	0.00200	"	0.100	ND	97.6	70-130			
Ethylbenzene	0.098	0.002	"	0.100	ND	97.6	70-130			
m,p-Xylene	0.199	0.00400	"	0.200	ND	99.4	70-130			
o-Xylene	0.0999	0.00200	"	0.100	ND	99.9	70-130			
m,p-Xylene	0.199	0.004	"	0.200	ND	99.4	70-130			
o-Xylene	0.100	0.002	"	0.100	ND	99.9	70-130			
Naphthalene	0.101	0.008	"	0.100	0.012	89.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.6	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	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: 019-2448
Project: Dunham 41-5 Flowline Release

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

Batch B0A0801 - EPA 5030 (soil)

Matrix Spike Dup (B0A0801-MSD1)		Source: Y001067-01			Prepared: 01/08/2020 Analyzed: 01/08/2020					
Benzene	0.0984	0.00200	mg/kg	0.100	ND	98.4	70-130	0.775	20	
Toluene	0.101	0.00200	"	0.100	ND	101	70-130	1.77	20	
Benzene	0.098	0.002	"	0.100	ND	98.4	70-130	0.775	20	
Ethylbenzene	0.0978	0.00200	"	0.100	ND	97.8	70-130	0.184	20	
Toluene	0.101	0.002	"	0.100	ND	101	70-130	1.77	20	
m,p-Xylene	0.200	0.00400	"	0.200	ND	100	70-130	0.622	20	
Ethylbenzene	0.098	0.002	"	0.100	ND	97.8	70-130	0.184	20	
o-Xylene	0.0982	0.00200	"	0.100	ND	98.2	70-130	1.70	20	
m,p-Xylene	0.200	0.004	"	0.200	ND	100	70-130	0.622	20	
o-Xylene	0.098	0.002	"	0.100	ND	98.2	70-130	1.70	20	
Naphthalene	0.096	0.008	"	0.100	0.012	83.9	70-130	5.36	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.2	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.5	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: 019-2448
Project: Dunham 41-5 Flowline Release

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

Batch B0A0802 - EPA 3580

Blank (B0A0802-BLK1)

Prepared: 01/08/2020 Analyzed: 01/08/2020

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	19		"	25.0		77.4	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: 019-2448
Project: Dunham 41-5 Flowline Release

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 B0A0802 - EPA 3580

LCS (B0A0802-BS1)

Prepared: 01/08/2020 Analyzed: 01/08/2020

Diesel (C10-C28)	970	50.0	mg/kg	1000		97.0	70-130			
Surrogate: o-Terphenyl	47		"	50.0		93.0	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: 019-2448
Project: Dunham 41-5 Flowline Release

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 B0A0802 - EPA 3580

Matrix Spike (B0A0802-MS1)		Source: Y001067-01			Prepared: 01/08/2020 Analyzed: 01/08/2020					
Diesel (C10-C28)	880	50.0	mg/kg	1000	ND	88.0	70-130			
Surrogate: o-Terphenyl	41		"	50.0		83.0	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: 019-2448
Project: Dunham 41-5 Flowline Release

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 B0A0802 - EPA 3580

Matrix Spike Dup (B0A0802-MSD1)		Source: Y001067-01			Prepared: 01/08/2020 Analyzed: 01/08/2020					
Diesel (C10-C28)	903	50.0	mg/kg	1000	ND	90.3	70-130	2.58	35	
Surrogate: o-Terphenyl	44		"	50.0		87.4	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: 019-2448
Project: Dunham 41-5 Flowline Release

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 B0A0807 - EPA 3580

Blank (B0A0807-BLK1)

Prepared: 01/08/2020 Analyzed: 01/08/2020

Diesel (C10-C28)	ND	25.0	mg/kg							U
Surrogate: o-Terphenyl	20		"	25.0		80.1	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: 019-2448
Project: Dunham 41-5 Flowline Release

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 B0A0807 - EPA 3580

LCS (B0A0807-BS1)

Prepared: 01/08/2020 Analyzed: 01/08/2020

Diesel (C10-C28)	933	50.0	mg/kg	1000		93.3	70-130			
Surrogate: o-Terphenyl	45		"	50.0		89.5	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: 019-2448
Project: Dunham 41-5 Flowline Release

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 B0A0807 - EPA 3580

Matrix Spike (B0A0807-MS1)		Source: Y001087-01			Prepared: 01/08/2020 Analyzed: 01/08/2020					
Diesel (C10-C28)	882	50.0	mg/kg	1000	ND	88.2	70-130			
Surrogate: o-Terphenyl	40		"	50.0		80.8	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: 019-2448
Project: Dunham 41-5 Flowline Release

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 B0A0807 - EPA 3580

Matrix Spike Dup (B0A0807-MSD1)		Source: Y001087-01			Prepared: 01/08/2020 Analyzed: 01/08/2020					
Diesel (C10-C28)	980	50.0	mg/kg	1000	ND	98.0	70-130	10.5	35	
Surrogate: o-Terphenyl	45		"	50.0		89.4	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: 019-2448
Project: Dunham 41-5 Flowline Release

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

Classical Chemistry Parameters - Quality Control

Origins Laboratory, Inc.

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

Batch B0A0803 - NO PREP

Duplicate (B0A0803-DUP1)		Source: Y001072-02			Prepared: 01/08/2020 Analyzed: 01/08/2020					
pH	8.44		pH Units		8.44			0.00	25	

Batch B0A0804 - NO PREP

Blank (B0A0804-BLK1)		Prepared: 01/08/2020 Analyzed: 01/08/2020								
Specific Conductance (EC)	0.00280	0.00500	mmhos/cm							
Duplicate (B0A0804-DUP1)		Source: Y001072-02			Prepared: 01/08/2020 Analyzed: 01/08/2020					
Specific Conductance (EC)	0.0361	0.00500	mmhos/cm		0.0367			1.65	25	

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: 019-2448

Project: Dunham 41-5 Flowline 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.



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