

FREMONT ENVIRONMENTAL INC.

August 10, 2013

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

Subject: **Produced Water Pit Replacement Closure Report**
Hop 13-11B
API # 05-123-17457
Kersey, Colorado
Fremont Project No. C013-028

Dear Mr. Evans:

Enclosed please find a copy of the above referenced Produced Water Pit Replacement Report for the Hop 13-11B site near Kersey, Colorado. The enclosed report describes the soil sampling and replacement of the existing steel 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.



Paul V. Henehan, P.E.
Senior Consultant

Enclosure

PRODUCED WATER PIT REPLACEMENT

NOBLE ENERGY INC.

HOP 13-11B

KERSEY, COLORADO

FREMONT PROJECT NO. C013-028

Prepared by:

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

August 10, 2013

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PRODUCED WATER PIT REPLACEMENT

NOBLE ENERGY INC.

HOP 13-11B

KERSEY, COLORADO

FREMONT PROJECT NO. C013-028

1.0 INTRODUCTION

The purpose of this document is to describe the actions taken to replace the steel, produced water pit at the Hop 13-11B well location. 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 Hop 13-11B site is located approximately two miles west of Kersey, Colorado in Weld County as shown on Figure 1. The site is located in a rural and agricultural area north of the intersection of County Road 47 and Highway 34. The location is further described as the NE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 13, Township 5N, Range 65W.

2.2 Site History

The site is a natural gas production and oil storage facility for the Hop 13-11B well as shown on Figure 2, Site Map. This well was drilled in 1993. In July 2013, it was determined that the steel produced water pit was unable to maintain its water level indicating a potential problem with the pit and/or piping. Therefore, it was scheduled for replacement.

3.0 FIELD ACTIVITIES

On August 5, 2013, a crew from Ochoa Trucking Services excavated the produced water pit immediately west of the oil storage tank at the site. The steel water pit was removed

and inspected for damage. No obvious indication of failure was observed. Regardless, the steel pit was replaced with a new, concrete water pit. Photos of the pit excavation and former steel pit are provided.

Three soil samples were collected from the side wall of the excavation at depths of approximately two, three and four feet. The soil sample from a depth of three feet 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. The soil samples were field screened with a photoionization detector (PID). The PID value for the soil samples was 0.0 ppm.

A floor soil sample was also collected from beneath the pit location after it was removed. This sample was collected from approximately the center of the former pit at a depth of approximately four feet. This sample was analyzed for BTEX, TPH-GRO, TPH-DRO and naphthalene but not for any inorganic soil parameters. The PID reading for this soil sample was also 0.0 ppm.

The laboratory data indicated that the BTEX, TPH-GRO, TPH-DRO and naphthalene constituents were below their respective laboratory detection limits for all soil samples. In addition, the SAR and EC were lower than the Colorado Oil and Gas Commission's (COGCC's) Table 910-1 limits. The pH was within the allowable range. A copy of the laboratory reports, quality control data, and chain-of-custody documentation are presented in Appendix A.

The steel pit was replaced by a new concrete pit at this same location and the facility was placed back in operation. 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.**

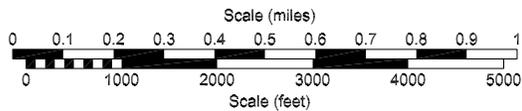
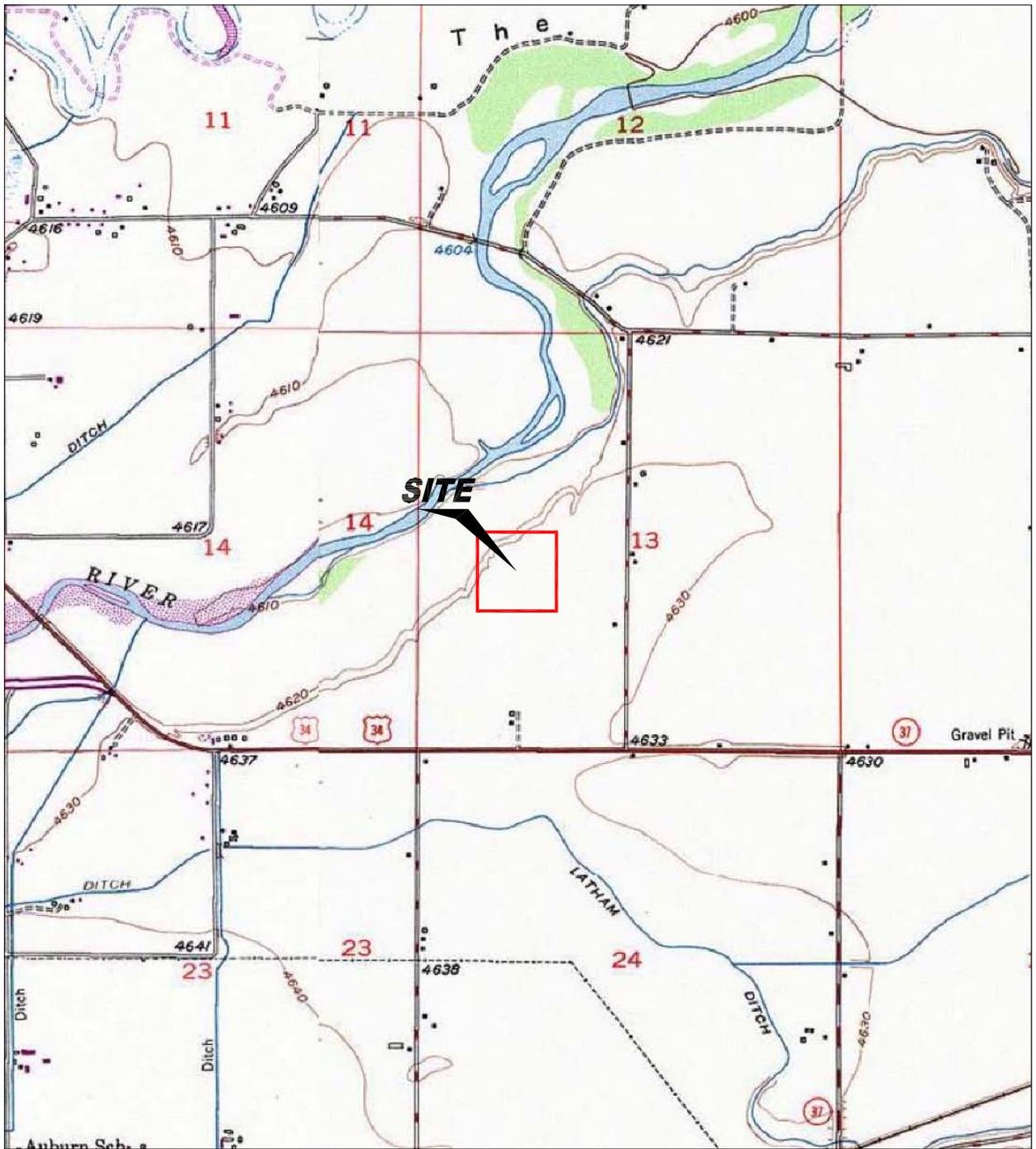


Paul V. Henehan, P.E.

Senior Consultant

8/10/13
Date _____

FIGURES



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Noble - Hop 13-11B
NE SW Section 13, T5N, R65W
Weld County, Colorado

Project No.
C013-028

Prepared by

Drawn by
JMA

Date
8/12/13

Reviewed by

Filename
13028T





LEGEND

- FENCE LINE
- BERM
- ABOVE GROUND STORAGE TANK

Figure 2

SITE MAP

Noble - Hop 13-11B
 NE SW Section 13, T5N, R65W
 Weld County, Colorado

Project No. C013-028	Prepared by	Drawn by JMA
Date 8/12/13	Reviewed by	Filename 13028Q



APPENDIX A

LABORATORY DOCUMENTATION

Certificate of Analysis

eANALYTICS LABORATORY

August 5, 2013

Client: Fremont Environmental
PO Box 1289
Wellington CO 80549

Project: Hop 13-11B

Lab ID: 080501

Date Received: 08/05/13

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,



Christopher Dieken
Quality Assurance Manager



Todd Rhea
Laboratory Manager



A2LA & Department of Defense (DoD) Certified

Certificate of Analysis

Chain of Custody



August 5, 2013

Chain of Custody Form

eANALYTICS LABORATORY

1767 Rocky Mountain Avenue Loveland CO 80538 | Phone: (970) 667-6975 | Fax: (970) 669-0941 | www.eAnalyticsLab.com

CLIENT INFORMATION <small>(*New Clients please fill out completely)</small>			ANALYSIS INFORMATION <small>(Select analysis by checking box on corresponding sample line)</small>																												
Company: FREMONT			Number of Containers	Matrix(S) Soil (W) Water (V) Vapor (O) Other	BTEX / MTBE / TVPH (EPA 8260)	TEPH (EPA 8015)	Vapor BTEX / TVPH (EPA TO-14)	Full VOC (EPA 8260)	Semi-Volatiles (Full List / PAHs)	TRPH / Oil & Grease	RCRA & Metals (Total / TCLP / Dissolved)	React. / Ignit. / Corrosivity / Paint Filter	pH / TSS / TDS	Metals (Specify)	PCBs / Pesticides / Herbicides	Anions (Specify)	Other Analysis														
Project: HOP 13-11B																	NOBLE BTEX	TPH-GRO	TPH-DEO	NAPHTHALENE	SAR, PH, EC										
Project Manager: HENEHAN																															
Sampler: "																															
Phone/Email: Address:																															
Lab ID	Sample Name	Sampling Date/Time																													
01	FLOOR - 4 FT	8/5/13	AM/PM	1	S																										
02	SIDEWALL - 3 FT	"	AM/PM	1	S																										
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Comments:

<p>Turnaround Time (Business Days) <small>TAT begins when sample is received by eANALYTICS</small></p> <p> <input type="radio"/> Normal (5-10 Days) <input type="radio"/> 3 Day (25%) <input checked="" type="radio"/> 2 Day (50%) <input type="radio"/> 1 Day (100%) <input type="radio"/> Same Day (300%) </p> <p>Rush analysis requires an extra charge. If possible please inform eANALYTICS in advance for rush analysis.</p> <p>Colorado OPS Project: Tomorrow Morning Yes / No</p>	<p style="text-align: center;">Record of Custody</p> <p>Relinquished by: Julia FE Date: 8/5/13</p> <p>Company: _____ Time: 12:30 PM</p> <p>Received by: _____ Date: _____</p> <p>Company: _____ Time: _____</p>
<p>For eANALYTICS Use</p> <p>Samples Received Intact: <input checked="" type="radio"/> Yes / No</p> <p>Received Within Temperature Range (2-6°C): <input checked="" type="radio"/> Yes / No</p> <p>Sample Preservative: Ice / Acid / None / Other</p>	<p>Relinquished by: _____ Date: _____</p> <p>Company: _____ Time: _____</p> <p>Received by: Todd Khan Date: 8-5-13</p> <p>Company: eANALYTICS Time: 12:30 PM</p>

APPENDIX B

PHOTOS



Looking northwest at pit excavation after most of the impacted soil was removed.



Steel water pit after removal. No indication of failure was observed.