

State of Colorado
Oil and Gas Conservation Commission

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



#8462

FOR OGCC USE ONLY

RECEIVED
6/2/2014

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 Operator Number: _____	Contact Name and Telephone: _____
Name of Operator: _____	_____
Address: _____	No: _____
City: _____ State: _____ Zip: _____	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: **6/2/2014**

LEGEND

LATITUDE/LONGITUDE OF INFRASTRUCTURE AND RELEASE LOCATION:

RELEASE LOCATION (40.269171/-104.498086)
STATE #36-714 WELL PAD (40.27066/-104.49747)

NOTES:
THE RELEASE LOCATION IS THE LOCATION OF THE SEPARATOR ASSOCIATED WITH STATE #36-714



SITE LOCATION MAP

STATE #36-714 - SEPARATOR RELEASE
40.269171/-104.498086
SWNE SEC.33 T4N R64W 6 PM
CR 40 & CR 57 - S 1, E 1 6/10, N 4/10
WELD COUNTY, COLORADO
API # 05-123-17864

DATE:

04/22/14

FIG NO:

DRAWN BY:

2

RAL





EAGLE

ENVIRONMENTAL
CONSULTING, INC.

4101 Inca Street, Denver, CO 80211 • Phone: 303-433-0479 • Fax: 303-325-5449 • www.eagle-enviro.com

May 1, 2014

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

**Field Assessment and Excavation Report
State #36-7I4 – Separator Release
SW¼ NE¼ SEC.36 T4N R64W 6PM
40.269171/-104.498086 (Release Location)
Weld County, Colorado
API # 05-123-17864**

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 State #36-7I4 well was completed on February 10, 1994 to a total depth of 7,029 feet below ground surface (bgs) and is located at latitude: 40.27066 and longitude: -104.49747 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 the State #36-7I4 separator. On April 21, 2014, EAGLE collected soil samples following removal of the State #36-7I4 separator. Based on field analysis of collected soil samples, no soil samples were submitted for laboratory analysis, and excavation activities were scheduled for the following day. The following narrative details excavation activities that were completed at the site.

SOIL EXCAVATION ACTIVITIES

On April 22, 2014, EAGLE supervised excavation activities to remove adsorbed petroleum hydrocarbon impacts beneath the State #36-7I4 separator. Lerma's Oilfield Services, LLC (Lerma's) 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 6.5 feet bgs. Groundwater was not observed during excavation activities.

Waste characterization/confirmation soil samples (SS-1 through SS-17) were collected at various locations to determine the lateral and vertical extent of petroleum hydrocarbon impacts in the soil beneath and adjacent to the separator 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 0.4 parts per million by volume (ppm-v) (SS-14@4.5') to 1,364 ppm-v (SS-05@3.5').

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 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 modified Environmental Protection Agency (EPA) Methods 8260c and 8015. The soil samples were received within the required holding time for each laboratory analysis.

A total of five confirmation soil samples (SS-10@5', SS-11@5', SS-12@5.5', SS-13@5', and SS-16@6.5') were submitted for laboratory analysis. 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 State #36-7I4 excavation extended approximately 15 feet north to south, and 20 feet east to west. The excavation was advanced to a depth of approximately 6.5 feet bgs. Approximately 100 cubic yards of soil were 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-10@5', SS-11@5', SS-12@5.5', SS-13@5', and SS-16@6.5' collected from the State #36-7I4 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 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 State #36-7I4 site are included in Attachment A.

CONCLUSIONS

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

- Approximately 100 cubic yards of soil was removed from the State #36-7I4 site on April 22, 2014.
- Confirmation soil samples (SS-10@5', SS-11@5', SS-12@5.5', SS-13@5', and SS-16@6.5') collected from the sidewalls and floor of the State #36-7I4 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

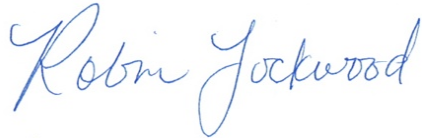
Based on the information presented in this report, EAGLE recommends the following:

- No further assessment or remediation is warranted for the State #36-7I4 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

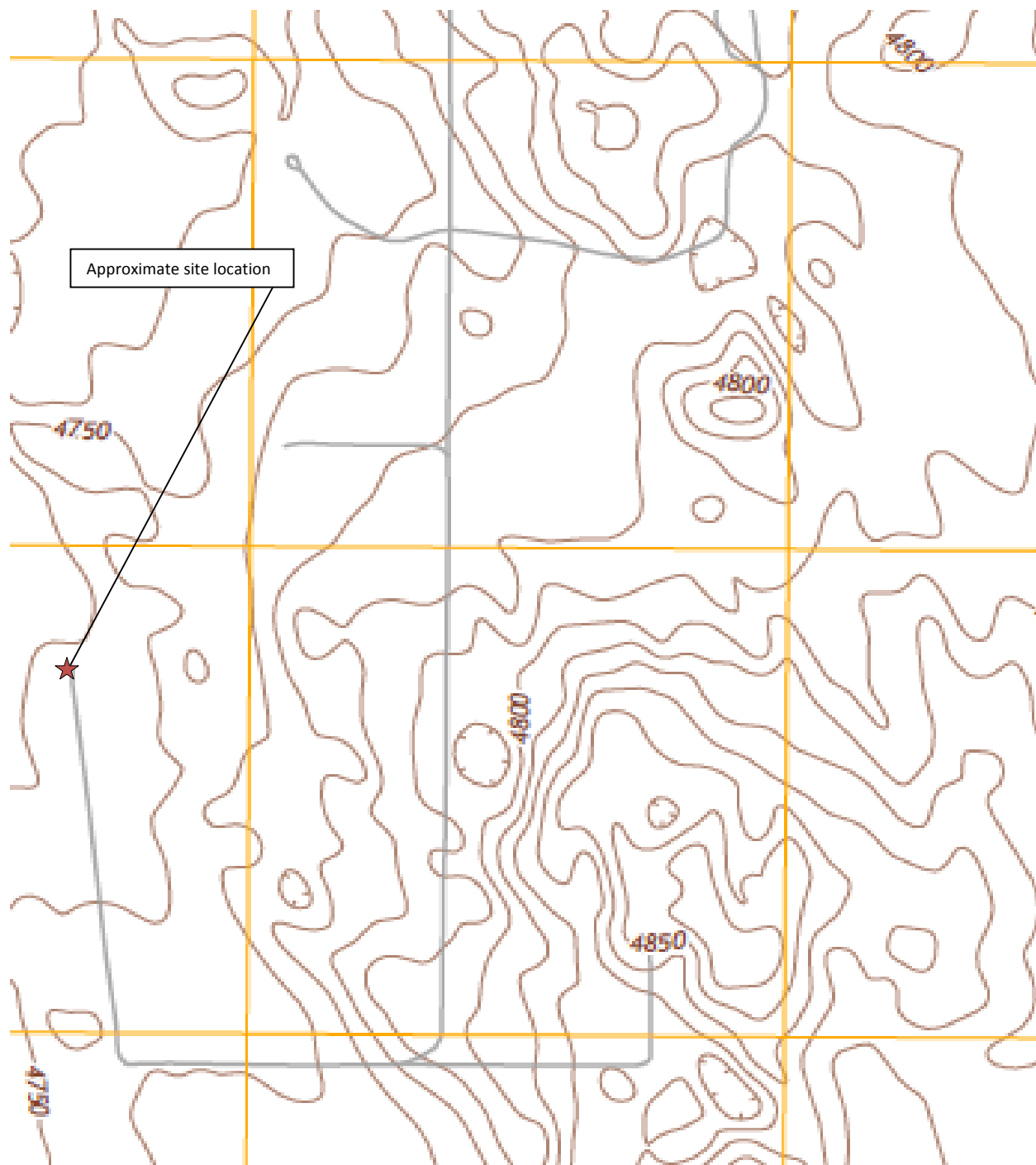
FIGURES

Figure 1: Topographical Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Sample Location Map

Figure 4: Soil Sample Analytical Map



Topographical Site Location Map
 State #36-714 – Separator Release
 40.269171 / -104.498086
 SW¼ NE¼ SEC.36 T4N R64W 6PM
 CR 40 & CR 57, S 1, E 1 6/10, N 4/10 INTO
 Weld County, CO

Source: USGS 7.5 Minute Topographic
 Map, Hardin, CO Quadrangle 2013

Figure 1



EAGLE
 ENVIRONMENTAL
 CONSULTING, INC.



LEGEND

LATITUDE/LONGITUDE OF INFRASTRUCTURE AND RELEASE LOCATION:

RELEASE LOCATION (40.269171/-104.498086)
STATE #36-714 WELL PAD (40.27066/-104.49747)

NOTES:
THE RELEASE LOCATION IS THE LOCATION OF THE SEPARATOR ASSOCIATED WITH STATE #36-714

AERIAL SITE LOCATION MAP
STATE #36-714 - SEPARATOR RELEASE
40.269171/-104.498086
SWNE SEC.33 T4N R64W 6 PM
CR 40 & CR 57 - S 1, E 1 6/10, N 4/10
WELD COUNTY, COLORADO
API # 05-123-17864

DATE:
04/22/14

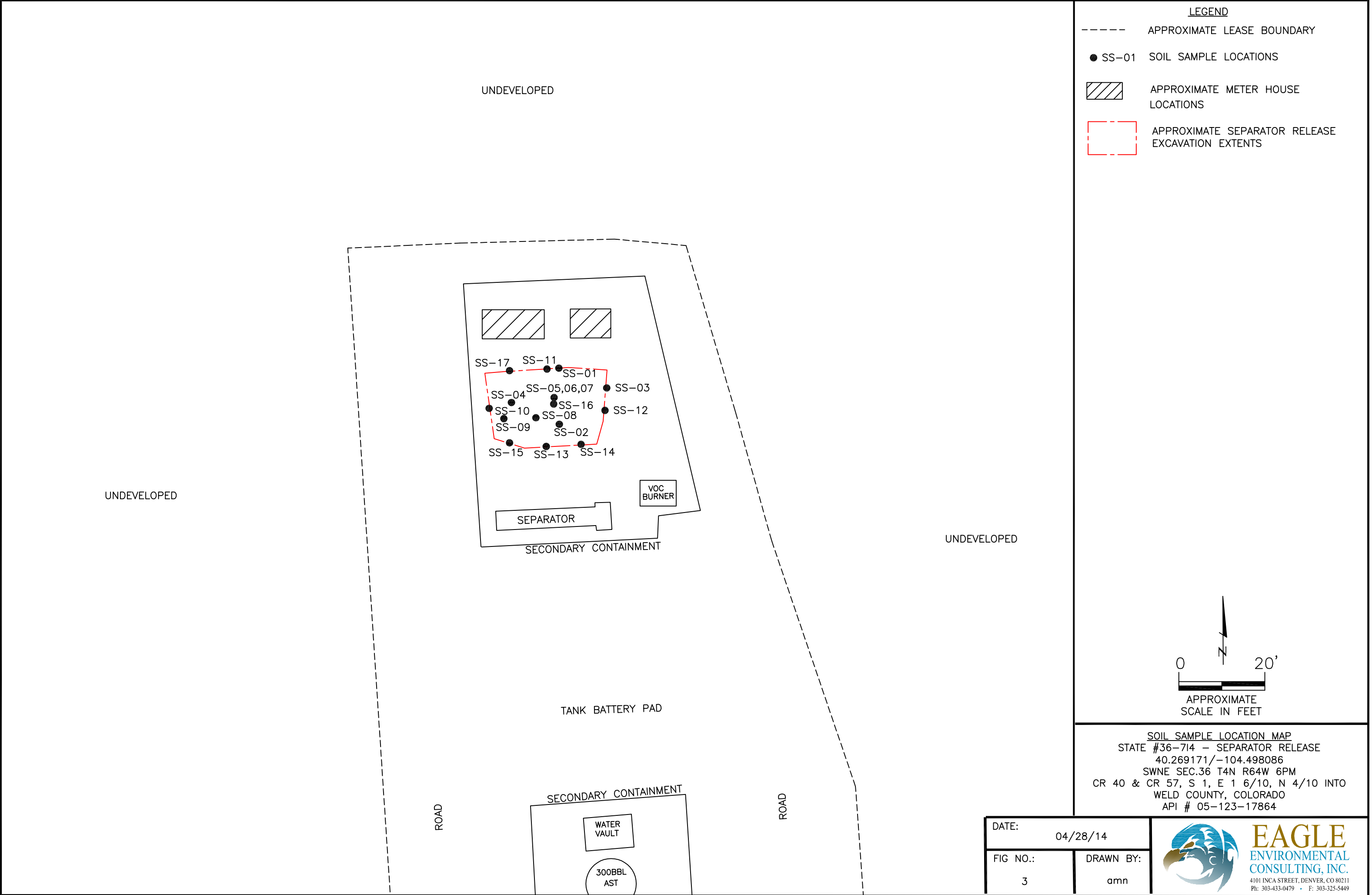
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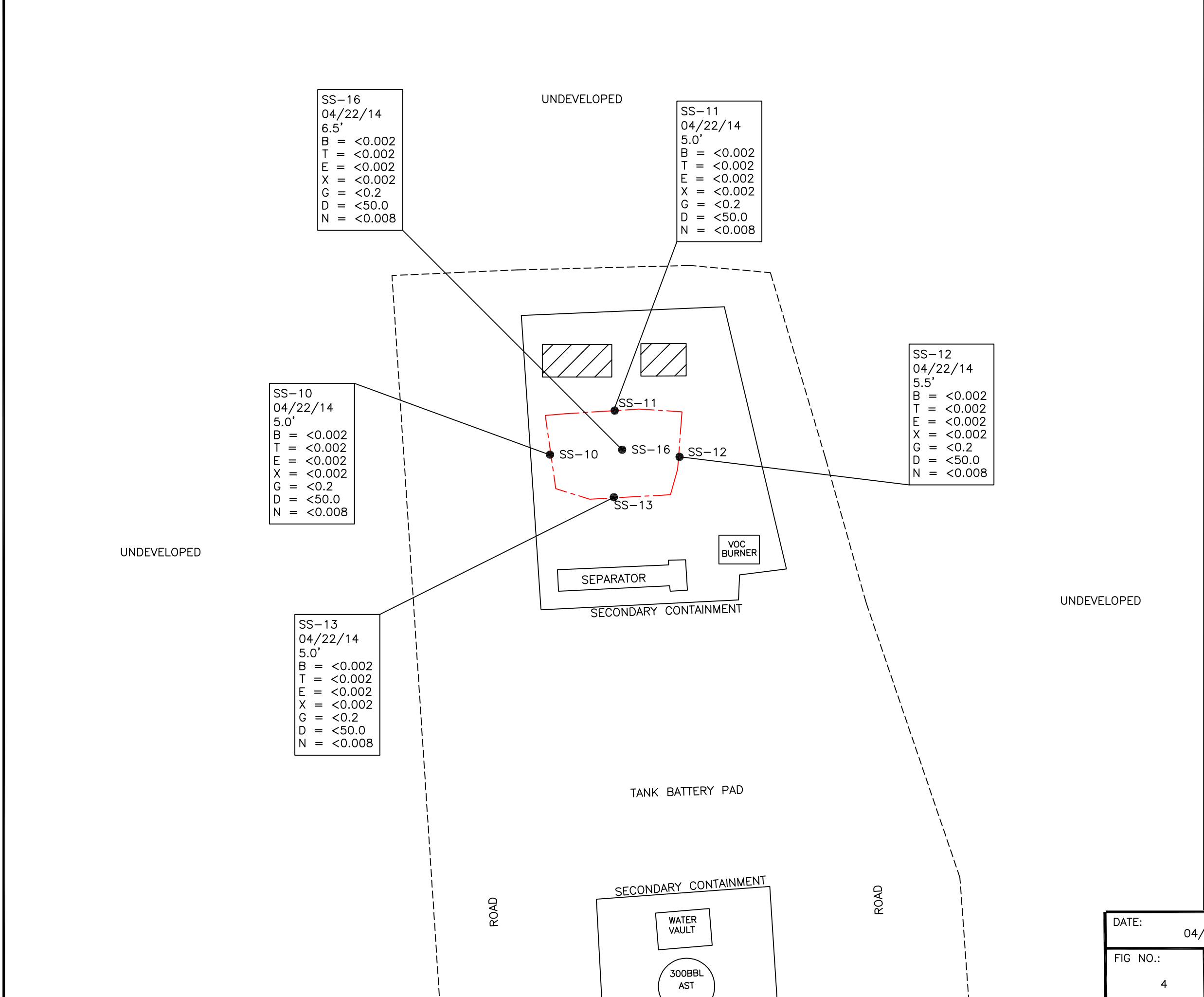
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EAGLE
ENVIRONMENTAL
CONSULTING, INC.
4101 INCA STREET, DENVER, CO 80211
Ph: 303-433-0479 • F: 303-325-5449





LEGEND

----- APPROXIMATE LEASE BOUNDARY

● SS-01 SOIL SAMPLE LOCATIONS

APPROXIMATE METER HOUSE LOCATION

APPROXIMATE SEPARATOR RELEASE EXCAVATION EXTENTS

PARAMETERS

SAMPLE LOCATION
DATE SAMPLE COLLECTED
APPROXIMATE DEPTH (FEET)
B = BENZENE (mg/kg)
T = TOLUENE (mg/kg)
E = ETHYLBENZENE (mg/kg)
X = TOTAL XYLENES (mg/kg)
G = TPH-GRO (mg/kg)
D = TPH-DRO (mg/kg)
N = NAPHTHALENE (mg/kg)

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 THE COGCC CONCENTRATION LEVELS PRESENTED IN TABLE 910-1

VALUES PRESENTED WITH A "<" SYMBOL INDICATE CONCENTRATIONS WERE NOT OBSERVED ABOVE THE LABORATORY'S REPORTING LIMIT

COGCC – COLORADO OIL AND GAS CONSERVATION COMMISSION

0 20'
APPROXIMATE SCALE IN FEET

SOIL SAMPLE ANALYTICAL MAP
STATE #36-714 – SEPARATOR RELEASE
40.269171/-104.498086
SWNE SEC.36 T4N R64W 6PM
CR 40 & CR 57, S 1, E 1 6/10, N 4/10 INTO
WELD COUNTY, COLORADO
API # 05-123-17864

DATE: 04/28/14	
FIG NO.: 4	DRAWN BY: amn

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
 STATE # 36-714 - SEPARATOR RELEASE
 40.269171/-104.498086
 SW¼ NE¼ SEC.36 T4N R64W 6PM
 CR 40 CR 57, S 1, E 1 6/10, N 4/10 INTO
 WELD COUNTY, COLORADO
 API # 05-123-17864

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Laboratory Analyzed (y/n)
SS-01 @ 2.5' (40.269211624/-104.498096649)	04/21/14	2.5	49.3	no
SS-02 @ 2.5' (40.269170837/-104.498093095)	04/21/14	2.5	388.8	no
SS-03 @ 2.5' (40.269192419/-104.498060826)	04/21/14	2.5	8.7	no
SS-04 @ 2.5' (40.269182562/-104.498129838)	04/21/14	2.5	446.2	no
SS-05 @ 3.5' (40.269196129/-104.498087863)	04/21/14	3.5	1364.0	no
SS-06 @ 5' (40.269196129/-104.498087863)	04/21/14	5.0	596.6	no
SS-07 @ 7' (40.269196129/-104.498087863)	04/21/14	7.0	75.4	no
SS-08 @ 4' (40.269171655/-104.498114782)	04/22/14	4.0	347.1	no
SS-09 @ 3' (40.269172818/-104.498134629)	04/22/14	3.0	299.4	no
SS-10 @ 5' (40.269188865/-104.49814575)	04/22/14	5.0	4.5	yes
SS-11 @ 5' (40.269216901/-104.498094925)	04/22/14	5.0	24.5	yes
SS-12 @ 5.5' (40.269187643/-104.49805073)	04/22/14	5.5	8.2	yes
SS-13 @ 5' (40.269163311/-104.498091566)	04/22/14	5.0	18	yes
SS-14 @ 4.5' (40.269164810/-104.49808847)	04/22/14	4.5	0.4	no
SS-15 @ 4.5' (40.269165098/-104.498098257)	04/22/14	4.5	8.2	no
SS-16 @ 6.5' (40.269194976/-104.498087477)	04/22/14	6.5	25.6	yes
SS-17 @ 5' (40.269215875/-104.498098311)	04/22/14	5.0	9.9	no
PID = photoionization detector ppm-v = parts per million by volume				



TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
STATE # 36-714 - SEPARATOR RELEASE
40.269171/-104.498086
NW¼ SE¼ SEC.36 T4N R64W 6PM
CR 40 CR 57, S 1, E 1 6/10, N 4/10 INTO
WELD COUNTY, COLORADO
API # 05-123-17864

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)
COGCC Table 910-1 Regulatory Limits (mg/kg)			0.17	85	100	175	23	500	
SS-10 @ 5' (40.269188865/-104.49814575)	04/22/14	5.0	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-11 @ 5' (40.269216901/-104.498094925)	04/22/14	5.0	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-12 @ 5.5' (40.269187643/-104.49805073)	04/22/14	5.5	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-13 @ 5' (40.269163311/-104.498091566)	04/22/14	5.0	<0.002	<0.002	<0.002	<0.002	<0.008	<0.2	<50.0
SS-16 @ 6.5' (40.269194976/-104.498087477)	04/22/14	6.5	<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 23, 2014

Eagle Environmental Consulting, Inc.

Martin C Eckert III

4101 Inca Street

Denver

CO 80211

Project Name - Noble - State 36-714

Project Number - [none]

Attached are your analytical results for Noble - State 36-714 received by Origins Laboratory, Inc. April 22, 2014. This project is associated with Origins project number X404214-01.

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 - State 36-714

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-10 @ 5.0'	X404214-01	Soil	April 22, 2014 12:02	04/22/2014 13:48
SS-11 @ 5.0'	X404214-02	Soil	April 22, 2014 12:03	04/22/2014 13:48
SS-12 @ 5.5'	X404214-03	Soil	April 22, 2014 12:04	04/22/2014 13:48
SS-13 @ 5.0'	X404214-04	Soil	April 22, 2014 12:05	04/22/2014 13:48
SS-16 @ 6.5'	X404214-05	Soil	April 22, 2014 12:05	04/22/2014 13:48

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 - State 36-714

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-enlco.com
Denver, CO 80211 Project Name/Number: State 36-714
Telephone Number: (303) 433-0479 Samples Collected By: A. Newberry

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix		Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil		
SS-10 @ 5.0'	4-22-14	1202	1	X					X	G, BTEX by DRO by 8015 Naphthalene	1
SS-11 @ 5.0'		1203	1	X					X		2
SS-12 @ 5.5'		1204	1	X					X		3
SS-13 @ 5.0'		1205	1	X					X		4
SS-10 @ 6.5'		1206	1	X					X		5
											6
											7
											8
											9
											10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<u>And. N. N.</u>	<u>4-22-14</u>	<u>1348</u>	<u>[Signature]</u>	<u>4/22/14</u>	<u>13:48</u>	24 Hr <input type="checkbox"/> Same Day <input type="checkbox"/> 48 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:

Noble turnaround

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.

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - State 36-714

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X404214

Client: Eagle

Client Project ID: State 36-714

Checklist Completed by: Jeff Smith

Shipped Via: H/D
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 4/22/14 13:47

Airbill #: NA

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

Cooler Number/Temperature: 1 / 28 °C 1 / 28 °C 1 / 28 °C 1 / 28 °C (Describe)

Thermometer ID: 1000

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"/>			
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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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"/>	Soil
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 checked="" type="checkbox"/>	Soil
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

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.

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

Martin C Eckert III
Project Number: [none]
Project: Noble - State 36-714

SS-10 @ 5.0'

4/22/2014 12:02:00PM

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

Origins Laboratory, Inc.
X404214-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D22011	04/22/2014	04/22/2014
Surrogate: o-Terphenyl	114 %	59-131			"	"	"

GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D22010	"	04/22/2014
Benzene	ND	0.002	"	"	"	"	04/22/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"
Napthalene	ND	0.008	"	"	"	"	"
Surrogate: 1,2-Dichloroethane-d4	94.6 %	70-130			"	"	"
Surrogate: Toluene-d8	99.8 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.6 %	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 - State 36-714

SS-11 @ 5.0'

4/22/2014 12:03:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X404214-02 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D22011	04/22/2014	04/22/2014
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Surrogate: o-Terphenyl	128 %	59-131			"	"	"
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GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D22010	"	04/22/2014
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Benzene	ND	0.002	"	"	"	"	04/22/2014
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Toluene	ND	0.002	"	"	"	"	"
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Ethylbenzene	ND	0.002	"	"	"	"	"
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Xylenes, total	ND	0.002	"	"	"	"	"
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Napthalene	ND	0.008	"	"	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	95.6 %	70-130			"	"	"
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Surrogate: Toluene-d8	95.9 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	97.3 %	70-130			"	"	"
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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 - State 36-714

SS-12 @ 5.5'

4/22/2014 12:04:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X404214-03 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D22011	04/22/2014	04/22/2014
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Surrogate: o-Terphenyl	152 %	59-131			"	"	" S-07
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GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D22010	"	04/22/2014
Benzene	ND	0.002	"	"	"	"	04/22/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"
Napthalene	ND	0.008	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	95.8 %	70-130			"	"	"
Surrogate: Toluene-d8	98.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.7 %	70-130			"	"	"

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

Martin C Eckert III
Project Number: [none]
Project: Noble - State 36-714

SS-13 @ 5.0'

4/22/2014 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X404214-04 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D22011	04/22/2014	04/22/2014
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Surrogate: o-Terphenyl	133 %	59-131			"	"	" S-07
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GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D22010	"	04/22/2014
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Benzene	ND	0.002	"	"	"	"	04/22/2014
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Toluene	ND	0.002	"	"	"	"	"
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Ethylbenzene	ND	0.002	"	"	"	"	"
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Xylenes, total	ND	0.002	"	"	"	"	"
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Napthalene	ND	0.008	"	"	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	94.9 %	70-130			"	"	"
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Surrogate: Toluene-d8	96.6 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	99.4 %	70-130			"	"	"
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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - State 36-714

SS-16 @ 6.5'

4/22/2014 12:05:00PM

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

X404214-05 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D22011	04/22/2014	04/22/2014
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Surrogate: o-Terphenyl	115 %	59-131			"	"	"
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GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.2	mg/kg	1	4D22010	"	04/22/2014
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Benzene	ND	0.002	"	"	"	"	04/22/2014
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Toluene	ND	0.002	"	"	"	"	"
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Ethylbenzene	ND	0.002	"	"	"	"	"
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Xylenes, total	ND	0.002	"	"	"	"	"
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Napthalene	ND	0.008	"	"	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"
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Surrogate: Toluene-d8	95.6 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	98.1 %	70-130			"	"	"
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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - State 36-714

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 4D22010 - EPA 5030 (soil)

Blank (4D22010-BLK1)

Prepared: 04/22/2014 Analyzed: 04/22/2014

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	61		ug/kg	62.5		97.7	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.9	70-130			

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4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - State 36-714

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 4D22010 - EPA 5030 (soil)

LCS (4D22010-BS1)

Prepared: 04/22/2014 Analyzed: 04/22/2014

Benzene	0.1	0.002	mg/kg	0.100		113	70-130			
Toluene	0.1	0.002	"	0.100		108	70-130			
Ethylbenzene	0.1	0.002	"	0.100		105	70-130			
m,p-Xylene	0.2	0.004	"	0.200		110	70-130			
o-Xylene	0.1	0.002	"	0.100		110	70-130			
Naphthalene	0.1	0.008	"	0.100		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		95.2	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	70-130			

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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - State 36-714

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 4D22010 - EPA 5030 (soil)

Matrix Spike (4D22010-MS1)		Source: X404199-06			Prepared: 04/22/2014 Analyzed: 04/22/2014					
Benzene	0.08	0.002	mg/kg	0.100	ND	83.6	70-130			
Toluene	0.08	0.002	"	0.100	ND	84.7	70-130			
Ethylbenzene	0.08	0.002	"	0.100	ND	83.9	70-130			
m,p-Xylene	0.2	0.004	"	0.200	ND	86.1	70-130			
o-Xylene	0.09	0.002	"	0.100	ND	87.8	70-130			
Naphthalene	0.06	0.008	"	0.100	ND	61.7	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	57		ug/kg	62.5		91.5	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.1	70-130			

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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - State 36-714

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 4D22010 - EPA 5030 (soil)

Matrix Spike Dup (4D22010-MSD1)		Source: X404199-06			Prepared: 04/22/2014 Analyzed: 04/22/2014					
Benzene	0.09	0.002	mg/kg	0.100	ND	89.2	70-130	6.51	20	
Toluene	0.09	0.002	"	0.100	ND	87.5	70-130	3.30	20	
Ethylbenzene	0.09	0.002	"	0.100	ND	86.0	70-130	2.52	20	
m,p-Xylene	0.2	0.004	"	0.200	ND	89.8	70-130	4.19	20	
o-Xylene	0.09	0.002	"	0.100	ND	91.7	70-130	4.26	20	
Naphthalene	0.07	0.008	"	0.100	ND	74.2	70-130	18.4	20	
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		96.3	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - State 36-714

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 4D22011 - EPA 3580

Blank (4D22011-BLK1)

Prepared: 04/22/2014 Analyzed: 04/22/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 56 g 50.0 112 59-131

LCS (4D22011-BS1)

Prepared: 04/22/2014 Analyzed: 04/22/2014

Diesel (C10-C28) 1050 50.0 mg/kg 1000 105 64-121

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

Matrix Spike (4D22011-MS1)

Source: X404199-06

Prepared: 04/22/2014 Analyzed: 04/22/2014

Diesel (C10-C28) 1040 50.0 mg/kg 1000 20.0 102 53-125

Surrogate: o-Terphenyl 58 g 50.0 115 59-131

Matrix Spike Dup (4D22011-MSD1)

Source: X404199-06

Prepared: 04/22/2014 Analyzed: 04/22/2014

Diesel (C10-C28) 976 50.0 mg/kg 1000 20.0 95.6 53-125 6.58 20

Surrogate: o-Terphenyl 55 g 50.0 110 59-131

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 - State 36-714

Notes and Definitions

S-07 High surrogate in sample, however sample is non-detect. High surrogate indicates result values are biased high.

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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