

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised October 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

30-045-31129

**OPERATOR**

☐ Initial Report ☒ Final Report

Name of Company <b>Noble Energy, Inc.</b>	Contact <b>Jacob Evans</b>
Address <b>5802 U.S. Hwy. 64, Farmington, NM 87401</b>	Telephone No. <b>720.587.2026</b>
Facility Name <b>Southern Union #1-B</b>	Facility Type <b>Tank Battery</b>

Surface Owner <b>BLM</b>	Mineral Owner <b>BLM</b>	Lease No. <b>NMSF 078244</b>
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**LOCATION OF RELEASE**

Unit Letter <b>EK</b>	Section <b>19</b>	Township <b>31N</b>	Range <b>12W</b>	Feet from the <b>1975</b>	North/South Line <b>FNL</b>	Feet from the <b>2315</b>	East/West Line <b>FWL</b>	County <b>San Juan</b>
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Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

**NATURE OF RELEASE**

Type of Release - Oil	Volume of Release <b>20 bbl</b>	Volume Recovered <b>0 bbl</b>
Source of Release <b>Frozen drain valve</b>	Date and Hour of Occurrence <b>UNKNOWN</b>	Date and Hour of Discovery <b>1/16/2013 8:00 a.m.</b>
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

**OIL CONS. DIV DIST. 3**

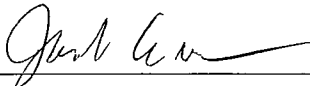
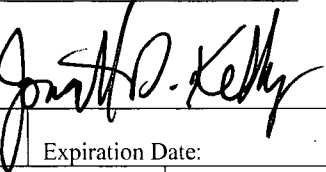
If a Watercourse was Impacted, Describe Fully.\*  
**N/A**

**JAN 30 2013**

Describe Cause of Problem and Remedial Action Taken.\*  
**A drain valve on the oil tank froze and spilt**

Describe Area Affected and Cleanup Action Taken.\*  
**Oil soaked into the ground at the release area; therefore, no oil was collected. Soil will be excavated from the berm and samples will be collected from the subsurface to show impacts have been remediated.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: <b>Jacob Evans</b>	Approved by District Supervisor: 	
Title: <b>Sr. Environmental Specialist</b>	Approval Date: <b>9/5/2014</b>	Expiration Date:
E-mail Address: <b>jevans@ltenv.com</b>	Conditions of Approval:	Attached <input type="checkbox"/>
Date: <b>1/25/2013</b>	Phone: <b>720.587.2026</b>	

\* Attach Additional Sheets If Necessary

**NJK1424850772**

RCUD JAN 17 '14  
OIL CONS. DIV.  
DIST. 3

# SPILL CLEANUP REPORT

LOCATED AT:  
SOUTHERN UNION #1B  
SECTION 19, TOWNSHIP 31 NORTH, RANGE 12 WEST  
SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR:  
NOBLE ENERGY  
MR. CODY MUNKRES  
5802 US HWY 64  
FARMINGTON, NEW MEXICO 87401



PROJECT NUMBER 04010-0033  
APRIL 2013



RCVD JAN 17 '14  
OIL CONS. DIV.  
DIST. 3

May 8, 2013

Project Number 04010-0033

Mr. Cody Munkres  
Noble Energy  
5082 US Highway 64  
Farmington, New Mexico 87401.

Phone: (505) 632-8056

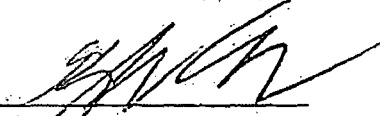
**RE: SPILL CLEANUP REPORT FOR A PRODUCED WATER SPILL FROM AN AST AT THE  
SOUTHERN UNION #1B WELL SITE,**

Dear Mr. Munkres:

Enclosed please find the *Spill Cleanup Report* detailing spill cleanup activities conducted at the Southern Union #1B well site located at Section 19, Township 31 North, Range 12 West, San Juan County, New Mexico.

We appreciate the opportunity to be of service. If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully submitted,  
ENVIROTECH, INC.

  
\_\_\_\_\_  
Kyle Cossum  
Staff Engineer  
[kcossu@envirotech-inc.com](mailto:kcossu@envirotech-inc.com)

Enclosures: *Spill Cleanup Report*

Cc: Client File Number 04010

NOBLE ENERGY  
SPILL CLEANUP REPORT  
SOUTHERN UNION #1B  
SECTION 19, TOWNSHIP 31 NORTH, RANGE 12 WEST  
SAN JUAN COUNTY, NEW MEXICO

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## **INTRODUCTION**

Envirotech, Inc. of Farmington, New Mexico, was contracted by Noble Energy to provide spill cleanup activities for a release of produced water from an AST inside of a bermed area at the Southern Union #1B well site located in Section 19, Township 31 North, Range 12 West, San Juan County, New Mexico; see *Figure 1, Vicinity Map*. Approximately 20 barrels of produced water were released due to this incident. Activities included delineation, excavation, sample collection and analysis, contaminated soil disposal, documentation and reporting.

## **ACTIVITIES PERFORMED**

Envirotech, Inc. was contacted on April 12, 2013, with a request to respond to a release that occurred at the above referenced location. Prior to arrival at the location a brief site assessment was conducted. Because distance to surface water is between 200 and 1000 feet from the release, depth to groundwater was between 0 and 50 feet, and the well site not located within a well head protection area, the regulatory standards for the site were determined to be 100 parts per million (ppm) total petroleum hydrocarbons (TPH) and 100 ppm organic vapors, pursuant to New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases.

Envirotech personnel arrived at the location on April 22, 2013. The spill area was delineated based on five specific sampling points; see *Figure 2, Site Map*. One (1) sample was collected at each sampling point from depths of three (3) and six (6) feet. The samples were not observed to be saturated. Each of the ten (10) samples were analyzed in the field for TPH using USEPA Method 418.1 and for organic vapors using a photoionization detector (PID). All samples returned results above the regulatory standards for organic vapor, and all samples, except for location two (2) at six (6) feet deep, location three (3) at six (6) feet deep, and location five (5) at six (6) feet deep, returned results above the regulatory standards for TPH; see enclosed *Table 1, Summary of Analytical Results*.

Envirotech personnel collected one (1) composite sample, named BGT surface, beneath the surface area of the below grade tank (BGT). The sample was not observed to be saturated. The sample was analyzed in the field for TPH using USEPA Method 418.1 and for organic vapors using a (PID). The sample returned results above the regulatory standard for TPH and organic vapor; see enclosed *Table 1, Summary of Analytical Results*. The BGT sample was collected into a four (4)-ounce glass jar, capped headspace free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Method 8015, for Benzene and total BTEX using USEPA Method 8021, and for chlorides using USEPA Method 4500. The sample returned results above the regulatory standards for TPH and below regulatory limits for BTEX, Benzene, and chlorides, confirming that a release had occurred underneath the former BGT area; see enclosed *Appendix A, Analytical Results*.

The area around the BGT was excavated to a depth of eight (8) feet deep by twenty-one (21) feet wide by thirty-five (35) feet across. Composite samples were collected from the north wall, east

wall, south wall, and bottom of the BGT excavation. The samples were not observed to be saturated. The samples were analyzed in the field for TPH using USEPA Method 418.1 and for organic vapors using a PID. The samples returned results below the regulatory standards for all constituents; see *Table 1, Summary of Analytical Results* and *Appendix A, Analytical Results*.

Envirotech personnel returned to the site on April 23, 2013 to continue excavation and spill closure activities. The area from the west side of the berm to the existing edge of the BGT excavation was excavated at a downward slope from six (6) feet deep on the western side to seven (7) feet deep on the eastern side, maintaining a width of twenty-one (21) feet across. Samples were collected from the southern wall, west wall, north wall, south west bottom, west bottom, and northern bottom of the newly excavated area. In addition, a smaller excavation was made at the north western border of the rectangular excavation, having dimensions of nine (9) feet by six (6) feet by nine (9) feet deep; see *Figure 3, Site Map 2*. One (1) composite sample was collected from the walls and one (1) composite sample was collected from the bottom of the smaller excavation at the north western border of the rectangular excavation; see *Table 1, Summary of Analytical Results*. The samples were not observed to be saturated. The samples were analyzed in the field for TPH using USEPA Method 418.1 and for organic vapor using a PID. The samples returned results below regulatory standards for all constituents analyzed.

Approximately 658 cubic yards of contaminated soil were transported to Envirotech's NMOCD permitted soil remediation facility, Landfarm 2, located near Hilltop, New Mexico; see *Appendix C, Bills of Lading*. Approximately 600 cubic yards of clean soil were transported to the Southern Union #1B well site from Envirotech's Landfarm, located near Hilltop, New Mexico; see *Appendix C, Bills of Lading*. The site was recontoured as specified by the Bureau of Land Management.

#### **SUMMARY AND CONCLUSIONS**

Spill cleanup activities were performed for a release of produced water from an AST at the Southern Union #1B well site. Approximately 658 cubic yards of contaminated soil were transported to Envirotech's NMOCD permitted soil remediation facility, Landfarm 2. Approximately 600 cubic yards of clean soil were transported from Envirotech's Landfarm to the Southern Union #1B well site as fill soil. The site was recontoured as specified by the Bureau of Land Management. Envirotech, Inc. recommends no further action in regards to this incident.

#### **STATEMENT OF LIMITATIONS**

Envirotech, Inc. has completed spill cleanup activities for a release from an AST at the Southern Union #1B well site located in San Juan County, New Mexico. The work and services provided by Envirotech, Inc. were in accordance with the New Mexico Oil Conservation Division standards. All observations and conclusions provided here are based on the information and current site conditions found at the site of the incident.

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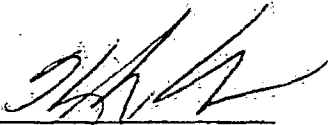
The undersigned has conducted this service at the above referenced site; this work has been conducted and reported in accordance with generally accepted professional practices in geology, engineering, environmental chemistry and hydrogeology.

We appreciate the opportunity to be of service. If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully Submitted,

Reviewed by:

**ENVIROTECH, INC.**



Kyle Cogsum, EIT  
Staff Engineer  
[kcogsum@envirotech-inc.com](mailto:kcogsum@envirotech-inc.com)



Greg Crabtree, PE  
Environmental Manager  
[gcrabtree@envirotech-inc.com](mailto:gcrabtree@envirotech-inc.com)

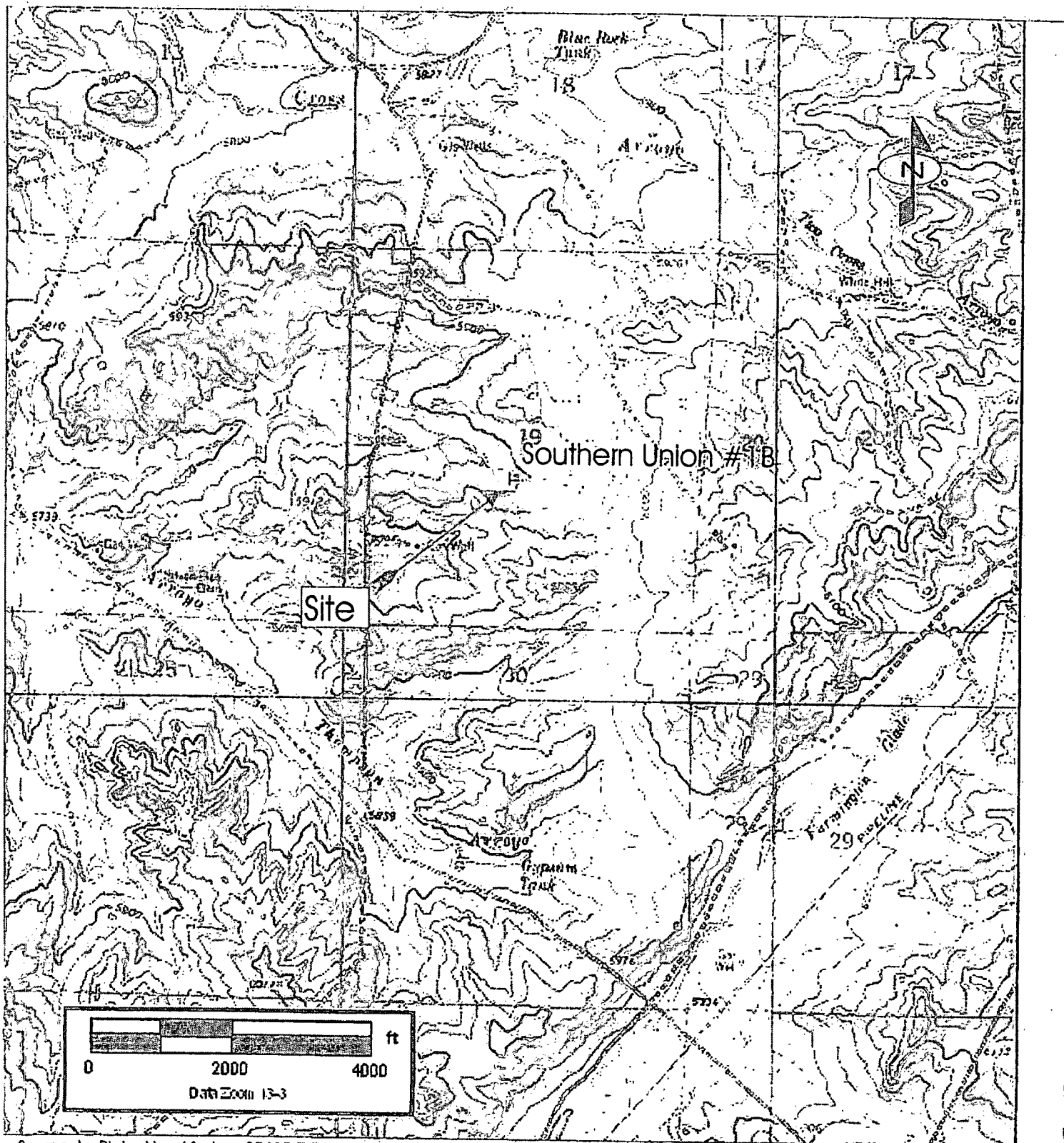
## **FIGURES**

**Figure 1, Vicinity Map**


**Figure 2, Site Map**

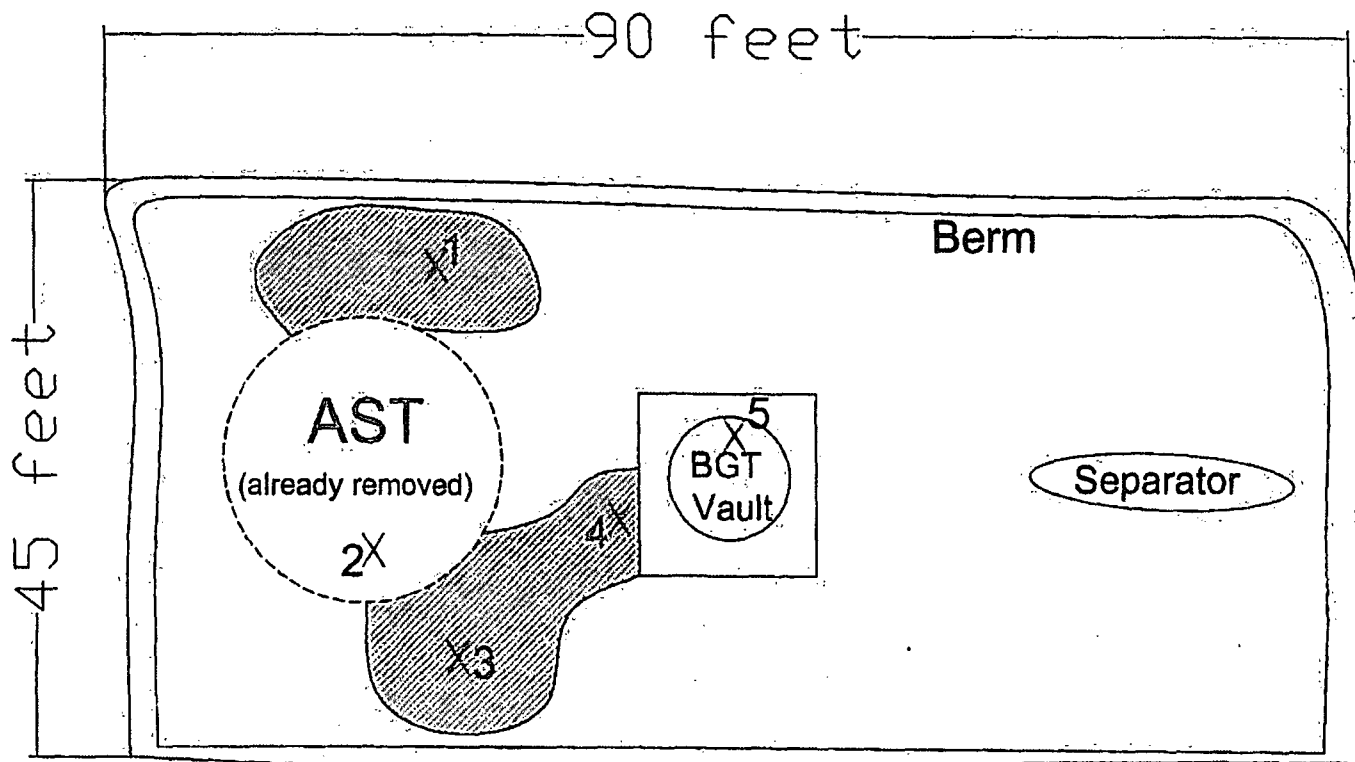
**Figure 3, Site Map 2**






Source: La Plata, New Mexico 87419 7.5 Minute U.S.G.S. Topographic Quadrangle Map  
 Scale: 1:24,000 1" = 2000'

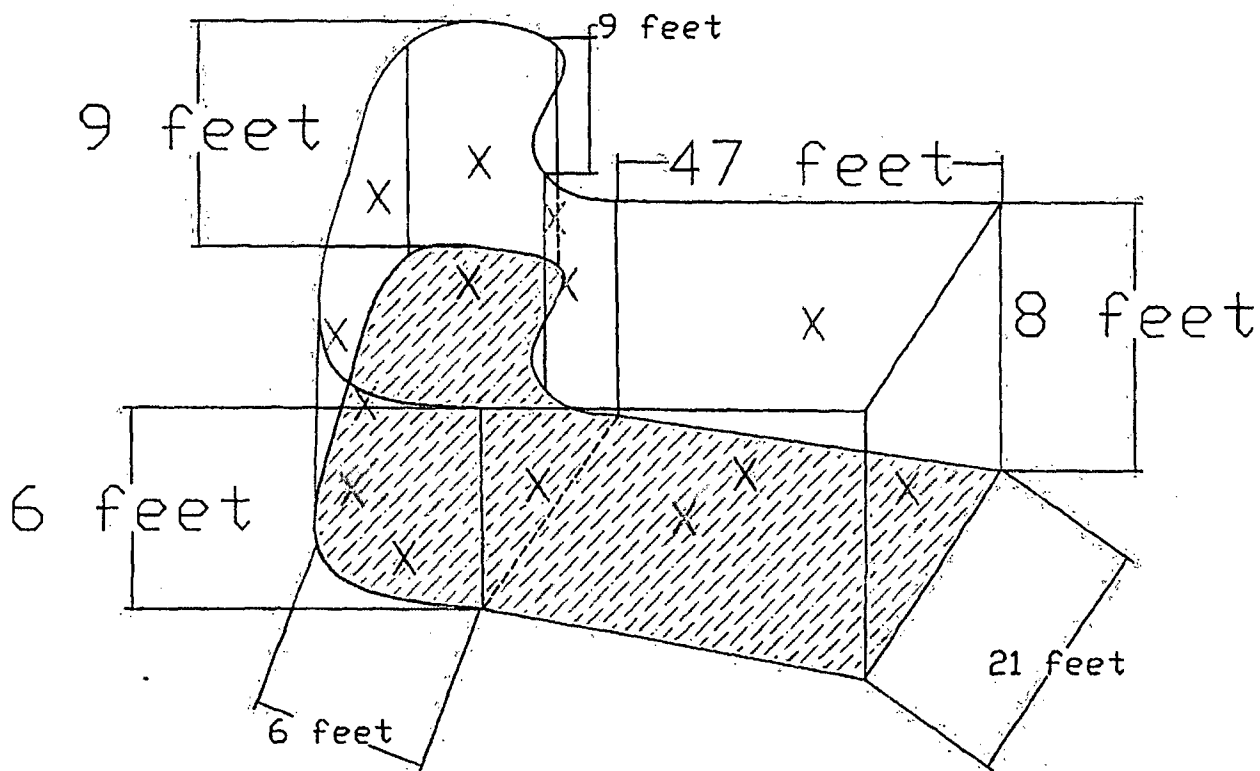
Noble Energy Spill Cleanup Report Southern Union #1B San Juan County, New Mexico		 5796 U.S. HIGHWAY 64 Farmington, New Mexico 87401 505.632.0615		Vicinity Map  Figure 1	
PROJECT No 04010-0033	Date Drawn: 4/30/2013			DRAWN BY: Kyle Cossum	PROJECT MANAGER: Greg Crabtree



# LEGEND

X= SAMPLE LOCATIONS  
 Spill Path

<p align="center"><b>Site Map</b>  <b>Noble Energy</b>          Southern Union #1B          San Juan County, New Mexico          Section 19, Township 31 N., Range 12 W.</p>			
SCALE: NTS		FIGURE NO. 2	
PROJECT NO04010-0033		REV	
REVISIONS			
NO.	DATE	BY	DESCRIPTION
MAP DRWN	KFC	4-25-2013	BASE DRWN KFC 4-15-13
<p align="center">ENVIRONMENTAL SCIENTISTS &amp; ENGINEERS  <b>ENVIROTECH</b></p>			
<p align="center">5796 U.S. HIGHWAY 64, FARMINGTON, NM 87410 505-632-0615</p>			



## LEGEND

X= Closure Sample Locations  
(Bottom Samples)

X= Closure Sample Locations  
(Wall Samples)

 Excavation Floor

### Site Map 2 Noble Energy

Southern Union #1B

San Juan County, New Mexico

Section 19, Township 31 N., Range 12 W.

SCALE: NTS

PROJECT NOD4010-0033

FIGURE NO. 3

REV

#### REVISIONS

NO.	DATE	BY	DESCRIPTION
MAP DRWN	KFC	4-25-2013	BASE DRWN KFC 4-15-13

ENVIRONMENTAL SCIENTISTS & ENGINEERS  
**ENVIROTECH**

5796 U.S. HIGHWAY 64, FARMINGTON, NM 87410 505-632-0615

**TABLES**

Table 1, Summary of Analytical Results

**Table 1, Summary of Analytical Results**

Noble Energy  
Southern Union #1B  
Spill Assessment and Closure Report  
Project Number 04010-0033

Date	Sample Description	Sample Number	PID OV (ppm)	USEPA Method 418.1 TPH (ppm)	USEPA Method 8015 TPH (ppm)	Chlorides (ppm)	USEPA Method 8021	
							Benzene (ppm)	BTEX (ppm)
NA	New Mexico Oil Conservation Division Standards	NA	100	100	100	NA	10	50
4/22/2013	1 at 3 feet	1	<b>769</b>	<b>1450</b>	NS	NS	NS	NS
4/22/2013	2 at 3 feet	2	<b>600.0</b>	<b>12100</b>	NS	NS	NS	NS
4/22/2013	3 at 3 feet	3	<b>743</b>	<b>30500</b>	NS	NS	NS	NS
4/22/2013	4 at 3 feet	4	<b>1070</b>	<b>560</b>	NS	NS	NS	NS
4/22/2013	BGT Surface	5	<b>703</b>	<b>436</b>	<b>108</b>	15.8	ND	6.26
4/22/2013	1 at 6 feet	6	<b>1690</b>	<b>7220</b>	NS	NS	NS	NS
4/22/2013	2 at 6 feet	7	80	100	NS	NS	NS	NS
4/22/2013	3 at 6 feet	8	<b>524</b>	<b>240</b>	NS	NS	NS	NS
4/22/2013	4 at 6 feet	9	<b>1070</b>	<b>744</b>	NS	NS	NS	NS
4/22/2013	5 at 6 feet	10	<b>1010</b>	<b>388</b>	NS	NS	NS	NS
4/22/2013	BGT East Wall	11	100	<b>308</b>	NS	NS	NS	NS
4/22/2013	BGT South Wall	12	98.7	<b>204</b>	NS	NS	NS	NS
4/22/2013	BGT Bottom at 6 feet	13	65.3	<b>216</b>	NS	NS	NS	NS
4/22/2013	BGT Bottom at 6.5 feet	14	7.6	96	NS	NS	NS	NS
4/22/2013	BGT North Wall	15	80.4	<b>108</b>	NS	NS	NS	NS
4/22/2013	BGT East Wall 2	16	<b>562</b>	<b>276</b>	NS	NS	NS	NS
4/22/2013	BGT South Wall 2	17	20	80	NS	NS	NS	NS
4/23/2013	3 at 7 feet	1	2.7	ND	NS	NS	NS	NS
4/23/2013	South Wall 2	2	1.2	ND	NS	NS	NS	NS
4/23/2013	Bottom South West	3	ND	12	NS	NS	NS	NS
4/23/2013	West Wall	4	73.6	40	NS	NS	NS	NS
4/23/2013	West Bottom	5	ND	72	NS	NS	NS	NS
4/23/2013	North Wall 2	6	ND	76	NS	NS	NS	NS
4/23/2013	South Bottom 2	7	28.1	ND	NS	NS	NS	NS
4/23/2013	North West Bottom	8	29.5	40	NS	NS	NS	NS
4/23/2013	Top Wall	9	<b>1380</b>	68	NS	NS	NS	NS
4/23/2013	Top Bottom	10	7.9	16	NS	NS	NS	NS
4/23/2013	Top Wall Composite	11	17.9	68	NS	NS	NS	NS

\*Values in **BOLD** above regulatory limits

\*NS - Parameter not sampled \*ND - Parameter not detected

\*Closure Sample

## **APPENDIX A**

### **Analytical Results**



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	1	Date Reported:	4/29/2013
Sample ID:	1 at 3 feet	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	1,450	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 2  
Sample ID: 2 at 3 feet  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/22/2013  
Date Analyzed: 4/22/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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Total Petroleum Hydrocarbons	12,100	5.0
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed





**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 3  
Sample ID: 3 at 3 feet  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/22/2013  
Date Analyzed: 4/22/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	30,500	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	4	Date Reported:	4/29/2013
Sample ID:	4 at 3 feet	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	560	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 5  
Sample ID: 5 at BGT  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/22/2013  
Date Analyzed: 4/22/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	436	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 6  
Sample ID: 1 at 6 feet  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/22/2013  
Date Analyzed: 4/22/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	7,220	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 7  
Sample ID: 2 at 6 feet  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/22/2013  
Date Analyzed: 4/22/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	100	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	8	Date Reported:	4/29/2013
Sample ID:	3 at 6 feet	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	240	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 9  
Sample ID: 4 at 6 feet  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/22/2013  
Date Analyzed: 4/22/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	744	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	10	Date Reported:	4/29/2013
Sample ID:	5 at 6 feet	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	388	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

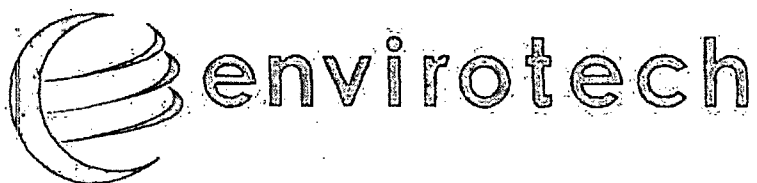
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Review

Toni McKnight, EIT

Printed





**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	11	Date Reported:	4/29/2013
Sample ID:	BGT East Wall	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	308	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	12	Date Reported:	4/29/2013
Sample ID:	BGT South Wall	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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<b>Total Petroleum Hydrocarbons</b>	<b>204</b>	<b>5.0</b>
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	13	Date Reported:	4/29/2013
Sample ID:	BGT Bottom at 6 feet	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	216	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT  
Printed

Review

Toni McKnight, EIT  
Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	14	Date Reported:	4/29/2013
Sample ID:	BGT Bottom 6.5 feet	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	96	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

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Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 15  
Sample ID: BGT North Wall  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/22/2013  
Date Analyzed: 4/22/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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Total Petroleum Hydrocarbons	108	5.0
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	16	Date Reported:	4/29/2013
Sample ID:	BGT East Wall 2	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----------	--------------------------	--------------------------

Total Petroleum Hydrocarbons	276	5.0
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	17	Date Reported:	4/29/2013
Sample ID:	BGT South Wall 2	Date Sampled:	4/22/2013
Sample Matrix:	Soil	Date Analyzed:	4/22/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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<b>Total Petroleum Hydrocarbons</b>	<b>80</b>	<b>5.0</b>
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

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Toni McKnight, EIT

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CONTINUOUS CALIBRATION  
EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS

Cal. Date: 22-Apr-13

Parameter	Standard Concentration mg/L	Concentration Reading mg/L
TPH	100	
	200	
	500	549
	1000	
	5000	

The accepted percent relative deviation (%RSD) of the calibration factor is less than 20% over the working range.

Analyst

Kyle Cossum, EIT

Print Name

Review

Toni McKnight, EIT

Print Name

4/29/2013

Date

4/29/2013

Date





## Analytical Report

### Report Summary

Client: Noble Energy Inc.  
Chain Of Custody Number: 15447  
Samples Received: 4/23/2013 7:10:00AM  
Job Number: 04010-0033  
Work Order: P304067  
Project Name/Location: Spill Cleanup BGT  
Closure/Southern Union 1B

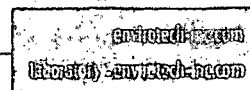
Entire Report Reviewed By:

A handwritten signature in black ink, appearing to read 'Tim Cain', is written over a horizontal line.

Tim Cain, Laboratory Manager

Date: 4/24/13

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.





Noble Energy Inc.  
5802 US Hwy 64  
Farmington NM, 87401

Project Name: Spill Cleanup BGT Closure/Southern Union 1B  
Project Number: 04010-0033  
Project Manager: Kyle Cossum

Reported:  
24-Apr-13 13:44

### Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BGT Surface	P304067-01A	Soil	04/22/13	04/23/13	Glass Jar, 4 oz.

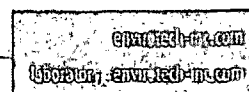
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Noble Energy Inc.  
5802 US Hwy 64  
Farmington NM, 87401

Project Name: Spill Cleanup BGT Closure/Southern Union 1B  
Project Number: 04010-0033  
Project Manager: Kyle Cossum

Reported:  
24-Apr-13 13:44

**BGT Surface**  
**P304067-01 (Solid)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Volatile Organics by EPA 8021</b>									
Benzene	ND	500	ug/L	10	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
Toluene	ND	500	ug/L	10	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
Ethylbenzene	ND	500	ug/L	10	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
p,m-Xylene	4970	500	ug/L	10	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
o-Xylene	1290	500	ug/L	10	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
Total BTEX	6260	500	ug/L	10	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
Surrogate: Bromochlorobenzene		96.7 %		80-120	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		100 %		80-120	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
Surrogate: Fluorobenzene		99.4 %		80-120	1317010	23-Apr-13	23-Apr-13	EPA 8021B	
<b>Nonhalogenated Organics by 8015</b>									
Gasoline Range Organics (C6-C10)	66.8	5.00	mg/kg	1	1317011	23-Apr-13	23-Apr-13	EPA 8015D	
Diesel Range Organics (C10-C28)	40.8	5.00	mg/kg	1	1317011	23-Apr-13	23-Apr-13	EPA 8015D	
GRO and DRO Combined Fractions	108	5.00	mg/kg	1	1317011	23-Apr-13	23-Apr-13	EPA 8015D	
<b>Cation/Anion Analysis</b>									
Chloride	15.8	10.0	mg/kg	1	1317016	23-Apr-13	23-Apr-13	EPA 300.0	

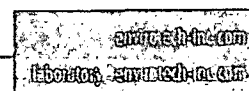
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Noble Energy Inc. 5802 US Hwy 64 Farmington NM, 87401	Project Name: Spill Cleanup BGT Closure/Southern Union 1B Project Number: 04010-0033 Project Manager: Kyle Cossum	Reported: 24-Apr-13 13:44
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### Volatile Organics by EPA 8021 - Quality Control

#### Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1317010 - Purge and Trap EPA 5030A</b>										
<b>Blank (1317010-BLK1)</b> Prepared & Analyzed: 23-Apr-13										
Benzene	ND	49.9	ug/L							
Toluene	ND	49.9	"							
Ethylbenzene	ND	49.9	"							
p,m-Xylene	ND	49.9	"							
o-Xylene	ND	49.9	"							
Total BTEX	ND	49.9	"							
Surrogate: Bromochlorobenzene	48.2		"	50.0		96.4	80-120			
Surrogate: 1,4-Difluorobenzene	51.7		"	50.0		103	80-120			
Surrogate: Fluorobenzene	50.8		"	50.0		102	80-120			
<b>Duplicate (1317010-DUP1)</b> Source: P304067-01 Prepared & Analyzed: 23-Apr-13										
Benzene	ND	500	ug/L		ND				30	
Toluene	ND	500	"		ND				30	
Ethylbenzene	ND	500	"		ND				30	
p,m-Xylene	1030	500	"		4970			20.7	30	
o-Xylene	1030	500	"		1290			22.3	30	
Surrogate: Bromochlorobenzene	46.3		"	50.0		92.7	80-120			
Surrogate: 1,4-Difluorobenzene	48.8		"	50.0		97.6	80-120			
Surrogate: Fluorobenzene	48.5		"	50.0		96.9	80-120			
<b>Matrix Spike (1317010-MS1)</b> Source: P304067-01 Prepared & Analyzed: 23-Apr-13										
Benzene	43.8		ug/L	50.0	0.09	87.4	39-150			
Toluene	44.8		"	50.0	0.86	87.8	46-148			
Ethylbenzene	44.3		"	50.0	0.78	87.0	32-160			
p,m-Xylene	98.2		"	100	9.94	88.2	46-148			
o-Xylene	50.0		"	50.0	2.58	94.8	46-148			
Surrogate: Bromochlorobenzene	46.6		"	50.0		93.2	80-120			
Surrogate: 1,4-Difluorobenzene	44.7		"	50.0		89.5	80-120			
Surrogate: Fluorobenzene	44.9		"	50.0		89.8	80-120			

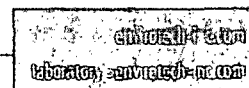
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Noble Energy Inc. 5802 US Hwy 64 Farmington NM, 87401	Project Name: Spill Cleanup BGT Closure/Southern Union 1B Project Number: 04010-0033 Project Manager: Kyle Cossum	Reported: 24-Apr-13 13:44
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### Nonhalogenated Organics by 8015 - Quality Control

#### Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 1317011 - GRO/DRO Extraction EPA 3550C

##### Blank (1317011-BLK1)

Prepared & Analyzed: 23-Apr-13

Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg
Diesel Range Organics (C10-C28)	ND	5.00	"
GRO and DRO Combined Fractions	ND	5.00	"

##### Duplicate (1317011-DUP1)

Source: P304067-01

Prepared & Analyzed: 23-Apr-13

Gasoline Range Organics (C6-C10)	65.9	5.00	mg/kg	66.8	1.40	30
Diesel Range Organics (C10-C28)	42.9	5.00	"	40.8	4.86	30

##### Matrix Spike (1317011-MS1)

Source: P304067-01

Prepared & Analyzed: 23-Apr-13

Gasoline Range Organics (C6-C10)	6230	100	mg/kg	5000	66.8	123	75-125
Diesel Range Organics (C10-C28)	5790	100	"	5000	40.8	115	75-125

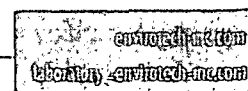
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Noble Energy Inc.  
5802 US Hwy 64  
Farmington NM, 87401

Project Name: Spill Cleanup BGT Closure/Southern Union 1B  
Project Number: 04010-0033  
Project Manager: Kyle Cossum

Reported:  
24-Apr-13 13:44

**Cation/Anion Analysis - Quality Control**  
**Envirotech Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1317016 - Anion Extraction EPA 300.0</b>										
<b>Blank (1317016-BLK1)</b>										
					Prepared & Analyzed: 23-Apr-13					
Chloride	ND	9.99	mg/kg							
<b>Duplicate (1317016-DUP1)</b>										
Source: P304067-01					Prepared & Analyzed: 23-Apr-13					
Chloride	16.0	10.0	mg/kg		15.8			1.11	30	

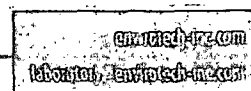
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Noble Energy Inc.  
5802 US Hwy 64  
Farmington NM, 87401

Project Name: Spill Cleanup BGT Closure/Southern Union 1B  
Project Number: 04010-0033  
Project Manager: Kyle Cossum

Reported:  
24-Apr-13 13:44

#### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

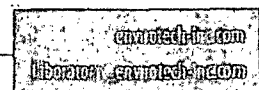
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# CHAIN OF CUSTODY RECORD

15447

Page 8 of 8

Client: <b>Noble Energy</b>			Project Name / Location: <b>Spill Cleanup B&amp;T Closure / Southern Union 1B</b>			ANALYSIS / PARAMETERS													
Email results to: <b>kcossum@envirotech-inc.com</b>			Sampler Name: <b>Kyle Cassman</b>			TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE			Sample Cool	Sample Intact
Client Phone No.:			Client No.: <b>04010-0033</b>																
Sample No. / Identification	Sample Date	Sample Time	Lab No.	No. / Volume of Containers	Preservative														
					HgCl <sub>2</sub>	HCl	CCl <sub>4</sub>												
B&T Surface	4/22/13	10:00	P304067-01	(1) 4-L Jar			X	X	X						X			Y	Y
Relinquished by: (Signature) <i>[Signature]</i>				Date	Time	Received by: (Signature) <i>[Signature]</i>				Date	Time								
Relinquished by: (Signature) <i>[Signature]</i>				4/23/13	7:10	Received by: (Signature) <i>[Signature]</i>				4/23/13	7:10								
Sample Matrix Soil <input checked="" type="checkbox"/> Solid <input checked="" type="checkbox"/> Sludge <input type="checkbox"/> Aqueous <input type="checkbox"/> Other <input type="checkbox"/>																			
<input type="checkbox"/> Sample(s) dropped off after hours to secure drop off area.																			



**envirotech**  
Analytical Laboratory

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**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 1  
Sample ID: 3 at 7 feet  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/23/2013  
Date Analyzed: 4/23/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	2	Date Reported:	4/29/2013
Sample ID:	South Wall 2	Date Sampled:	4/23/2013
Sample Matrix:	Soil	Date Analyzed:	4/23/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

\_\_\_\_\_  
Analyst

Kyle Cossum, EIT

Printed

\_\_\_\_\_  
Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	3	Date Reported:	4/29/2013
Sample ID:	Bottom South West	Date Sampled:	4/23/2013
Sample Matrix:	Soil	Date Analyzed:	4/23/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	12	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 4  
Sample ID: West Wall  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/23/2013  
Date Analyzed: 4/23/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	40	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 5  
Sample ID: West Bottom  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/23/2013  
Date Analyzed: 4/23/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----------	--------------------------	--------------------------

Total Petroleum Hydrocarbons	72	5.0
------------------------------	----	-----

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	6	Date Reported:	4/29/2013
Sample ID:	North Wall 2	Date Sampled:	4/23/2013
Sample Matrix:	Soil	Date Analyzed:	4/23/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	76	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	7	Date Reported:	4/29/2013
Sample ID:	South Bottom 2	Date Sampled:	4/23/2013
Sample Matrix:	Soil	Date Analyzed:	4/23/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	8	Date Reported:	4/29/2013
Sample ID:	North West Bottom	Date Sampled:	4/23/2013
Sample Matrix:	Soil	Date Analyzed:	4/23/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	40	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed





**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 9  
Sample ID: Top Wall  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 5/7/2013  
Date Sampled: 4/23/2013  
Date Analyzed: 4/23/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----------	--------------------------	--------------------------

Total Petroleum Hydrocarbons	68	5.0
------------------------------	----	-----

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client: Noble Energy  
Sample No.: 10  
Sample ID: Top Bottom  
Sample Matrix: Soil  
Preservative: Cool  
Condition: Cool and Intact

Project #: 04010-0033  
Date Reported: 4/29/2013  
Date Sampled: 4/23/2013  
Date Analyzed: 4/23/2013  
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----------	--------------------------	--------------------------

Total Petroleum Hydrocarbons	16	5.0
------------------------------	----	-----

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed



**EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS**

Client:	Noble Energy	Project #:	04010-0033
Sample No.:	11	Date Reported:	4/29/2013
Sample ID:	Top Wall Composite	Date Sampled:	4/23/2013
Sample Matrix:	Soil	Date Analyzed:	4/23/2013
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	68	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Southern Union #1B**

Instrument calibrated to 500 ppm standard and zeroed before each sample.

Analyst

Kyle Cossum, EIT

Printed

Review

Toni McKnight, EIT

Printed

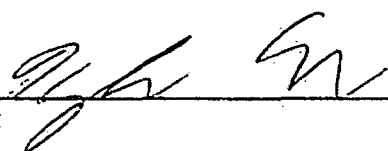


CONTINUOUS CALIBRATION  
EPA METHOD 418.1  
TOTAL PETROLEUM  
HYDROCARBONS

Cal. Date: 23-Apr-13

Parameter	Standard Concentration mg/L	Concentration Reading mg/L
TPH	100	514
	200	
	500	
	1000	
	5000	

The accepted percent relative deviation (%RSD) of the calibration factor is less than 20% over the working range.

  
Analyst

4/29/2013  
Date

Kyle Cossum, EIT  
Print Name

  
Review

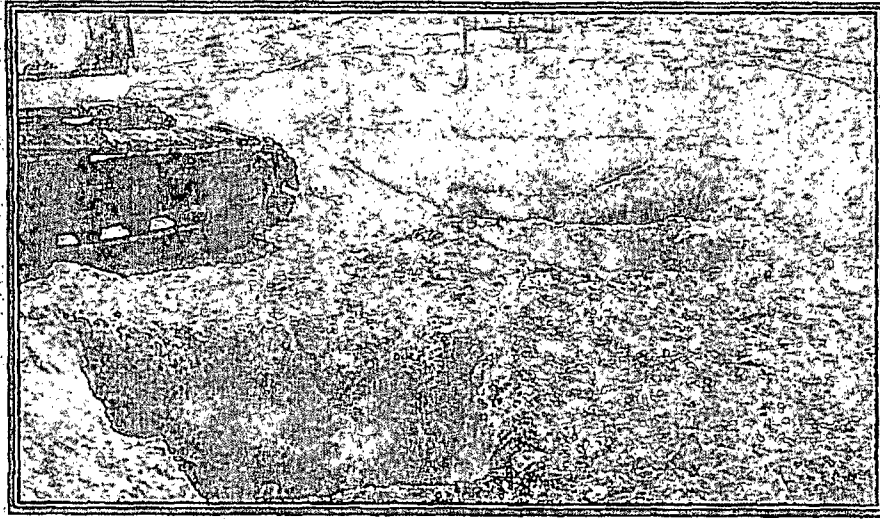
4/29/2013  
Date

Toni McKnight, EIT  
Print Name

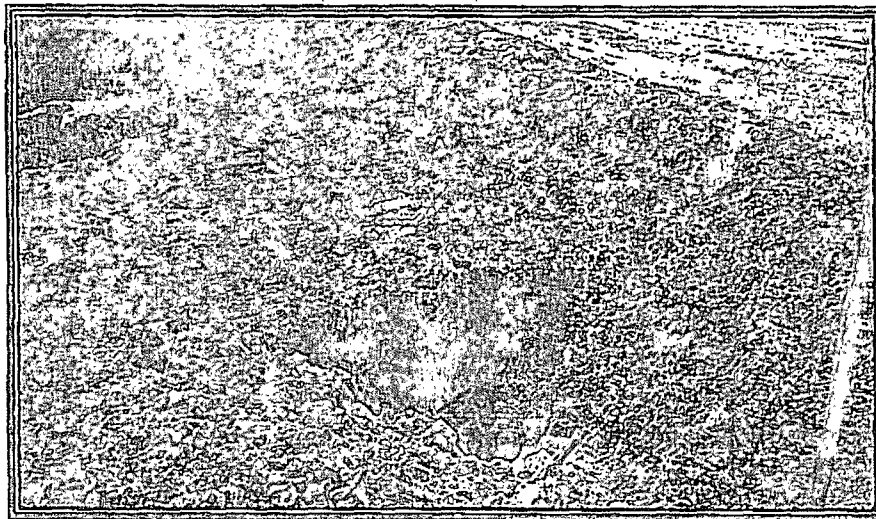
## **APPENDIX B**

### **Site Photography**

**SITE PHOTOGRAPHY  
NOBLE ENERGY  
SPILL CLEANUP REPORT  
SOUTHERN UNION #1B  
PROJECT NUMBER 04010-0033  
APRIL 2013**

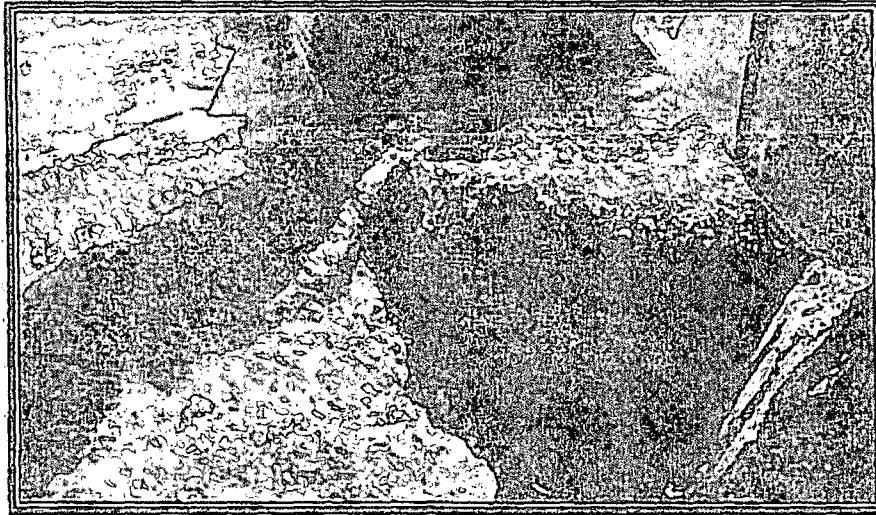


**Picture 1: Delineation Points Two (2), Four (4), and the BGT Pit**



**Picture 2: Delineation Point Three (3)**

**SITE PHOTOGRAPHY  
NOBLE ENERGY  
SPILL CLEANUP REPORT  
SOUTHERN UNION #1B  
PROJECT NUMBER 04010-0033  
APRIL 2013**

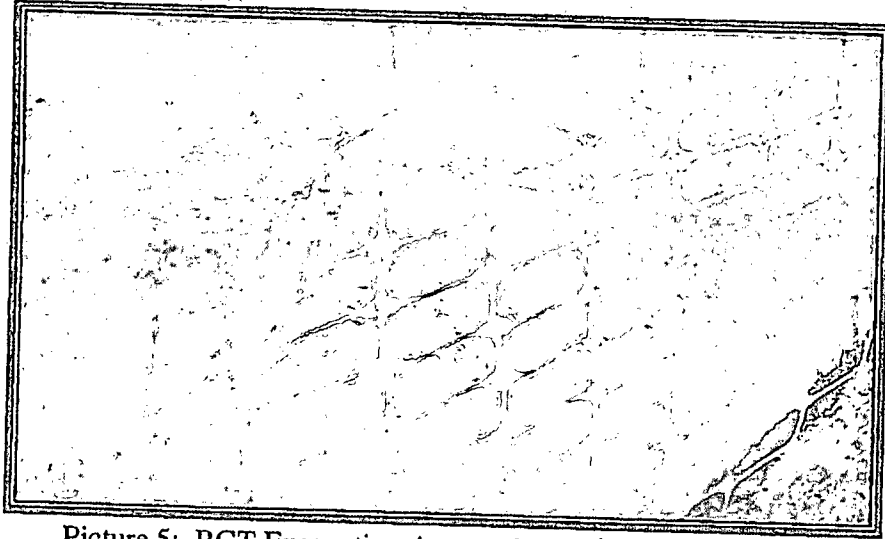


**Picture 3: Delineation Point One (1)**



**Picture 4: Delineation Point Five (5) in BGT Pit**

**SITE PHOTOGRAPHY  
NOBLE ENERGY  
SPILL CLEANUP REPORT  
SOUTHERN UNION #1B  
PROJECT NUMBER 04010-0033  
APRIL 2013**



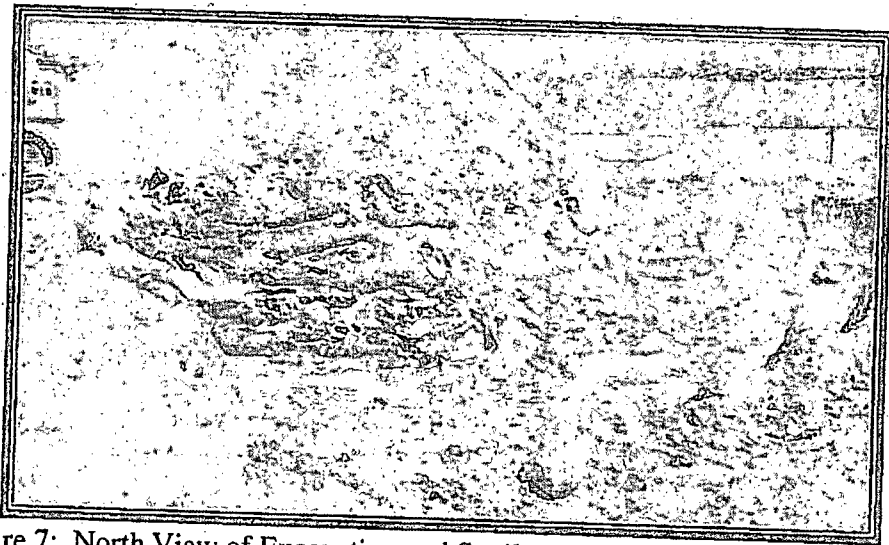
Picture 5: BGT Excavation Area at the End of April 22, 2013



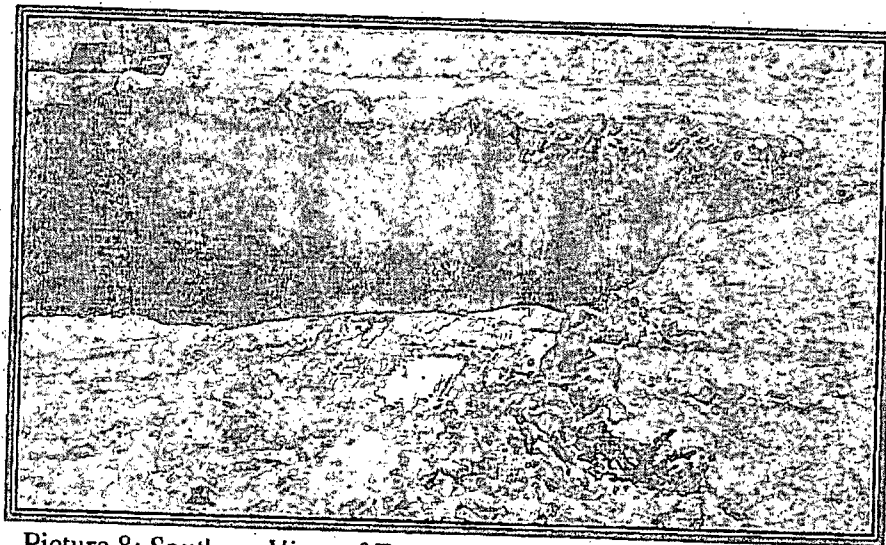
Picture 6: Eastward View of the Excavation at the End of April 23, 2013



**SITE PHOTOGRAPHY  
NOBLE ENERGY  
SPILL CLEANUP REPORT  
SOUTHERN UNION #1B  
PROJECT NUMBER 04010-0033  
APRIL 2013**

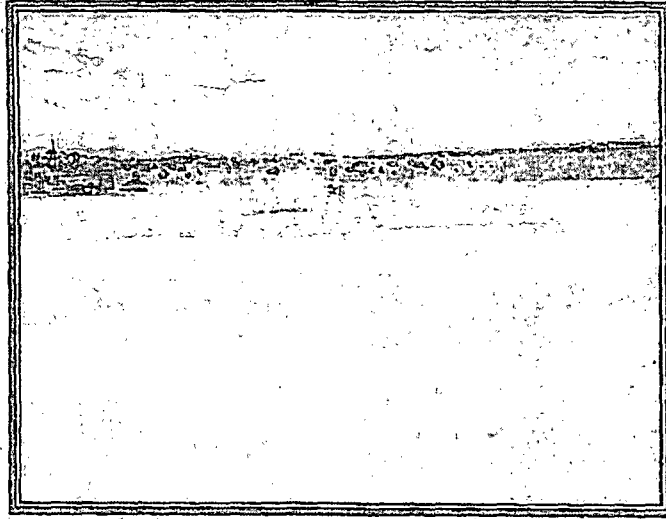


Picture 7: North View of Excavation and Spoils Pile at the End of April 23, 2013

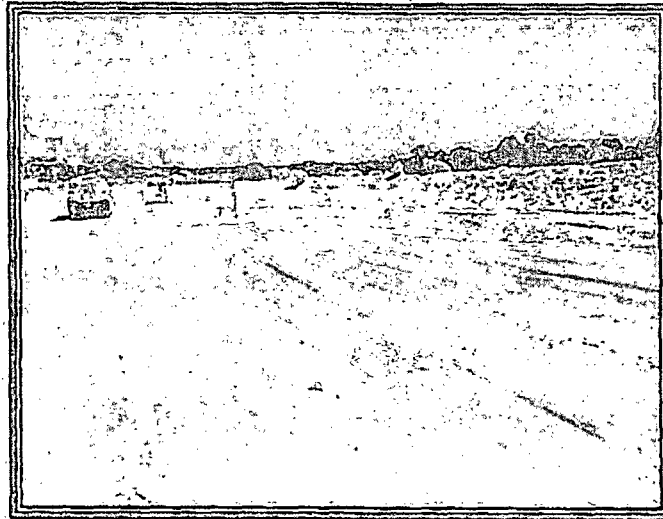


Picture 8: Southern View of Excavation at the End of April 23, 2013

**SITE PHOTOGRAPHY  
NOBLE ENERGY  
SPILL CLEANUP REPORT  
SOUTHERN UNION #1B  
PROJECT NUMBER 04010-0033  
APRIL 2013**



**Picture 9: Southern View of Re-Contoured Site**



**Picture 10: Eastern View of Re-Contoured Site**

## **APPENDIX C**

### **Bills of Lading**







## Bill of Lading

MANIFEST #

43461

DATE 4-25-13

JOB # 100-1033

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

24610

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY						
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLS	COMPANY	TRK#	TIME	DRIVER SIGNATURE			
1	EnviroTech Land farm	noble energy	Clean	←	20	-	E-Tech	663	9:40	Mike Hoyt			
2	" "	southern union 1B	" "	←	20	-	E-Tech	571	9:46	Mike Hoyt			
3	" "	" "	" "	←	20	-	E-Tech	660	10:06	Mike Hoyt			
4	" "	" "	" "	←	20	-	E-Tech	560	10:09	Rick Smith			
5	" "	" "	Clean	←	20	-	E-Tech	663	12:16	Mike Hoyt			
6	" "	" "	" "	" "	20	-	E-Tech	571	12:30	Mike Hoyt			
7	" "	" "	" "	←	20	-	E-Tech	660	12:36	Mike Hoyt			
8	" "	" "	" "	←	20	-	E-Tech	560	13:12	Rick Smith			
9	" "	" "	" "	←	20	-	E-Tech	663	14:52	Mike Hoyt			
10	" "	" "	" "	←	20	-	E-Tech	571	15:09	Mike Hoyt			
11	" "	" "	" "	←	20	-	E-Tech	660	15:22	Mike Hoyt			
12	VOID this line						←	20	-	E-Tech	560	15:22	Mike Hoyt
RESULTS:		LANDFARM EMPLOYEE:		NOTES:									
<input checked="" type="checkbox"/> CHLORIDE TEST		<input checked="" type="checkbox"/>		2204									
<input checked="" type="checkbox"/> PAINT FILTER TEST		<input checked="" type="checkbox"/>		Certification of above receipt & placement									

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

TRANSPORTER CO. EnviroTech

NAME Mike Hoyt

SIGNATURE Mike Hoyt

COMPANY CONTACT Dora Kelley

PHONE 609-4730

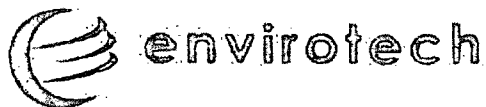
DATE 4-25-13

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## Bill of Lading

MANIFEST #

43443

DATE

4-23-13

JOB #

04010-0033

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLs	COMPANY	TRK#	TIME	DRIVER SIGNATURE
1	Enviro Tech Land farm	noble area southern	Clean	→	20	—	E-Tech	560	10:11	Rick Smith
2	"	Union #18	"	→	20	—	E-Tech	571	10:14	
3	"	"	"	→	20	—	E-Tech	663	10:19	
4	"	"	"	→	20	—	E-Tech	660	10:21	
5	"	"	"	→	20	—	"	571	13:31	
6	"	"	"	→	20	—	"	663	13:31	
7	"	"	"	→	20	—	"	560	13:50	Rick Smith
8	"	"	"	→	20	—	"	663	16:03	
9	"	"	"	→	20	—	"	571	16:20	
10	"	"	"	→	20	—	"	560	16:52	Rick Smith
					700					
RESULTS:		LANDFARM EMPLOYEE:	NOTES:							
<input checked="" type="checkbox"/>	CHLORIDE TEST		Certification of above receipt & placement							
<input checked="" type="checkbox"/>	PAINT FILTER TEST									

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

TRANSPORTER CO. Enviro Tech

NAME

Rick Smith

SIGNATURE

Rick Smith

COMPANY CONTACT

Bill Carter

PHONE

DATE 4-23-13

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# Bill of Lading

MANIFEST #

43470

DATE 4-26-13

JOB # 416705

**PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401**

[illegible]

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

TRANSPORTER CO. *E-Tech*

NAME MIKE HOFF

SIGNATURE *Mick Ryer*

COMPANY CONTACT Donald

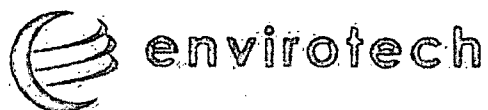
PHONE 505-632-0615

DATE 4-26-13

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**White Company Records, Yellow - Billing, Pink Customer**

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## Bill of Lading

MANIFEST #

43460

DATE 4-25-13

JOB # 4416-0033

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLs	COMPANY	TRK#	TIME	DRIVER SIGNATURE
1	noble energy Southern Union IB	LFI-5	Conte Soil	F-20	20	-	E Tech	663	9:40	Mike Hoyt
2	"	LFI-5	Conte Soil	F-20	20	-	E Tech	571	9:46	Mike Hoyt
3	"	LFI-5	Conte Soil	F-20	20	-	E Tech	660	10:06	Blk Wk
4	"	LFI-5	Conte Soil	F-20	20	-	E Tech	560	10:08	Rick Smith
5	"	LFI-5	Conte Soil	E-18	20	-	E Tech	663	12:16	Mike Hoyt
6	"	LFI-5	Conte Soil	E-18	20	-	E Tech	571	12:30	Blk Wk
7	"	LFI-5	Conte Soil	E-18	20	-	E Tech	660	12:36	Blk Wk
8	"	LFI-5	Conte Soil	E-18	20	-	E Tech	560	13:12	Rick Smith
9	"	LFI-5	Conte Soil	E-18	20	-	E Tech	663	14:52	Mike Hoyt
10	"	LFI-5	Conte Soil	E-18	20	-	E Tech	571	15:10	Blk Wk
11	"	LFI-5	Conte Soil	E-18	20	-	E Tech	660	15:22	Blk Wk
12	"	"	"	"	20	-	E Tech	560	16:20	Rick Smith
RESULTS:			LANDFARM EMPLOYEE:	NOTES:						
296	CHLORIDE TEST	3	Certification of above receipt & placement							
	PAINT FILTER TEST	3								

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

TRANSPORTER CO. Enviro Tech

NAME MIKE HOYT

SIGNATURE Mike Hoyt

COMPANY CONTACT DGA Kelley

PHONE 609-41730

DATE 4-25-13

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## MANIFEST #

43450

DATE 4-24-13 JOB # 64116-6633

[illegible]

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

NAME MIKE HOYT

SIGNATURE *Mark H. A.*

PHONE 609-4730

DATE 4-24-13

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## Bill of Lading

MANIFEST #

43442

DATE 4-23-13

JOB # 0406-0033

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLs	COMPANY	TRK#	TIME	DRIVER SIGNATURE
1	Noble Energy	LFII-5	Contam Soil	G-20	20	-	E-Tech	560	10:14	Rick Smith
2	Southern Union #13	LFII-5	" "	G-20	20	-	E-Tech	571	10:14	Rick Smith
3	" "	LFII-5	" "	G-20	20	-	E-Tech	663	10:19	Rick Smith
4	" "	LFII-5	" "	G-20	20	-	E-Tech	660	10:31	Rick Smith
5	" "	LFII-5	" "	G-20	20	-	E-Tech	571	13:31	Rick Smith
6	" "	LFII-5	" "	G-20	20	-	E-Tech	663	13:31	Rick Smith
7	" "	LFII-5	" "	G-20	20	-	E-Tech	560	13:50	Rick Smith
8	" "	LFII-5	" "	G-20	20	-	E-Tech	571	16:03	Rick Smith
9	" "	LFII-5	" "	G-20	20	-	E-Tech	571	16:20	Rick Smith
10	" "	LFII-5	" "	G-20	20	-	E-Tech	560	16:52	Rick Smith
RESULTS:										
CHLORIDE TEST		2	LANDFARM EMPLOYEE:		NOTES:					
PAINT FILTER TEST		2	Certification of above receipt & placement							

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

TRANSPORTER CO. Envirotech NAME Rick Smith SIGNATURE Rick SmithCOMPANY CONTACT Bill Carter PHONE \_\_\_\_\_ DATE 4-23-13

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## Attachment 3

### Disposal Facility Name and Permit Number

***NOBLE ENERGY, INC.***

Disposal Facility Name and Permit Number

Southern Union #1B

In accordance with rule 19.15.17.13 NMAC, Noble disposed of waste water from the 90 barrel below grade tank at the following location:

Company: Agua Mas

Phone: 505-632-3640

Permit#: IPI-278

Location: Pretty Lady 30-11-34 #1

API: 30-045-30922

Attachment 4

Soil Backfilling and Cover Installation



## *NOBLE ENERGY, INC.*

### Soil Backfill and Cover Material

#### Southern Union #1B

Once the below grade tank was removed from the cellar, Approximately 658 cubic yards of impacted soil was excavated. Impacted soil removed from the excavation was transported to Envirotech's NMOCD permitted soil remediation facility, Landfarm 2, located near Hilltop, New Mexico. Approximately 600 cubic yards of clean soil, transported from Envirotech's Landfarm, was then used to backfill and re-contour the excavation to Bureau of Land Management standards.

Following re-contouring and excavation, the facility was rebuilt and a 90 barrel above ground water tank was installed. The tank battery now consists of a lined earthen berm, one above ground production and one above groundwater tank. The tank battery location was not seeded, since the tank battery location remains in operation.