

# **FREMONT ENVIRONMENTAL INC.**

July 22, 2013

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

Subject:     **Produced Water Pit Replacement Closure Report**  
              UPRC 23-3 NWSE Sec 23, T5N, R64W  
              API # 05-123-18089  
              Kersey, Colorado  
              Fremont Project No. C013-018

Dear Mr. Evans:

Enclosed please find a copy of the above referenced Produced Water Pit Replacement Report for the UPRC 23-3 site near Kersey, Colorado. The enclosed report describes the soil sampling and replacement of the existing 2,000 gallon water pit. 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.**

A handwritten signature in blue ink, appearing to read "Paul V. Henahan".

Paul V. Henahan, P.E.  
Senior Consultant

Enclosure

**PRODUCED WATER PIT REPLACEMENT**

**NOBLE ENERGY INC.**

**UPRC 23-3**

**KERSEY, COLORADO**

**FREMONT PROJECT NO. C013-018**

**Prepared by:**

**Fremont Environmental Inc.  
12061 Pennsylvania Street, Suite B-101  
Thornton, CO 80241  
(303) 956-8714**

**July 22, 2013**

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# **PRODUCED WATER PIT REPLACEMENT**

**NOBLE ENERGY INC.**

**UPRC 23-3**

**KERSEY, COLORADO**

**FREMONT PROJECT NO. C013-018**

## **1.0 INTRODUCTION**

The purpose of this document is to describe the actions taken to replace the produced water concrete pit at the UPRC 23-3 facility. In addition, this report will describe the soil sampling performed to determine whether subsurface impacts were present.

## **2.0 BACKGROUND INFORMATION**

### **2.1 Site Location**

The UPRC 23-3 site is located approximately five miles east of Kersey, Colorado in Weld County as shown on Figure 1. The site is located in a rural and agricultural area east northeast of the intersection of County Road 34 and County Road 57. The location is further described as the NW  $\frac{1}{4}$  of the SE  $\frac{1}{4}$  of Section 23, Township 5N, Range 64W.

### **2.2 Site History**

The site is a natural gas production and oil storage facility for the UPRC 23-3 and CPC Ferguson wells as shown on Figure 2, Site Map. This well was drilled in 1994 to a depth of approximately 7,650 feet. In July 2013, it was determined that the produced water concrete pit was unable to maintain its water level indicating a potential problem with the pit.

## **3.0 FIELD ACTIVITIES**

On July 18, 2013, a crew from Ochoa Trucking Services excavated the produced water pit immediately east of the oil storage tanks at the site. Two produced water pits are

side by side at this location; the easternmost of these two pits was excavated and replaced.

During excavation, it was noted that the dump line nipple had failed on the south end of the produced water pit. This inlet to the pit was approximately one foot above the bottom of the pit. Therefore, the pit was unable to maintain a higher level than this elevation. Photos of the pit excavation and broken nipple are provided.

A soil sample was collected immediately adjacent to the broken nipple on the side wall of the excavation at a depth of approximately 3.5 feet. This soil sample was submitted to eAnalytics Laboratory, Inc. (eAnalytics) in Loveland, Colorado for the analyses of 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). In addition, this side wall sample was also analyzed for three inorganic parameters including sodium absorption ratio (SAR), electrical conductivity (EC) and pH.

A floor soil sample was also collected from beneath the pit location after it was removed. This sample was collected from directly beneath the failed nipple connection at a depth of approximately 5.5 feet. This sample was analyzed for BTEX, TPH-GRO, TPH-DRO and naphthalene but not for any inorganic soil parameters.

The laboratory data indicated that the BTEX, TPH-GRO, TPH-DRO and naphthalene constituents were below their respective laboratory detection limits for both soil samples. However, an elevated value of SAR was present in the side wall sample. The SAR concentration was 29.3 (unitless) compared to the Colorado Oil and Gas Commission's (COGCC's) Table 910-1 limit of 12 (unitless). A copy of the laboratory reports, quality control data, and chain-of-custody documentation are presented in Appendix A.

The concrete pit was replaced by a new pit at this same location. Fremont personnel did not oversee that portion of the project.

#### **4.0 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.**



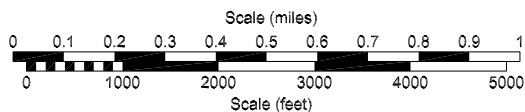
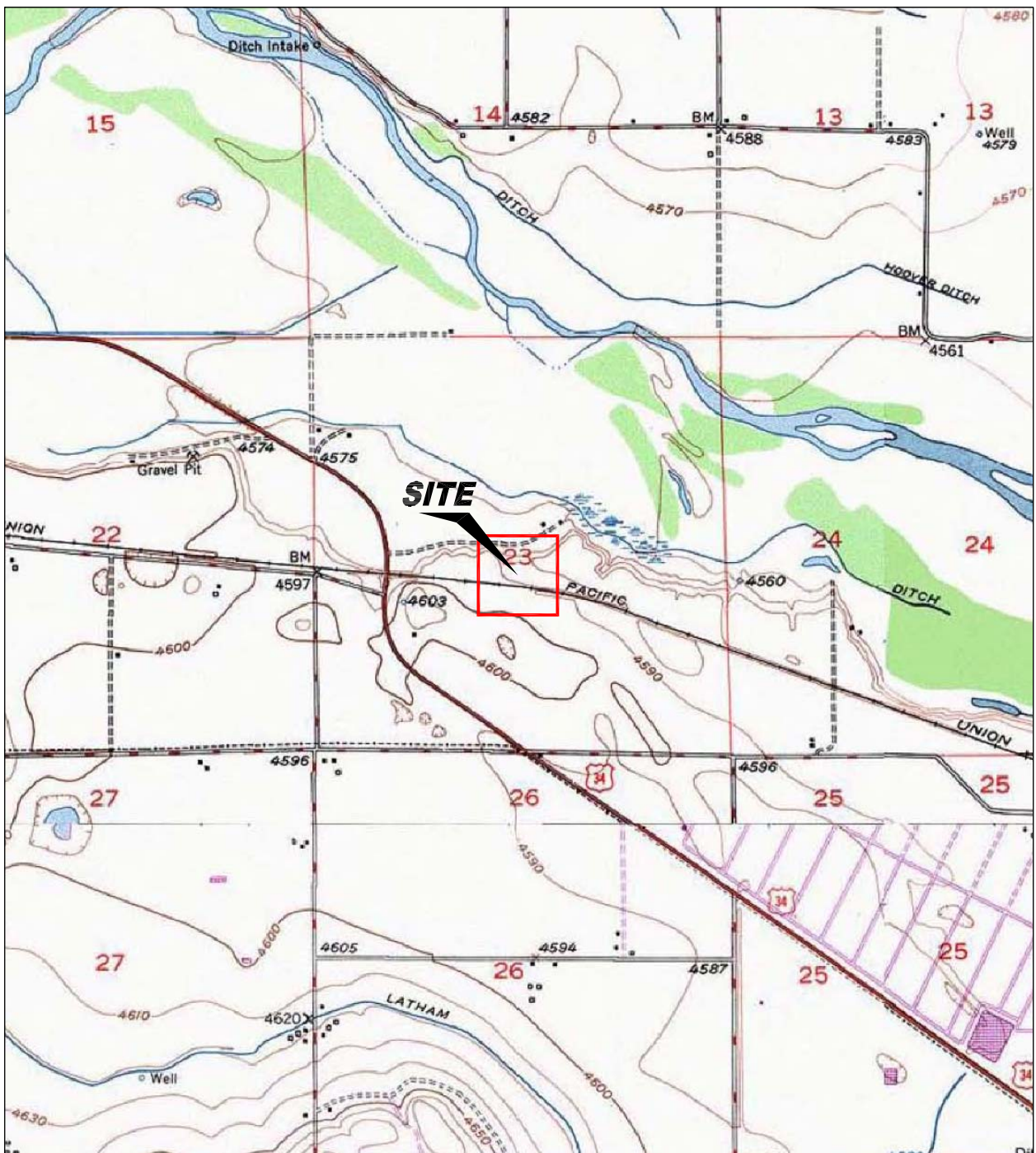
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Paul V. Henahan, P.E.

Senior Consultant

7/22/13  
Date\_\_\_\_\_

## **FIGURES**



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
SITE LOCATION MAP

UPRC 23-3  
NW SE Section 23, T5N, R64W  
Weld County, Colorado

Project No.  
C013-018

Prepared by

Drawn by  
JMA

Date  
7/22/13

Reviewed by

Filename  
13018T







LEGEND	
	RAILROAD TRACKS
	FENCE LINE
	ABOVE GROUND STORAGE TANK

Figure 2

**SITE MAP**

**UPRC 23-3**  
 NW SE Section 23, T5N, R64W  
 Weld County, Colorado

Project No. <b>C013-018</b>	Prepared by	Drawn by <b>JMA</b>	
Date <b>7/22/13</b>	Reviewed by	Filename <b>13018Q</b>	

**APPENDIX A**

**LABORATORY DOCUMENTATION**

# Certificate of Analysis



July 19, 2013

Client: Fremont Environmental  
PO Box 1289  
Wellington CO 80549

Project: UPRC

Lab ID: 071804

Date Received: 07/18/13

Number of Samples Received: 2

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

Analysis	EPA Method	Lab ID on COC
BTEX / Nap	8260C	1 - 2
TPH - GRO/DRO	8260C/8015C	1 - 2
pH	9045D	2
Sodium Adsorption Ratio	U.S. Dept of Ag Handbook 60 Method 20B	2
Electrical Conductivity	U.S. Dept of Ag Handbook 60 Method 3	2

All quality control analyses associated with the requested analyses were satisfactorily passed before the samples were run. If you have any questions please give us a call, we are happy to help.

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you, we truly appreciate your business.

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



A2LA & Department of Defense (DoD) Certified



**e**ANALYTICS  
LABORATORY

July 19, 2013

**e**ANALYTICS  
LABORATORY

**July 19, 2013**

EPA Method: 8260C	BTEX / Nap
8260C/8015C	TPH - GRO/DRO

[illegible]

**e**ANALYTICS  
LABORATORY

**July 19, 2013**

Project: UPRC

Lab ID: 071804

EPA Method: 8260C

[illegible]





**APPENDIX B**

**PHOTOS**



**Looking north at produced water pit to be replaced (right side of photo)**



**The dump line nipple failed where it was attached to the concrete pit**