

REMEDIATION SUMMARY REPORT

HETTINGER D 30-2, 7, AND 8 TANK BATTERY WELD COUNTY, COLORADO

APRIL 2011

Prepared for:

**NOBLE ENERGY, INC.
Platteville, Colorado**



REMEDICATION SUMMARY REPORT

HETTINGER D 30-2, 7, AND 8 TANK BATTERY WELD COUNTY, COLORADO

APRIL 2011

Prepared for:

**NOBLE ENERGY, INC.
804 Grand Avenue
Platteville, Colorado 80651**

Prepared by:

**LT ENVIRONMENTAL, INC.
4600 West 60th Avenue
Arvada, Colorado 80003
(303) 433-9788**

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EXECUTIVE SUMMARY

LT Environmental, Inc. (LTE) prepared this Remediation Summary Report at the direction of Noble Energy, Inc. (Noble) to document remediation activities at the Hettinger D 30-2, 7, and 8 Tank Battery (Site). The Site is 0.6 miles east of the intersection of Weld County Road (WCR) 30 and WCR 49 near Kersey, Colorado.

The scope of work for this project included mitigation of petroleum hydrocarbon impacts following the identification of a flowline release. The source removal program was accomplished via excavation and removal of hydrocarbon-impacted soil. Activities included directing on-site activities and subcontractors, confirmation sampling and analysis, applying a groundwater remediation amendment, documenting activities, health and safety monitoring, and preparing this summary report.

Noble contractors excavated impacted soil at the Site from March 24 through 25, 2011. A total volume of 370 cubic yards of impacted soil was transported to the Buffalo Ridge Landfill in Weld County, Colorado. The final excavation extent was approximately 20 feet by 28 feet with a depth of 10 feet below ground surface.

Following the completion of source removal activities, an activated carbon groundwater remediation amendment was applied to the floor of the excavation to remediate any residual hydrocarbons remaining from source removal activities. A total of 300 pounds of groundwater remediation amendment was applied within the excavation.

Based on field screening and the analytical results from the confirmation sidewall and floor samples collected following excavation activities, the remaining soil has been remediated to below the Colorado Oil and Gas Conservation Commission (COGCC) standards.

1.0 INTRODUCTION

LT Environmental, Inc. (LTE) prepared this Remediation Summary Report at the direction of Noble Energy, Inc. (Noble) to document excavation activities at the Hettinger D 30-2, 7, and 8 Tank Battery (Site). The purpose of this project was to remove hydrocarbon-impacted soil and treat groundwater.

1.1 SITE DESCRIPTION

The Site is 0.6 miles east of the intersection of Weld County Road (WCR) 49 and WCR 30. The legal description of the Site is the northwest quarter of the northeast quarter of Section 30, Township 3 North, Range 64 West of the Sixth Principal Meridian, in Weld County, Colorado (Figure 1).

The Site is located at an elevation of 4,780 feet above mean sea level in an area with localized flat topography. The site geology is predominantly fine sandy loam that extends from the ground surface to approximately 10 feet below ground surface (bgs). Groundwater was encountered at approximately 10 feet bgs.

1.2 SCOPE OF WORK

The scope of work for this remediation project included the removal of impacted soil and treatment of impacted groundwater. Impacted soil was transported off site to the Buffalo Ridge Landfill in Weld County, Colorado, and replaced with clean soil from Noble's Northern Landfarm in Weld County, Colorado. A groundwater remediation amendment was applied to the floor of the excavation to reduce the potential for groundwater impact resulting from residual hydrocarbons.

During on-site activities, Noble personnel conducted field screening of soil, soil sampling, excavation oversight, health and safety monitoring, application of the groundwater remediation amendment, and documentation activities.

A summary of field activities, analytical results from soil and groundwater sampling, and conclusions are presented in the subsequent sections.

2.0 SUMMARY OF FIELD ACTIVITIES

2.1 EXCAVATION ACTIVITIES

From March 24 through 25, 2011, Noble contractors excavated impacted soils. During excavation activities, soil staining was observed at depths ranging from surface grade 10 feet bgs. Noble conducted field screening of volatile organic compounds (VOCs) and collected confirmation soil samples to determine the extent of impact. Geology encountered was columbo clay loam from surface to 10 feet bgs.

The final dimensions of the excavation were approximately 20 feet north-south by 28 feet east-west, and the total depth of the excavation was approximately 10 feet. A total volume of 370 cubic yards of impacted soil was excavated and transported off site to the Noble Northern Landfarm. Figure 2 presents the excavation extent and soil sample locations.

2.2 SOIL SAMPLING

Soil samples were collected from the sidewalls of the excavation. Each sample was field screened to determine if additional excavation was required. After screening indicated impacted soil had been removed, confirmation soil samples were collected and submitted to Origins Laboratory, Inc. (Origins), of Denver, Colorado. Figure 3 presents the soil analytical results.

A total of 6 soil samples were collected from the excavation sidewalls and submitted to Origins. Floor samples were not collected due to the presence of groundwater. Soil samples were submitted for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (EPA) Method 8260B and total petroleum hydrocarbons (TPH) as total volatile hydrocarbons-gasoline range organics (TVH-GRO) and total extractable hydrocarbons-diesel range organics (TEH-DRO) by EPA Method 8015 Modified. Laboratory analytical results are summarized in Table 1.

After field screening indicated the impacted soil had been removed, the excavation was backfilled with clean fill from Noble's Northern Landfarm.

2.3 GROUNDWATER REMEDIATION AMENDMENT APPLICATION

Groundwater was observed at the Site at approximately 10 feet bgs. To reduce the potential for further groundwater impact resulting from residual hydrocarbons, a groundwater remediation amendment was applied to the entire floor of the excavation after field screening measurements and confirmation sample analytical results demonstrated the impacted soil was removed.

The groundwater remediation amendment applied to the excavation was comprised of activated carbon inoculated with electron acceptors (nitrate and sulfate) and nutrients (phosphorus and nitrogen) designed to biodegrade petroleum hydrocarbons. A total of 300 pounds of groundwater remediation amendment was applied to the floor of the excavation.

3.0 ANALYTICAL RESULTS

Soil samples were collected to define the extent of soil impact within the excavation and confirm impacts exceeding regulatory standards were removed. Six confirmation soil samples were collected from the sidewalls of the excavation. Soil sample locations are illustrated on Figure 2. Soil samples were sent to Origins for analysis of BTEX using EPA Method 8260B and TPH as TVH-GRO and TEH-DRO using EPA Method 8015 Modified.

Analytical results indicate no BTEX and TPH were detected in exceedance of COGCC standards in the sidewall samples collected from the excavation.

Soil sample analytical results are summarized on Figure 3 and in Table 1. Copies of the laboratory analytical reports are included in Appendix.

4.0 SUMMARY AND CONCLUSIONS

From March 24 through 25, 2011, Noble excavated and removed 370 cubic yards of impacted soil at the Site.

During remediation activities, evidence of impact to the subsurface, in the form of staining and odor, was observed ranging in depth from surface grade to 10 feet bgs. Noble conducted field screening of VOCs and collected soil confirmation samples for laboratory analysis from the excavated area. Laboratory results confirm that the impacted soil in all areas has been removed.

Impacted soil was excavated and transported to the Buffalo Ridge Landfill in Weld County, Colorado. Clean soil was imported from Noble's Northern Landfarm for backfill in the excavation. Noble collected confirmation soil samples during soil excavation activities. Analytical results from soil samples collected from the impacted interval along the sidewalls of the excavation indicate that the petroleum impacted soil has been removed to below the COGCC standards.

To prevent any future impact from residual hydrocarbons in the excavation, 300 pounds of a hydrocarbon degrading amendment were applied to the floor of the excavation.

In order to determine if impacted groundwater exists at the Site, Noble will install two monitoring wells downgradient of the excavation and one monitoring well upgradient of the excavation. Noble will conduct quarterly groundwater monitoring with the goal of observing four consecutive quarters of analytical data below regulatory standards. When this goal is achieved, a No Further Action request will be submitted to the COGCC.

FIGURES

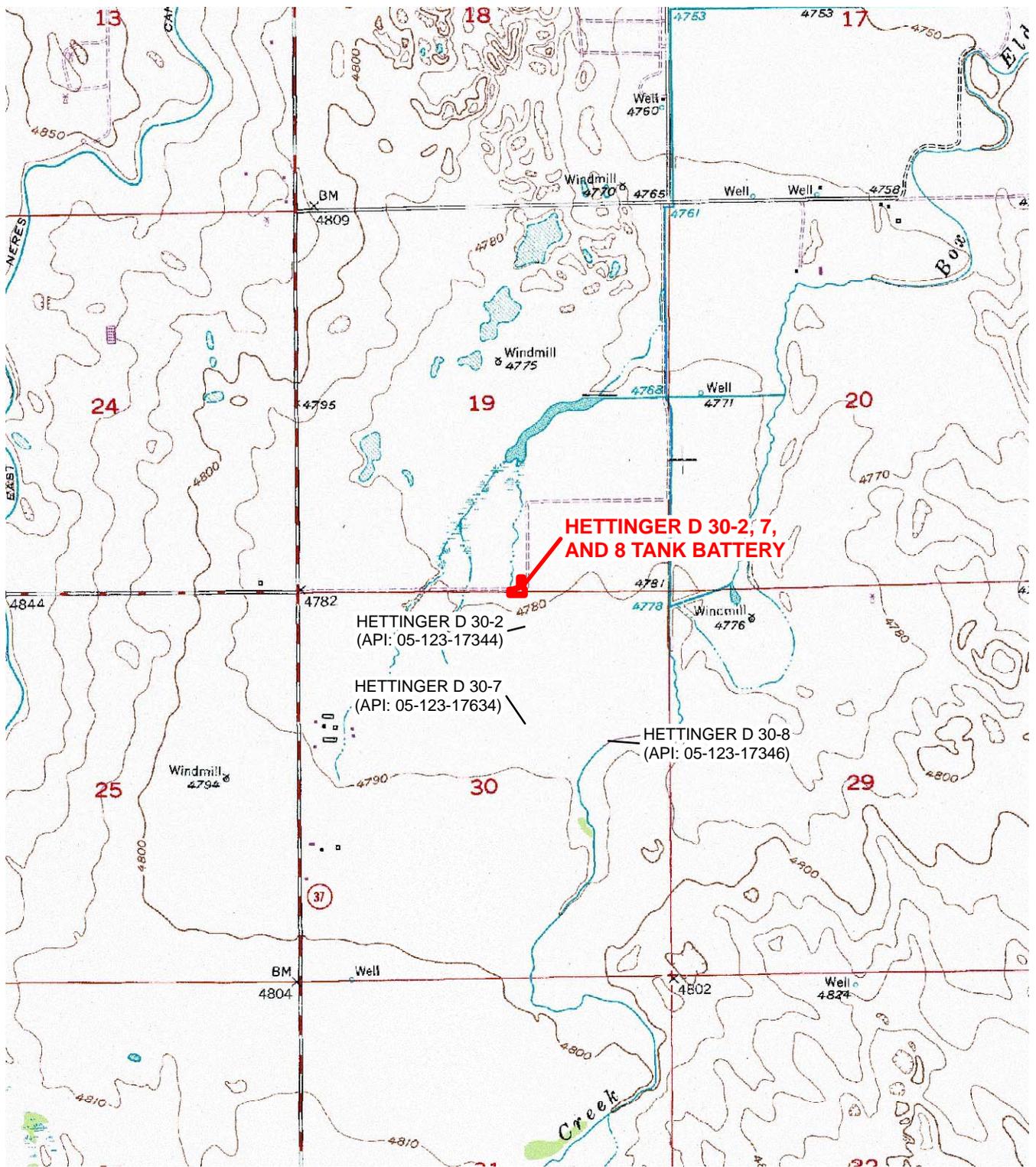


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

- PRODUCTION WELL
- SITE LOCATION

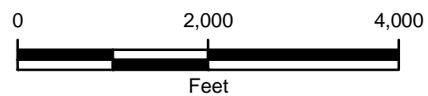


FIGURE 1
SITE LOCATION MAP
HETTINGER D 30-2, 7, AND 8 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

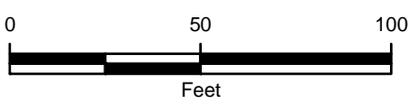




IMAGE COURTESY OF USDA/NRCS, 2009

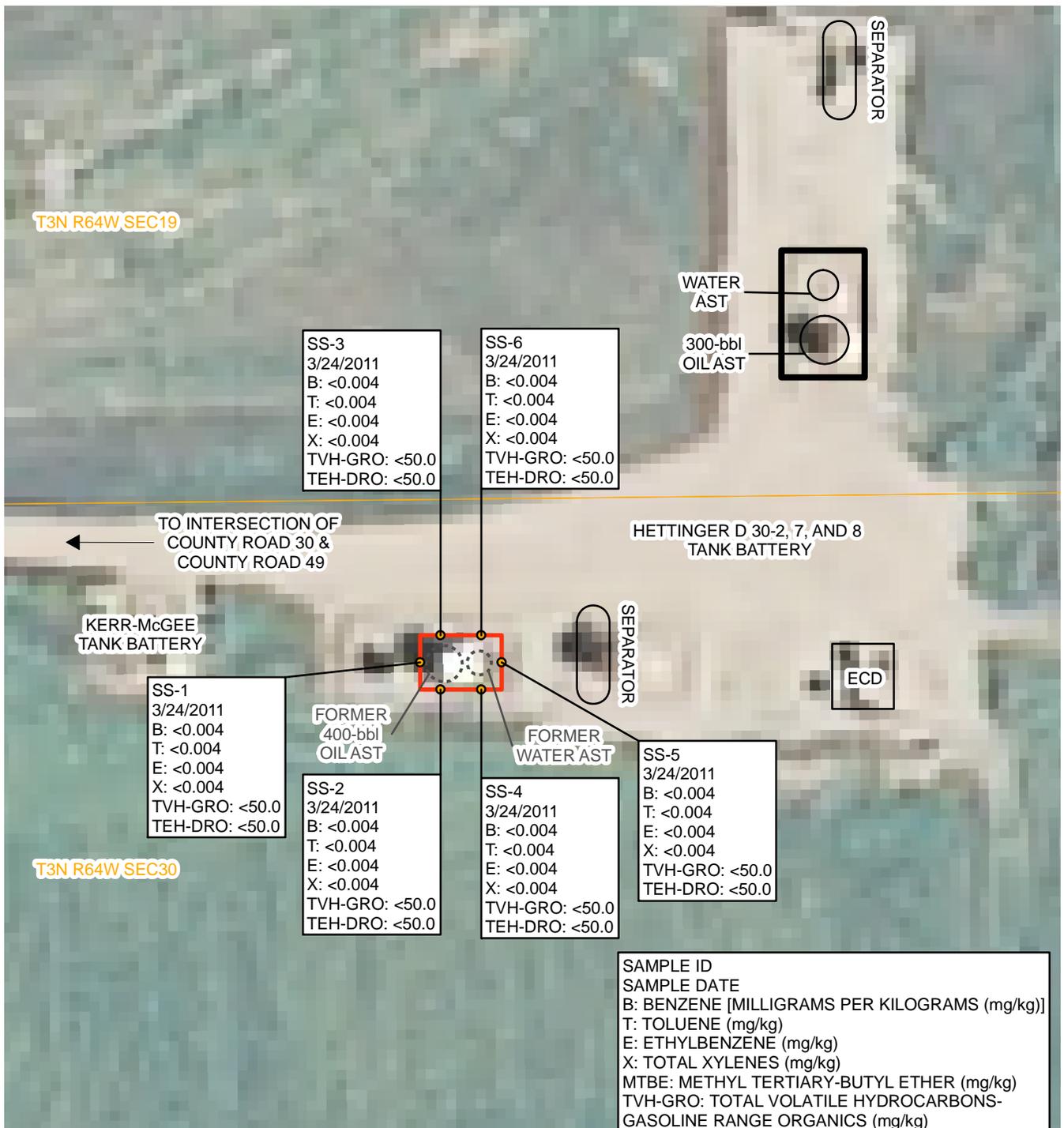
LEGEND

- SOIL SAMPLE
- BERM
- CURRENT INFRASTRUCTURE
- EXCAVATION EXTENT AS OF 03/25/2011
- FORMER INFRASTRUCTURE
- AST: ABOVEGROUND STORAGE TANK
- bbbl: BARRELS
- ECD: EMISSIONS CONTROL DEVICE



**FIGURE 2
SITE MAP
HETTINGER D 30-2, 7, AND 8 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.**





SS-3
3/24/2011
B: <0.004
T: <0.004
E: <0.004
X: <0.004
TVH-GRO: <50.0
TEH-DRO: <50.0

SS-6
3/24/2011
B: <0.004
T: <0.004
E: <0.004
X: <0.004
TVH-GRO: <50.0
TEH-DRO: <50.0

SS-1
3/24/2011
B: <0.004
T: <0.004
E: <0.004
X: <0.004
TVH-GRO: <50.0
TEH-DRO: <50.0

SS-2
3/24/2011
B: <0.004
T: <0.004
E: <0.004
X: <0.004
TVH-GRO: <50.0
TEH-DRO: <50.0

SS-4
3/24/2011
B: <0.004
T: <0.004
E: <0.004
X: <0.004
TVH-GRO: <50.0
TEH-DRO: <50.0

SS-5
3/24/2011
B: <0.004
T: <0.004
E: <0.004
X: <0.004
TVH-GRO: <50.0
TEH-DRO: <50.0

SAMPLE ID
SAMPLE DATE
B: BENZENE [MILLIGRAMS PER KILOGRAMS (mg/kg)]
T: TOLUENE (mg/kg)
E: ETHYLBENZENE (mg/kg)
X: TOTAL XYLENES (mg/kg)
MTBE: METHYL TERTIARY-BUTYL ETHER (mg/kg)
TVH-GRO: TOTAL VOLATILE HYDROCARBONS-
GASOLINE RANGE ORGANICS (mg/kg)
TEH-DRO: TOTAL EXTRACTABLE HYDROCARBONS-
DIESEL RANGE ORGANICS (mg/kg)
< : LESS THAN LABORATORY REPORTING LIMIT

LEGEND

- SOIL SAMPLE
- BERM
- CURRENT INFRASTRUCTURE
- EXCAVATION EXTENT AS OF 03/25/2011
- FORMER INFRASTRUCTURE
- AST: ABOVEGROUND STORAGE TANK
- bbbl: BARRELS
- ECD: EMISSIONS CONTROL DEVICE

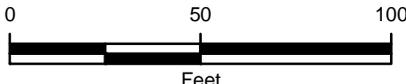


FIGURE 3
SOIL ANALYTICAL MAP
HETTINGER D 30-2, 7, AND 8 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.



IMAGE COURTESY OF USDA/NRCS, 2009

TABLE

TABLE 1

SOIL ANALYTICAL RESULTS

HETTINGER D 30-2, 7, AND 8 TANK BATTERY

WELD COUNTY, COLORADO

NOBLE ENERGY, INC.

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVH-GRO (mg/kg)	TEH-DRO (mg/kg)
SS-1	3/24/2011	<0.004	<0.004	<0.004	<0.004	<50.0	<50.0
SS-2	3/24/2011	<0.004	<0.004	<0.004	<0.004	<50.0	<50.0
SS-3	3/24/2011	<0.004	<0.004	<0.004	<0.004	<50.0	<50.0
SS-4	3/24/2011	<0.004	<0.004	<0.004	<0.004	<50.0	<50.0
SS-5	3/24/2011	<0.004	<0.004	<0.004	<0.004	<50.0	<50.0
SS-6	3/24/2011	<0.004	<0.004	<0.004	<0.004	<50.0	<50.0
COGCC Standard		0.17	85	100	175	Combined to 500	

NOTES:

mg/kg - milligrams per kilogram

TVH-GRO - total volatile hydrocarbons-gasoline range organics

TEH-DRO - total extractable hydrocarbons-diesel range organics

< - indicates result is less than the stated laboratory reporting limit

COGCC - Colorado Oil & Gas Conservation Commission

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B

TVH-GRO and TEH-DRO analyzed by EPA Method 8015 Modified

APPENDIX
LABORATORY ANALYTICAL REPORTS

April 04, 2011

Noble Energy Inc.

Todd Cullum

804 Grand Avenue

Platteville CO 80651

Project Name - Hettinger D30, 2,7,8

Project Number - [none]

Attached are you analytical results for Hettinger D30, 2,7,8 received by Origins Laboratory, Inc. March 28, 2011. This project is associated with Origins project number X103188-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Noble Energy Inc.
804 Grand Avenue
Platteville CO 80651

Project Number: [none]
Project Name: Hettinger D30, 2,7,8

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-1	X103188-01	Soil	March 24, 2011 13:00	03/28/2011 11:30
SS-2	X103188-02	Soil	March 24, 2011 13:00	03/28/2011 11:30
SS-3	X103188-03	Soil	March 24, 2011 12:15	03/28/2011 11:30
SS-4	X103188-04	Soil	March 24, 2011 12:15	03/28/2011 11:30
SS-5	X103188-05	Soil	March 24, 2011 12:15	03/28/2011 11:30
SS-6	X103188-06	Soil	March 24, 2011 12:15	03/28/2011 11:30

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle, President

Noble Energy Inc.
804 Grand Avenue
Platteville CO 80651

Project Number: [none]
Project Name: Hettinger D30, 2,7,8

SS-1

3/24/2011 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X103188-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.00400	mg/kg	1	1C28008	03/28/2011	03/29/2011	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.3 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.6 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.9 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015M

Gasoline (C6-C10)	ND	50.0	mg/kg	1	1C28007	03/28/2011	03/28/2011	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	
TPH - Carbon Chain Total	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	70.6 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle, President

Noble Energy Inc.
 804 Grand Avenue
 Platteville CO 80651

Project Number: [none]
 Project Name: Hettinger D30, 2,7,8

SS-2
 3/24/2011 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X103188-02 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.00400	mg/kg	1	1C28008	03/28/2011	03/29/2011	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	99.3 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.0 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015M

Gasoline (C6-C10)	ND	50.0	mg/kg	1	1C28007	03/28/2011	03/28/2011	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	
TPH - Carbon Chain Total	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	77.3 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle, President

Noble Energy Inc.
 804 Grand Avenue
 Platteville CO 80651

Project Number: [none]
 Project Name: Hettinger D30, 2,7,8

SS-3

3/24/2011 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X103188-03 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.00400	mg/kg	1	1C28008	03/28/2011	03/29/2011	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	97.9 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.1 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	100 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015M

Gasoline (C6-C10)	ND	50.0	mg/kg	1	1C28007	03/28/2011	03/28/2011	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	
TPH - Carbon Chain Total	ND	50.0	"	"	"	"	"	

<i>Surrogate: o-Terphenyl</i>	78.9 %	65-140			"	"	"	
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Origins Laboratory, Inc.



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Noelle E Doyle, President

Noble Energy Inc.
804 Grand Avenue
Platteville CO 80651

Project Number: [none]
Project Name: Hettinger D30, 2,7,8

SS-4

3/24/2011 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X103188-04 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.00400	mg/kg	1	1C28008	03/28/2011	03/29/2011	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	98.2 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.0 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.8 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015M

Gasoline (C6-C10)	ND	50.0	mg/kg	1	1C28007	03/28/2011	03/28/2011	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	
TPH - Carbon Chain Total	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	75.0 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle, President

Noble Energy Inc.
804 Grand Avenue
Platteville CO 80651

Project Number: [none]
Project Name: Hettinger D30, 2,7,8

SS-5

3/24/2011 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X103188-05 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.00400	mg/kg	1	1C28008	03/28/2011	03/29/2011	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.5 %	70-130			"	"	"	
Surrogate: Toluene-d8	95.2 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.8 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015M

Gasoline (C6-C10)	ND	50.0	mg/kg	1	1C28007	03/28/2011	03/28/2011	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	
TPH - Carbon Chain Total	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	73.2 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle, President

Noble Energy Inc.
 804 Grand Avenue
 Platteville CO 80651

Project Number: [none]
 Project Name: Hettinger D30, 2,7,8

SS-6

3/24/2011 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X103188-06 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.00400	mg/kg	1	1C28008	03/28/2011	03/29/2011	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	99.5 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	96.0 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015M

Gasoline (C6-C10)	ND	50.0	mg/kg	1	1C28007	03/28/2011	03/29/2011	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	
TPH - Carbon Chain Total	ND	50.0	"	"	"	"	"	

<i>Surrogate: o-Terphenyl</i>	74.0 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle, President

Noble Energy Inc.
 804 Grand Avenue
 Platteville CO 80651

Project Number: [none]
 Project Name: Hettinger D30, 2,7,8

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
 Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1C28008 - EPA 5030B										
Blank (1C28008-BLK1) Prepared: 03/28/2011 Analyzed: 03/28/2011										
Benzene	ND	0.004	mg/kg							
Toluene	ND	0.004	"							
Ethylbenzene	ND	0.004	"							
m,p-Xylene	ND	0.008	"							
o-Xylene	ND	0.004	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>58.2</i>		<i>ug/L</i>	<i>62.5</i>		<i>93.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>60.0</i>		<i>"</i>	<i>62.5</i>		<i>96.0</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>61.8</i>		<i>"</i>	<i>62.5</i>		<i>98.9</i>	<i>70-130</i>			

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Noelle E Doyle, President

Noble Energy Inc.
 804 Grand Avenue
 Platteville CO 80651

Project Number: [none]
 Project Name: Hettinger D30, 2,7,8

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1C28008 - EPA 5030B										
LCS (1C28008-BS1) Prepared: 03/28/2011 Analyzed: 03/28/2011										
Benzene	0.20	0.004	mg/kg	0.200		97.5	70-130			
Toluene	0.18	0.004	"	0.200		92.0	70-130			
Ethylbenzene	0.17	0.004	"	0.200		86.4	70-130			
m,p-Xylene	0.42	0.008	"	0.400		105	70-130			
o-Xylene	0.17	0.004	"	0.200		87.2	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>63.3</i>		<i>ug/L</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>62.0</i>		<i>"</i>	<i>62.5</i>		<i>99.2</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>59.1</i>		<i>"</i>	<i>62.5</i>		<i>94.5</i>	<i>70-130</i>			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1C28008 - EPA 5030B										
Matrix Spike (1C28008-MS1)			Source: X103188-05			Prepared: 03/28/2011 Analyzed: 03/28/2011				
Benzene	0.20	0.004	mg/kg	0.200	ND	102	70-130			
Toluene	0.19	0.004	"	0.200	ND	94.6	70-130			
Ethylbenzene	0.18	0.004	"	0.200	ND	90.7	70-130			
m,p-Xylene	0.41	0.008	"	0.400	ND	103	70-130			
o-Xylene	0.18	0.004	"	0.200	ND	90.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	61.1		ug/L	62.5		97.7	70-130			
Surrogate: Toluene-d8	61.1		"	62.5		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	58.3		"	62.5		93.2	70-130			

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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1C28008 - EPA 5030B

Matrix Spike Dup (1C28008-MSD1)	Source: X103188-05			Prepared: 03/28/2011 Analyzed: 03/28/2011						
Benzene	0.21	0.004	mg/kg	0.200	ND	103	70-130	0.351	20	
Toluene	0.19	0.004	"	0.200	ND	96.6	70-130	2.11	20	
Ethylbenzene	0.18	0.004	"	0.200	ND	91.0	70-130	0.418	20	
m,p-Xylene	0.45	0.008	"	0.400	ND	111	70-130	8.04	20	
o-Xylene	0.18	0.004	"	0.200	ND	91.6	70-130	1.61	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>63.0</i>		<i>ug/L</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>61.6</i>		<i>"</i>	<i>62.5</i>		<i>98.5</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>58.4</i>		<i>"</i>	<i>62.5</i>		<i>93.5</i>	<i>70-130</i>			

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804 Grand Avenue
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Project Number: [none]
Project Name: Hettinger D30, 2,7,8

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015M - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1C28007 - Default Prep GC-Semi

Blank (1C28007-BLK1)

Prepared: 03/28/2011 Analyzed: 03/28/2011

Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
Residual Range Organics (C28-C36)	ND	200	"							
TPH - Carbon Chain Total	ND	50.0	"							

Surrogate: *o*-Terphenyl 35.2 g 50.0 70.3 65-140

LCS (1C28007-BS1)

Prepared: 03/28/2011 Analyzed: 03/28/2011

Gasoline (C6-C10)	53.0	50.0	mg/kg				65-140			
Diesel (C10-C28)	330	50.0	"	500		66.1	60-140			

Surrogate: *o*-Terphenyl 34.9 g 50.0 69.8 65-140

Matrix Spike (1C28007-MS1)

Source: X103188-02

Prepared: 03/28/2011 Analyzed: 03/28/2011

Gasoline (C6-C10)	59.0	50.0	mg/kg		ND		65-130			
Diesel (C10-C28)	349	50.0	"	500	ND	69.7	60-140			

Surrogate: *o*-Terphenyl 36.4 g 50.0 72.9 65-140

Matrix Spike Dup (1C28007-MSD1)

Source: X103188-02

Prepared: 03/28/2011 Analyzed: 03/28/2011

Gasoline (C6-C10)	56.1	50.0	mg/kg		ND		65-130	5.09	20	
Diesel (C10-C28)	381	50.0	"	500	ND	76.2	60-140	8.86	25	

Surrogate: *o*-Terphenyl 39.7 g 50.0 79.5 65-140

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Noble Energy Inc.

804 Grand Avenue

Platteville CO 80651

Project Number: [none]

Project Name: Hettinger D30, 2,7,8

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

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