

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109



#8463

FOR OGCC USE ONLY

RECEIVED
6/2/2014

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe): _____

OGCC Employee:

Spill Complaint
Inspection NOAV

Tracking No: **2147195**

OGCC Operator Number: _____

Name of Operator: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact Name and Telephone: _____

No: _____

Fax: _____

API Number: _____

County: _____

Facility Name: _____

Facility Number: _____

Well Name: _____

Well Number: _____

Location: (QtrQtr, Sec, Twp, Rng, Meridian): _____ Latitude: _____ Longitude: _____

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): _____

Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): _____

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: _____

Potential receptors (water wells within 1/4 mi, surface waters, etc.): _____

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check): Extent of Impact: How Determined:

Soils _____ _____

Vegetation _____ _____

Groundwater _____ _____

Surface Water _____ _____

REMEDIAL WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

Describe how source is to be removed:

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

REMEDIATION WORKPLAN (Cont.)

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? Y N If yes, describe:

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: _____ Date Site Investigation Completed: _____ Date Remediation Plan Submitted: _____
Remediation Start Date: _____ Anticipated Completion Date: _____ Actual Completion Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: _____ Signed: _____

Title: _____ Date: _____

OGCC Approved: _____ Title: **EPS** Date: **6/2/2014**

EXCAVATION REPORT

Lockman 10-15I4 (Releases #1 and #2)
Weld County, Colorado

Prepared For:

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



Prepared by:

Tasman Geosciences, LLC
6899 Pecos Street, Unit C
Denver, CO 80221



May 22, 2014

May 22, 2014

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

Subject: **Excavation Report**
 Lockman 10-15I4
 API # 05-123-17733, Release Tracking # 2147195
 Weld County, Colorado

Dear Mr. Evans:

Below please find a copy of the above referenced Excavation Report for the Lockman 10-15I4 flow line site (Site) in Weld County, Colorado. The text below describes soil sampling activities conducted to confirm the removal of impacted soil proximate to the flow line between January 30, 2014 and February 25, 2014, and includes information on two separate releases referred to as "Release #1" and "Release #2". Please contact me at (303) 912-2625 if you require additional information.

Introduction

The purpose of this document is to describe the removal of impacted soil and subsequent confirmation sampling activities at the Site. The activities described below were performed to remove impacted material encountered during routine inspections of the flow line and to confirm via laboratory analytical methods that the material had been successfully removed.

Facility Background

The Site is located approximately 4.5 miles south-southeast of the town of Kersey, Colorado in Weld County as shown in Figures 1, 2 and 3. The Site is surrounded by agricultural land, and a drainage ditch is located approximately 5 feet (ft.) east of Release #1. The Site is 0.2 miles west of the intersection of County Road 57 and County Road 46. The Site legal description is the SW ¼ of the SE ¼ of Section 10, Township 4N, Range 64W.

On December 2, 2013 routine petroleum hydrocarbon flow line inspections determined that the flow line had developed a leak. Related production equipment at the Site was shut in.

Field Activities

Excavation activities for Release #1 commenced on January 30, 2014, and concluded on February 7, 2014. The approximate Release #1 location and excavation extent is illustrated on Figure 4. Fifteen soil samples were collected from the excavation, which had approximate final dimensions of 75 ft. by 35 ft. by 11 to 12 ft. below ground surface (bgs). The samples were analyzed for volatile organic

compounds (VOC) using a photoionization detector (PID) and standard headspace sampling techniques. VOC concentrations between and 0.7 parts per million (ppm) and 1,411 ppm were measured. Nine of the fifteen sidewall soil samples collected were selected to establish non-impacted boundaries, and were subsequently submitted to Summit Scientific of Golden, CO for laboratory analysis of benzene, toluene, ethylbenzene and total xylenes (collectively referred to as BTEX), naphthalene and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) using United States Environmental Protection Agency (USEPA) Method 8260B, and TPH-diesel range organics (TPH-DRO) using USEPA Method 8015. Approximately 1,283 cubic yards of impacted soil was removed from the Site.

Groundwater was encountered in the Release #1 excavation at a depth of approximately 10 ft. bgs. Five groundwater samples were collected over three days of excavating to maintain standardized spatial sampling intervals. These samples were submitted to Summit Scientific for analysis of BTEX using USEPA Method 8260. The results indicated that three of the samples contained benzene concentrations in excess of the COGCC Table 910-1 standard. Following the groundwater sample collections for each day, water within the excavation was treated with a granular mixture of activated carbon, sodium persulfate and calcium peroxide (COGAC). The COGAC was mixed into the groundwater along with clean permeable fill material prior to backfilling and re-grading of the excavation.

The drainage canal adjacent to the eastern wall of the Release #1 excavation was observed visually throughout excavation activities. No staining or hydrocarbon odors were observed in the soils on the proximate bank.

Tasman Geosciences' activities at the Release #2 location commenced on February 24, 2014, and concluded on February 25, 2014. The approximate Release #2 location and excavation extent is illustrated on Figure 5. Fifteen soil samples were collected from the excavation, which had approximate final dimensions of 35 ft. by 12 ft. by 5 to 6 ft. bgs. The samples were analyzed for VOC using a PID and standard headspace sampling techniques. VOC concentrations between and 1.5 ppm and 454 ppm were measured. Five of the fifteen soil samples collected were selected to establish non-impacted boundaries, and were subsequently submitted to Summit Scientific for laboratory analysis of BTEX, naphthalene and TPH-GRO using USEPA Method 8260B, and TPH-DRO using USEPA Method 8015. Approximately 103 cubic yards of impacted soil was removed from the Site.

Groundwater was encountered in the Release #2 excavation at a depth of approximately 5 ft. bgs. A groundwater sample was collected and submitted to Summit Scientific for analysis of BTEX using USEPA Method 8260. The results indicated the sample contained benzene concentrations in excess of the COGCC Table 910-1 standard. Following the sample collection, water within the excavation was treated with COGAC. The COGAC was mixed into the groundwater along with clean permeable fill material prior to backfilling and re-grading of the excavation.

Results

Laboratory sample analysis indicates that BTEX, naphthalene, TPH-GRO and TPH-DRO concentrations were below the applicable COGCC Table 910-1 standards for soil confirmation

samples collected from the final extents of each excavation. These data are presented in Tables 1 and 3.

The groundwater samples collected from each excavation exhibited benzene concentrations in excess of the COGCC Table 910-1 standard. These data are presented in Tables 2 and 4.

Conclusions

Based on laboratory analytical confirmation data, soil impacted above applicable COGCC standards was successfully removed from the Release #1 and Release #2 locations of the Site.

Impacted groundwater remains at both release locations. Groundwater monitoring wells will be installed to assess the groundwater conditions at the Site and additional remedial options will be developed (if necessary) once data is available.

Remarks

The discussion and conclusions contained in this report represent the professional opinions of Tasman Geosciences, LLC. These opinions are based on currently available information and are arrived at in accordance with currently accepted geologic and engineering practices.

Please contact me at (303) 912-2625 if you require additional information.

Sincerely,
Tasman Geosciences, LLC

A handwritten signature in blue ink, appearing to read "Daniel Wade".

Daniel Wade P.G.
Senior Geologist – Assessment & Remediation

Attached:

Table 1 – Release #1 Soil Data
Table 2 – Release #1 Groundwater Data
Table 3 – Release #2 Soil Data
Table 4 – Release #2 Groundwater Data
Figure 1 – Release #1 Location Map
Figure 2 – Release #2 Location Map
Figure 3 – Release #1 and #2 Overview Map
Figure 4 – Release #1 Excavation Extent & Sample Locations Map
Figure 5 – Release #2 Excavation Extent & Sample Locations Map
Appendices – Laboratory Analytical Reports

Tables

TABLE 1 - SOIL DATA
NOBLE ENERGY, INC. - LOCKMAN 10-1514 (RELEASE #1)
FIELD AND LABORATORY ANALYTICAL DATA

Date	Soil Sample ID	PID (ppm)	Laboratory Results	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylenes mg/kg	TPH-GRO mg/kg	TPH-DRO mg/kg	Naphthalene mg/kg
			COGCC Standard	0.17	85	100	175	500		23
1/30/2014	SS01@8'	1	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
1/30/2014	SS02@8'	1.4	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
1/30/2014	SS03@8'	0.7	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
1/30/2014	SS04@8'	1.4	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
2/3/2014	SS05@4'	6.6	--	<0.002	<0.005	<0.005	<0.01	<0.5	<50	--
2/3/2014	SS06@5'	5.5	--	<0.002	<0.005	<0.005	<0.01	<0.5	<50	--
2/3/2014	SS07@7'	443.2	--	<0.002	<0.005	<0.005	<0.01	<0.5	<50	--
2/3/2014	SS08@8'	875.2	--	<0.002	<0.005	<0.005	<0.01	<0.5	<50	--
2/3/2014	SS09@8'	8.4	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
2/3/2014	SS10@8'	1411	--	<0.002	<0.005	<0.005	<0.01	<0.5	<50	--
2/3/2014	SS11@8'	8.5	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
2/3/2014	SS12@8'	310.5	--	<0.002	<0.005	<0.005	<0.01	<0.5	<50	--
2/7/2014	SS13@8'	6.5	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
2/7/2014	SS14@8'	1	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01
2/7/2014	SS15@8'	0.9	Result =	<0.002	<0.005	<0.005	<0.01	<0.5	<50	<0.01

PID = Photoionization detector (10.6 eV lamp)

ppm = Parts per million

COGCC = Colorado Oil and Gas Conservation Commission

mg/kg = Milligrams per kilogram

-- = Sample was not submitted for laboratory analysis

< = Analytical result is less than the indicated laboratory reporting limit

Soil standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

TABLE 2 - GROUNDWATER DATA
NOBLE ENERGY, INC. - LOCKMAN 10-15I4 (RELEASE #1)
LABORATORY ANALYTICAL DATA

Date	GW Sample ID	Laboratory Results	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l
		COGCC Standard	5	560	700	1,400
1/30/2014	GW01	Result =	100	88	92	860
1/30/2014	GW02	Result =	<1.0	1.6	1.1	6.5
2/3/2014	GW03	Result =	67	130	71	600
2/7/2014	GW04	Result =	17	26	23	170
2/7/2014	GW05	Result =	<1.0	<1.0	<1.0	<1.0

COGCC = Colorado Oil and Gas Conservation Commission

µg/l = Micrograms per liter

< = Analytical result is less than the indicated laboratory reporting limit

Groundwater standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

TABLE 3 - SOIL DATA
NOBLE ENERGY, INC. - LOCKMAN 10-1514 (RELEASE #2)
FIELD AND LABORATORY ANALYTICAL DATA

Date	Soil Sample ID	PID (PPM)	Laboratory Results	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylenes mg/kg	TPH-GRO mg/kg	TPH-DRO mg/kg	Naphthalene mg/kg
			COGCC Standard	0.17	85	100	175	500		23
2/24/2014	SSN1-1.5	1.5	--	--	--	--	--	--	--	--
2/24/2014	SSS1-4	3.2	--	--	--	--	--	--	--	--
2/24/2014	SSB1-4	454	--	--	--	--	--	--	--	--
2/24/2014	SSS2-4	3.5	--	--	--	--	--	--	--	--
2/24/2014	SSS3-6	25.6	--	--	--	--	--	--	--	--
2/24/2014	SSS4-5	2.5	Result =	0.0034	<0.005	<0.005	<0.010	<0.50	<50	<0.010
2/24/2014	SSS5-5	25.6	--	--	--	--	--	--	--	--
2/24/2014	SSN2-5	1.5	Result =	<0.0010	<0.005	<0.005	<0.010	0.78	<50	<0.010
2/24/2014	SSN3-4.5	130	--	--	--	--	--	--	--	--
2/24/2014	SSN4-5	49	--	--	--	--	--	--	--	--
2/24/2014	SSS6-2.5	72.5	Result =	0.0047	<0.005	0.022	0.25	32	310	0.094
2/24/2014	SSS7-5	10.5	--	--	--	--	--	--	--	--
2/24/2014	SSB2-5.5	46.3	--	--	--	--	--	--	--	--
2/24/2014	SSN5-5	310	Result =	0.12	<0.005	0.4	7.2	760	420	0.57
2/25/2014	SSN6-4.5	9.6	Result =	0.017	<0.005	0.0089	0.1	0.99	<50	0.023

PID = Photoionization detector (10.6 eV lamp)

PPM = Parts per million

COGCC = Colorado Oil and Gas Conservation Commission

mg/kg = Milligrams per kilogram

-- = Sample was not submitted for laboratory analysis

< = Analytical result is less than the indicated laboratory reporting limit

Soil standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

TABLE 4 - GROUNDWATER DATA
NOBLE ENERGY, INC. - LOCKMAN 10-1514 (RELEASE #2)
LABORATORY ANALYTICAL DATA

Date	GW Sample ID	Laboratory Results	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l
		COGCC Standard	5	560	700	1,400
2/24/2014	GW01	Result =	13	22	4.2	38

COGCC = Colorado Oil and Gas Conservation Commission

µg/l = Micrograms per liter

< = Analytical result is less than the indicated laboratory reporting limit

Groundwater standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

Figures

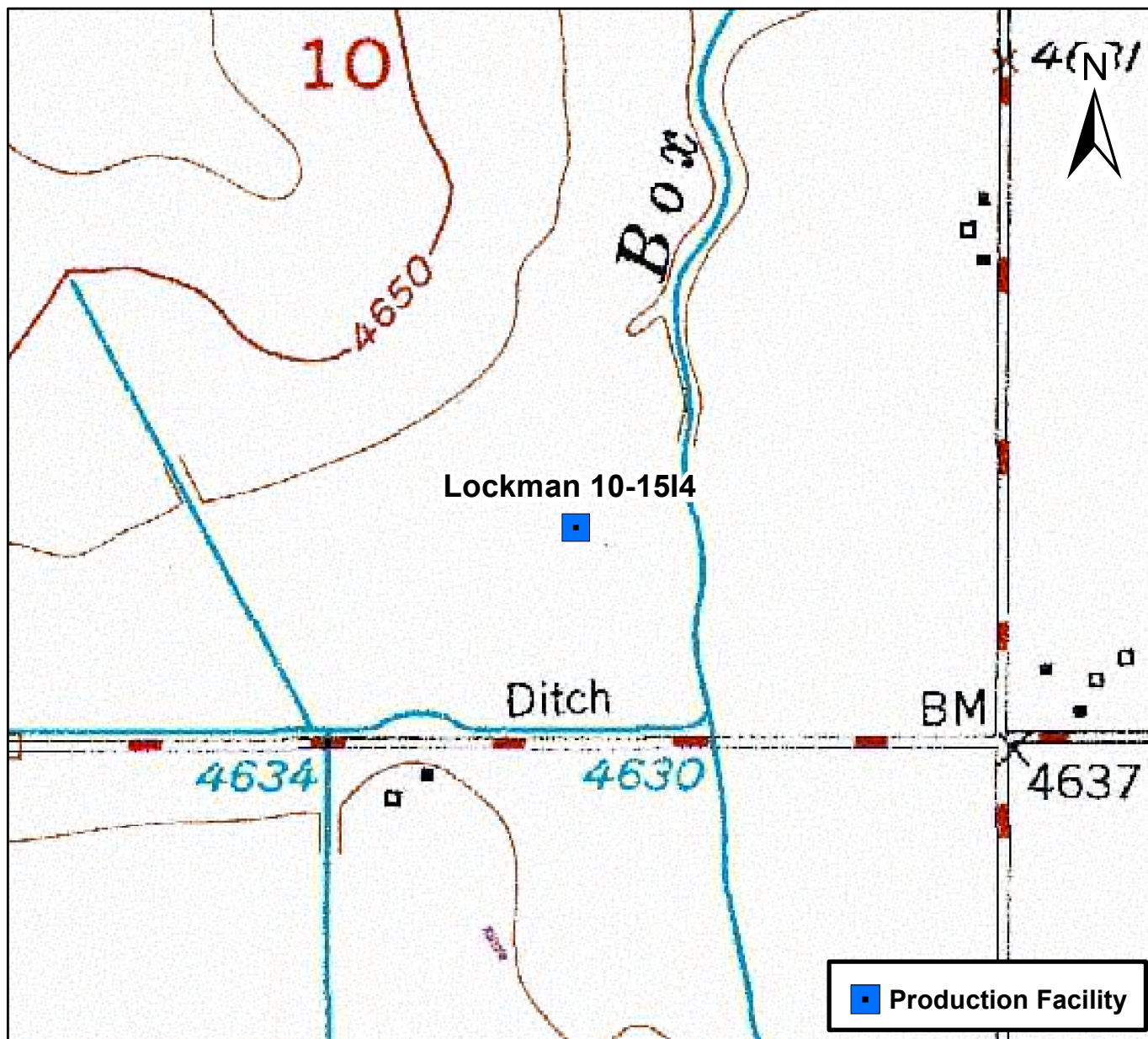
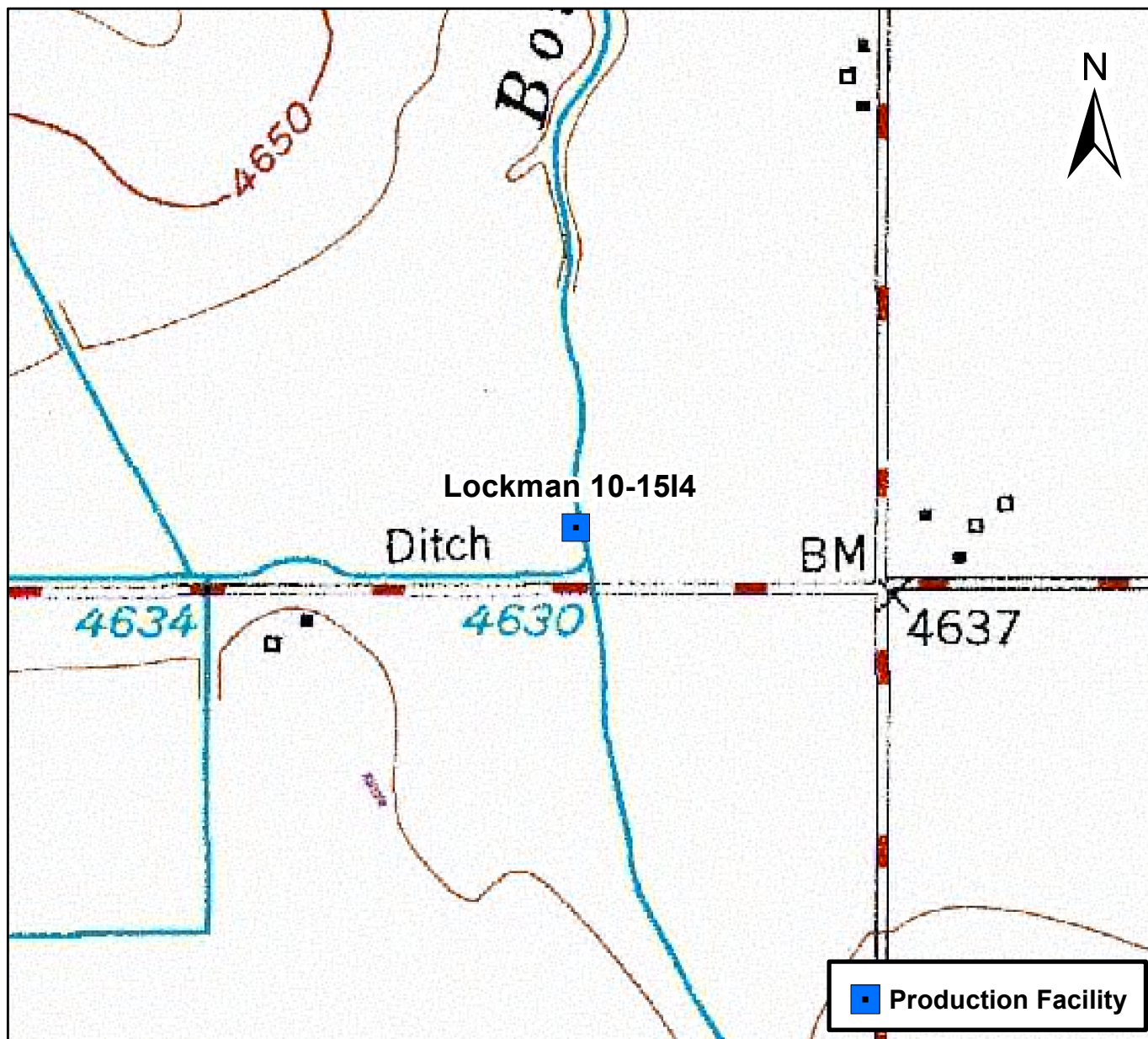


Figure 1
 Site Location Map
 Lockman 10-1514
 (Release #1)
 SWSE S10 T4N R64W
 Weld County, Colorado

Drawn By: DBA
 Date: 04/29/2014

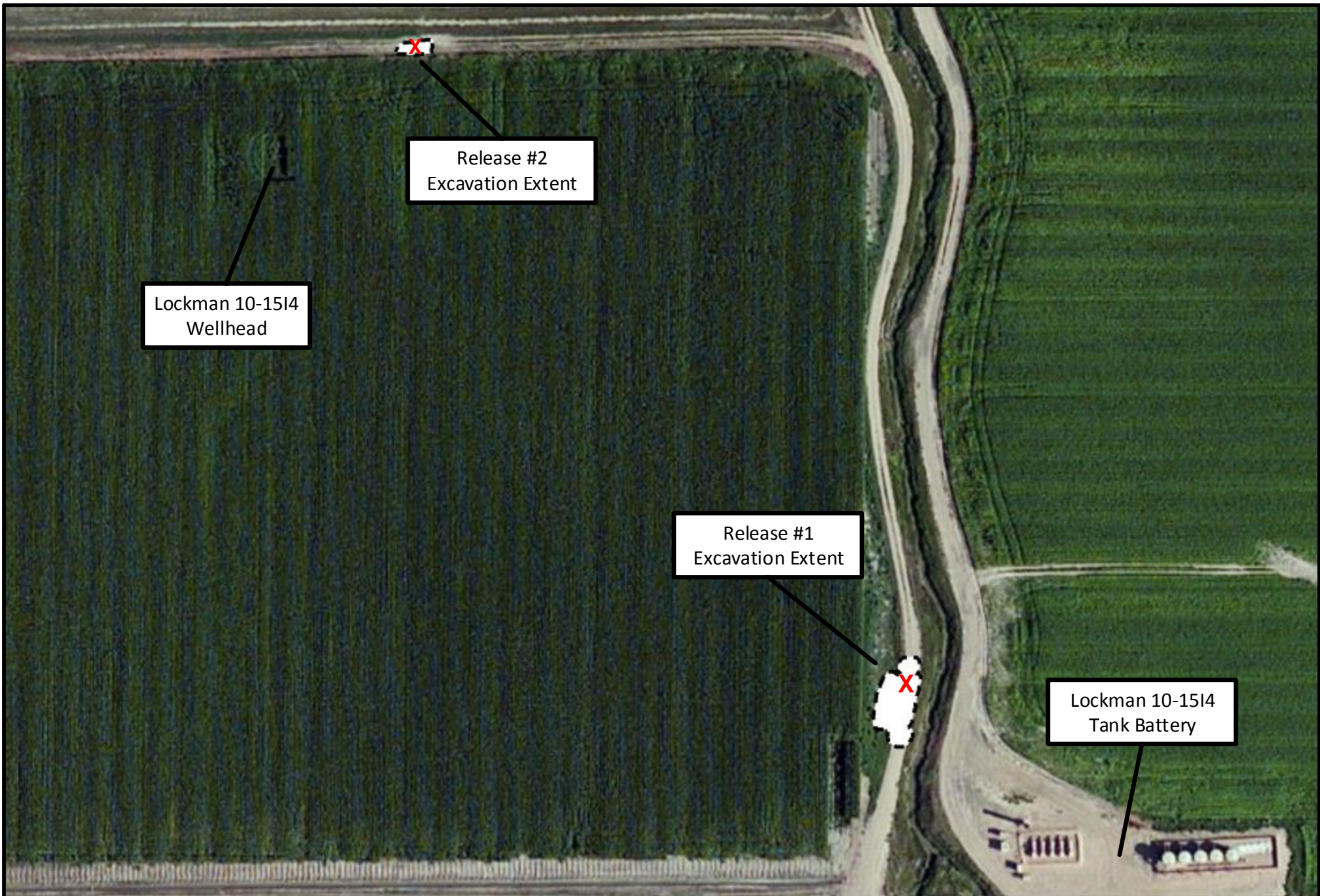


0 750 1,500 Feet



Figure 2
 Site Location Map
 Lockman 10-1514
 (Release #2)
 SWSE S10 T4N R64W
 Weld County, Colorado

Drawn By: DBA
 Date: 05/08/2014



PROJECT NO:

DRAWN BY: BAM



DATE: 5/9/2014



6899 Pecos St., Unit C
Denver, CO 80221

Facility Diagram
Noble Energy
Lockman 10-1514
Weld County, CO

LEGEND:

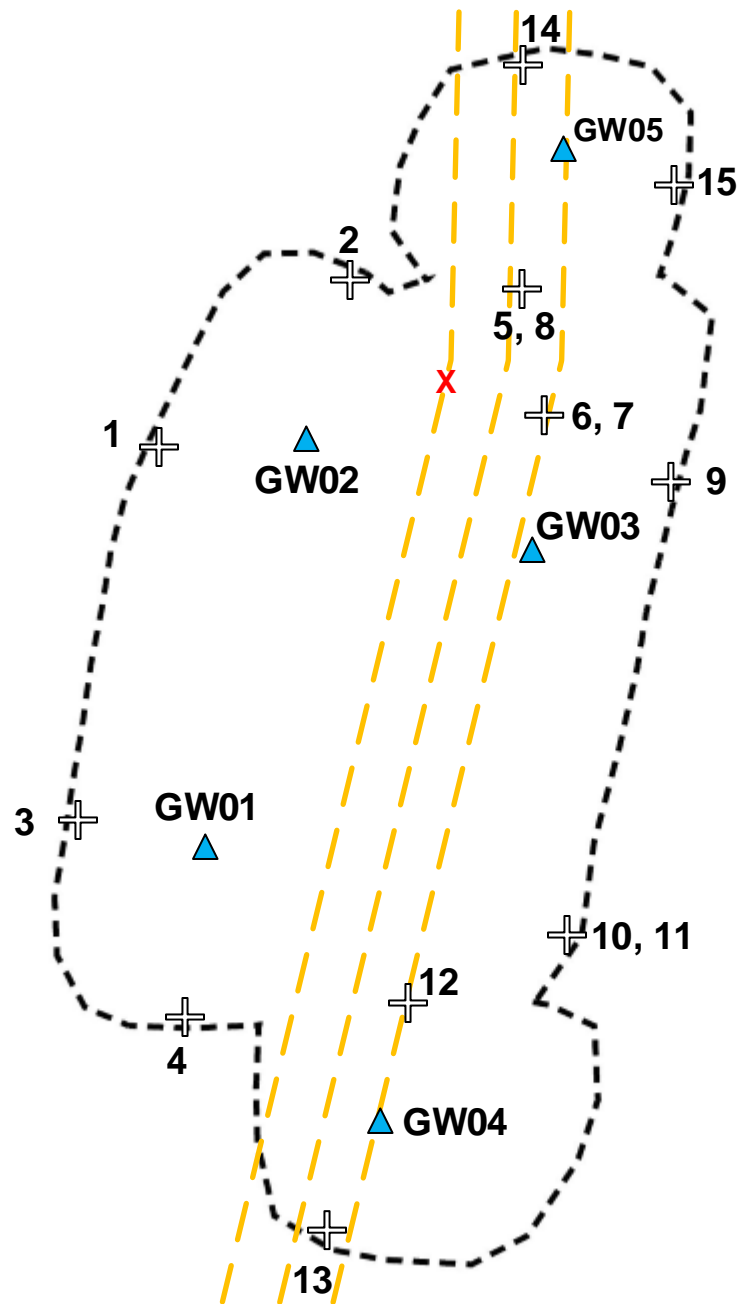
-  Approximate Area of Release
 Excavation Extent (Surveyed Via Trimble Unit)



Scale: 1" = 155'

Release #1 and #2
Overview

Figure 3



PROJECT NO:

DRAWN BY: BAM

DATE: 5/9/2014



TASMAN
GEOSCIENCES
6899 Pecos St., Unit C
Denver, CO 80221

Facility Diagram
Noble Energy
Lockman 10-1514
Weld County, CO

LEGEND:



Soil Sample and PID Location



Groundwater Sample Location



Excavation Extent
(Surveyed Via Trimble Unit)



Approximate Area of Release



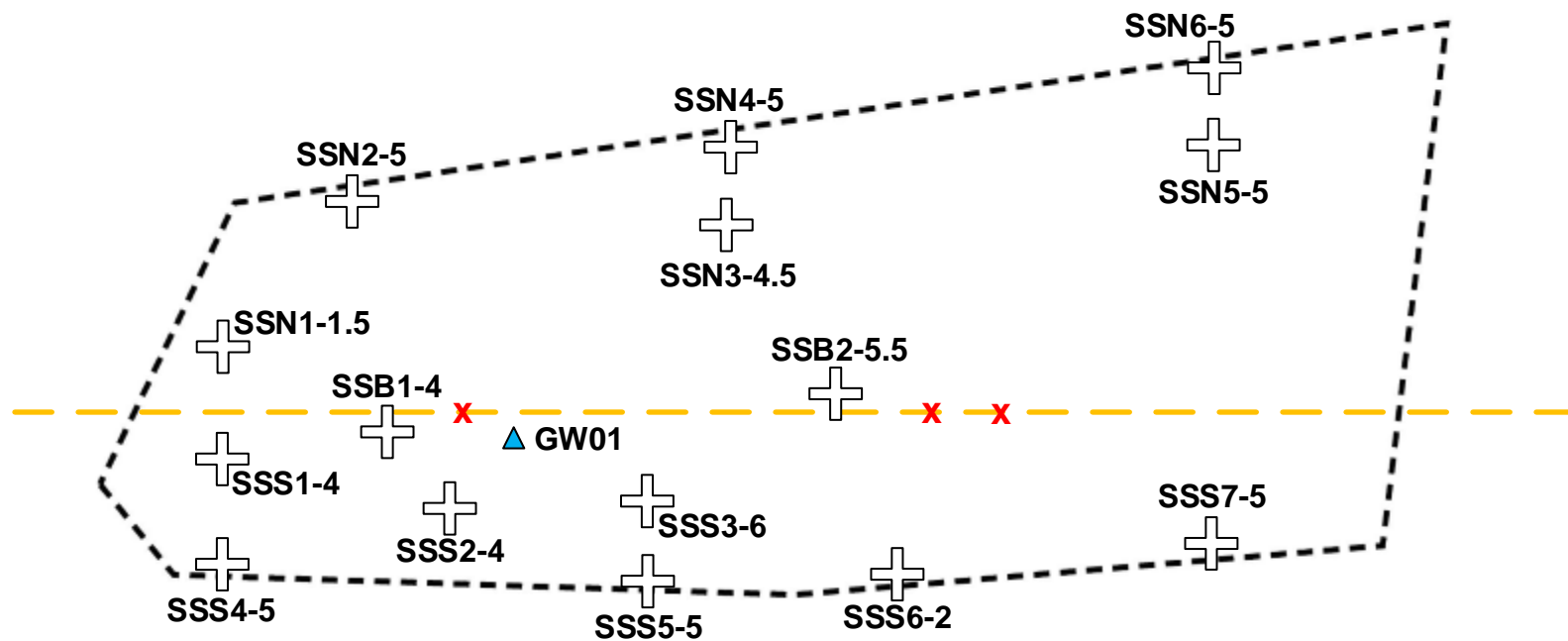
Noble Flow Line



Scale: 1" = 18'

Release #1 Excavation
Extent & Sample
Locations

Figure 4



PROJECT NO:

DRAWN BY: BAM

DATE: 4/29/2014



6899 Pecos St., Unit C
Denver, CO 80221

Facility Diagram
Noble Energy
Lockman 10-1514
Weld County, CO

LEGEND:



Soil Sample and PID Location



Groundwater Sample Location



Excavation Extent
(Surveyed Via Trimble Unit)



Approximate Area of Release



Noble Flow Line



Scale: 1" = 7'

Release #2 Excavation
Extent & Sample
Locations

Figure 5

Appendices

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 31, 2014

Daniel Wade
Noble Energy
804 Grand Avenue
Platteville, CO 80651
RE: Lockman 10-15I4

Enclosed are the results of analyses for samples received by Summit Scientific on 01/30/14 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@8'	1401162-01	Soil	01/30/14 10:30	01/30/14 16:45
SS02@8'	1401162-02	Soil	01/30/14 10:35	01/30/14 16:45
SS03@8'	1401162-03	Soil	01/30/14 10:40	01/30/14 16:45
SS04@8'	1401162-04	Soil	01/30/14 10:45	01/30/14 16:45
GW01	1401162-05	Water	01/30/14 12:00	01/30/14 16:45
GW02	1401162-06	Water	01/30/14 12:05	01/30/14 16:45

Summit Scientific

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.

Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Client:	<u>Wade</u>	Project Manager:	<u>Dan Wade</u>
Address:	<u>6899 Peters Street</u>	E-Mail:	
City/State/Zip:	<u>Denver, CO 80221</u>	Project Name:	<u>Backman 10-1514</u>
Phone:	<u>(720) 984-2024</u>	Project Number:	
Fax:			
Sampler Name:	<u>Brad May 2014</u>		

[illegible]

www.s2scientific.com

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

SS01@8'
1401162-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/30/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401153	01/30/14	01/30/14	8015M	

Date Sampled: **01/30/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		128 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/30/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401151	01/30/14	01/30/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/30/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

SS02@8'
1401162-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/30/14 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401153	01/30/14	01/30/14	8015M	

Date Sampled: **01/30/14 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		105 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/30/14 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401151	01/30/14	01/30/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/30/14 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

SS03@8'
1401162-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/30/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401153	01/30/14	01/30/14	8015M	

Date Sampled: **01/30/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		112 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/30/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401151	01/30/14	01/30/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/30/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

SS04@8'
1401162-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/30/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401153	01/30/14	01/30/14	8015M	

Date Sampled: **01/30/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		110 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/30/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401151	01/30/14	01/30/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/30/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

GW01
1401162-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/30/14 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	100	1.0		ug/l	1	1401154	01/30/14	01/30/14	EPA 8260B	
Toluene	88	1.0		"	"	"	"	"	"	
Ethylbenzene	92	1.0		"	"	"	"	"	"	
Xylenes (total)	860	100		"	100	"	"	"	"	

Date Sampled: **01/30/14 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		112 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		130 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		91.1 %		45-146		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

GW02
1401162-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/30/14 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1401154	01/30/14	01/30/14	EPA 8260B	
Toluene	1.6	1.0		"	"	"	"	"	"	
Ethylbenzene	1.1	1.0		"	"	"	"	"	"	
Xylenes (total)	6.5	1.0		"	"	"	"	"	"	

Date Sampled: **01/30/14 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		101 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		103 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %		45-146		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1401153 - EPA 3550A

Blank (1401153-BLK1)

Prepared & Analyzed: 01/30/14

C10-C28 (DRO) ND 50 mg/kg

LCS (1401153-BS1)

Prepared & Analyzed: 01/30/14

C10-C28 (DRO) 458 50 mg/kg 501 91.3 73-134

Matrix Spike (1401153-MS1)

Source: 1401162-01

Prepared & Analyzed: 01/30/14

C10-C28 (DRO) 430 50 mg/kg 457 24.1 88.8 50-148

Matrix Spike Dup (1401153-MSD1)

Source: 1401162-01

Prepared & Analyzed: 01/30/14

C10-C28 (DRO) 448 50 mg/kg 463 24.1 91.6 50-148 4.19 13

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1401151 - EPA 5030 Soil MS

Blank (1401151-BLK1)

Prepared & Analyzed: 01/30/14

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0455		"	0.0395		115	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0398		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0398		100	21-167			

LCS (1401151-BS1)

Prepared & Analyzed: 01/30/14

Naphthalene	0.189	0.010	mg/kg	0.147		129	66-138			
Benzene	0.139	0.0020	"	0.147		94.9	58-130			
Toluene	0.138	0.0050	"	0.147		93.8	61-134			
Ethylbenzene	0.141	0.0050	"	0.147		95.8	74-139			
m,p-Xylene	0.260	0.010	"	0.294		88.5	73-137			
o-Xylene	0.145	0.0050	"	0.147		98.5	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0427		"	0.0388		110	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0391		98.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0391		100	21-167			

Matrix Spike (1401151-MS1)

Source: 1401160-01

Prepared & Analyzed: 01/30/14

Naphthalene	0.175	0.010	mg/kg	0.143	ND	123	10-158			
Benzene	0.121	0.0020	"	0.143	ND	84.6	30-131			
Toluene	0.123	0.0050	"	0.143	ND	86.3	30-134			
Ethylbenzene	0.125	0.0050	"	0.143	ND	87.6	22-153			
m,p-Xylene	0.232	0.010	"	0.285	ND	81.5	10-159			
o-Xylene	0.124	0.0050	"	0.143	ND	87.1	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0448		"	0.0377		119	23-173			
Surrogate: Toluene-d8	0.0382		"	0.0380		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0380		103	21-167			

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1401151 - EPA 5030 Soil MS

Matrix Spike Dup (1401151-MSD1)				Source: 1401160-01		Prepared: 01/30/14		Analyzed: 01/31/14		
Naphthalene	0.168	0.010	mg/kg	0.143	ND	118	10-158	3.75	42	
Benzene	0.125	0.0020	"	0.143	ND	87.3	30-131	3.57	34	
Toluene	0.125	0.0050	"	0.143	ND	87.2	30-134	1.35	30	
Ethylbenzene	0.126	0.0050	"	0.143	ND	87.8	22-153	0.609	24	
m,p-Xylene	0.229	0.010	"	0.286	ND	80.1	10-159	1.39	68	
o-Xylene	0.125	0.0050	"	0.143	ND	87.7	31-151	1.07	38	
Surrogate: 1,2-Dichloroethane-d4	0.0455		"	0.0379		120	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0382		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0382		101	21-167			

Batch 1401154 - EPA 5030 Water MS

Blank (1401154-BLK1)				Prepared & Analyzed: 01/30/14						
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	15.0		"	13.2		113	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		101	45-146			
LCS (1401154-BS1)				Prepared & Analyzed: 01/30/14						
Benzene	32.9	1.0	ug/l	33.3		98.8	51-132			
Toluene	34.6	1.0	"	33.3		104	51-138			
Ethylbenzene	37.9	1.0	"	33.3		114	58-146			
m,p-Xylene	67.5	2.0	"	66.7		101	57-144			
o-Xylene	35.7	1.0	"	33.3		107	53-146			
Surrogate: 1,2-Dichloroethane-d4	15.1		"	13.2		114	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.5	45-146			

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1401154 - EPA 5030 Water MS

Matrix Spike (1401154-MS1)		Source: 1401157-01			Prepared & Analyzed: 01/30/14					
Benzene	32.4	1.0	ug/l	33.3	ND	97.3	34-141			
Toluene	34.4	1.0	"	33.3	ND	103	27-151			
Ethylbenzene	39.3	1.0	"	33.3	ND	118	29-160			
m,p-Xylene	71.1	2.0	"	66.7	1.15	105	20-166			
o-Xylene	36.4	1.0	"	33.3	ND	109	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2		105	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.4	45-146			
Matrix Spike Dup (1401154-MSD1)		Source: 1401157-01			Prepared & Analyzed: 01/30/14					
Benzene	32.5	1.0	ug/l	33.3	ND	97.6	34-141	0.277	32	
Toluene	34.2	1.0	"	33.3	ND	102	27-151	0.875	25	
Ethylbenzene	39.8	1.0	"	33.3	ND	119	29-160	1.24	50	
m,p-Xylene	71.7	2.0	"	66.7	1.15	106	20-166	0.841	36	
o-Xylene	36.6	1.0	"	33.3	ND	110	33-159	0.767	26	
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2		105	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.1	45-149			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.1	45-146			

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
01/31/14 16:31

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

A handwritten signature in black ink, appearing to be 'JMM'.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 04, 2014

Daniel Wade
Noble Energy
804 Grand Avenue
Platteville, CO 80651
RE: Lockman 10-15I4

Enclosed are the results of analyses for samples received by Summit Scientific on 02/03/14 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS09@8'	1402002-01	Soil	02/03/14 12:00	02/03/14 17:00
SS11@8'	1402002-02	Soil	02/03/14 12:30	02/03/14 17:00
GW03	1402002-03	Water	02/03/14 11:00	02/03/14 17:00

Summit Scientific

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.

Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

[illegible]

Summit Scientific

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.





Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

SS09@8'
1402002-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/03/14 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402016	02/03/14	02/03/14	8015M	

Date Sampled: 02/03/14 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/03/14 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402015	"	02/03/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 02/03/14 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

SS11@8'
1402002-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/03/14 12:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402016	02/03/14	02/03/14	8015M	

Date Sampled: 02/03/14 12:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/03/14 12:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402015	"	02/03/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 02/03/14 12:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		126 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

GW03
1402002-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/03/14 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	67	1.0		ug/l	1	1402014	02/03/14	02/03/14	EPA 8260B	
Toluene	130	1.0		"	"	"	"	"	"	
Ethylbenzene	71	1.0		"	"	"	"	"	"	
Xylenes (total)	600	1.0		"	"	"	"	"	"	

Date Sampled: **02/03/14 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.7 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		90.8 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		142 %		45-146		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402016 - EPA 3550A

Blank (1402016-BLK1)

Prepared & Analyzed: 02/03/14

C10-C28 (DRO) ND 50 mg/kg

LCS (1402016-BS1)

Prepared & Analyzed: 02/03/14

C10-C28 (DRO) 443 50 mg/kg 492 90.1 73-134

Matrix Spike (1402016-MS1)

Source: 1402002-01

Prepared & Analyzed: 02/03/14

C10-C28 (DRO) 449 50 mg/kg 485 ND 92.5 50-148

Matrix Spike Dup (1402016-MSD1)

Source: 1402002-01

Prepared & Analyzed: 02/03/14

C10-C28 (DRO) 459 50 mg/kg 487 ND 94.1 50-148 2.07 13

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402014 - EPA 5030 Water MS

Blank (1402014-BLK1)

Prepared & Analyzed: 02/03/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.7		"	13.2		96.0	37-154			
Surrogate: Toluene-d8	14.3		"	13.3		107	45-149			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.6	45-146			

LCS (1402014-BS1)

Prepared & Analyzed: 02/03/14

Benzene	38.8	1.0	ug/l	33.3		116	51-132			
Toluene	41.2	1.0	"	33.3		124	51-138			
Ethylbenzene	42.0	1.0	"	33.3		126	58-146			
m,p-Xylene	85.4	2.0	"	66.7		128	57-144			
o-Xylene	40.6	1.0	"	33.3		122	53-146			
Surrogate: 1,2-Dichloroethane-d4	12.3		"	13.2		92.9	37-154			
Surrogate: Toluene-d8	14.0		"	13.3		105	45-149			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.7	45-146			

Matrix Spike (1402014-MS1)

Source: 1402002-03

Prepared & Analyzed: 02/03/14

Benzene	98.1	1.0	ug/l	33.3	66.9	93.6	34-141			
Toluene	141	1.0	"	33.3	125	46.6	27-151			
Ethylbenzene	94.3	1.0	"	33.3	71.2	69.4	29-160			
m,p-Xylene	460	2.0	"	66.7	512	NR	20-166			QM-07
o-Xylene	106	1.0	"	33.3	84.9	63.8	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.7		"	13.2		88.6	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.3	45-149			
Surrogate: 4-Bromofluorobenzene	16.8		"	13.3		126	45-146			

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402014 - EPA 5030 Water MS

Matrix Spike Dup (1402014-MSD1)			Source: 1402002-03		Prepared & Analyzed: 02/03/14						
Benzene	98.1	1.0	ug/l	33.3	66.9	93.6	34-141	0.0204	32		
Toluene	146	1.0	"	33.3	125	62.4	27-151	3.69	25		
Ethylbenzene	93.3	1.0	"	33.3	71.2	66.4	29-160	1.09	50		
m,p-Xylene	448	2.0	"	66.7	512	NR	20-166	2.50	36		QM-07
o-Xylene	106	1.0	"	33.3	84.9	61.8	33-159	0.614	26		
Surrogate: 1,2-Dichloroethane-d4	11.5		"	13.2		86.8	37-154				
Surrogate: Toluene-d8	12.9		"	13.3		97.0	45-149				
Surrogate: 4-Bromofluorobenzene	14.6		"	13.3		109	45-146				

Batch 1402015 - EPA 5030 Soil MS

Blank (1402015-BLK1)			Prepared & Analyzed: 02/03/14								
Naphthalene	ND	0.010	mg/kg								
Benzene	ND	0.0020	"								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0490		"	0.0397		123	23-173				
Surrogate: Toluene-d8	0.0396		"	0.0400		99.1	20-170				
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	21-167				

LCS (1402015-BS1)			Prepared & Analyzed: 02/03/14								
Naphthalene	ND	0.010	mg/kg				66-138				
Benzene	0.0933	0.0020	"	0.0969		96.3	58-130				
Toluene	0.0963	0.0050	"	0.0969		99.4	61-134				
Ethylbenzene	0.106	0.0050	"	0.0969		110	74-139				
m,p-Xylene	0.205	0.010	"	0.194		106	73-137				
o-Xylene	0.0975	0.0050	"	0.0969		101	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0466		"	0.0385		121	23-173				
Surrogate: Toluene-d8	0.0388		"	0.0388		100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0388		105	21-167				

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402015 - EPA 5030 Soil MS

Matrix Spike (1402015-MS1)

Source: 1402002-01

Prepared & Analyzed: 02/03/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0959	0.0020	"	0.0998	ND	96.1	30-131			
Toluene	0.0969	0.0050	"	0.0998	ND	97.1	30-134			
Ethylbenzene	0.103	0.0050	"	0.0998	ND	103	22-153			
m,p-Xylene	0.199	0.010	"	0.200	ND	99.6	10-159			
o-Xylene	0.0959	0.0050	"	0.0998	ND	96.1	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0480		"	0.0396		121	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0399		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0399		100	21-167			

Matrix Spike Dup (1402015-MSD1)

Source: 1402002-01

Prepared & Analyzed: 02/03/14

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0946	0.0020	"	0.0986	ND	95.9	30-131	1.44	34	
Toluene	0.0970	0.0050	"	0.0986	ND	98.4	30-134	0.129	30	
Ethylbenzene	0.108	0.0050	"	0.0986	ND	109	22-153	4.47	24	
m,p-Xylene	0.204	0.010	"	0.197	ND	104	10-159	2.81	68	
o-Xylene	0.0984	0.0050	"	0.0986	ND	99.8	31-151	2.58	38	
Surrogate: 1,2-Dichloroethane-d4	0.0473		"	0.0392		121	23-173			
Surrogate: Toluene-d8	0.0393		"	0.0394		99.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0394		104	21-167			

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/04/14 09:01

Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 09, 2014

Daniel Wade
Noble Energy
804 Grand Avenue
Platteville, CO 80651
RE: Lockman 10-15I4

Enclosed are the results of analyses for samples received by Summit Scientific on 02/07/14 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW04	1402022-01	Water	02/07/14 11:30	02/07/14 16:30
GW05	1402022-02	Water	02/07/14 14:00	02/07/14 16:30
SS13@8'	1402022-03	Soil	02/07/14 11:15	02/07/14 16:30
SS14@8'	1402022-04	Soil	02/07/14 13:30	02/07/14 16:30
SS15@8'	1402022-05	Soil	02/07/14 13:35	02/07/14 16:30

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Client:	Tasman Geosciences	Project Manager:	<i>Don Wade</i>
Address:	6899 Peos Street	E-Mail:	
City/State/Zip:	Denver, CO 80221	Project Name:	<i>Leek man 10-15T4</i>
Phone:	(720) 988-2024	Project Number:	
Facx:			
Sampler Name:	<i>Bob Wade</i>		

[illegible]

www.s2scientific.com

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

GW04
1402022-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/07/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	17	1.0	ug/l	1	1402054	02/07/14	02/07/14	EPA 8260B	
Toluene	26	1.0	"	"	"	"	"	"	
Ethylbenzene	23	1.0	"	"	"	"	"	"	
Xylenes (total)	170	1.0	"	"	"	"	"	"	

Date Sampled: **02/07/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		89.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		100 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		116 %	45-146		"	"	"	"	

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

GW05
1402022-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/07/14 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1402054	02/07/14	02/07/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/07/14 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		88.4 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.7 %	45-146		"	"	"	"	

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

SS13@8'
1402022-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/07/14 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402056	02/07/14	02/07/14	8015M	

Date Sampled: **02/07/14 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		118 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/07/14 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402055	02/07/14	02/07/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/07/14 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

SS14@8'
1402022-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/07/14 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402056	02/07/14	02/07/14	8015M	

Date Sampled: **02/07/14 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		117 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/07/14 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402055	02/07/14	02/07/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/07/14 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

SS15@8'
1402022-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/07/14 13:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402056	02/07/14	02/07/14	8015M	

Date Sampled: 02/07/14 13:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/07/14 13:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402055	02/07/14	02/07/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 02/07/14 13:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402056 - EPA 3550A

Blank (1402056-BLK1)

Prepared & Analyzed: 02/07/14

C10-C28 (DRO) ND 50 mg/kg

LCS (1402056-BS1)

Prepared & Analyzed: 02/07/14

C10-C28 (DRO) 492 50 mg/kg 499 98.6 73-134

Matrix Spike (1402056-MS1)

Source: 1402022-03

Prepared & Analyzed: 02/07/14

C10-C28 (DRO) 405 50 mg/kg 485 40.5 75.1 50-148

Matrix Spike Dup (1402056-MSD1)

Source: 1402022-03

Prepared & Analyzed: 02/07/14

C10-C28 (DRO) 418 50 mg/kg 488 40.5 77.2 50-148 3.01 13

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402054 - EPA 5030 Water MS

Blank (1402054-BLK1)

Prepared & Analyzed: 02/07/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.2		96.7	37-154			
Surrogate: Toluene-d8	13.8		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.7	45-146			

LCS (1402054-BS1)

Prepared & Analyzed: 02/07/14

Benzene	38.0	1.0	ug/l	33.3		114	51-132			
Toluene	39.4	1.0	"	33.3		118	51-138			
Ethylbenzene	41.3	1.0	"	33.3		124	58-146			
m,p-Xylene	85.2	2.0	"	66.7		128	57-144			
o-Xylene	40.1	1.0	"	33.3		120	53-146			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.8	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.0	45-146			

Matrix Spike (1402054-MS1)

Source: 1402022-02

Prepared & Analyzed: 02/07/14

Benzene	41.4	1.0	ug/l	33.3	ND	124	34-141			
Toluene	42.6	1.0	"	33.3	ND	128	27-151			
Ethylbenzene	44.4	1.0	"	33.3	ND	133	29-160			
m,p-Xylene	90.3	2.0	"	66.7	ND	135	20-166			
o-Xylene	43.1	1.0	"	33.3	ND	129	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.8		"	13.2		88.9	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.3	45-146			

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402054 - EPA 5030 Water MS

Matrix Spike Dup (1402054-MSD1)			Source: 1402022-02		Prepared & Analyzed: 02/07/14					
Benzene	41.5	1.0	ug/l	33.3	ND	125	34-141	0.289	32	
Toluene	42.8	1.0	"	33.3	ND	129	27-151	0.656	25	
Ethylbenzene	44.9	1.0	"	33.3	ND	135	29-160	1.14	50	
m,p-Xylene	92.4	2.0	"	66.7	ND	139	20-166	2.28	36	
o-Xylene	44.2	1.0	"	33.3	ND	133	33-159	2.54	26	
Surrogate: 1,2-Dichloroethane-d4	11.8		"	13.2		88.9	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		99.8	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.4	45-146			

Batch 1402055 - EPA 5030 Soil MS

Blank (1402055-BLK1)			Prepared & Analyzed: 02/07/14							
Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0431		"	0.0395		109	23-173			
Surrogate: Toluene-d8	0.0390		"	0.0398		97.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0423		"	0.0398		106	21-167			

LCS (1402055-BS1)			Prepared & Analyzed: 02/07/14							
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.110	0.0020	"	0.0989		111	58-130			
Toluene	0.111	0.0050	"	0.0992		112	61-134			
Ethylbenzene	0.124	0.0050	"	0.0984		126	74-139			
m,p-Xylene	0.245	0.010	"	0.198		123	73-137			
o-Xylene	0.126	0.0050	"	0.0980		129	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0394		106	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0397		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0397		103	21-167			

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402055 - EPA 5030 Soil MS

Matrix Spike (1402055-MS1)

Source: 1402022-03

Prepared & Analyzed: 02/07/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.109	0.0020	"	0.0957	ND	113	30-131			
Toluene	0.111	0.0050	"	0.0960	ND	116	30-134			
Ethylbenzene	0.120	0.0050	"	0.0952	ND	126	22-153			
m,p-Xylene	0.240	0.010	"	0.192	ND	125	10-159			
o-Xylene	0.122	0.0050	"	0.0948	ND	129	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0442		"	0.0381		116	23-173			
Surrogate: Toluene-d8	0.0383		"	0.0384		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0384		105	21-167			

Matrix Spike Dup (1402055-MSD1)

Source: 1402022-03

Prepared & Analyzed: 02/07/14

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.107	0.0020	"	0.0966	ND	110	30-131	1.75	34	
Toluene	0.107	0.0050	"	0.0969	ND	110	30-134	3.84	30	
Ethylbenzene	0.119	0.0050	"	0.0961	ND	124	22-153	0.899	24	
m,p-Xylene	0.240	0.010	"	0.194	ND	124	10-159	0.0133	68	
o-Xylene	0.124	0.0050	"	0.0957	ND	130	31-151	1.60	38	
Surrogate: 1,2-Dichloroethane-d4	0.0454		"	0.0385		118	23-173			
Surrogate: Toluene-d8	0.0381		"	0.0388		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0388		104	21-167			

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/09/14 22:03

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

A handwritten signature in black ink, appearing to be 'JMM'.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 25, 2014

Daniel Wade
Noble Energy
804 Grand Avenue
Platteville, CO 80651
RE: Lockman 10-15I4

Enclosed are the results of analyses for samples received by Summit Scientific on 02/24/14 17:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	1402126-01	Water	02/24/14 10:48	02/24/14 17:45
SSN5-5	1402126-02	Soil	02/24/14 15:00	02/24/14 17:45
SSN2-5	1402126-03	Soil	02/24/14 09:30	02/24/14 17:45
SSS4-5	1402126-04	Soil	02/24/14 11:03	02/24/14 17:45
SSS6-2.5	1402126-05	Soil	02/24/14 14:25	02/24/14 17:45

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

Summit Scientific 1/402/26

741 Corporate Circle, Suite J&K • Golden, Colorado 80401
303-277-9310 • 303-374-5933

Client: Noble Energy / P&S/HAM
Address: _____
City/State/Zip: _____
Phone: _____
Project Manager: Daniel Wade
E-Mail: _____
Project Name: LOCKMAN 10-15I4
Project Number: 1010-80-9865

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested	Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)		
1	GIA01	2/24/14	1045	1										
2	SS15-5	2/24/14	1500	1										
3	SS18-85 (2)	2/24/14	0930	1										
4	SS14-5	2/24/14	1103	1										
5	SS15-5-A	2/24/14	1445	1										
6	SS16-25													
7														
8														
9														
10														

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
GEE	2/24/14 17:45		7/24/14 17:45	Same Day 72 hours 24 hours 48 hours	59
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	Temperature upon Receipt:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Intact: Yes No	

www.s2scientific.com

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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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

GW01
1402126-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/24/14 10:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	13	1.0	ug/l	1	1402161	02/24/14	02/24/14	EPA 8260B	
Toluene	22	1.0	"	"	"	"	"	"	
Ethylbenzene	4.2	1.0	"	"	"	"	"	"	
Xylenes (total)	38	1.0	"	"	"	"	"	"	

Date Sampled: **02/24/14 10:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.4 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.3 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.8 %	45-146		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

SSN5-5
1402126-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/24/14 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	420	50	mg/kg	1	1402160	02/24/14	02/24/14	8015M	

Date Sampled: 02/24/14 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/24/14 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.57	0.010	mg/kg	1	1402159	"	02/24/14	EPA 8260B	
Benzene	0.12	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.40	0.0050	"	"	"	"	"	"	
Xylenes (total)	7.2	0.10	"	10	"	"	02/24/14	"	
Gasoline Range Hydrocarbons	760	5.0	"	"	"	"	02/24/14	"	

Date Sampled: 02/24/14 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		161 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		447 %	21-167		"	"	"	"	S-02

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

SSN2-5
1402126-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/24/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402160	02/24/14	02/24/14	8015M	

Date Sampled: **02/24/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/24/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402159	"	02/24/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.78	0.50	"	"	"	"	"	"	

Date Sampled: **02/24/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

SSS4-5
1402126-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/24/14 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402160	02/24/14	02/24/14	8015M	

Date Sampled: **02/24/14 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/24/14 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402159	"	02/24/14	EPA 8260B	
Benzene	0.0034	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/24/14 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	21-167		"	"	"	"	

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

SSS6-2.5
1402126-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/24/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	310	50	mg/kg	1	1402160	02/24/14	02/24/14	8015M	

Date Sampled: **02/24/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/24/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.094	0.010	mg/kg	1	1402159	"	02/24/14	EPA 8260B	
Benzene	0.0047	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.022	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.25	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	32	0.50	"	"	"	"	"	"	

Date Sampled: **02/24/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402160 - EPA 3550A

Blank (1402160-BLK1)

Prepared & Analyzed: 02/24/14

C10-C28 (DRO) ND 50 mg/kg

LCS (1402160-BS1)

Prepared & Analyzed: 02/24/14

C10-C28 (DRO) 411 50 mg/kg 495 83.0 73-134

Matrix Spike (1402160-MS1)

Source: 1402121-01

Prepared & Analyzed: 02/24/14

C10-C28 (DRO) 3200 50 mg/kg 491 652 50-148 QM-4X

Matrix Spike Dup (1402160-MSD1)

Source: 1402121-01

Prepared & Analyzed: 02/24/14

C10-C28 (DRO) 3170 50 mg/kg 492 643 50-148 1.19 13 QM-4X

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402159 - EPA 5030 Soil MS

Blank (1402159-BLK1)

Prepared & Analyzed: 02/24/14

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0381		"	0.0377	101	23-173				
Surrogate: Toluene-d8	0.0363		"	0.0380	95.6	20-170				
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0380	102	21-167				

LCS (1402159-BS1)

Prepared & Analyzed: 02/24/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0807	0.0020	"	0.0974	82.9	58-130				
Toluene	0.0877	0.0050	"	0.0977	89.8	61-134				
Ethylbenzene	0.0985	0.0050	"	0.0969	102	74-139				
m,p-Xylene	0.195	0.010	"	0.195	100	73-137				
o-Xylene	0.0975	0.0050	"	0.0965	101	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0385		"	0.0388	99.3	23-173				
Surrogate: Toluene-d8	0.0381		"	0.0391	97.5	20-170				
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0391	98.9	21-167				

Matrix Spike (1402159-MS1)

Source: 1402121-01

Prepared & Analyzed: 02/24/14

Naphthalene	0.230	0.010	mg/kg		0.145		10-158			
Benzene	0.0851	0.0020	"	0.0950	0.00711	82.1	30-131			
Toluene	0.275	0.0050	"	0.0952	0.151	131	30-134			
Ethylbenzene	0.475	0.0050	"	0.0945	0.290	196	22-153			QM-07
m,p-Xylene	2.07	0.010	"	0.190	1.42	340	10-159			QM-07
o-Xylene	0.997	0.0050	"	0.0941	0.669	349	31-151			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0404		"	0.0378		107	23-173			
Surrogate: Toluene-d8	0.0560		"	0.0381		147	20-170			
Surrogate: 4-Bromofluorobenzene	0.112		"	0.0381		294	21-167			S-02

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402159 - EPA 5030 Soil MS

Matrix Spike Dup (1402159-MSD1)	Source: 1402121-01			Prepared & Analyzed: 02/24/14						
Naphthalene	0.119	0.010	mg/kg		0.145		10-158	63.8	42	QM-07
Benzene	0.0840	0.0020	"	0.0953	0.00711	80.6	30-131	1.31	34	
Toluene	0.199	0.0050	"	0.0956	0.151	50.5	30-134	32.1	30	QM-07
Ethylbenzene	0.339	0.0050	"	0.0948	0.290	51.0	22-153	33.5	24	QM-07
m,p-Xylene	1.40	0.010	"	0.191	1.42	NR	10-159	38.4	68	QM-07
o-Xylene	0.687	0.0050	"	0.0945	0.669	19.2	31-151	36.8	38	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0408		"	0.0380		108	23-173			
Surrogate: Toluene-d8	0.0408		"	0.0382		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0851		"	0.0382		222	21-167			S-02

Summit Scientific

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.



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 06:26

Notes and Definitions

S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

QM-4X The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 25, 2014

Daniel Wade
Noble Energy
804 Grand Avenue
Platteville, CO 80651
RE: Lockman 10-15I4

Enclosed are the results of analyses for samples received by Summit Scientific on 02/25/14 16:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager

Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 21:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SSN6-4.5	1402141-01	Soil	02/25/14 11:00	02/25/14 16:55

[illegible]



Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 21:35

SSN6-4.5
1402141-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/25/14 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402170	02/25/14	02/25/14	8015M	

Date Sampled: 02/25/14 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/25/14 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.023	0.010	mg/kg	1	1402169	02/25/14	02/25/14	EPA 8260B	
Benzene	0.017	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.0089	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.10	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.99	0.50	"	"	"	"	"	"	

Date Sampled: 02/25/14 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Summit Scientific

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 21:35

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402170 - EPA 3550A

Blank (1402170-BLK1)

Prepared & Analyzed: 02/25/14

C10-C28 (DRO) ND 50 mg/kg

LCS (1402170-BS1)

Prepared & Analyzed: 02/25/14

C10-C28 (DRO) 533 50 mg/kg 488 109 73-134

Matrix Spike (1402170-MS1)

Source: 1402132-01

Prepared & Analyzed: 02/25/14

C10-C28 (DRO) 548 50 mg/kg 490 ND 112 50-148

Matrix Spike Dup (1402170-MSD1)

Source: 1402132-01

Prepared & Analyzed: 02/25/14

C10-C28 (DRO) 554 50 mg/kg 487 ND 114 50-148 1.12 13

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 21:35

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402169 - EPA 5030 Soil MS

Blank (1402169-BLK1)

Prepared & Analyzed: 02/25/14

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0379		"	0.0395	96.0	23-173				
Surrogate: Toluene-d8	0.0379		"	0.0398	95.2	20-170				
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0398	96.1	21-167				

LCS (1402169-BS1)

Prepared & Analyzed: 02/25/14

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.00758	0.0020	"	0.00890	85.1	58-130				
Toluene	0.00821	0.0050	"	0.00893	92.0	61-134				
Ethylbenzene	0.00915	0.0050	"	0.00886	103	74-139				
m,p-Xylene	0.0184	0.010	"	0.0179	103	73-137				
o-Xylene	0.00909	0.0050	"	0.00882	103	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.00352		"	0.00354	99.3	23-173				
Surrogate: Toluene-d8	0.00345		"	0.00357	96.7	20-170				
Surrogate: 4-Bromofluorobenzene	0.00351		"	0.00357	98.2	21-167				

LCS (1402169-BS2)

Prepared & Analyzed: 02/25/14

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0808	0.0020	"	0.0966	83.6	58-130				
Toluene	0.0874	0.0050	"	0.0969	90.2	61-134				
Ethylbenzene	0.0997	0.0050	"	0.0961	104	74-139				
m,p-Xylene	0.200	0.010	"	0.194	103	73-137				
o-Xylene	0.0976	0.0050	"	0.0957	102	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0365		"	0.0385	95.0	23-173				
Surrogate: Toluene-d8	0.0369		"	0.0388	95.1	20-170				
Surrogate: 4-Bromofluorobenzene	0.0376		"	0.0388	97.0	21-167				

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Noble Energy
804 Grand Avenue
Platteville CO, 80651

Project: Lockman 10-15I4
Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 21:35

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402169 - EPA 5030 Soil MS

Matrix Spike (1402169-MS1)

Source: 1402132-01

Prepared & Analyzed: 02/25/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0829	0.0020	"	0.0974	ND	85.2	30-131			
Toluene	0.0896	0.0050	"	0.0977	ND	91.7	30-134			
Ethylbenzene	0.101	0.0050	"	0.0969	ND	104	22-153			
m,p-Xylene	0.204	0.010	"	0.195	ND	105	10-159			
o-Xylene	0.102	0.0050	"	0.0965	ND	105	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0388		103	23-173			
Surrogate: Toluene-d8	0.0377		"	0.0391		96.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0391		98.2	21-167			

Matrix Spike (1402169-MS2)

Source: 1402145-01

Prepared & Analyzed: 02/25/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0766	0.0020	"	0.0920	ND	83.3	30-131			
Toluene	0.0845	0.0050	"	0.0923	ND	91.6	30-134			
Ethylbenzene	0.0939	0.0050	"	0.0915	ND	103	22-153			
m,p-Xylene	0.192	0.010	"	0.185	ND	104	10-159			
o-Xylene	0.0943	0.0050	"	0.0911	ND	103	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0378		"	0.0366		103	23-173			
Surrogate: Toluene-d8	0.0356		"	0.0369		96.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0356		"	0.0369		96.5	21-167			

Matrix Spike Dup (1402169-MSD1)

Source: 1402132-01

Prepared & Analyzed: 02/25/14

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0802	0.0020	"	0.0961	ND	83.5	30-131	3.36	34	
Toluene	0.0877	0.0050	"	0.0963	ND	91.0	30-134	2.08	30	
Ethylbenzene	0.0964	0.0050	"	0.0956	ND	101	22-153	4.52	24	
m,p-Xylene	0.198	0.010	"	0.193	ND	103	10-159	3.44	68	
o-Xylene	0.0979	0.0050	"	0.0952	ND	103	31-151	3.69	38	
Surrogate: 1,2-Dichloroethane-d4	0.0407		"	0.0382		106	23-173			
Surrogate: Toluene-d8	0.0374		"	0.0385		97.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0385		98.0	21-167			

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Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 21:35

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1402169 - EPA 5030 Soil MS

Matrix Spike Dup (1402169-MSD2)		Source: 1402145-01			Prepared & Analyzed: 02/25/14					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0803	0.0020	"	0.0939	ND	85.5	30-131	4.65	34	
Toluene	0.0875	0.0050	"	0.0942	ND	93.0	30-134	3.48	30	
Ethylbenzene	0.0977	0.0050	"	0.0934	ND	105	22-153	4.01	24	
m,p-Xylene	0.198	0.010	"	0.188	ND	105	10-159	3.34	68	
o-Xylene	0.0991	0.0050	"	0.0930	ND	106	31-151	4.94	38	
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0374		104	23-173			
Surrogate: Toluene-d8	0.0367		"	0.0377		97.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0364		"	0.0377		96.7	21-167			

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Platteville CO, 80651

Project: Lockman 10-15I4

Project Number: [none]
Project Manager: Daniel Wade

Reported:
02/25/14 21:35

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

A handwritten signature in black ink, appearing to be 'JMM'.