

State of Colorado  
**Oil and Gas Conservation Commission**

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



#8431

FOR OGCC USE ONLY

**RECEIVED**  
5/15/2014

**SITE INVESTIGATION AND REMEDIATION WORKPLAN**

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

**CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED**

Spill or Release    Plug & Abandon    Central Facility Closure    Site/Facility Closure    Other (describe): \_\_\_\_\_

OGCC Employee: \_\_\_\_\_

Spill                      Complaint  
Inspection              NOAV

Tracking No: **2148553**

OGCC Operator Number: \_\_\_\_\_

Name of Operator: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Contact Name and Telephone: \_\_\_\_\_

No: \_\_\_\_\_

Fax: \_\_\_\_\_

API Number: \_\_\_\_\_

County: \_\_\_\_\_

Facility Name: \_\_\_\_\_

Facility Number: \_\_\_\_\_

Well Name: \_\_\_\_\_

Well Number: \_\_\_\_\_

Location: (QtrQtr, Sec, Twp, Rng, Meridian): \_\_\_\_\_ Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

**TECHNICAL CONDITIONS**

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): \_\_\_\_\_

Site Conditions: Is location within a sensitive area (according to Rule 901e)?                      Y                      N                      If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): \_\_\_\_\_

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: \_\_\_\_\_

Potential receptors (water wells within 1/4 mi, surface waters, etc.): \_\_\_\_\_

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):                      Extent of Impact:                      How Determined:

Soils                      \_\_\_\_\_                      \_\_\_\_\_

Vegetation                      \_\_\_\_\_                      \_\_\_\_\_

Groundwater                      \_\_\_\_\_                      \_\_\_\_\_

Surface Water                      \_\_\_\_\_                      \_\_\_\_\_

**REMEDIATION WORKPLAN**

Describe initial action taken (if previously provided, refer to that form or document):

Describe how source is to be removed:

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:



Tracking Number: \_\_\_\_\_  
Name of Operator: \_\_\_\_\_  
OGCC Operator No: \_\_\_\_\_  
Received Date: \_\_\_\_\_  
Well Name & No: \_\_\_\_\_  
Facility Name & No: \_\_\_\_\_

## REMEDIATION WORKPLAN (Cont.)

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required?      Y      N      If yes, describe:

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

## IMPLEMENTATION SCHEDULE

Date Site Investigation Began: \_\_\_\_\_ Date Site Investigation Completed: \_\_\_\_\_ Date Remediation Plan Submitted: \_\_\_\_\_  
Remediation Start Date: \_\_\_\_\_ Anticipated Completion Date: \_\_\_\_\_ Actual Completion Date: \_\_\_\_\_

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

Print Name: \_\_\_\_\_ Signed: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

OGCC Approved: \_\_\_\_\_ Title: **EPS** Date: **5/15/2014**



May 14, 2014

Mr. Jacob Evans  
Noble Energy, Inc.  
1625 Broadway, Suite 2200  
Denver, Colorado 80202

**Field Assessment and Excavation Report  
Thoutt #1 – Flow Line Release  
NE¼ NE¼ SEC.21 T4N R64W 6PM  
40.3031/-104.54825 (Release Location)  
Weld County, Colorado  
API # 05-123-11079**

Dear Mr. Evans,

Eagle Environmental Consulting, Inc. (EAGLE) is pleased to present this Field Assessment and Excavation Report for the above referenced site.

**SITE BACKGROUND**

Based on records on file with the Colorado Oil and Gas Conservation Commission (COGCC), the Thoutt #1 well was completed on March 29, 1983 to a total depth of 6,985 feet below ground surface (bgs) and is located at latitude: 40.3032 and longitude: -104.54862 in Weld County, Colorado. A topographical site location map is presented as Figure 1. An aerial site location map is presented as Figure 2.

EAGLE was requested by Noble Energy, Inc. (Noble), to perform subsurface assessment activities at the site in response to potential soil and groundwater impacts associated with a flow line leak between the Thoutt #1 well and associated tank battery. The following narrative details excavation activities that were completed at the site.

**SOIL EXCAVATION ACTIVITIES**

On April 8, 2014, EAGLE mobilized to the site to collect confirmation soil samples following flow line repair activities at the release site. Soil samples, SS-01 through SS-05, were collected around the perimeter of the excavation to determine if soil impacts exceeded COGCC Table 910-1 regulatory limits. One soil sample (SS-01@4.0') collected from the bottom of the excavation was submitted under standard chain of custody procedures, for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, total petroleum hydrocarbons – gasoline range organics (TPH-GRO), and total petroleum hydrocarbons – diesel range organics (TPH-DRO) following Environmental Protection Agency (EPA) Methods 8260c and 8015. Based on laboratory analytical results from soil sample, SS-01, additional excavation activities were required to remove petroleum hydrocarbon impacted soil around the flow line release site.

On April 21, 2014, EAGLE supervised additional excavation activities to remove adsorbed petroleum hydrocarbon impacts around a flow line associated with the Thoutt #1 well. BG Services LLC (BG)

provided the necessary equipment and personnel to remove and transport petroleum hydrocarbon impacted soil from the site.

The soil lithology observed within the excavation was a sandy silt from the surface to approximately 1.5 feet bgs. A silty sand was observed from approximately 1.5 feet bgs to 8.5 feet bgs, with a weathered sandstone observed from approximately 8.5 feet bgs to 9 feet bgs. Groundwater was not observed during excavation activities.

Waste characterization/confirmation soil samples (SS-06 through SS-19) were collected at various locations to determine the lateral and vertical extent of petroleum hydrocarbon impacts in the soil beneath and adjacent to the flow line release. A portion of each soil sample was placed in a sealable plastic bag, for volatile organic compound (VOC) headspace analysis utilizing a field calibrated photoionization detector (PID). Another portion of the soil sample was placed in a 4-ounce glass jar and packed in an iced cooler for laboratory analysis. Observed PID readings ranged from 4.8 parts per million by volume (ppm-v) (SS-11@6') to 1011 ppm-v (SS-13@5').

Based on location and PID analysis, selected jarred soil samples were submitted to Origins Laboratory, Inc., located in Denver, Colorado, under standard chain of custody procedures, for analysis of BTEX, naphthalene, TPH-GRO, and TPH-DRO following modified EPA Methods 8260c and 8015. The soil samples were received within the required holding time for each laboratory analysis.

A total of 8 confirmation soil samples (SS-08@6.5', SS-09@8.5', SS-10@6.5', SS-11@6', SS-15@6', SS-16@6.5', SS-17@7', and SS-18@9') were submitted for laboratory analysis. Soil samples, SS-08@6.5', SS-10@6.5', SS-11@6', SS-15@6', SS-16@6.5', and SS-17@7' were collected from the sidewalls of the excavation, while SS-09@8.5' was collected from the floor of the excavation. Soil sample, SS-18@9', was also collected from the floor of the excavation at approximately 5 feet beneath where soil sample SS-01 was collected, to confirm that the shallow impacts observed at 4 feet bgs, did not migrate vertically past approximately 9 feet bgs. Spatial location of each soil sample was recorded using a Trimble GeoXT 6000 series instrument. PID readings are summarized in Table 1. A site map presenting the limits of the excavation, as well as soil sample locations, is included as Figure 3.

The final limits of the Thoutt #1 excavation extended approximately 20 feet north to south, and 32 feet east to west. The excavation was advanced to a depth of approximately 9 feet bgs. Approximately 400 cubic yards of soil was removed during excavation activities.

Following collection of confirmatory soil samples, the excavation was backfilled with clean fill and compacted to grade.

## SOIL ANALYTICAL RESULTS

Based on soil laboratory analytical results, confirmation soil samples SS-08@6.5', SS-09@8.5', SS-10@6.5', SS-11@6', SS-15@6', SS-16@6.5', SS-17@7', and SS-18@9' collected from the Thoutt #1 excavation did not contain concentrations of BTEX, naphthalene, TPH-GRO, or TPH-DRO exceeding their respective COGCC Table 910-1 regulatory limits and/or laboratory reporting limits.

Soil sample, SS-01@4', collected within the adjacent to the release location, contained concentrations of benzene, toluene, total xylenes, and TPH exceeding their respective COGCC Table 910-1 regulatory limits. Based on the laboratory analytical results for soil sample, SS-01@4', the excavation was extended vertically to a total depth of approximately 9 feet bgs. Soil samples, SS-09@8.5' and SS-18@9', were collected to confirm that petroleum hydrocarbon impacts did not migrate vertically beneath the release site.

Soil analytical results are summarized in Table 2 and are presented in Figure 4. The laboratory analytical reports for the soil samples collected during source removal activities at the Thoutt #1 site are included in Attachment A.

## CONCLUSIONS

Based on the information presented in this report, EAGLE concludes the following:

- Approximately 400 cubic yards of soil was removed from the Thoutt #1 site on April 21, 2014.
- Confirmation soil samples (SS-08@6.5', SS-09@8.5', SS-10@6.5', SS-11@6', SS-15@6', SS-16@6.5', SS-17@7', and SS-18@9') collected from the sidewalls and floor of the Thoutt #1 excavation did not contain concentrations of BTEX, naphthalene, TPH-GRO, and TPH-DRO exceeding their respective COGCC Table 910-1 regulatory limits and/or laboratory reporting limits.

## RECOMMENDATIONS

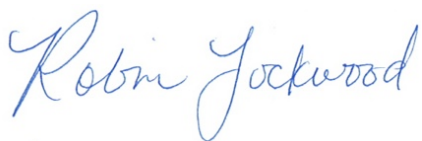
Based on the information presented in this report, EAGLE recommends the following:

- No further assessment or remediation is warranted for the Thoutt #1 flow line release site at this time.

EAGLE sincerely appreciates the opportunity to provide our services. If you have any questions or require further information, please contact us at (303) 433-0479.

Sincerely,

**EAGLE ENVIRONMENTAL CONSULTING, INC.**



Robin Lockwood  
Project Scientist



Martin Eckert III  
Senior Project Manager

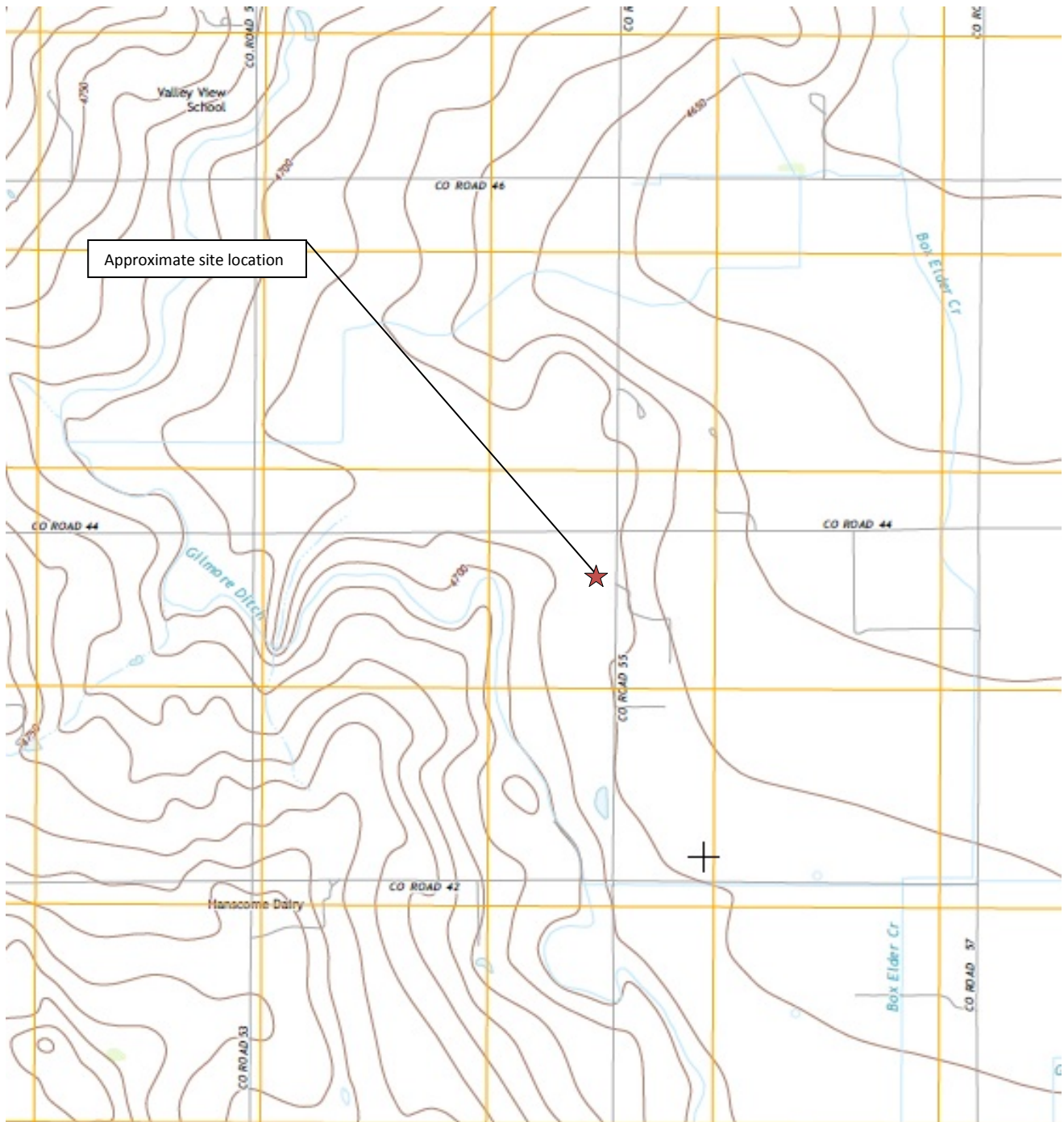
## **FIGURES**

**Figure 1: Topographic Site Location Map**

**Figure 2: Aerial Site Location Map**

**Figure 3: Soil Sample Location Map**

**Figure 4: Soil Sample Analytical Map**



**Topographic Site Location Map**

Thoutt #1 – Flow Line Release  
 40.3031/-104.54825  
 NE¼ NE¼ SEC.21 T4N R64W 6PM  
 CR 44 & CR 55, S 1/10, W INTO  
 Weld County, CO



**EAGLE**  
 ENVIRONMENTAL  
 CONSULTING, INC.

Source: USGS 7.5 Minute Topographic  
 Map, Valley View School, CO  
 Quadrangle 2013

**Figure 1**





#### LEGEND

COORDINATES OF INFRASTRUCTURE AND RELEASE LOCATION  
 THOUTT #1 WELL PAD (40.3032/-104.54862)  
 APPROXIMATE RELEASE LOCATION (40.3031/-104.54825)  
 TANK BATTERY (40.3030/-104.54659)



APPROXIMATE  
SCALE IN FEET

AERIAL SITE LOCATION MAP  
 THOUTT #1 - FLOW LINE RELEASE  
 40.3031 / -104.54825  
 NE1/4 NE1/4 SEC.21 T4N R64W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-11079

DATE:  
04/08/14

FIG NO.  
2

DRAWN BY:  
RAL



**EAGLE**  
 ENVIRONMENTAL  
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 4101 INCA STREET, DENVER, CO 80211  
 Ph: 303-433-0479 • F: 303-325-5449

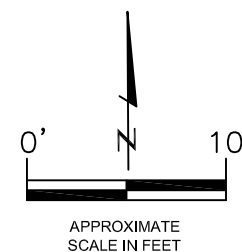
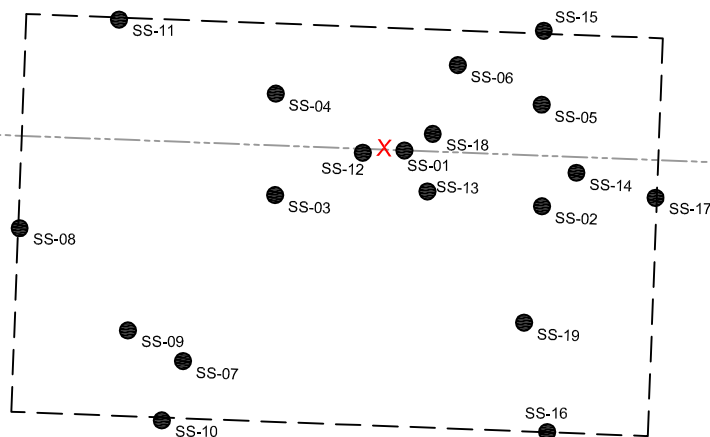


# LEGEND

- SS-01 APPROXIMATE SOIL SAMPLE LOCATION
- ✗ APPROXIMATE SOURCE LOCATION
- APPROXIMATE FLOW LINE LOCATION
- - - - - APPROXIMATE EXCAVATION BOUNDARIES

UNDEVELOPED LAND

THOUTT #1 WELL PAD



SOIL SAMPLE LOCATION MAP  
THOUTT #1 - FLOW LINE RELEASE  
40.3031/-104.54825  
NE1/4 NE1/4 SEC.21 T4N R64W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-11079

UNDEVELOPED LAND

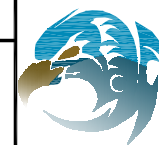
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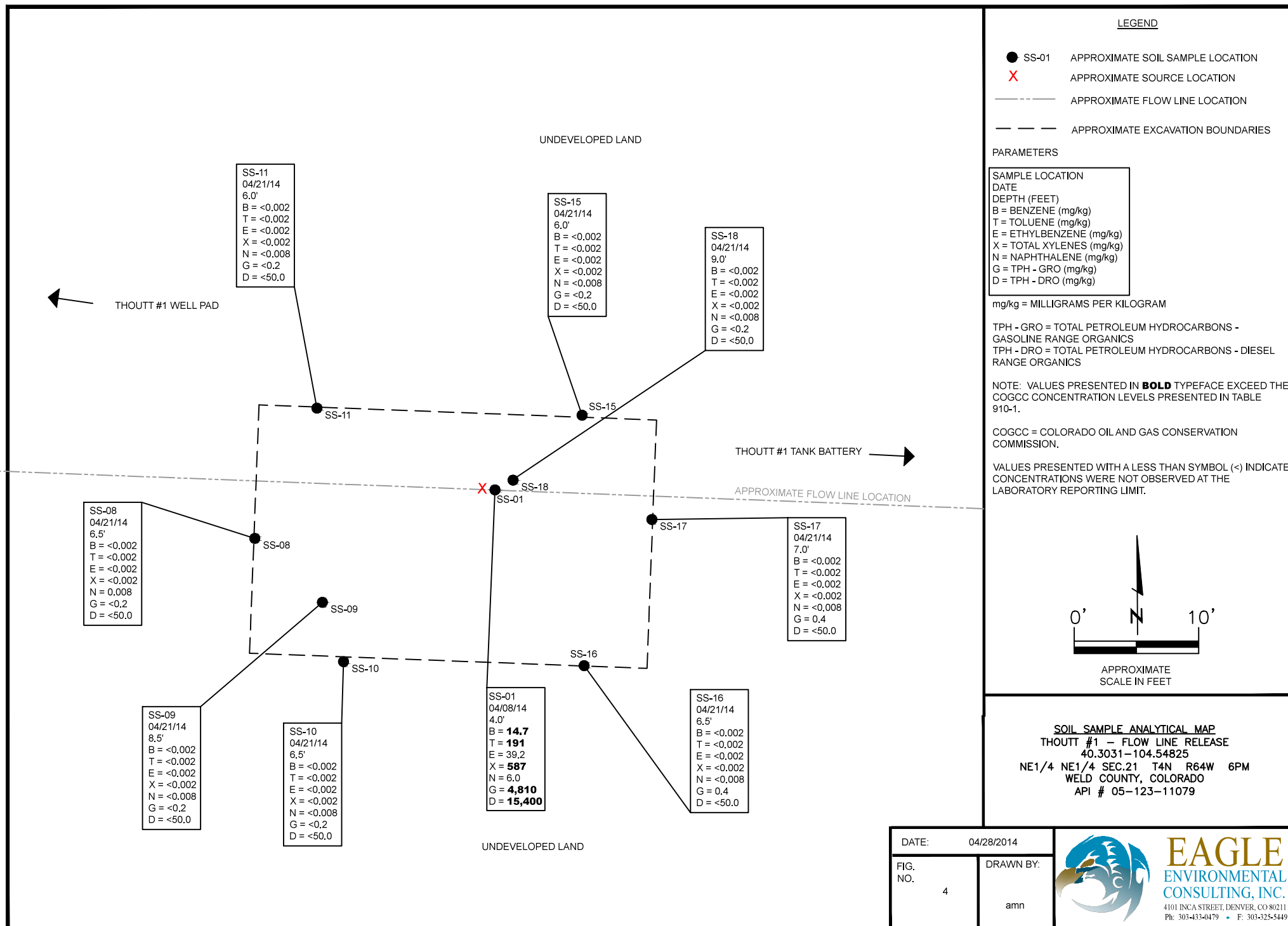
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**EAGLE**  
ENVIRONMENTAL  
CONSULTING, INC.  
4101 INCA STREET, DENVER, CO 80211  
Ph: 303-433-0479 • F: 303-325-5449



## **TABLES**

**Table 1: Photoionization Detector Results Summary**

**Table 2: Soil Analytical Results Summary**

TABLE 1  
 PHOTOIONIZATION DETECTOR RESULTS SUMMARY  
 THOUTT # 1 - FLOW LINE RELEASE  
 40.3031/-104.54825  
 NE¼ NE¼ SEC.21 T4N R64W 6PM  
 CR 50 CR 44, S 2/10, W INTO  
 WELD COUNTY, COLORADO  
 API # 05-123-11079

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Laboratory Analyzed (y/n)
SS-01 @ 4' (40.303115/-104.548254)	04/08/14	4.0	724.0	yes
SS-02 @ 3' (40.303106/-104.548256)	04/08/14	3.0	184.5	no
SS-03 @ 3' (40.303116/-104.548285)	04/08/14	3.0	382.3	no
SS-04 @ 3' (40.303124/-104.548279)	04/08/14	3.0	21.3	no
SS-05 @ 3' (40.303122/-104.548250)	04/08/14	3.0	118.3	no
SS-06 @ 6' (40.303132/-104.548261)	04/21/14	6.0	82.3	no
SS-07 @ 6' (40.303103/-104.548313)	04/21/14	6.0	679.7	no
SS-08 @ 6.5' (40.303128183/-104.548342538)	04/21/14	6.5	6.1	yes
SS-09 @ 8.5' (40.303120857/-104.548310873)	04/21/14	8.5	7.6	yes
SS-10 @ 6.5' (40.303099036/-104.548324789)	04/21/14	6.5	5.2	yes
SS-11 @ 6' (40.303161698/-104.548311063)	04/21/14	6.0	4.8	yes
SS-12 @ 7' (40.303117/-104.548265)	04/21/14	7.0	123.2	no
SS-13 @ 5' (40.303114/-104.548249)	04/21/14	5.0	1011	no
SS-14 @ 5' (40.303104/-104.548241)	04/21/14	5.0	394.4	no
SS-15 @ 6' (40.303150375/-104.548234702)	04/21/14	6.0	24.7	yes
SS-16 @ 6.5' (40.303086055/-104.548258181)	04/21/14	6.5	101.4	yes
SS-17 @ 7' (40.303110302/-104.548217957)	04/21/14	7.0	15.4	yes
SS-18 @ 9' (40.303133406/-104.548245095)	04/21/14	9.0	17.7	yes
SS-19 @ 9' (40.303085/-104.548249)	04/21/14	9.0	39.6	no
PID = photoionization detector ppm-v = parts per million by volume				

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
THOUTT # 1 - FLOW LINE RELEASE  
40.3031/-104.54825  
NE¼ NE¼ SEC.21 T4N R64W 6PM  
CR 50 CR 44, S 2/10, W INTO  
WELD COUNTY, COLORADO  
API # 05-123-11079

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
<b>COGCC Table 910-1 Regulatory Limits (mg/kg)</b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>500</b>	
SS-01 @ 4' (40.303115/-104.548254)	04/08/14	4.0	<b>14.7</b>	<b>191</b>	39.2	<b>587</b>	6.0	<b>4810</b>	<b>15400</b>
SS-08 @ 6.5' (40.303128183/-104.548342538)	04/21/14	6.5	<0.002	<0.002	<0.002	<0.002	0.008	<0.2	<50.0
SS-09 @ 8.5' (40.303120857/-104.548310873)	04/21/14	8.5	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-10 @ 6.5' (40.303099036/-104.548324789)	04/21/14	6.5	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-11 @ 6' (40.303161698/-104.548311063)	04/21/14	6.0	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-15 @ 6' (40.303150375/-104.548234702)	04/21/14	6.0	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-16 @ 6.5' (40.303086055/-104.548258181)	04/21/14	6.5	<0.002	<0.002	<0.002	<0.002	<0.008	0.4	<50.0
SS-17 @ 7' (40.303110302/-104.548217957)	04/21/14	7.0	<0.002	<0.002	<0.002	<0.002	<0.008	0.4	<50.0
SS-18 @ 9' (40.303133406/-104.548245095)	04/21/14	9.0	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram  TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics  Note: Values presented in bold typeface exceed their respective COGCC - Regulatory Limits (Table 910-1).									



## **ATTACHMENT A**

### **Laboratory Analytical Reports**





April 22, 2014

Eagle Environmental Consulting, Inc.

Martin C Eckert III

4101 Inca Street

Denver

CO 80211

Project Name - Noble - Thoutt 1

Project Number - [none]

Attached are your analytical results for Noble - Thoutt 1 received by Origins Laboratory, Inc. April 21, 2014. This project is associated with Origins project number X404201-01.

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

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-08 @ 6.5'	X404201-01	Soil	April 21, 2014 11:27	04/21/2014 17:10
SS-09 @ 8.5'	X404201-02	Soil	April 21, 2014 11:37	04/21/2014 17:10
SS-10 @ 6.5'	X404201-03	Soil	April 21, 2014 11:40	04/21/2014 17:10
SS-11 @ 6.0'	X404201-04	Soil	April 21, 2014 11:45	04/21/2014 17:10
SS-15 @ 6.0'	X404201-05	Soil	April 21, 2014 12:19	04/21/2014 17:10
SS-16 @ 6.5'	X404201-06	Soil	April 21, 2014 13:35	04/21/2014 17:10
SS-17 @ 7.0'	X404201-07	Soil	April 21, 2014 13:37	04/21/2014 17:10
SS-18 @ 9.0'	X404201-08	Soil	April 21, 2014 13:38	04/21/2014 17:10

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.*

Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

www.originslaboratory.com

page 1 of 1

# ORIGINS

LABORATORY, INC

Client: Eagle Environmental Consulting Project Manager/Send Report To: Martin Eckert III  
Address: 4101 Inca St Email Address: mce3@eagle-enviro.com  
Denver, CO, 80211 Project Name/Number: Thoutt #1  
Telephone Number: (303) 433-0479 Samples Collected By: A. Newberry / H. Phillips

Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #		
SS-08 @ 6.5'	4-21-14	1127	1	X					X		GBTEX by 2/10 DLO by 2/15 Nephelance	1
SS-09 @ 8.5'		1137										2
SS-10 @ 6.5'		1146										3
SS-11 @ 6.0'		1145										4
SS-15 @ 6.0'		1219										5
SS-16 @ 6.5'		1335										6
SS-17 @ 7.0'		1337										7
SS-18 @ 9'		1338										8
												9
												10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<u>[Signature]</u>	4-21-14	1710	<u>[Signature]</u>	4-21-14	1710	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"/>

Comments:

Date Results Needed:

Noble turnaround

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.

Ross S Hutto For Noelle Doyle Mathis, President



Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-08 @ 6.5'

4/21/2014 11:27:00AM

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

Origins Laboratory, Inc.  
X404201-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/21/2014	
Surrogate: o-Terphenyl	117 %	59-131			"	"	"	

## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	
Naphthalene	0.008	0.008	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	125 %	70-130			"	"	"	
Surrogate: Toluene-d8	105 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	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.

Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-09 @ 8.5'

4/21/2014 11:37:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404201-02 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/21/2014
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Surrogate: o-Terphenyl	101 %	59-131			"	"	"
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## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"
Napthalene	ND	0.008	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	127 %	70-130			"	"	"
Surrogate: Toluene-d8	102 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	99.6 %	70-130			"	"	"

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President



Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-10 @ 6.5'

4/21/2014 11:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404201-03 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/21/2014	
Surrogate: o-Terphenyl	114 %	59-131			"	"	"	

## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	
Napthalene	ND	0.008	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	129 %	70-130			"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-11 @ 6.0'

4/21/2014 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404201-04 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/22/2014	
Surrogate: o-Terphenyl	112 %	59-131			"	"	"	

## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	
Napthalene	ND	0.008	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	127 %	70-130			"	"	"	
Surrogate: Toluene-d8	102 %	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.

Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-15 @ 6.0'

4/21/2014 12:19:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404201-05 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/22/2014	
Surrogate: o-Terphenyl	111 %	59-131			"	"	"	

## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	
Napthalene	ND	0.008	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	129 %	70-130			"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-16 @ 6.5'

4/21/2014 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404201-06 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/22/2014
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Surrogate: o-Terphenyl	111 %	59-131			"	"	"
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## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	0.4	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"
Napthalene	ND	0.008	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	127 %	70-130			"	"	"
Surrogate: Toluene-d8	101 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-17 @ 7.0'

4/21/2014 1:37:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404201-07 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/22/2014	
Surrogate: o-Terphenyl	107 %	59-131			"	"	"	

## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	0.4	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	
Napthalene	ND	0.008	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	131 %	70-130			"	"	"	S-GC
Surrogate: Toluene-d8	102 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

SS-18 @ 9.0'

4/21/2014 1:38:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404201-08 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D21011	04/21/2014	04/22/2014	
Surrogate: o-Terphenyl	112 %	59-131			"	"	"	

## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D21010	04/21/2014	04/21/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	
Napthalene	ND	0.008	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	132 %	70-130			"	"	"	S-GC
Surrogate: Toluene-d8	103 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## 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 4D21010 - EPA 5030 (soil)

Blank (4D21010-BLK1)

Prepared: 04/21/2014 Analyzed: 04/21/2014

Gasoline Range Hydrocarbons	ND	0.2	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Naphthalene	ND	0.008	"							
Surrogate: 1,2-Dichloroethane-d4	80		ug/kg	62.5		129	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## 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 4D21010 - EPA 5030 (soil)

### LCS (4D21010-BS1)

Prepared: 04/21/2014 Analyzed: 04/21/2014

Benzene	0.1	0.002	mg/kg	0.100		106	70-130			
Toluene	0.1	0.002	"	0.100		101	70-130			
Ethylbenzene	0.1	0.002	"	0.100		107	70-130			
m,p-Xylene	0.2	0.004	"	0.200		111	70-130			
o-Xylene	0.1	0.002	"	0.100		111	70-130			
Naphthalene	0.1	0.008	"	0.100		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## 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 4D21010 - EPA 5030 (soil)

Matrix Spike (4D21010-MS1)		Source: X404197-01			Prepared: 04/21/2014 Analyzed: 04/21/2014					
Benzene	0.1	0.002	mg/kg	0.100	0.002	108	70-130			
Toluene	0.1	0.002	"	0.100	ND	108	70-130			
Ethylbenzene	0.1	0.002	"	0.100	0.0007	104	70-130			
m,p-Xylene	0.3	0.004	"	0.200	0.03	119	70-130			
o-Xylene	0.1	0.002	"	0.100	0.0004	116	70-130			
Naphthalene	0.1	0.008	"	0.100	0.003	110	70-130			
Surrogate: 1,2-Dichloroethane-d4	79		ug/kg	62.5		127	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	70-130			

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## 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 4D21010 - EPA 5030 (soil)

Matrix Spike Dup (4D21010-MSD1)		Source: X404197-01			Prepared: 04/21/2014 Analyzed: 04/21/2014					
Benzene	0.1	0.002	mg/kg	0.100	0.002	101	70-130	5.95	20	
Toluene	0.1	0.002	"	0.100	ND	105	70-130	2.32	20	
Ethylbenzene	0.1	0.002	"	0.100	0.0007	98.5	70-130	5.07	20	
m,p-Xylene	0.2	0.004	"	0.200	0.03	101	70-130	13.8	20	
o-Xylene	0.1	0.002	"	0.100	0.0004	109	70-130	6.48	20	
Naphthalene	0.1	0.008	"	0.100	0.003	113	70-130	3.15	20	
Surrogate: 1,2-Dichloroethane-d4	80		ug/kg	62.5		127	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

**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 8015M - 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 4D21011 - EPA 3580**

**Blank (4D21011-BLK1)**

Prepared: 04/21/2014 Analyzed: 04/21/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 65 g 50.0 129 59-131

**LCS (4D21011-BS1)**

Prepared: 04/21/2014 Analyzed: 04/21/2014

Diesel (C10-C28) 1210 50.0 mg/kg 1000 121 64-121

Surrogate: o-Terphenyl 64 g 50.0 128 59-131

**Matrix Spike (4D21011-MS1)**

**Source: X404197-01**

Prepared: 04/21/2014 Analyzed: 04/21/2014

Diesel (C10-C28) 1280 50.0 mg/kg 1000 29.6 126 53-125 QM-07

Surrogate: o-Terphenyl 61 g 50.0 122 59-131

**Matrix Spike Dup (4D21011-MSD1)**

**Source: X404197-01**

Prepared: 04/21/2014 Analyzed: 04/21/2014

Diesel (C10-C28) 1230 50.0 mg/kg 1000 29.6 120 53-125 4.42 20

Surrogate: o-Terphenyl 59 g 50.0 118 59-131

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## Notes and Definitions

- S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
- 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

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President





April 09, 2014

Eagle Environmental Consulting, Inc.

Martin C Eckert III

4101 Inca Street

Denver

CO 80211

Project Name - Noble - Thoutt 1

Project Number - [none]

Attached are your analytical results for Noble - Thoutt 1 received by Origins Laboratory, Inc. April 08, 2014. This project is associated with Origins project number X404082-01.

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

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-1 @ 4	X404082-01	Soil	April 8, 2014 15:12	04/08/2014 16:36

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.*

Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.  
4101 Inca Street  
Denver CO 80211

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

www.originslaboratory.com

8204082

ORIGINS  
LABORATORY, INC

page 1 of 1

Client: Eagle Env Consulting  
Address: 4101 Inca St  
Denver, CO  
Telephone Number: 303.433.0179

Project Manager/Send Report To: Martin C Eckert III  
Email Address: mee3@eagle-enviro.com  
Project Name/Number: Thoutt 1  
Samples Collected By: HP

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa Canister #		
SS-104	4/8/14	1512	2	X					X		XXXX	1
												2
												3
												4
												5
												6
												7
												8
												9
												10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
[Signature]	4/8/14	1630	[Signature]	4/8/14	16:36	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"/>

Comments:

Date Results Needed:

Origins Laboratory, Inc.

[Signature]

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.

Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

Origins Laboratory

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

### Sample Receipt Checklist

Origins Work Order: X404082

Client: Eagle

Client Project ID: Thoutt 1

Checklist Completed by: Jose Smith

Shipped Via: HND

Date/time completed: 4/8/14 16:41

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

Airbill #: N/A

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

Cooler Number/Temperature: 15.3 °C ☐ 1 °C ☐ 1 °C ☐ 1 °C

Thermometer ID: T802

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

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

Reviewed by (Project Manager)

Date/Time Reviewed: 4-8-14 1817

Origins Laboratory, Inc.

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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

SS-1 @ 4

4/8/2014 3:12:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X404082-01 (Soil)

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

Diesel (C10-C28)	15400	500	mg/kg	10	4D08009	04/08/2014	04/09/2014
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Surrogate: o-Terphenyl	109 %	59-131			"	"	"
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## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	4810	50.0	mg/kg	250	4D08008	04/08/2014	04/08/2014
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Benzene	14.7	5.0	"	2500	"	"	"
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Toluene	191	5.0	"	"	"	"	"
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Ethylbenzene	39.2	5.0	"	"	"	"	"
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Xylenes, total	587	5.0	"	"	"	"	"
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Naphthalene	6.0	2.0	"	250	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	94.0 %	70-130			"	"	"
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Surrogate: Toluene-d8	103 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"
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Ross S Hutto For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## 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 4D08008 - EPA 5030 (soil)

### Blank (4D08008-BLK1)

Prepared: 04/08/2014 Analyzed: 04/08/2014

Gasoline Range Hydrocarbons	ND	0.2	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Naphthalene	ND	0.008	"							
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## 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 4D08008 - EPA 5030 (soil)

### LCS (4D08008-BS1)

Prepared: 04/08/2014 Analyzed: 04/08/2014

Benzene	0.1	0.002	mg/kg	0.100		98.2	70-130			
Toluene	0.1	0.002	"	0.100		102	70-130			
Ethylbenzene	0.1	0.002	"	0.100		104	70-130			
m,p-Xylene	0.2	0.004	"	0.200		105	70-130			
o-Xylene	0.1	0.002	"	0.100		103	70-130			
Naphthalene	0.09	0.008	"	0.100		91.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.6	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.0	70-130			

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Project Number: [none]

Project: Noble - Thoutt 1

## 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 4D08008 - EPA 5030 (soil)

Matrix Spike (4D08008-MS1)		Source: X404037-06			Prepared: 04/08/2014 Analyzed: 04/08/2014					
Benzene	0.07	0.002	mg/kg	0.100	ND	74.9	70-130			
Toluene	0.08	0.002	"	0.100	ND	80.1	70-130			
Ethylbenzene	0.07	0.002	"	0.100	ND	69.0	70-130			QM-07
m,p-Xylene	0.1	0.004	"	0.200	0.001	69.7	70-130			QM-07
o-Xylene	0.07	0.002	"	0.100	ND	70.3	70-130			
Naphthalene	0.03	0.008	"	0.100	0.004	25.2	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		96.7	70-130			
Surrogate: Toluene-d8	67		"	62.5		107	70-130			
Surrogate: 4-Bromofluorobenzene	74		"	62.5		119	70-130			

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

**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 4D08008 - EPA 5030 (soil)										
<b>Matrix Spike Dup (4D08008-MSD1)</b>			<b>Source: X404037-06</b>		Prepared: 04/08/2014 Analyzed: 04/08/2014					
Benzene	0.07	0.002	mg/kg	0.100	ND	72.5	70-130	3.34	20	
Toluene	0.07	0.002	"	0.100	ND	73.1	70-130	9.09	20	
Ethylbenzene	0.06	0.002	"	0.100	ND	60.0	70-130	14.0	20	QM-07
m,p-Xylene	0.1	0.004	"	0.200	0.001	60.5	70-130	14.0	20	QM-07
o-Xylene	0.06	0.002	"	0.100	ND	63.5	70-130	10.2	20	QM-07
Naphthalene	0.03	0.008	"	0.100	0.004	22.3	70-130	10.4	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		99.9	70-130			
Surrogate: Toluene-d8	65		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	71		"	62.5		114	70-130			

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Thoutt 1

**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 8015M - 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 4D08009 - EPA 3580**

**Blank (4D08009-BLK1)**

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 41 g 50.0 81.9 59-131

**Blank (4D08009-BLK2)**

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 44 g 50.0 88.7 59-131

**LCS (4D08009-BS1)**

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28) 852 50.0 mg/kg 1000 85.2 64-121

Surrogate: o-Terphenyl 43 g 50.0 86.9 59-131

**LCS (4D08009-BS2)**

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28) 890 50.0 mg/kg 1000 89.0 64-121

Surrogate: o-Terphenyl 45 g 50.0 90.3 59-131

**Matrix Spike (4D08009-MS1)**

Source: X404034-01

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28) 806 50.0 mg/kg 1000 ND 80.6 53-125

Surrogate: o-Terphenyl 42 g 50.0 85.0 59-131

**Matrix Spike (4D08009-MS2)**

Source: X404034-02

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28) 922 50.0 mg/kg 1000 ND 92.2 53-125

Surrogate: o-Terphenyl 46 g 50.0 91.6 59-131

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Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## Extractable Petroleum Hydrocarbons by 8015M - 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 4D08009 - EPA 3580

<b>Matrix Spike Dup (4D08009-MSD1)</b>		<b>Source: X404034-01</b>			Prepared: 04/08/2014 Analyzed: 04/08/2014					
Diesel (C10-C28)	946	50.0	mg/kg	1000	ND	94.6	53-125	16.0	20	
Surrogate: o-Terphenyl	47		g	50.0		94.5	59-131			
<b>Matrix Spike Dup (4D08009-MSD2)</b>		<b>Source: X404034-02</b>			Prepared: 04/08/2014 Analyzed: 04/08/2014					
Diesel (C10-C28)	810	50.0	mg/kg	1000	ND	81.0	53-125	12.9	20	
Surrogate: o-Terphenyl	43		g	50.0		86.7	59-131			

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4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Thoutt 1

## Notes and Definitions

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

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