

# **FREMONT ENVIRONMENTAL INC.**

February 21, 2015

Mr. Jacob Evans  
Noble Energy  
1625 Broadway, Suite 2000  
Denver, CO 80202

Subject:     **Excavation Report**  
              Ryan 1-26EG Dump Line Release  
              API # 05-123-07431  
              NWNW Sec 26, T6N, R65W  
              Weld County, Colorado  
              Fremont Project No. C014-076  
              Facility ID # 317634 (Location)

Dear Mr. Evans:

Enclosed please find a copy of the above referenced Excavation Report for Ryan 1-26EG dump line release site in Weld County, Colorado. The enclosed report describes excavation actions to remove impacted soil from the site.

Since the impacted soil was removed and ground water was not encountered at this site, a No Further Action (NFA) determination should be provided by the COGCC. Please contact me at (303) 956-8714 if you require any additional information.

Fremont appreciates the opportunity to provide this service.

Sincerely,  
**FREMONT ENVIRONMENTAL INC.**



Paul V. Henehan, P.E.  
Senior Consultant

Enclosure

**1759 REDWING LANE, BROOMFIELD, CO 80020  
(303) 956-8714 (DIRECT)**

**EXCAVATION REPORT**  
**NOBLE ENERGY INC.**  
**RYAN 1-26EG DUMP LINE RELEASE**  
**WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C014-076**  
**FACILITY ID #317634**

**Prepared by:**

**Fremont Environmental Inc.**  
**1759 Redwing Lane**  
**Broomfield, CO 80020**  
**(303) 956-8714**

**February 21, 2015**

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**EXCAVATION REPORT**  
**NOBLE ENERGY INC.**  
**RYAN 1-26EG DUMP LINE RELEASE**  
**WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C014-076**  
**FACILITY ID #317634**

**1.0 INTRODUCTION**

The purpose of this document is to present information collected during the excavation of petroleum-impacted soil at the Ryan 1-26EG dump line release location in Weld County, Colorado. This one day excavation project was completed on January 8, 2015. Since ground water was not impacted and the soil impacts have been removed, a No Further Action (NFA) determination should be provided by the Colorado Oil and Gas Conservation Commission.

**2.0 BACKGROUND INFORMATION**

**2.1 Site Location**

The Ryan 1-26EG dump line release site is located approximately four miles northeast of Greeley, Colorado in Weld County as shown on Figure 1. The site is located in an agricultural area and is approximately 0.5 miles northeast of the intersection of County Road 64 and County Road 45. The location is further described as the NW  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of Section 26, Township 6N, Range 65W.

**2.2 Site History**

The site consists of the water vault and aboveground storage tank for the Ryan 1-26EG natural gas well. The Ryan 1-26EG well was drilled in 1984 to a depth of approximately 7,526 feet. Soil impacts were recently observed at the one of the dump lines during maintenance activities. These soil impacts initiated this excavation effort.

### **3.0 FIELD ACTIVITIES**

Remediation efforts consisted of the excavation of petroleum-impacted soil at this site. The soil consisted of roadbase which was underlain by sandy clay to a depth of approximately eight feet. Ground water was not encountered in the excavation. The excavated area, which is approximately 12' x 65', is shown on Figure 3.

Excavation was initiated near the separator on January 8, 2015 and proceeded to the east until clean soil was observed on all sides of the overall dig based on field observations. The soil impacts were completely identified and removed on the same day.

A total of 210 cubic yards of petroleum impacted soil were removed by B&G Oilfield Services Inc. from the location over the course of the one day project. The impacted soil was disposed of at the Waste Management Inc. Buffalo Ridge landfill in Keenesburg, Colorado as non-hazardous waste.

A photoionization detector (PID) was used to field screen soil samples during the excavation. The instrument was calibrated with a 100 ppm isobutylene standard. Based on the field screening results, eight soil samples were collected from the side walls and floor of the excavation to confirm that impacted soil had been removed. The laboratory analyses indicated that all of the samples had concentrations that were less than the Colorado Oil and Gas Conservation Commission (COGCC) limits.

The sidewall samples were collected as grab samples near the lower portion of the excavation wall at depths of six to seven feet. Two floor samples were collected at depths of seven and eight feet.

The soil samples were analyzed by eAnalytics Laboratory, Inc. of Loveland, Colorado for benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO) by EPA method 8260C, and TPH – Diesel Range Organics (TPH-DRO) by EPA method 8015. The laboratory reports and chain-of-custody documentation are included in Appendix A.

Summaries of the laboratory data are included in Table 1. Table 1 presents the laboratory analyses for each soil sample. In addition, a column stating whether the laboratory analyses passed or failed the COGCC limits is provided. The laboratory analyses indicated that all of the soil samples collected from the sidewalls and floor achieved the COGCC Table 910-1 limits.

A daily summary of the excavation work is provided below:

**January 8, 2015 (Day 1 and Final Day)** – Excavation of the impacted area was initiated in the western portion of the overall dig and continued east while maintaining a clean north and south wall based on PID observations. Petroleum impacted soil was present to a depth of approximately eight feet. Six wall samples and two floor samples were collected. These samples defined the extent of the overall excavation as well as the maximum depth of the dig.

The locations of the soil samples are illustrated on Figure 3. The laboratory analyses are provided on Table 1.

#### **4.0 DISCUSSION**

As demonstrated by the soil sampling and analyses, the petroleum impacted soil was removed from the site by excavation. This was confirmed by the analyses of the soil samples collected from the excavation sidewalls and floor which were below the COGCC Table 910-1 concentrations. Approximately 210 cubic yards of impacted soil

were removed and transported to the landfill. Ground water was not encountered during the excavation.

Since the impacted soil has been removed, Noble should request that a no further action (NFA) determination be provided by the COGCC.

### **5.0 REMARKS**

The discussion and conclusions contained in this report represent our professional opinions. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

This report was prepared by **FREMONT ENVIRONMENTAL INC.**

 For MVA

2/21/15

Date\_\_\_\_\_

Mark Taylor

Construction Consultant

Reviewed by:



2/21/15

Date\_\_\_\_\_

Paul V. Henahan, P.E.

Senior Consultant

## TABLE

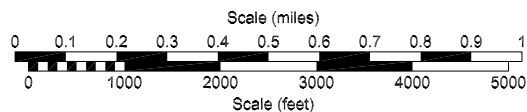
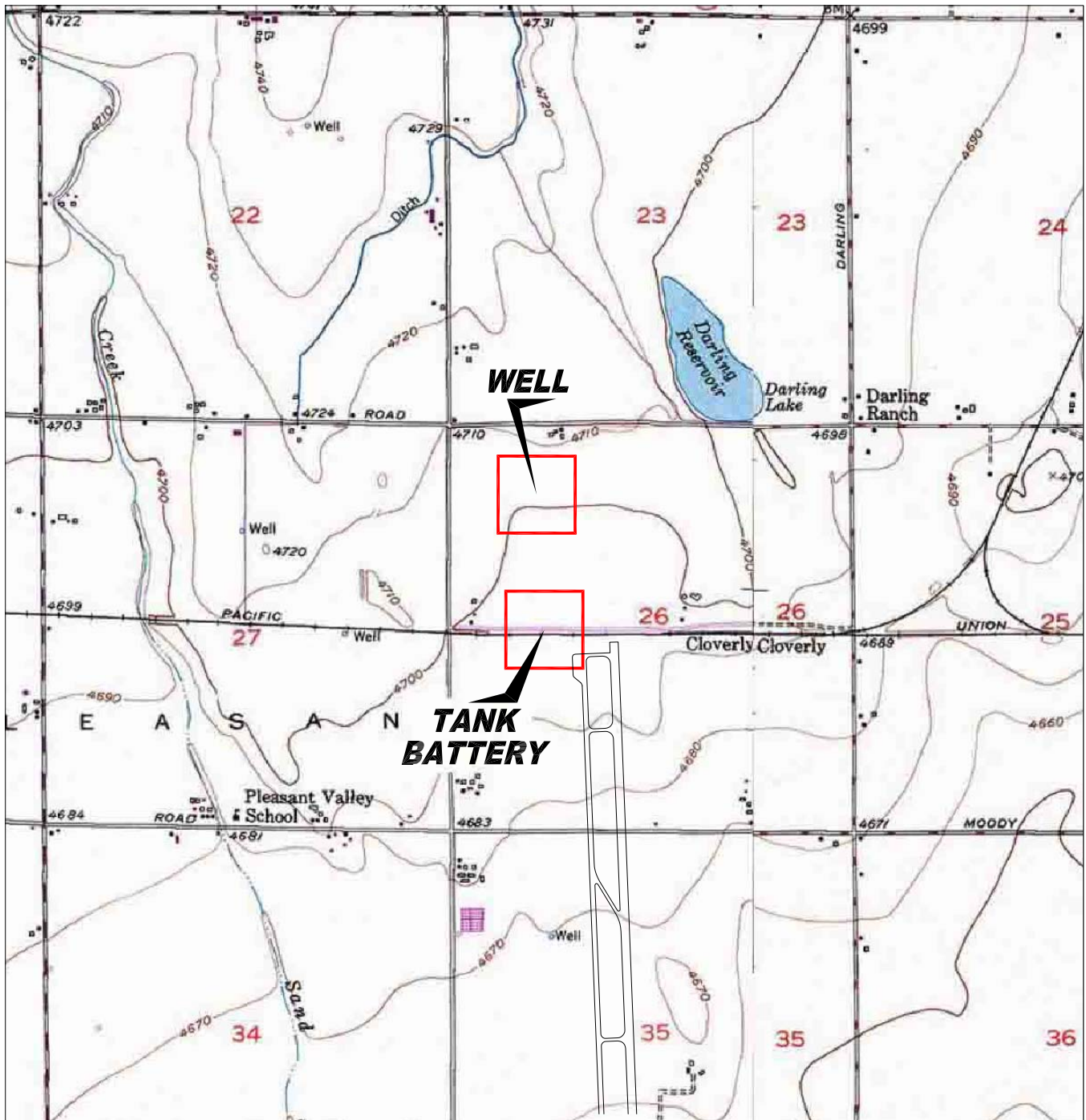


TABLE 1  
SUMMARY OF SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
RYAN 1-26EG DUMP LINE RELEASE, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C014-076

Sample	Depth (ft)	Date Sampled	Location	Pass or Fail	Benzene mg/kg	Toluene mg/kg	Ethyl- Benzene mg/kg	Xylenes mg/kg	Naphth- alene mg/kg	TPH GRO mg/kg	TPH DRO mg/kg
1-7'	7	1/8/2015	Sidewall	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
2-8'	8	1/8/2015	Floor	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
3-7'	7	1/8/2015	Sidewall	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
4-7'	7	1/8/2015	Sidewall	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
5-7'	7	1/8/2015	Sidewall	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
6-6'	6	1/8/2015	Sidewall	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
7-6'	6	1/8/2015	Sidewall	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
8-7'	7	1/8/2015	Floor	Pass	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<50
COGCC Table 910-1 Limits					0.17	85	100	175	23	500	500

Bold faced values exceed the COGCC Table 910-1 concentrations

## **FIGURES**



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
SITE LOCATION MAP

**Noble Ryan 1-26EG**  
NW Section 26, T6N, R65W  
Weld County, Colorado

Project No.  
C014-076

Prepared by

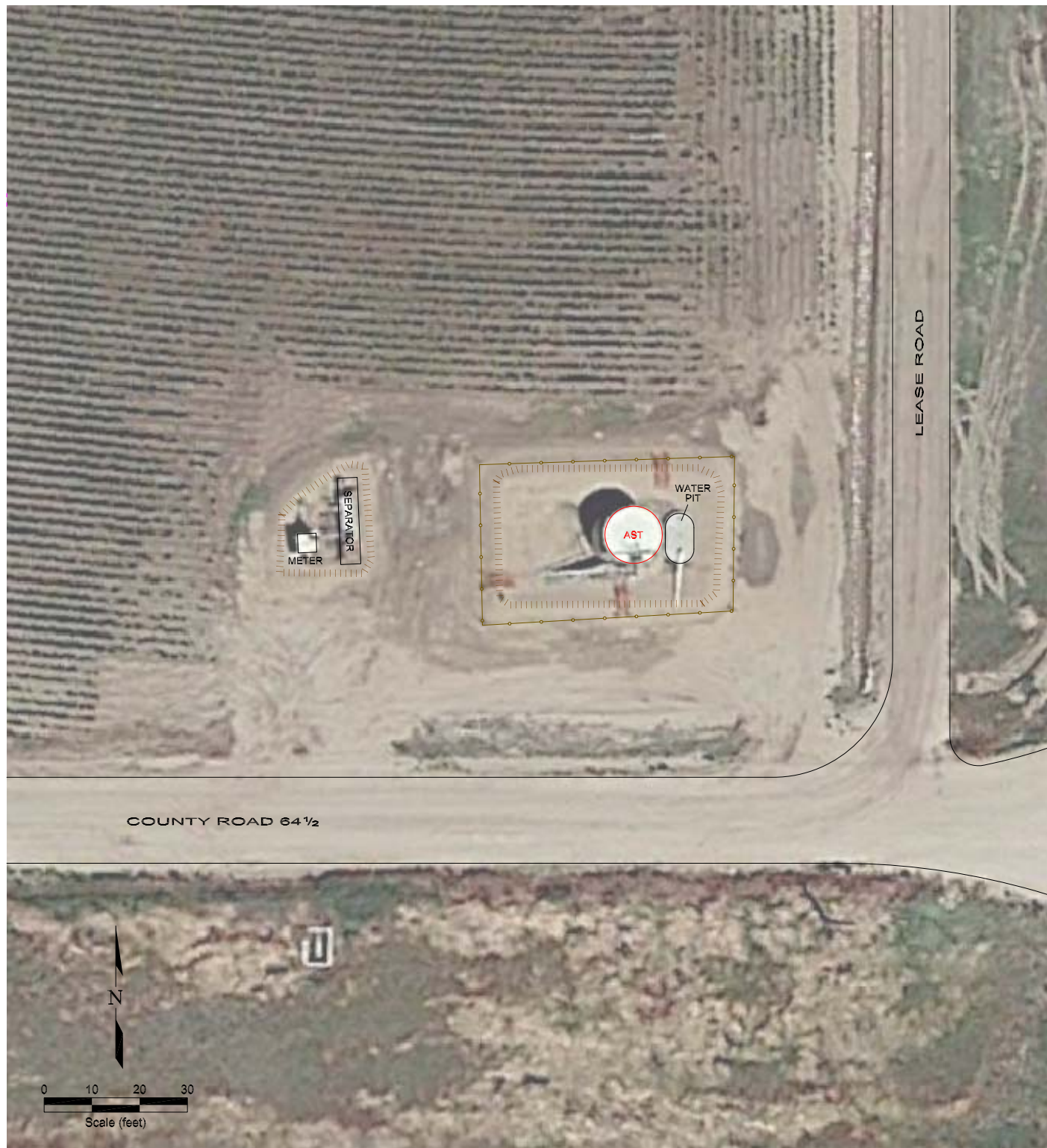
Drawn by  
JMA

Date  
1/8/15

Reviewed by

Filename  
14076T





#### LEGEND



**Figure 2  
SITE MAP**

**Noble Ryan 1-26EG**  
NW Section 26, T6N, R65W  
Weld County, Colorado

Project No.  
**C014-076**

Prepared by

Drawn by  
**JMA**

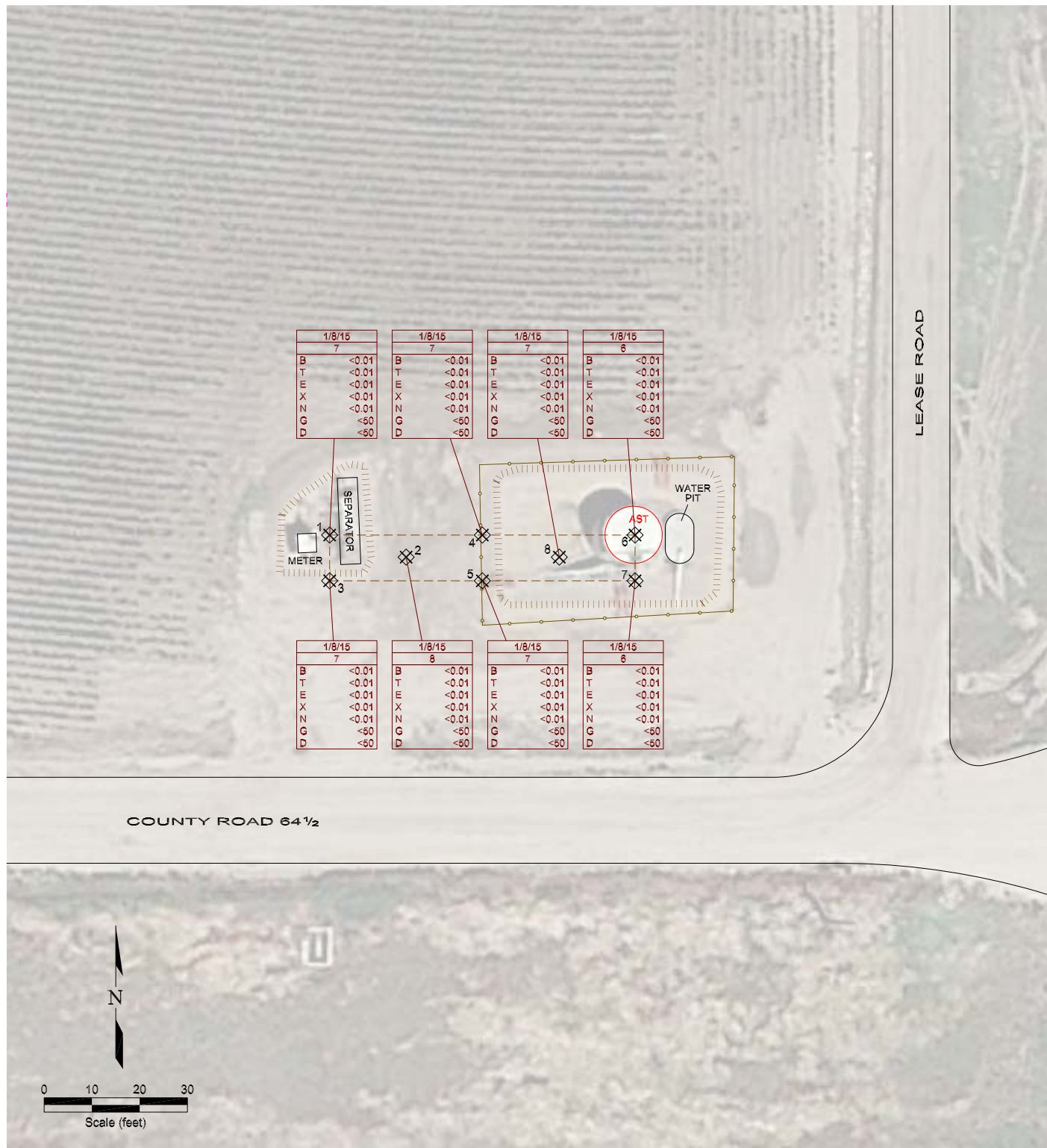
Date  
**1/8/15**

Reviewed by

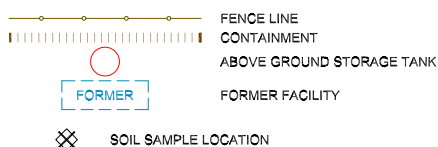
Filename  
**14076Q**







#### LEGEND



1/8/15		
7		
B	<0.01	DATE SAMPLED
T	<0.01	SAMPLE DEPTH (ft)
E	<0.01	BENZENE (mg/kg)
X	<0.01	TOLUENE (mg/kg)
N	<0.01	ETHYLBENZENE (mg/kg)
G	<0.01	TOTAL XYLENES (mg/kg)
D	<50	NAPHTHALENE (mg/kg)
	<50	TPH-GRO (mg/kg)
	<50	TPH-DRO (mg/kg)

#### Figure 3 EXCAVATION SOIL CHEMISTRY

**Noble Ryan 1-26EG**  
NW Section 26, T6N, R65W  
Weld County, Colorado

Project No.  
**C014-076**

Prepared by

Drawn by  
**JMA**

Date  
**2/6/15**

Reviewed by

Filename  
**14076Q**



**APPENDIX A**

**LABORATORY DOCUMENTATION**

# Test Report



January 8, 2015

Client: Fremont Environmental / Noble Energy

Project: Ryan 1-26 EG

Lab ID: 2768

Date Samples Received: 1/8/2015

Number of Samples: 8

Sample Condition: Samples arrived intact and in appropriate sample containers

Sample Temperature: Within acceptable range of 2-6° C, or as specified in EPA Method

The quality control procedures associated with the requested analyses were satisfactorily passed before the samples were run.

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Dieken".

Christopher Dieken  
Quality Assurance Manager

A handwritten signature in black ink, appearing to read "Todd Rhea".

Todd Rhea  
Laboratory Manager

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538

## Chain of Custody

# eANALYTICS

## L A B O R A T O R Y

Chain of Custody Form

eANALYTICS LABORATORY				1767 Rocky Mountain Avenue Loveland CO 80538				Phone: (970) 667-6975		Fax: (970) 669-0941		www.eAnalyticsLab.com	
<b>CLIENT INFORMATION</b> (*New Clients please fill out completely)						<b>ANALYSIS INFORMATION</b> (Select analysis by checking box on corresponding sample line)							
Company: Fremont Environmental						Other Analysis							
Project: Ryan 1-26 EG 0014-076													
Project Manager: Paul Henehan													
Sampler: Mark T													
Phone/Email: 303-956-8714													
Address: P.O. Box 1289													
Wellington CO 80549													
Lab ID	Sample Name	Sampling Date/Time	Number of Containers	Matrix (S) Soil (W) Water (V) Vapor (O) Other	BTEX (EPA 8260)	BTEX Naphthalene (EPA 8260)	TPH - GRO/DRO (EPA 8260/8015)	SAR (US Dept of Ag Method 20B)	EC (US Dept of Ag Method 3)	pH (EPA 9045D)			
1	1-7'	1/8/15	15			XX							
2	2-8'	}											
3	3-7'												
4	4-7'												
5	5-7'												
6	6-6'												
7	7-6'												
8	8-7'												
Comments:													
<b>Turnaround Time (Business Days)</b> TAT begins when sample is received by eANALYTICS <input type="radio"/> Normal (5-10 Days) <input type="radio"/> 3 Day (1.25x) <input type="radio"/> 2 Day (1.5x) <input type="radio"/> 1 Day (2x) <input checked="" type="radio"/> Next Bus Morning (Noble Pricing)						<b>Record of Custody</b> Relinquished by: <i>Mark T</i> Date: 1/8/15 Company: FREMONT ENVIRONMENTAL Time: 1600 AM/PM Received by: _____ Date: _____ Company: _____ Time: _____ AM/PM Relinquished by: _____ Date: _____ Company: _____ Time: _____ AM/PM Received by: <i>CEH</i> Date: 1/8/15 Company: eANALYTICS Time: 1605 AM/PM							
<b>For eANALYTICS Use</b> Samples Received Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No Received Within Temperature Range (2-6°C): <input checked="" type="radio"/> Yes <input type="radio"/> No Sample Preservative: Ice <input type="radio"/> None Acid <input type="radio"/> Other													
WO # 2768						eANALYTICS: Environmental testing made Easy						Page of	

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

The results contained within this report relate only to the items analyzed



# eANALYTICS

## LABORATORY

Client: Fremont Environmental / Noble Energy Lab ID: 2768

Project: Ryan 1-26 EG

Analysis: Volatile Organics Method: EPA8260  
TPH EPA8260/8015

Sample Name	Benzene mg/kg	Toluene mg/kg	Ethyl- benzene mg/kg	Total Xylenes mg/kg	Naph- thalene mg/kg	TPH GRO C6-C10 mg/kg	TPH DRO C10-C28 mg/kg	Date Sampled	Date Analyzed	Lab ID
1-7'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 1
2-8'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 2
3-7'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 3
4-7'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 4
5-7'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 5
6-6'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 6
7-6'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 7
8-7'	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	01/08/15	2768 8

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538

**e**ANALYTICS  
LABORATORY

Client: Fremont Environmental / Noble Energy

Lab ID: 2768

Project: Ryan 1-26 EG

Method: EPA8260

Sample Name	Dibromo- fluoromethane % Recovery	1,2 Dichloro- ethane-D4 % Recovery	Toluene-D8 % Recovery	Bromo- fluorobenzene % Recovery	Date Sampled	Date Analyzed	Lab ID
1-7'	91	92	95	95	01/08/15	01/08/15	2768 1
2-8'	102	103	101	110	01/08/15	01/08/15	2768 2
3-7'	98	87	86	104	01/08/15	01/08/15	2768 3
4-7'	104	88	91	95	01/08/15	01/08/15	2768 4
5-7'	88	95	106	103	01/08/15	01/08/15	2768 5
6-6'	88	106	100	93	01/08/15	01/08/15	2768 6
7-6'	95	99	98	102	01/08/15	01/08/15	2768 7
8-7'	103	104	108	102	01/08/15	01/08/15	2768 8

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538

# eANALYTICS

## LABORATORY

Client: Fremont Environmental / Noble Energy Lab ID: 2768

Project: Ryan 1-26 EG

Analysis: Volatile Organics Method: EPA8260  
TPH EPA8260/8015

Sample Name	Benzene % Rec	Toluene % Rec	Ethyl- benzene % Rec	Total Xylenes % Rec	Naph- thalene % Rec	TPH GRO C6-C10 % Rec	TPH DRO C10-C28 % Rec	Date Analyzed	Lab ID	
Laboratory Control Sample (70-130%)	93	89	94	91	103	91	98	01/08/15	LCS	2768 1
Method Blank	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/08/15	MB	2768 1
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538